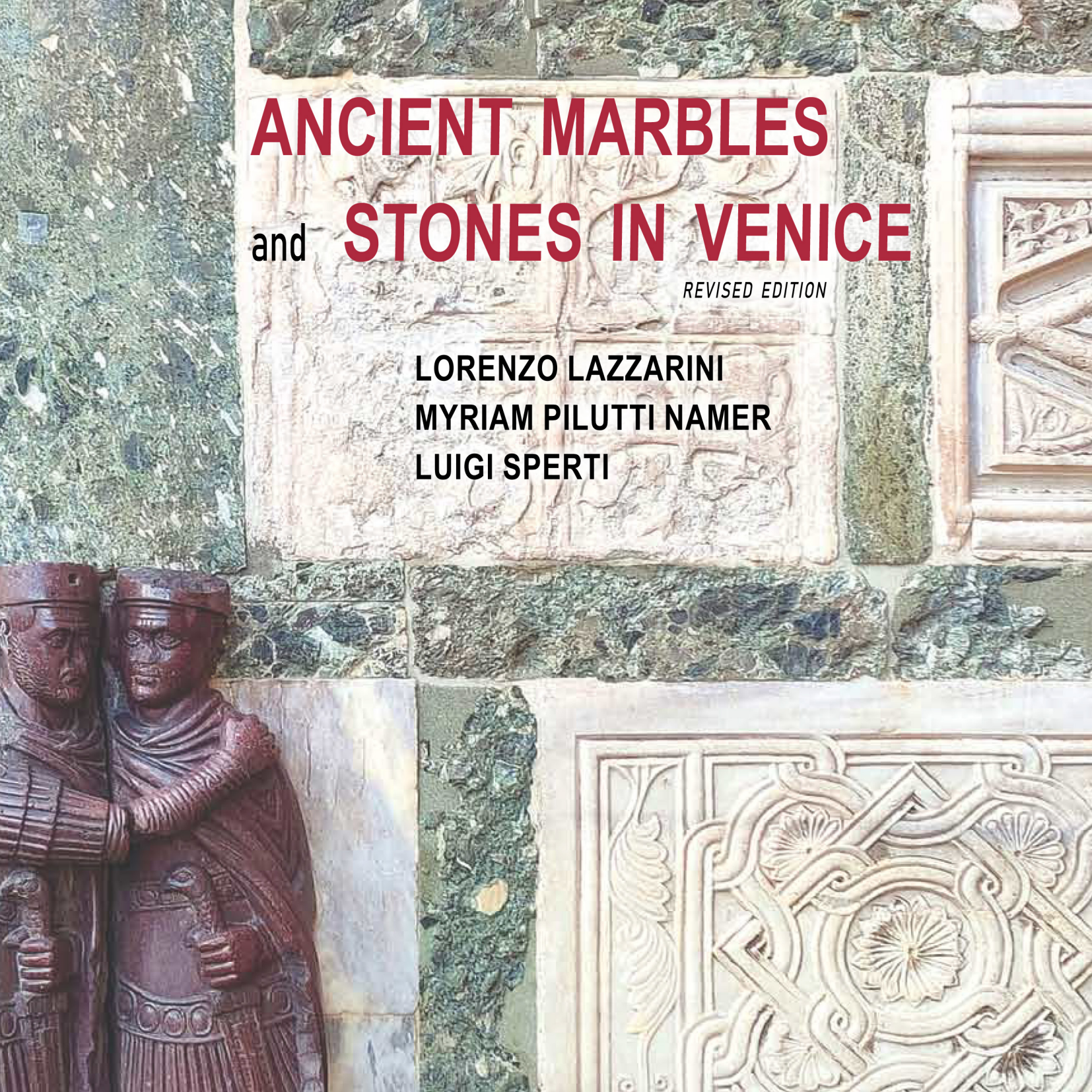




ANCIENT MARBLES and STONES IN VENICE

REVISED EDITION

LORENZO LAZZARINI
MYRIAM PILUTTI NAMER
LUIGI SPERTI

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Cover:

Detail of the south corner of the Basilica of St. Mark, featuring portions of the porphyritic statues of the Tetrarchs along with slabs of verde antico and Proconnesian marble

(Photo: Ruggero Rugolo).



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ANCIENT MARBLES AND STONES IN VENICE

ARCHITECTURE – SCULPTURE – REUSE

FROM ANTIQUITY TO THE BAROQUE

REVISED EDITION

Venice

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Some contents of this volume originally appeared in Italian and have been extensively revised, updated, and partially rewritten for translation into American English. In particular, Luigi Sperti's chapters, titled "Marble Trade between the Eastern Mediterranean and Venice" and "The Most Ancient Roman Capitals Reused in the Basilica of St. Mark in Venice: Chronology and Provenance", are derived from the following sources: the article "I viaggi dei marmi", which appeared in *Lezioni Marciane 2015-2016. Venezia prima di Venezia, dalle 'regine' dell'Adriatico alla Serenissima*, edited by Maddalena Bassani and Marco Molin (Rome 2019, pp. 53-98), and the chapter "Osservazioni sulla cronologia e la provenienza dei capitelli più antichi reimpiegati nella basilica di San Marco a Venezia", which appeared in *Archeologia classica e postclassica tra Italia e Mediterraneo. Scritti in ricordo di Maria Pia Rossignani*, edited by Silvia Lusuardi Siena, Claudia Perassi, Furio Sacchi, and Marco Sannazaro (Milan 2016, pp. 285-296). Additionally, Lorenzo Lazzarini's chapter "On Proconnesian Marble and its reuse in Venice" is based on the chapter "Il reimpiego del marmo proconnesio", published in the volume *Pietre di Venezia. Spolia in se, spolia in re*, edited by Monica Centanni and Luigi Sperti (Rome 2015, pp. 135-157). Finally, two of Lazzarini's chapters, "Ancient marbles and stones in the inner pavement of the Basilica of St. Mark, with Catalogs 1 and 2" and "Of some unpublished and rare stones from the Basilica of St. Mark in Venice", are derived from the book chapters "I marmi e le pietre del pavimento marciano" and "Di alcune pietre inedite e rare della basilica di San Marco a Venezia". The former appeared in *Il manto di pietra della basilica di San Marco a Venezia. Storia, restauri, geometrie del pavimento*, edited by Ettore Vio (Venice 2012, pp. 51-107), and the latter in *Hadriatica. Scritti in onore di Wladimiro Dorigo*, edited by Ennio Concina, Giordana Trovabene, and Michela Agazzi (Padua 2002, pp. 107-115).

As we submit the final version of this book to the editor, we recognize that the list of individuals and institutions deserving acknowledgment is remarkably extensive. We would therefore like to express our heartfelt gratitude to everyone who contributed to the creation and revision of this volume. Your invaluable support has been instrumental in helping us navigate the challenges posed by this interdisciplinary and multidisciplinary project. We hope we have successfully addressed these challenges; any errors or shortcomings remain solely the responsibility of the Authors.

Preface

This book is being published almost two centuries after John Ruskin's three-volume work *The Stones of Venice* (1851-1853), a highly influential text that has been translated into numerous languages worldwide. Ruskin's primary aim was to examine the development of Venetian civilization through an analysis of its surviving architectural and artistic elements, which he referred to as "the stones". By focusing on these elements, Ruskin demonstrated a keen awareness of the historical and social consequences of the fall of the Serenissima Republic of Venice in 1797, which resulted in the widespread dispersal of its tangible heritage. Simultaneously, Ruskin pioneered a new approach to the archaeological study of Venice, aiming to uncover the city's essence by examining its architectural evidence.

This volume seeks to fulfill Ruskin's aspiration without attempting to provide a comprehensive art critique of Venetian civilization. Instead, it explores Venetian monuments through the lens of material culture, with a particular focus on identifying and interpreting the lithic materials used in both private and public buildings, whether as exterior or interior architectural elements or as ornamental sculpture. The first section of the book begins with an introductory chapter by the present writer on the reuse of architectural sculpture in Venice from Late Antiquity through the Middle Ages. In the second chapter, Luigi Sperti examines the sources of stone and marble supply, along with the reuse of notable ancient Greek and Roman sculptures (*spolia*) in medieval and modern Venice. The third

chapter, by Lorenzo Lazzarini, introduces Proconnesian marble, which was the most widely used ancient marble in Venice during the Middle Ages. He also presents an updated catalog of columns installed in private and public buildings.

The second section of the book is dedicated to an in-depth analysis of the Basilica of St. Mark, which represents the most significant example of reused ancient stones and marbles in Venice, as well as one of the most notable worldwide, due to the remarkable diversity of materials employed in its ornamentation. The essays included here offer a diverse interpretation of the building itself, presenting original evidence that prompts readers to consider aspects related to the architectural plan, such as the display of architectural sculpture on the facades and the lithotypes selected for composing the floor. The opening chapter by Luigi Sperti focuses on the scarce number of ancient Roman capitals found on the Basilica. The following chapter by Lorenzo Lazzarini provides a comprehensive examination of the floor, identifying the lithotypes documen-

ted in each section and offering an extensive survey of both ancient and modern stones and marbles used. In the final chapter, also authored by Lazzarini, the focus shifts to three exceptionally rare marbles and stones utilized in select furnishings within the building.

This volume is the culmination of decades of research in classical archaeology and applied petrography, employing various methodological approaches and reflecting the diverse expertise of its contributors. Furthermore, the preparation of this book required addressing both intercultural and linguistic challenges. On the first point, it is crucial to acknowledge the significant shifts in the interpretation of European history in recent years, particularly the reassessment of Classical Antiquity's impact on both the past and present. In the context of Venice, material culture shows that the legacy of Antiquity has played a pivotal role. Indeed, it could be argued that the Venetians' continuous search for ancient building and decorative materials has helped it become the monumental city we admire today. Re-

garding the second point, the authors faced the challenge of ensuring appropriate technical terminology was consistent with the overarching vision of the book, which is to present a comprehensive volume employing innovative methodologies to interpret Venetian heritage through the reuse of ancient stones and marbles. This task was further complicated by the need to adapt content originally developed in Italian by multilin-

gual authors for an international audience. We chose to use English as a *lingua franca*, a common practice among scholars today, to present the Italian tradition in the humanities to a broader audience. This decision was made with the goal of more effectively disseminating knowledge about the extraordinary and vulnerable heritage of Venice, a city whose future remains uncertain over the next two centuries.

Venice, 11 September 2024

MYRIAM PILUTTI NAMER

Part One - SPOLIA



PT 1 - Chapter 1

Reuse and Reworking of 'Ancient' Stones in Venice

MYRIAM PILUTTI NAMER

1. *Reuse practices in ancient Roman and medieval times: the state of the art*

In recent years the topic of the reuse of materials in Antiquity and post-Antiquity has flourished as never before, corroborated by extensive dissemination at the international level.¹ Recently, moreover, English-speaking literature offered a new key to understanding the phenomenon destined to break consolidated interpretive patterns within *spolia* studies thanks to the volume edited by C. N. Duckworth and A. Wilson, *Recycling and reuse in the Roman economy* (Oxford University Press, 2020). Indeed, this collected work, a collection of papers presented at a conference held at All Souls College in Oxford in 2017, aims to reinterpret reuse practices by considering each class of materials and every aspect of social and economic life for the entire Roman age. Therefore, the horizon of study broadens to consider all processes that involved reuse practices, insinuating a reversal of perspective as regards major and problematic relevance such as the identification of this practice as a defining feature of the whole Roman civilization, rather than limited only to the late centuries.² In putting forward this proposal, Duckworth and Wilson focus their research on the plurality of social actors involved in production

Fig. 1 - Fragment of a 1st century CE inscription, reused and reworked in the mid-6th century CE, before being reused as building material in the construction of the bell tower of St. Mark.

processes and in settlement dynamics, de facto confirming the methodological approach put forward by the American scholar J. Frey who, in reviewing the terms of the interpretive question on *spolia*, suggests the theory of “agency” as the model to be followed.³

However, Italian scholarship has so far shown little inclination to move beyond the dichotomy between the interpretation of the phenomenon as exclusively functional, as expressed in particular by P. Liverani,⁴ or as an expression of a researched and conscious relationship with Antiquity, even by contrast, as argued throughout his entire scholarly production by S. Settis, a pioneer of *spolia* studies in the country.⁵

Indeed, reuse practices are challenging to interpret because they affect the whole of society, whether in the characteristics of each settlement or its value aspects, requiring in-depth multidisciplinary knowledge in order to understand them comprehensively. Following on the heels of the proposal made by Duckworth and Wilson, and since the topic is currently highly relevant in Western societies, it can be assumed that the interpretive model they propose, which calls for a radical reconsideration of Roman archaeology, is destined

to gain some traction, influencing the interpretation of excavation data and progressively deconstructing the helpful simplifications offered by traditional research in the diverse fields related to the imperial standardised productions of material culture.

While reuse practices provide an excellent arena of applying the theory of “agency,” it is equally true, however, that establishing reliable chronologies, and thus gaining detailed knowledge of dating classes of materials, is essential for conducting research as consistent as possible within a field, that of *spolia* studies, where mystifications and errors are quite common due to the complexity of the multidisciplinary issues we face on a case-by-case basis. That is why accepting a certain extent of “unpredictability,” as J. Frey proposes, is common-sense advice, leading us to understand and accept that for the Romans diversification (*varietas*) was as much a value as seriality, and that this diversification was dictated by the environmental features of each settlement.

It is therefore correct, as proposed by Frey and recently applied by E. Cirelli for Ravenna⁶ and for Palmyra in Roman times by N. Andrade and R. Raja,⁷ to offer arguments about

reuse practices on a regional scale, so that these can be compared with each other.

So far, this approach has seldom been adopted in preference to the analysis of individual case studies: this is due both to the difficulty of carrying out comprehensive investigations in the field of *spolia* studies and to the long-term tradition of studies of types of archaeological materials, which in several cases exceeds a century and which has only recently expanded to include reworking processes.⁸ Therefore, the challenge for future studies in this field consists in combining the two approaches with an equal degree of thoroughness, without neglecting the fortune that some *spolia* in particular have had in the post-antique age, in turn contributing to the fame of the Romans, currently still widespread globally. In conclusion, we need to be able to discern without posing a conflict between the different levels of in-depth study of the subject, without neglecting the detailed analysis of material culture (or consciously placing it in the background), including the reworking processes that are often the best *trait d'union* of the different stages of the lifetime of each artefact.

1.1. *Venice: a regional case study?*

Although by now fully developed, the current state of research on the reuse of ancient sculpture in medieval Venice has still not provided a comprehensive interpretive framework. Since Luigi Sperti's pioneering studies, which started in the 1990s,⁹ much ground has been covered and the topic has accrued uninterrupted academic growth in both national and international circles; it has now opened up to epigraphic studies and spans different chronologies, thus intercepting the early Middle Ages as well, thanks to research on reworkings and an in-depth knowledge of the production system of architectural sculpture from the Roman imperial age (in the West and the East) to the Middle-Byzantine era where, in addition to the emerging Venice, even the Islamic civilization is marked by an intensive reuse of ancient materials.¹⁰

Due to the lacunae of the documentation and the complexity of the settlement dynamics of the *Venetia* between the ancient Roman and early Middle Ages, the topic has not yet been addressed on a regional scale. The "unpredictability" Frey writes about is, indeed, particularly

relevant for Venice and several aspects contribute to this ‘unpredictability’ of the attestations of the phenomenon of reuse of materials. Foremost is the methodological approach, which must be multidisciplinary and rooted in the broader conception of cultural history. Indeed, reuse practices are dictated by cultural attitudes that should not be taken for granted even if detecting them in archaeological practice is commonplace. Among the world’s many ancient ‘water cities’, in fact, only Venice achieved monumental dimensions that made it a global icon. *The Stones of Venice* is more than just a successful old volume by a romantic and visionary art critic; it constitutes the very essence of the city because over the centuries the Venetians, by express intention, aimed to transform their environment into a highly conservative urban complex with well-defined characteristics. To some extent, it can be said that it is precisely in this highly evident collective process in the pursuit of a common will, marked by the urge – enduring over the centuries – for monumentalism of public and private spaces, that the answers to the lacunarity of the documentary and archaeological sources must be sought.

Of course, this does not mean devaluing

archaeological research by simplifying its complexity or underestimating its necessity, nor does it mean diminishing the chronachistic tradition which, in its ‘Chinese boxes’, still exerts its evocative power and fascination when we read of the umpteenth anachronistic attempt to establish Venice as a ‘ancient’ city¹¹. After all, Venice evolved from the 9th century onwards as a successful ‘synthesis’ civilization, composed of a heterogeneous set of people, or more likely groups of people, who settled on lands in part no doubt known to them and frequented for centuries.¹² This process constituted the most pronounced societal, and therefore residential, outcome of the progressive abandonment of the urban centers of ancient Roman times, or those connected to them, which were located inland, towards new, increasingly populous settlements in the lagoon.¹³ Needless to say, these settlements had their own features, closely linked to the environment in which they arose; mostly consisting of perishable materials, these settlements left sporadic traces.¹⁴ However, with regard to reuse practices, it is very likely that many of these same materials were reused. We also know that as early as the High Middle Ages there are records of stone and marble ar-

tefacts (such as, for instance, inscriptions) that were reused in the foundations of some buildings, such as the Basilica of St. Maria Assunta in Torcello¹⁵ and the Basilica and bell tower of St. Mark's.¹⁶ It is highly likely that other materials such as bricks, but also glass and ceramic fragments, were used for construction purposes in land embankments, foundations or elevations. At present this framework, which is still partly hypothetical but fully plausible, does not allow us to answer important questions that have been expressed by several scholars, mostly in recent years. Where did the reused materials come from? On which ships did they reach the lagoon?¹⁷ How were the spoliations organized? Were they part of a scale economy? While not all questions can be answered, research has, nevertheless, reached several milestones in the last decades.

1.2. *Where did the reuse materials come from?*

The traditional answer to this question has been that they come from the ancient Roman centers of the hinterland; thus, from the

spoliation of necropolar areas and public and private architecture, and in particular from *Altinum*, the site closest to Venice. It goes without saying that the current state of conservation of the city, with the whole Roman settlement deserted, would seem to corroborate the suggestion. Nevertheless, this appears to be especially true in the relationship between *Altinum* and the settlement of Torcello. Recent studies on inscriptions, a class of material that is very useful for establishing chronologies and provenances of findings, showed that there are more than 150 inscriptions attested in Venice and the lagoon, of which a large number come from *Altinum*.¹⁸

This research has also proven that some artefacts come from *Ateste* (to be used, for instance, in the foundation stone of the bell tower of St. Mark's), possibly from the dismantling of necropolar areas.¹⁹ The inscriptions thus prove to be of special interest in qualitatively assessing the practices of reuse of lithic material between the 8th and 10th centuries, and should be interpreted alongside the importation of limestone or marble blocks, especially Proconnesian, which were reworked to serve a variety of purposes in architectural sculpture.²⁰

1.3. *How were the spoliations organized?*

So far, this question has remained unanswered. However, studies carried out on cases ranging between the 4th and 7th centuries CE, such as in Ostia in relation to Rome,²¹ or in Campetti in relation to the Veio plateau,²² or in Classe with regard to Ravenna,²³ or in selected cases of *villae*²⁴ or even in Aquileia,²⁵ Aphrodisia²⁶ and Leptis Magna,²⁷ suggest that the system must have been adequately organized, involving warehouses, patrons, planners and teams of workers at work (perhaps itinerant) in the eventual dismantling at the site of origin of the materials, as well as in the storage, transporting and reuse at the place of destination. This process probably entailed a tight relationship between planners and workers,²⁸ which it is easier to envision as regulated by a public authority, and it is not possible to exclude that it involved primarily slave labor at work: these are aspects of social history that are hard to investigate and which we are far from giving a comprehensive answer to. In Venice, public authorities – whether religious or secular – and family groups acting in the collective interest were probably involved at some level in the prac-

tices of reuse. However, what is particularly difficult to establish is whether we can also detect such mechanisms in the lagoon as already observed at other sites, which provide for a direct relationship between the despoiled site and that of the destination of the reused materials. In the case of Venice, we do not know of any case in which this relationship is an exclusive one, not even between *Altinum* and Torcello.²⁹ In addition, there are several cases in the lagoon where we find materials reused for the third or even fourth time.³⁰ These remarks would suggest that by the time the Venetian civilization started its expansion, in the 9th century, the Roman centers in the hinterland had all to a great extent been already despoiled, that the materials had already been reused several times, and that the marble had mostly already been turned into lime. This is not surprising, since this is in an area where – if we consider the entire *Venetia et Histria* – the succession of warlike events, clashes and incursions of peoples and armies had occurred almost uninterruptedly from the 3rd to the 8th century CE,³¹ to the extent that it would perhaps be more accurate to interpret its settlement dynamics with the methodology adopted by archaeology under-

taken in areas affected by recurrent centuries of social and economic crisis.³² In addition, from the late 6th century, much of the hinterland was also, at least in part, more difficult to access because of the presence first of the Lombards and then of the Carolingians. All these considerations can explain why the traces of thousands of cubic meters of stone and marble (let us bear in mind that in the sole *Altinum* today more than 2,000 tombs built between the Augustan age and the 1st century CE are still preserved)³³ seem to have disappeared. Whilst we may assume that some of these materials are to be found in the foundations of Venetian buildings, we cannot, however, exclude the possibility that a large part of them was no longer available. Perhaps they had been used to build fortifications and defensive works that have not been conserved, and probably also in Venice where, as soon as technology and wealth made this possible, from the 11th century, the import of building materials from the ruined sites of the Adriatic and the Mediterranean became more intensive. Such practice makes it hard to detect definite and well-known case studies, investigated with up-to-date and appropriate scien-

tific methodology, on which to establish reliable comparisons. The most interesting case is perhaps the massive reuse of reused *tesserae*, of the widest variety of provenance and datable between the 4th and 7th centuries, alongside the use of purpose-made tesserae, in the creation of the wall mosaics of the first church of San Nicolò del Lido, which has been dated within the first half of the 11th century both from documentary sources and on the basis of archaeological materials.³⁴ A water city like hundreds of others made its own way towards monumentality, setting as its model the great ancient Roman cities of the past, first and foremost Ravenna – likewise a water city – and Constantinople, facing the sea on two sides.³⁵ The intense reliance on reuse practices, and indeed, having applied them to design and construct a building such as the Basilica of St. Mark in its diverse stages, led the Venetians to establish a developed economy hinged on recycling ancient materials and fueled by flourishing mercantile activities.

The building techniques, progressively acquired and tested over the centuries of the early Middle Ages,³⁶ underwent constant development over time without losing their

conservative traits. This is an element that further complicates the investigation of reuse practices, that were still nearly identical, despite the change in trends, throughout the Renaissance³⁷ and even in the 19th century, when more than six hundred stonemasons were attested in the city working at the demolition, reuse and ‘restoration’ of Venetian buildings.³⁸

2. *Landscape of ruins. Literary sources on reuse practices in early medieval Venice*

The point of interest here is to extract the (few) literary sources that enable us to trace the practices of reuse of ancient materials as a distinct element of Venetian civilization since the early Middle Ages.³⁹ Indeed, it is in the ninth century that we can track down the few literary sources that give us a sense of the Venetians’ state of awareness regarding reusing ancient materials in their settlement, and an assessment of the intentionality of such reuse.

The hunger for stones was such that those who owned them, stockpiled on their lands on the mainland, could either donate them or

bequeath them. In order to understand this practice, we have at our disposal meaningful, albeit few, literary sources. The first consists of the well-known and much-discussed will of Giustiniano Partecipazio,⁴⁰ dated between 828 and 829 CE, where, leaving the land on which the Basilica of St. Mark was to be erected (after the *translatio* of the saint’s body), the doge takes care that “*de petra, que habemus in Equilo, compleatur hedifficia monasterii sancti Illarii*”, whereas “*quidquid exinde remanserit de lapidibus et quidquid circa hanc [p]e[tram] jacet de casa Theophilato de Torcello hedifficetur basilicha beati Marci evangeliste, sicut supra imperavimus*”.

The second source is once again a will, that of Orso, bishop of Olivolo, also dating to the mid-9th century (853), which together with the bequest states: “*Volo et iubeo in sancta matris mee ecclesiae [the cathedral of St. Peter of Castello, N/A], que ego indignus peccator Ursus episcopus a fundamentis aedificavi et in omnibus ea construxit cum omnem edificatio suo et hornamentum eius, que acquire ego ibi potui de omni specie, postquam hunc pontificatum accepi, ut ibi permanere debeant omnia usque in perpetuum. Hornamentum eius, que acquire*

ego ibi potui de omni specie". It seems to me that we should read here a reference also to architectural sculpture, which had to be precisely acquired, then procured, transported, and finally put in place. It was Bishop Orso's concern that the ecclesiastical complex should remain as such, as it was built and *adorned* by him, "*usque in perpetuum*".

The two sources discussed so far relate to highly prestigious contexts (the Basilica of St. Mark and the Cathedral of St. Peter of Castello) where, although we note that a doge and a bishop made a point of including stones and building materials in their wills, we cannot be completely sure that they attest to a practice that was widely adopted in the society. However, a third interesting testimony is of help: the text of the *Translatio Sancti Marci*, which can be traced back to the mid-11th century but whose earliest nucleus has been dated to the mid-9th century CE.⁴¹ Within the description of the undertaking of the transfer of the body of the saint, it is recounted that while the Venetian ships were stopping in Alexandria, Buono da Malamocco and Rustico di Torcello noticed that a Saracen nobleman was importing from all over Egypt "*columnne marmoree sive tabule*

tam in ecclesiis quam in vulgaribus edificiis essent reperte ob pompam fabricae quam parabat". The two tribunes also saw a "*tabula marmoris nimium pretiosa*", and noted with disappointment that it was material removed from Christian churches too in order to erect a private building, and moreover that of an 'infidel'.⁴² Even if it is not clear which passages of the *Translatio* can be attributed to the mid-9th century, this source indicates that from the earliest stages of the life of their lagoon settlement, the Venetians were aware of the importance of sourcing building materials in as much quantity as possible, and perhaps they were even able to distinguish the prestige and economic value of some items from others.

The finding of materials in areas where there was plenty, the organization of (probably itinerant) teams of skilled laborers and stonemasons, the storage, transport and use would seem to have been regulated and to have formed a prosperous market. The areas identified could have been connected to abandoned public, private, and ancient Roman compounds and necropolises, located where ruins seemed to be available; thus, on the Adriatic and Mediterranean coasts along the routes that the Venetians

used to frequent. We do not have any perception, even a vague one, of what the landscapes of ruins visible from the 9th to the 11th century would have been like, and only an efficient comparative study would help us, but we can imagine that they were regarded as utilitarian repositories of large quantities of building materials.

Indeed, the loss of meaning of the ruin *per se* allowed a rather pragmatic and nonchalant attitude towards reusing individual elements in new works and construction. Teams of skilled itinerant laborers and stonemasons were probably at work on the capitals of the Basilica of St. Maria Assunta in Torcello: there they intervened to refashion a stock of Proconnesian marble items of probable reuse; in other cases, they may have worked directly in situ to dismantle some public and private architecture as well as the necropolar complexes of the late Roman centuries to make large quantities of materials available. These same laborers and stonemasons were perhaps also responsible for the storage of the items and the loading operations prior to transport, which probably took place directly at the construction site in question. These same workers may have been in charge of the restoration and reworking of individual *spolia* with a public

function for prestigious patrons, such as the lion of St. Mark and the statue of St. Theodore (*Todaro*) placed on top of the columns in Piazzetta San Marco.⁴³ Private construction, on the other hand, as is well known, continued predominantly in wood (with stone foundations, and sometimes the use of reused bricks) until the late 10th and early 11th centuries or so,⁴⁴ with further development following the chrysobull of Alexius I Comnenus (1082), when the Venetians had their own ambitions for greatness legitimized by obtaining tax exemption in trade and their own quarter in Constantinople. The event had as a direct consequence the progressive transformation of Venice into a 'marble city' with the launching of an architectural fashion whose symbol is the remaking of the Basilica of St. Mark in its present guise, but which can still be traced even in a few private palaces.⁴⁵ In the meanwhile, starting in the 13th century, the quarrying of Istrian stone commenced, an epoch-making event that led the Venetians to write another page of the architectural history of their city,⁴⁶ and entailed an increasing awareness of the prestige of ancient marbles, which progressively became appreciated as individual artefacts and no longer as building materials.⁴⁷

3. *The reuse of ancient sculpture in early medieval Venice: case studies*

3.1. *The Marciana area*

The *Marciana* area provides a privileged setting for examining reuse practices in Venice. Serving as a space for the celebration of power, what has been investigated here so far especially is the strategy of employing symbols that conveyed specific contents easily discernable within the visual culture of the medieval age. The known evidence of reused ancient artefacts in this area are scarce, but meaningful.

The most well-known case is that of the foundations of the bell tower of St. Mark's. Indeed, in 2011, a review of archival material took place revealing the events of the explorations conducted by Giacomo Boni in 1885 and 1902-1905, which started in the aftermath of its collapse, with the examination of the materials found partly by the archaeologist and partly by the engineer Federico Berchet.⁴⁸ The bell tower was built, according to tradition, under the dogate of Pietro Tribuno, between the late 9th and early 10th centuries (888-912), and beginning with the third floor it was then increased in height, at the expense of the Basilio

brothers, giving it its final form before 1152, the year of the document attesting to it. Among the materials unearthed in the 1902 collapse were several findings of interest from the ancient Roman period: the summit fragment of a parallelepiped altar from the Augustan age; a marble or stone lintel of which two beaded bands are still visible; a fragment pertaining to the ceiling decoration of an honorary or funerary monument; and a fragment of an architectural cornice dating to the early imperial age. The most interesting item, however, is an epigraph whose side has been reworked for its full height by dividing the space into four bands (Fig. 1). The inscription is dated to the Augustan age, while its rework may be dated to the mid-6th century CE: thus, the artefact, after having been re-carved and reused a first time, was reused for the second time in the foundations of the bell tower of St. Mark's.⁴⁹ This could support the hypothesis that the reused materials were brought to Venice from collecting centers where there were deposits containing piles of previously stockpiled items, which in turn came from different sites that had already been spoliated at several stages.

One additional piece of interesting information coming from the analysis of the



Fig. 2 - Two fragments of an Augustan inscription belonging to the funerary monument of *Lucius Ancarius*, from the necropolis of *Ateste*, reused as building material in the construction of the bell tower of St. Mark's.

reused reuse materials found in the foundations of St. Mark's bell tower concerns the timeline of the attestation of this phenomenon and the supply routes. In fact, three fragments of inscriptions were reused in the

boulder, two of which already belonged to a funerary monument located in the necropolis of *Ateste* (Este) (Fig. 2) and the third, perhaps, coming from the Euganean Hills area.⁵⁰ Since the foundations of the bell tower date to the early medieval period (10th century?), this information is especially precious for our assumption that there was a plurality of material supply centers, with some of them located in the south-east of Venice.

Regarding the Basilica of St. Mark, which was erected in the 9th century, an intriguing find, especially because of the uproar it has caused even recently, is an ancient Roman slab depicting a shield with a Macedonian star and traces of other elements of a panoply (Fig. 3). The slab, which was reused in the foundations of the central apse, was found in 1962 by Ferdinando Forlati and is now housed in the cloister of St. Apollonia. Provocatively associated with the potential identification of the body of St. Mark with that of Alexander the Great, which, according to tradition, was also in Alexandria at the time of the Venetians' theft of the saint's remains, the artefact has been proposed as the *signaculum* of the presence of the great



Fig. 3 - Slab belonging to a 1st century BCE funerary monument with a shield with a Macedonian star and traces of other elements of a panoply, already reused in the foundations of the central apse of the Basilica of St. Mark.

leader's tomb. Recent study there has more prosaically revealed a limestone element from Aurisina that belonged to an ancient Roman funerary monument of the 1st century BCE.⁵¹ It probably came from one of

the centers of the Venetian mainland, and the frieze had been chosen for its solidity, useful for strengthening the foundations of the building, as was also the case, for instance, in Ravenna.⁵²

3.2. *An excursus on capitals of the ancient Roman and early Byzantine age and their medieval imitations*

Capitals are a highly studied type of architectural sculpture in ancient Europe and the Mediterranean because they are often conserved either *in situ*, as erratic material, or in a state of architectural reuse (at times following a reworking process) and can be useful as dating criteria. This is especially true for capitals from the Roman imperial age, from the Augustan to the Justinian age. For the centuries 1st to 6th CE, therefore, a number of scientific studies are available that glean reliable dating criteria from the comparison of excavation reports, the typological analysis, and the decorative patterns related to each capital. As is well-known, such studies are the result of the acumen of scholars and intellectuals who over nearly a century of history developed interpretative frameworks that tradition has shown to be reliable: the means to carry out to carry out petrographic analyses for many decades simply was not available, and even today these are rather difficult to carry out, both because of the cost and because of the accessibility of these items. Even

taking measurements of each capital may be difficult, and this makes the application of new technologies with high potential even more important.⁵³ Concerning the Roman imperial age, the cornerstones of the scientific literature are P. Pensabene's volume on the capitals of Ostia,⁵⁴ his extended essay on the typology of the Asiatic Corinthian capital,⁵⁵ and the research by K. S. Freyberger.⁵⁶ For the late Roman and up to the early Byzantine period the starting point is still Rudolph Kautzsch's volume *Kapitellstudien*.⁵⁷ In addition to these there is a worthwhile attempt to classify the capitals of the mid-Byzantine age starting with the typologies of the Justinian age,⁵⁸ and a recent English-language synthesis overview of all the typologies of architectural sculpture attested over the centuries and in the territories of the Byzantine Empire.⁵⁹ There are also volumes on specific typologies, such as the polylobate capitals,⁶⁰ and by now numerous monographs on determined geographical areas, commencing with the Constantinopolitan *corpus*.⁶¹ Of particular interest here, regarding the Venetian area, and understandably centered on the imposing decoration of the Basilica of St. Mark, are the volumes by F. W. Deichmann⁶² and J. Kramer,⁶³ as well as recent studies conducted by C. Barsanti, L.



Fig. 4 - Capital of the nave of the church of St. Eufemia on Giudecca, imitating early Byzantine models of the type defined as “fine-toothed acanthus”, dated to the 10th century.

Sperti and myself, who attempted to give an interpretation of the phenomenon of reusing ancient capitals that would also include reworkings and pieces that were carved imitating models⁶⁴.

The studies conducted in Venice in the last decades have demonstrated that the phenomenon of reuse of architectural sculpture can be distinguished into three main periods.

The first period dates back to the mid-9th century CE: the physiognomy of the city was well-defined by this time and it was clearly

identifiable from outside as Venice. Teams of stonemasons and skilled workers – most likely traveling labor – were required to make sets of capitals for a number of buildings that are still preserved today: the Basilica of St. Maria Assunta and the Church of St. Eufemia della Giudecca (Fig. 4).⁶⁵ Although little is known about it, the earliest Basilica of St. Mark was also built during this period. The treatment of acanthus that the stonemasons opted for is of Constantinopolitan taste and draws on models that were popular between the late 5th century and the first half of the 6th century CE. Particularly successful is the rendering of acanthus with fine denticulations. This type of capital is also popular elsewhere in the Upper Adriatic area, where some items are still in place, for instance, in Grado, in the Basilica of St. Eufemia and the Church of St. Maria delle Grazie,⁶⁶ and in Poreč, in the Basilica of St. Eufemia⁶⁷, so for the Venetians it was a choice that was in line with their contemporary architectural culture.⁶⁸ A few pieces belonging to the early medieval culture diffused in the mainland have also been preserved. There was much need for building material in a civilization founded in a lagoon, so it should not be surprising that there are some ‘allochthonous’



Fig. 5 - Campo and facade of the Church of St. Giacomo in Rialto.

items, such as inside the Church of St. Eufemia on the Giudecca, where we note that most of the pieces on display are of Constantinopolitan inspiration when not to all intents and purposes early Byzantine *spolia*. The sec-

ond period featuring the presence of reused capitals in architecture dates from the second half of the 11th and continues into the 12th century. Four surviving buildings refer to this period: the Church of St. Giacomo at Rialto (Fig. 5), the Basilica of Sts. Maria e Donato on Murano, the Basilica of St. Maria Assunta and the Church of St. Fosca on Torcello.⁶⁹ In these buildings the presence of *spolia* is juxtaposed with eclectic capitals imitating different models, no longer exclusively early Byzantine prototypes from Constantinople. It seems that the stonemasonry teams working on the architectural project, and probably having their own workshops already at their disposal, were not aware of the difference between the most recent and the most ancient capitals. Even if they continued to imitate these models, the treatment of the acanthus no longer refers exclusively to productions of the early Byzantine age: we also find capitals whose acanthus refers to the ancient Roman Imperial age (for example, in the Church of Sts. Maria e Donato on Murano)⁷⁰ and even to models of the Julio-Claudian period (inside the Church of St. Fosca on Torcello) (Fig. 6).⁷¹ This attitude of the stonemasons, marked by compositional



Fig. 6 - Church of St. Fosca on Torcello. Pseudocomposite capital of synthesis between a Corinthian model of the Julio-Claudian age and one with acanthus with large denticles, dated to the 12th century.

variety, coexists with projects that were entirely designed with early Byzantine *spolia*, such as the portico of the Church of St. Fosca.⁷² In this period, where the Basilica of St. Mark also underwent major renovation, it is particularly difficult to understand the relationship of each architecture to the previous building. It is very likely, in fact, that pre-existing

buildings were not destroyed: structures were probably dismantled and rebuilt by increasing their dimensions and updating their architectural language, as recently demonstrated for the church of St. Giacomo di Rialto between the medieval and modern ages;⁷³ this makes it rather difficult to discuss the archaeology of architecture. To some extent it is also possible that the stonemasons/architects were voluntarily retaining traces of the earlier building in the architectural project: this could be the case with the capitals of the Basilica of St. Maria Assunta⁷⁴ and the Church of St. Fosca on Torcello,⁷⁵ and there may also be some evidence in the Church of Sts. Maria e Donato on Murano, where in the nineteenth-century restorations the arrangement of the capitals was altered, perhaps cancelling the traces of the pre-existing building left by the architects.⁷⁶ In addition, while it is difficult to understand how clients and workers related to each other, assessing the qualitative and quantitative aspects of architectural design, it is also challenging to reflect on the repertoire of sculptural models: did each workshop use its own, consisting of the erratic pieces that the stonemasons had recovered from the ruins? In the capitals of St. Fosca, for example, there is a fair

amount of standardization: they are carved in Proconnesian marble (possibly reused) but display similar features even if they are not identical.⁷⁷ The stonemasons who carved the pieces knew how to shape the marble block before they carved it: did they know proportions and ornamentation by heart? Did they use drawings for support? These are all questions that currently remain unanswered.

The third period in which the phenomenon of reuse of capitals becomes deliberate begins in the 13th century, when the chronic appetite of the Venetians for building materials eventually identifies Constantinople as the ideal city for planned and cultured plundering. This was a phenomenon that originated in the past centuries, but in the 13th century it became so common that it permanently changed the architectural character of the city. It was during this period that, in addition to the current guise of the Basilica of St. Mark, private individuals erected their own palaces with an eye to Constantinople: the Fondaco dei Turchi, Ca' Loredan (Fig. 7), Ca' Barzizza, Ca' Businello Giustinian, Palazzo Vitturi, are all examples that despite the passing centuries still demonstrate the evocative power of owners who were involved in, or were intrigued by,

the conquest and domination of Constantinople.⁷⁸ Here the *spolia* have a powerful aesthetic value, meant to strike the observer and remind him of the significance of a legendary undertaking and the merits of those who had participated in it. And even where there were probably not enough *spolia* available, as in the Fondaco dei Turchi, the quotation of the Byzantine sculptural language is constant and also influences the production of *ex novo spolia*.⁷⁹

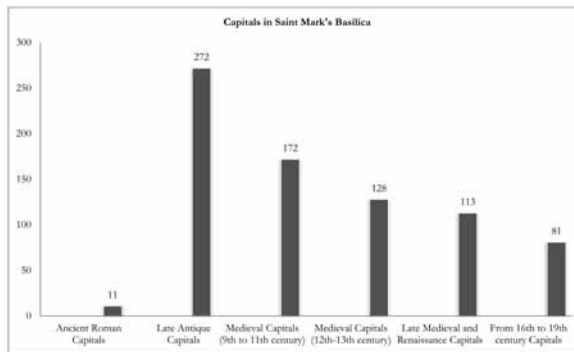
A final consideration on the phenomenon of reuse of ancient materials concerns the 19th century, when many capitals were carved on models from the past, not as *ex novo spolia*, but with mimetic intent: only the accurate autopsic analysis of a specialist can discern that these are artefacts that were intentionally made to resemble ancient, therefore fakes.⁸⁰ In Venice these capitals are quite numerous and a few examples can be found, other than in the Basilica of St. Mark (Chart 1), in the Fondaco dei Turchi.⁸¹

In the more than seven hundred pieces (777) of the Basilica palimpsest, this being a site featuring constant maintenance over the centuries, we can find all the case histories of capitals that can be found in Venice: capitals from Imperial Roman age, especially from late



Fig. 7 - Detail of the polyphora of the piano nobile of Ca' Loredan with columns, capitals and reused slabs.

Antiquity, medieval imitations of ancient items executed between the 11th and 13th centuries, pieces from the late Medieval and Modern Ages up to the 19th century (Chart 1).⁸²



It is worth noting that even today most of the capitals in place are reused (455, 58 percent), and only a minor part is contemporary with the architectural design of the 13th century (128 pieces, 17 percent), while late replacements and replicas are attested in good numbers (194 pieces, 25 percent). These data show the importance of medieval imitations in architectural design and implicitly acknowledge the prestige of *spolia* coming mostly from the eastern Mediterranean, confirming Venice's early vocation as an outpost of the East in Europe.⁸³

4. *Conclusions*

This article has provided an overview of the phenomenon of the reuse of sculpture in Venice in the Middle Ages, starting with considerations of the early Middle Ages up to the 13th century. It has considered economic and social aspects that contribute to delineating the deep-rooted aptitude of Venetians in 'recycling' sculptures for building purposes, which was a common trait over the centuries in the design of monumental architecture with public and private functions. The archaeological interpretation of the phenomenon in its entirety, which builds upon a solid and up-to-date bibliography covering different types of archaeological materials such as architectural sculpture and inscriptions, needs, in future studies, to extend research both to the understanding of the settlement dynamics on the mainland in the centuries of enduring economic and social crisis since the late Imperial Age, and to the detailed investigation of building techniques in Venice and the lagoon as well as to the comparison with documentary evidence from ancient water cities that emerged in similar environmental conditions. Such minute investigations imply a rethinking of Roman ar-

chaeology overall, starting with that of the *Cisalpina* area, and require multidisciplinary skills and vision, such as might successfully address the complexity of the questions that remain, to this day, unanswered.

Endnotes

¹ I will limit myself to mentioning, in Italian, DE LACHENAL 1996 and PENSABENE 2015. In German see ALTEKAMP 2013, ALTEKAMP, MARCKS JACOBS, SEILER 2017; in English the main reference is still GREENHALGH 2009, see also BRILLIANT, KINNEY 2011 and the volumes quoted here below.

² This topic is already featured by NG, SWETNAM BURLAND 2018.

³ FREY 2016, p. 22.

⁴ See especially LIVERANI 2004.

⁵ From the first volume about the reuse of sarcophagi, ANDREAE, SETTIS 1984, up to, most recently, SETTIS 2022.

⁶ CIRELLI 2020, with further bibliography.

⁷ ANDRADE, RAJA 2023.

⁸ D'ONOFRIO 2003.

⁹ SPERTI 1996.

¹⁰ See. GREENHALGH 2009 and, most recently, CENTANNI, SPERTI 2015, with bibliography above. The most recent and up-to-date *spolia studies* on Venice and the lagoon are largely available for open access consultation at this web address: www.unive.it/display

¹¹ ORTALLI 2021.

¹² On Venice and the lagoon in the early Middle

Ages, the mandatory reference is to Sauro Gelichi's research over several decades, among which I limit myself to mention GASPARRI, GELICHI 2018, GELICHI 2021a, GASPARRI, GELICHI 2024, with further bibliography.

¹³ GELICHI 2021b.

¹⁴ GELICHI, FERRI, MOINE 2015.

¹⁵ Starting from the illustrious inscription of 639 CE found in the apse of the Basilica of Santa Maria Assunta at Torcello, on which see now DE RUBEIS 2020, with further bibliography.

¹⁶ See below 3.1.

¹⁷ BELTRAME 2018, with further bibliography.

¹⁸ CALVELLI 2015, p. 114.

¹⁹ CALVELLI 2012.

²⁰ On Proconnesian marble in Venice see LAZZARINI 2015 and, in this volume, PT 1.3.

²¹ PENSABENE 2006a.

²² FUSCO, SPERTI, PILUTTI NAMER 2015.

²³ TŮMOVÁ, CIRELLI 2019.

²⁴ MUNRO 2020, with further bibliography.

²⁵ PENSABENE 2012.

²⁶ BARKER 2020.

²⁷ BIGI 2021.

²⁸ See now, for the early Byzantine age, MARSILI 2019 and, for the early Middle Ages, BEGHELLI 2023.

²⁹ On reused architectural sculpture at Torcello, even in connection with *Altinum*, see SPERTI, TIRELLI 2007; AGAZZI 2014; PILUTTI NAMER 2014.

³⁰ For instance, this is the case with the so-called "Barbola sarcophagus" conserved in the chapel of St. Filomena in the church of Sts. Maria and Donato in Murano. The original sarcophagus was produced in the early 3rd century CE, was reworked in the late 8th century, and was

reused as a floor slab *ante* 1140, where it was found in 1878 and then set up in the chapel of St. Filomena (PILUTTI NAMER 2012; CALVELLI 2014).

³¹ In my opinion, the most comprehensive and effective overview is still the one by CRACCO RUGGINI 1992.

³² KONRAD 2015.

³³ TIRELLI, POSSENTI 2015, p. 246.

³⁴ ROSSI, PILUTTI NAMER 2023; ROSSI, PILUTTI NAMER 2024, and here especially the essay by OCCARI et al. 2024.

³⁵ FORTINI BROWN 1996.

³⁶ CALAON 2015.

³⁷ See, for instance, TRAVERSARI 1991; SPERTI 1996; LAZZARINI, PILUTTI NAMER 2020.

³⁸ PILUTTI NAMER 2016.

³⁹ In the interest of the reader's greater understanding, I repeat here some arguments already expressed in PILUTTI NAMER 2012.

⁴⁰ On the manuscript tradition and the discussion of its chronology see, most recently, CARILE 2013, with further bibliography. The document is accessible in full and digital critical edition at this web address: <https://saame.it/fonte/documenti-veneziani-venezia-4/>

⁴¹ PAPASIDERO 2019, pp. 37-47, with further bibliography, especially notes 2-3, p. 37.

⁴² The text is quoted by MCCLEARY 1931-1933.

⁴³ On these illustrious *spolia* with public function see SPERTI 2019, with further bibliography.

⁴⁴ CALAON 2015.

⁴⁵ BARSANTI 2002.

⁴⁶ LAZZARINI 2008b.

⁴⁷ On this topic see GELICHI 2022.

⁴⁸ The events are tracked by CALVELLI 2012 and PILUTTI NAMER 2012. The stamped bricks have been in-

vestigated by MARITAN 2015. On Boni's explorations at the foundations of the bell tower of St. Mark see PILUTTI NAMER 2022.

⁴⁹ PILUTTI NAMER 2012.

⁵⁰ CALVELLI 2012.

⁵¹ On this topic two dossiers of the journal "Engramma" have been published, the first one in November 2008 (no. 67, BERGAMO, CALANDRA DI ROCCOLINO 2008) and the second in November 2009 (no. 76, CENTANNI, DAL MASO 2009).

⁵² CIRELLI 2020.

⁵³ CALVELLI et al. 2021. See also the *Technical Note* by E. Delpozzi here below.

⁵⁴ PENSABENE 1973.

⁵⁵ PENSABENE 1986. See also PRALONG 2000.

⁵⁶ FREYBERGER 1990.

⁵⁷ KAUTZSCH 1936.

⁵⁸ DENNERT 1997.

⁵⁹ NIEWÖHNER 2021.

⁶⁰ NIEWÖHNER 2021.

⁶¹ ZOLLT 1994.

⁶² DEICHMANN 1981, see also FAVARETTO 2000.

⁶³ KRAMER 2006.

⁶⁴ Research was commenced by Claudia Barsanti (BARSANTI 2002) then continued by SPERTI 2004a; BARSANTI, PILUTTI NAMER 2009; PILUTTI NAMER 2014; PILUTTI NAMER 2015; PILUTTI NAMER 2016; SPERTI 2016; PILUTTI NAMER 2017. On medieval imitations see also KRAMER 2016.

⁶⁵ PILUTTI NAMER 2014.

⁶⁶ PILUTTI NAMER 2004 (2009).

⁶⁷ RUSSO 1991.

⁶⁸ PENSABENE, BARSANTI 2008.

⁶⁹ On the church of St. Giacomo di Rialto:

PILUTTI NAMER 2015, AGAZZI, GUIDARELLI, PILUTTI NAMER 2023; on the church of Sts. Maria e Donato at Murano: SPERTI 2004a; on the Basilica of St. Maria Assunta at Torcello: PILUTTI NAMER 2014; on the church of St. Fosca: Pilutti Namer 2017.

⁷⁰ SPERTI 2004a.

⁷¹ PILUTTI NAMER 2017.

⁷² GUIGLIA GUIDOBALDI 1995.

⁷³ AGAZZI, GUIDARELLI, PILUTTI NAMER 2023.

⁷⁴ PILUTTI NAMER 2014.

⁷⁵ PILUTTI NAMER 2017.

⁷⁶ SPERTI 2004a.

⁷⁷ PILUTTI NAMER 2017.

⁷⁸ On this topic see SCHULZ 2004; RÖSSLER 2010.

⁷⁹ PILUTTI NAMER 2016.

⁸⁰ BARSANTI 2002.

⁸¹ PILUTTI NAMER 2016. On *ex novo spolia* see BERGMEIER 2013.

⁸² Albeit the chronologies for some of the capitals of the Basilica of St. Mark should be at least partly brought up to date, for the sake of simplification and more ease to the reader, in the charts I have used those used by F.W. Deichmann (DEICHMANN 1981), transposed and revised by S. Minguzzi (FAVARETTO 2000, pp. 127-161) and reported in the tables edited by M. Da Villa Urbani (*ibid.*, pp. 186-192).

⁸³ SPERTI 2018.

Technical Note

Digital measurements of Venetian spolia: a census of Proconnesian marble capitals

by ELEONORA DELPOZZO

Metric data play an important role in studying architectural ornaments and *spolia* in particular. First and foremost, they enhance the description of the object, often placed in unreachable positions and as such not directly

perceptible in its dimensions. They are also valuable indicators to understand more thoroughly the artifact being studied, which has been removed from its original context.

Over the years, the data acquisition process in this field of study has not seen significant technological advancements, as measurements have typically been taken manually. This entailed a number of difficulties, such as the necessity to touch or come into contact with the artifact being measured, or the fact that, as already mentioned, many Venetian *spolia* are inaccessible, located in high places and/or on building facades overlooking the Grand Ca-

nal. For these reasons, in various circumstances it is extremely complicated, when not impossible, to measure them with the aforementioned method. In other cases, studies on *spolia* could rely on architectural drawings, i.e. sections and elevations. However, especially for historical buildings, blueprints are not always available or accurate, and this prevents a comprehensive study, in particular when the aim is to conduct a census on a large number of artifacts.

On the other hand, surveying methods have heretofore developed significantly, especially in archaeological fieldwork where digital non-invasive techniques are regularly used to record and preserve data.¹ The integration of geomatic technologies (ground-based survey methods and photogrammetry in particular) has proven its effectiveness in documenting and comprehending archeological sites and finds.²

Thus, a valid solution for advanced measurements of *spolia* and architectural elements is the use of next-generation laser distance meters, particularly those equipped with an inclination sensor to determine angles. This technology allows measurements between two points from a significant distance (depending on the specifications of the chosen tool) without requiring

direct access to the objects and necessitates no technical expertise to operate.

This tool has been successfully tested on a selection of different *spolia* in Venice, delivering promising results also in association with photogrammetry.³ The potential of this approach lies in its flexibility and ease of use. Additionally, it enables the collection of a large number of measurements in a short period, facilitating comparisons and analyses of elements in series (capitals, columns, etc.).⁴ This works especially well for *spolia* because, by their very nature, they are usually put on display, either inserted in an architectural setting or *freestanding*,⁵ hence accessible to the laser.

Using this method, an extensive measuring campaign of Proconnesian marble capitals in Venetian palaces was conducted. Proconnesian marble is conspicuously present in Venice and of primary importance for the architectural history of the city.⁶ The campaign focused on collecting the heights of the capitals, while for specific cases a more comprehensive survey was carried out. On this occasion, some of the artifacts have been measured for the first time in the history of studies.

The collected data are presented below. For each building, the distance from where measurements were taken is indicated, which entails

a subsequent approximation (maximum 5 cm for the longest distances, that make it complex to point the laser in the right position). The measurements in the tables correspond to the capitals' overall height and are expressed in centimeters. The progressive numbers refer to capitals as measured floor by floor, from left to right.

Fondaco dei Turchi (Distance: 60/65 m)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Ground floor	75	80	75	72	74	78	78	79	73								
First floor	47	42	50	46	46	41	46	42	58	43	47	46	47	46	48	49	43
Left tower	39	33	32														
Right tower	45	33	30														

Ca' Loredan (Distance: 65 m)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Ground floor	49	48	43	43										
First floor	44	43	39	42	44	47	38	48	43	45	46	34	34	38

*Palazzo Businello Giustiniani*⁷ (Distance: 25/30 m)

	1	2	3	4	5
First floor	45	39	39	40	43
Second floor	42	38	35	35	40

*Palazzo Barzizza*⁸ (Distance: 20 m)

	1	2	3	4
First floor	32	23	n/a	
Second floor	24	30	26	27

Palazzo Vitturi at Santa Maria Formosa

	1	2	3
First floor	31	28	26

Albeit non-exhaustive, this measuring campaign delivered relevant results, producing a large dataset consisting of 70 capitals and restoring their dimensional traits. This allowed some considerations on the data per se: measurements range from a minimum of 24 to a maximum of 80 cm, while the total average is 45,17 cm. As seen in Chart 1 every Palace seems to adopt its own set of measurements, with some exceptions as for the Fondaco dei Turchi and Palazzo Barzizza, which have a larger interval. In addition, data analysis revealed that higher capitals were located mostly on ground floors.

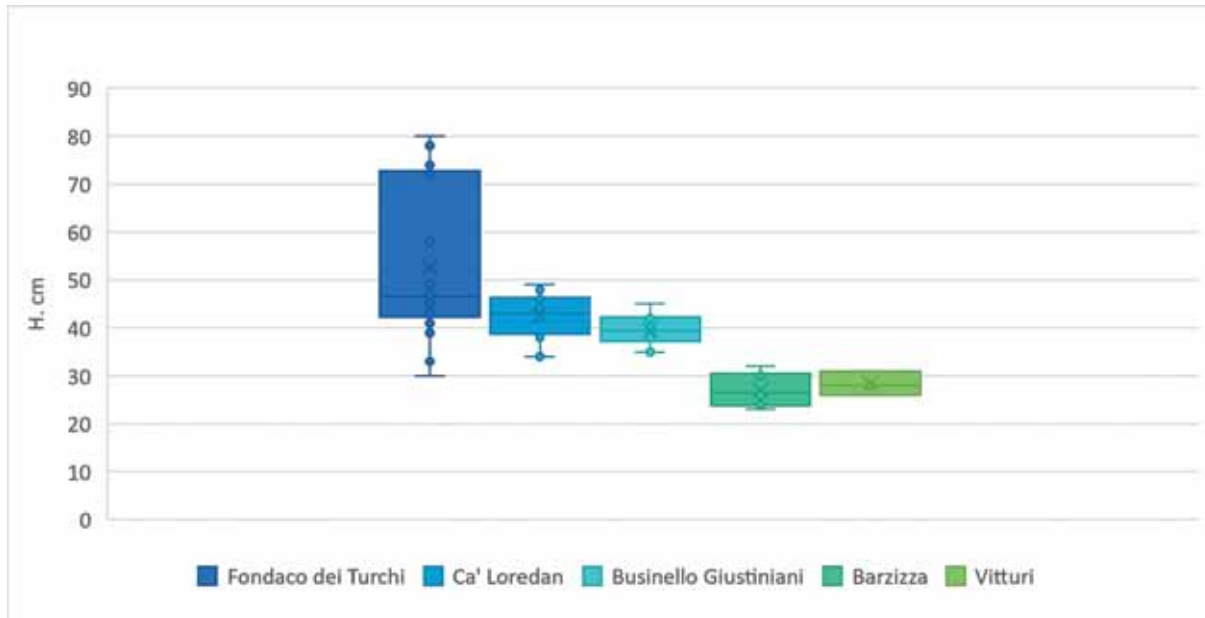


Chart 1 - Distribution of the capitals' heights per Palace.

When working with these data it is pivotal to take into consideration that in Antiquity different systems were adopted for measuring and building. Notwithstanding local variations, the units of measurements were standardized and often associated with body parts.⁹ Among them, the Roman system is the most common and widely renowned, its basic unit (*pes*, foot)

corresponding to about 29.6 cm.¹⁰ Relevant to the studies on *spolia* is also the Byzantine foot (31.3 cm).¹¹ Subsequential scaling in the same system is often based on fractions and proportions of these values. Every measurement therefore has to be considered in the light of this issue whilst remembering that palaces, and other buildings as well, were constructed using

a different system of measurement, while *spolia* were created based on a different one.

The relevance of this method for the practice of research work is indisputable: taking metric data into consideration, together with stylistic and chronological studies, it becomes possible to shed light on constructive processes in ancient architecture, starting from the reused artifact and going backwards as far as the quarry. Such an approach permits the integration of all the elements in the architecture and understand their proportions; moreover, this could allow innovative observations on architectural composition.

With digital technologies, as described, research practices are facilitated and improved, resulting in larger sets of data that are more ac-

curate and precise, can be collected in a short period of time, and are essentially ready to be analyzed.

Endnotes

¹ A general overview of the topic in: MEDRI 2006; REMONDINO, CAMPANA 2014.

² BALLETTI et al. 2015 and previous bibliography.

³ CALVELLI et al. 2021.

⁴ CALVELLI et al. 2021, p. 182.

⁵ CALVELLI 2016.

⁶ See Lazzarini PT 1.3 in this volume.

⁷ The ground floor was not measured.

⁸ The ground floor was not measured.

⁹ RIGGSBY 2019, pp. 88-92.

¹⁰ CORTI, GIORDANI 2001.

¹¹ SALVATORI 2006, p. 18.

Insula Carcare et Corfu
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Vel Chorchura.

Ambitus est M.C. mitt.

Vel Chorchura.

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STYLING: JANE ROBERTSON

PT 1 - Chapter 2

Marble Trade between the Eastern Mediterranean and Venice

LUIGI SPERTI

With the exception of Rome, Venice is the Italian city where the presence of reused ancient marble is probably most visible. This presence can be easily detected in the monumental *spolia* of St. Mark's Square, in the later ones of the Arsenale, or in the surviving Romanesque palaces, where the Byzantine capitals reused in the polyphors of the *piano nobile* emphasize the patron's wealth and rank as well as his social ambitions.

But in other cases this presence is discernible only to those familiar with the ways and methods by which the Venetians used the ancient material remains and incorporated them into the monumental fabric of the city: the colored marble cladding slabs derive from ancient Roman blocks; the carved *paternae* embedded in public and private buildings originate from ancient column shafts cut into disks; and the same marble column shafts, widely used in the most prominent architectures from the 13th to the 19th centuries, are often ancient pieces readjusted in their height or collar shape.

For a city without a Roman past, this primacy is clearly paradoxical. However, it can be explained by the fact that from at least the 11th century Venice had been the leading player in the European commercial expansion in the eastern Mediterranean, and that alongside the specific needs of the

Fig. 1 - C. Buondelmonti, *Liber insularum archipelagi*, map of Corfu.

merchants it had been able to promote with all means the public interest in its diverse guises: of these, the supply of ancient artifacts, usable in ideological terms as *spolia*, or as simple building material, must have certainly held a prominent place in the scale of priorities.¹ Material evidence of this countless series of travels survives in the stones that still today shape the city's urban landscape ornamentation; and in much smaller number, but nonetheless remarkable, in the ancient Greek and Roman sculptures from the most varied places in the eastern Mediterranean, destined for the major collections of antiquities that the Venetians began to assemble from the early decades of the 16th century. Compared with the wealth of surviving material evidence, however, data from written sources are very scarce and, with few exceptions, lacking in information. The transportation and trade of stone materials during the Middle Ages and early modern age is a very sparsely documented phenomenon, and Venice, from this point of view, is no exception: in comparison with the abundant documentation concerning goods such as salt, timber or spices, there is little we know about a trade that relied at

least to some extent on the fortuitous circumstances of the findings.

Almost every account concerning the relationship of the Venetians to classical and Byzantine antiquities mentions the information about the origin of the stones used for the construction of the Basilica of St. Mark. However, we do not necessarily need the authority of the sources to learn that Aquileia, or Ravenna, or Constantinople were the places where "*devoti zentilomeni et popolari*" purchased or took possession of the marbles required for the erection or for the decorative features of the most important city buildings.²

The sources mostly provide information on provenances; in some cases, even on the building the material was intended for. However, very seldom do they offer information that goes beyond the bare geographical information, or the purpose of the importation: how the material was procured; in what ways captains and merchants were aware of the places where ancient ruins were located; how the government of the Serenissima used to regulate or address such trafficking; in short, what the attitude of the Venetians was regarding the ancient stones, and how the shipping to the lagoon was arranged.

Several of these questions are likely to remain unanswered. There are, however, a few documents that are unusually detailed and stand out for their richness of clues among the range of similar testimonies. Since such documents enable us to look at the phenomenon from a very different (and in some respects more historically intriguing) perspective than that offered by the analysis of the evidence present in the city today, it seems appropriate to start this report with a close inspection of the written sources.

1. *The voice of the sources*

The most eloquent document regarding concerning how marble travelled to Venice is a dispatch dated March 3, 1309, sent by the Collegio of the Republic to Gabriele Dandolo, a descendant of Doge Enrico – the protagonist of the Fourth Crusade – who lived between the second half of the 13th century and the beginning of the next. Between the spring and fall of 1309, Dandolo served as captain of the galleys of *România* in a delicate political situation, as a disparate coalition was attempting to recre-

ate the Latin Empire of the East, while several forces were simultaneously fighting piracy that was frequently directed against Venetian trade and maritime traffic. The activities carried out by Dandolo were quite diverse, ranging from the sale of a ship that was taken by the garrison at the base of Korone in the Peloponnese, to the arrangement of the repatriation of the retiring Duke of Candia. Having learnt of the availability of valuable material “*in insula micholarum, et eciam in aliis insulis Romanie*”, the Collegio asked Dandolo to provide marbles, and especially column shafts, either complete or in parts, for the Basilica of St. Mark; it was further pointed out that white, green-veined and porphyry marbles had to be sought (“*de ipsis marmoribus qui essent in astis vel clapis astarum et mediis columpnis albis vergatis viridis porfis et cuiuscumque condictionis*”). In order to facilitate the shipping, the Collegio suggests using marbles “*per modum savorne*”, by way of ballast, so that ships would not be overloaded.³

Since the document provides unusual indications regarding aspects such as the location of supply sources, the organization of shipping, the handling of information by the government bodies, and the relationship with monumental

projects undertaken in the center of power, it is worth briefly examining the main topics it discusses.

1) The letter is an official document based on detailed information that the Collegio had received (“*ad nostrum auditum pervenerit*”) concerning not only the location of ancient ruins along the main sea routes, but also the typology of marbles. The specific demands made by the Collegio attest to an efficient system of information exchange between the center of power and the captains of the ships plying the Aegean. The fact that this information was recorded and used by organs of certainly not secondary institutional importance like the Collegio’s case stresses the public nature of the trade/importation of marbles in the lagoon.

2) The document broadens an original geographical horizon. Instead of the traditional reference to Constantinople, for the first time a mention of islands in the Aegean appears here: Mykonos (*insula micholarum*) is mentioned first among the islands of *Romània*. Furthermore, Mykonos is not renowned for an abundance of ruins from ancient Greek and Roman times;⁴ it is therefore possible that the College is referring to Delos, located just

a few miles away. The mention of the marbles found on Mykonos and on the other islands of *Romània* conjures up a picture of a Mediterranean dotted with abandoned sites, where it was not necessary to dig to find ancient columns and marbles. About a century after Dandolo’s travels, Cristoforo Buondelmonti, a major figure in the history of the humanistic rediscovery of classical texts and of Greece, started his wanderings among the islands of the Ionian and Aegean Sea: his account survives in a *Descriptio insule Crete* of 1417, and three years later in the *Liber insularum arcipelagi*. In the latter, besides describing large centers such as Constantinople, he provides a report on more than 60 islands.⁵ Buondelmonti’s *liber* is the earliest Renaissance example of an *isolarium*; it had several editions over time, supplemented by accurate maps. Of the islands visited by Buondelmonti, more than half bear indications of ancient ruins, reported in the illustrative appendix according to the typology of the remains with different symbols: columns collapsed to the ground, such as those appearing in a plan of Corfu that is part of a codex in the *Liber* that belonged to Pius II Piccolomini (Fig. 1); or, within the



Fig. 2 - C. Buondelmonti, *Liber insularum archipelagi*, map of the Troad and the island of Tenedos.

same codex, more elaborate representations (Fig. 2), such as the circular ruins close to the Dardanelles Strait suggesting an imagined location of Troy.⁶ Similar assumptions occur in the text as well, whenever the author offers personal interpretations, attempting to combine the news offered by ancient sources with the archaeological evidence: the colossal remains of a building located on the slopes of a mountain in Crete could only prove to be a “*templum Iovis usque ad fundamenta deletum*”, in the interior of which were “*infinitas ymagines seriatimque moles*” of such dimensions that one could not believe they were the work of humans.⁷

Crete belonged to Venice for more than four centuries, from the partitioning of the Byzantine Empire following the Fourth Crusade until the fall of Candia in 1669; during the 15th and 16th centuries in particular it was one of the privileged places of supply of sculptures for collectors and of architectural material. The story of the merchant Giovanni Gradenigo, narrated in a letter dated April 27, 1433, and sent by the Council to the Duke of Candia, is in this regard emblematic. The merchant was providing a transport of lumber to Candia when he

was ordered to sail to *Hierapetra*, on the southeastern coast of the island, to obtain column shafts and bases to be sent to Venice. However, the ship was too lightweight for the cargo, and a storm pushed it as far as Alexandria. There Gradenigo procured a more suitable ship at his own expense, transferred the cargo onto it, and sailed to Venice. The document informs Giustinian of the decision by the Council to refund the merchant.⁸ Gradenigo's misadventure fits in between the Cretan journeys of Buondelmonti and the visit of Ciriaco d'Ancona⁹ a few decades later, and it represents an early testimony to the Venetians' interest in the island's antiquities. *Hierapetra* served as an ideal source of *spolia* both because of its location on the sea and for its abundance of ruins:¹⁰ Buondelmonti, who visited it at the beginning of his Cretan circumnavigation, mentions "*templa immensa*" and "*sparsa ydolorum busta*".¹¹ Inscriptions, architectural elements and statues destined for the collectors' market reached Venice from *Hierapetra* during the second half of the 16th century: some of the marbles are housed to this day in the Archaeological Museum.¹²

The document does not mention the monument for which the cargo was to be transported; however, the formal character of the

message suggests that the columns were probably intended for a building of public interest. Between 1422 and 1438, the western wing of the Doge's Palace was reconstructed: it is possible, therefore, that the marbles transported by Gradenigo were destined for the Doge's Palace, either in their original shape or transformed into cladding slabs. Furthermore, the use of marbles of Cretan origin for the construction of the Doge's Palace was not to prove an isolated episode. After the fire of 1574, the Collegio instructed the Provveditor General of Candia Giacomo Foscari to procure "*un buon numero di colonne et altri marmi*" since it had been learned that "*nel loco della Messarea et altri luoghi di quell'isola nostra ritrovarsi di bellissime colonne di meschi et altre sorti*".¹³ Again, as in the letter addressed to Gabriele Dandolo, the request made by the Collegio is based on accurate information about the availability of ruins. The "*loco della Messarea*", today's Messara plain, is to be identified with Gortyna, where Buondelmonti had recorded numerous statues and 1,500 columns: undoubtedly the number is quite unrealistic, but it is significant of an abundance of ruins that had stimulated the interest of the Venetians on many occasions during the 16th century.¹⁴

3) The Collegio sends Dandolo to Mykonos because it is there that he can find shafts of columns and a variety of white, green-veined, and porphyry marbles. While there is testimony of the request for columns in other official documents with similar contents – such as a letter sent by the Council to the Duke of Candia – as far as I know the reference to the variety of marbles remains a unique occurrence. “Green-veined” marbles refer, in late medieval terminology, to green *cipollino* or *marmor carystium*, a variety with subtle green veins quarried in and around Karystos in Euboea, and widely used especially for column shafts possibly by the early 1st century BCE.¹⁵ The Collegio requires both entire shafts and fragments, probably used to make slabs or *rotae*. In the Basilica of St. Mark there are numerous *cipollino* column shafts, both in the facades and in the interior, several wall claddings, and floor slabs in the narthex.¹⁶ However, *cipollino* marble is widespread in many different Venetian buildings, and is used mainly for column shafts, or reduced to slabs for cladding. The indication of a specific variety of marble evidently meets specific needs expressed to the Collegio: the reference to the *procuratores sancti marci* at the

end of the document leaves no doubt about the source of the request.

4) The letter shows that the importation of marbles could have been motivated by contingent needs. The degree of intentionality of reuse is a point frequently discussed by art and architectural historians in regard to the Venetians’ attitude toward ancient Roman and Byzantine *spolia*. This has been discussed especially as regards the relationship between the Basilica of St. Mark and Byzantium: one of the most important points of discussion concerned the hypothesis of a more or less unitary project to which several works on the Basilica’s marble ornamentation could be related.¹⁷ Was the 13th-century embellishment of the main State church the consequence of an elaborate design, or were the disparate operations it underwent the random result of individual acts of devotion, or of pillaging prompted by the occasional opportunity? Most scholars agree that the marble decoration of the Basilica was the result of one project, or rather than a succession of projects over time, in some cases even in conflict to one another. Such a project entails that the transportation of a huge amount of the material needed to adorn the exterior and in-

terior facades had to be carefully planned: the most appropriate elements had to be identified, removed from their original context, and shipped.

Of course, the Basilica of St. Mark is a separate case. But we may ask ourselves if a similar design intent also would apply to less important buildings: smaller churches, palaces, mere dwellings, or single monuments. For a city without a past, the acquisition of antiquities had no choice but to pursue different methods and criteria than in cities where ancient Roman ruins were available. In Rome for example, from the 3rd century onward, and more decisively since the age of Constantine, it was common practice to accumulate stocks of architectural material from buildings in ruins, regardless of monumental initiatives or immediate need.¹⁸ It is likely that this was also the case in other Italian cities, where the acquisition of ancient Roman *spolia* was not an issue. But since in Venice such an option was not given, when confronted with the need to acquire ancient *spolia*, we can assume that the rate of intentionality, or if you prefer ‘planning’, must have been higher than in those cities that had plenty of on-site resources.¹⁹

5) The reference to the use of ancient marbles as ballast, and the resulting recommendation not to overload ships (“*non agrevando propterea ipsas galeas*”) are not common: the commodity that was normally used as ballast in Venetian ships was salt.²⁰

The letters to Gabriele Dandolo, Marco Giustinian, and Giacomo Foscarini are official documents: in all three cases they consist of messages from an institution of the Republic to a captain of the fleet, or to Venice’s highest representative in Crete, aimed at obtaining stone material for public monumental purposes. A contract drawn up on June 22, 1291, between two Venetian merchants by a notary in Korone, Peloponnese, refers instead to a different context; it provided for a loan of 200 *hyperpyra*, to be repaid not in money but in goods, namely in 1,500 pounds of wax, to be delivered in Korone itself by September of the same year. As a pledge for the loan the borrower, Giovanni Trevisan, offered 39 “*columnas marmoreas*”, 4 columns of different types and other architectural elements that are difficult to determine. The agreement stated that at the expiration of the loan, in case of default, the marbles would be transported by



Fig. 3 - Venice, Basilica of Sts. Giovanni e Paolo, main nave, polystyle pillar with Byzantine capitals.

the lender to Venice, where they could be sold to other merchants in order to recover the sum lent.²¹

This is thus an offer of ancient architectural elements as a collateral for a loan. The document provides a glimpse into the importation

and trade of antiquities by private individuals, a practice about which we know little or nothing, but which probably played an important role in the history of Venetian reuse of ancient materials. It is very likely that families of merchants transported *spolia* on their own to be used in buildings they owned, or to be sold: the heterogeneous complex of Hellenistic, ancient Roman, Byzantine, and Ottoman sculptures that in Campo dei Mori and the nearby Palazzo Mastelli make up a kind of celebration of *mercatura*, were most likely carried to Venice by the family (or families) who owned the building. But we shall come back to this interesting complex later. We do not know whether the import of marbles by private individuals was a sporadic phenomenon or whether it was in some way organized, or even favored by the authorities, enabling, for instance, the sale of entire stocks of architectural elements. However, we can confidently say that in some cases both private individuals and religious orders had access to valuable materials that were destined for important public settings. This is the case in the Basilica of Sts. Giovanni e Paolo, where on each side of the main nave three early Byzantine impost capitals are reused (Fig. 3) featuring a very elaborate ornamental pattern. The peculiar ty-

poloogy of the pieces has made it possible to assume their origin: St. Polieuktos, the church in Constantinople that was systematically despoiled by the Venetians, which was also the origin of the so-called “Acritan pillars” placed during the 13th century in front of the south façade of St. Mark’s.²² A similar case are the composite capitals reused in the arches on the second floor of Ca’ Loredan Corner Piscopia, which correspond perfectly in size, style, and typology of decoration to four pieces from Constantinople that can be dated between the late 5th century CE and the early 6th century, reused in the north facade of the Basilica of St. Mark: most likely both groups were part of the same stock of materials taken from an undetected building on the Bosphorus.²³ Despite the differences in status – on one hand, one of the many private palaces, albeit erected on the Grand Canal a few steps from Rialto, on the other, the mother church of the very powerful Dominican order – the two cases can be interpreted univocally: both the patron of the palace and those of the Dominican church had access to material of particular value, employed in the city’s most important monuments. Was the State itself occasionally selling marbles from the Byzantine capital to other individuals? Or was the import

of architectural material from Constantinople not under such a tight monopoly, leaving room for private initiatives? Whatever the case, these particular cases prove that on special occasions it was possible to pursue the supply of *spolia* for State monuments, religious buildings and private residences through the same trading channels.²⁴

2. *Spolia in the public sphere*

In most cases what we know about the travels of ancient statues and marbles comes from the artifacts themselves: the origin of an ordinary sculpture reused in a private house, or of an icon of medieval Venice such as the bronze lion atop St. Mark’s column, can be deduced from their typology and from their stylistic features. For other monuments, information comes from written sources: the provenance of St. Mark’s horses from the hippodrome in Constantinople – although not free of problematic facets – is documented as early as the 15th century.²⁵ However, in other cases, a fortuitous archaeological find may provide a decisive element in the identification of the original context: in the fall of 1965 the discovery, during the excavations

of the Myrelaion in Istanbul, of a segment of the base of the “A group” of the Tetrarchs, complete with the missing foot, reinforced the hypothesis of the Constantinopolitan provenance of the monument, set forth on historical grounds since the mid-19th century.²⁶

However, the mass of ancient stone materials reused in Venetian architecture (columns, capitals, cladding slabs, but also statues and reliefs inserted in churches and palaces) provides no useful indications to determine their provenance. This is also the case for monuments of great importance: first and foremost, the columns of St. Mark and *Todaro* in Piazzetta San Marco, a peculiar assemblage largely composed of ancient materials. The sources that mention them are relatively abundant and detailed although problematic, starting with the report that places their erection in 1172, during the *dogado* of Sebastiano Ziani. For a number of considerations that for a number of considerations which, for reasons of space, I cannot expand on here, it is more likely that the decision to place a pair of columns with statues in Venice’s *Porta da mar* was taken later, around the first half of the 13th century.²⁷ The monumental model has relevant precedents in ancient Roman times: I mention the case of

the port of Brindisi, the Roman *Brundisium*, where a pair of columns, originally holding bronze statues, marked the point where the *Via Appia* reached the sea.²⁸ It is possible, however, in view of the relationship with Constantinople, that the model should be sought in one of the capital’s many monuments on the Bosphorus that presented columns, single or in pairs, as supports of honorary statues. Of these, the *Diplokionion*, the twin columns that marked the entrance to the Bosphorus harbor in today’s Beşiktaş district of Istanbul, represents the closest comparison in terms of location, function and monumental impact.²⁹

Understandably, the bronze lion and the *Todaro* statue have attracted scholarly attention for centuries. However, the key element of the monument is the pair of colossal granite shafts, 40 Roman feet high (just under 12 meters): the shaft of St. Mark’s column is made of violet granite from Troas, in present-day Turkey; the other is of red granite from Aswan, or Syenite.³⁰ The unconventional size of the monoliths and the silence surrounding the sources prompted several imaginative hypotheses about their provenance: one of the least implausible is Constantinople, based on the fact that the ma-



Fig. 4 - Yedi Taşlar (Koçali, Çanakkale district, Turkey), granite quarry of the Troad.

terial of St. Mark's column, the granite of the Troad, is quarried in a location not far from the Byzantine capital.³¹

However, regarding this point a persistent misunderstanding needs clarification: the material employed gives no indication about the origin of the artifact. In ancient Roman

times the marble trade was so well developed and the distribution network so extensive, that any variety of fine stone could be found in almost every center of the Empire. However, historical suggestions aside, an archaeological approach can provide some clues as regards the origin of St. Mark's column. The Troadan



Fig. 5 - Venice, Piazzetta San Marco, column of St. Mark, imoscape.

granite quarries constitute one of the most fascinating cases for understanding the processes of extraction and transport of colossal monolithic shafts from the imperial age. At the Yedi Taşlar locality near the village of Koçali in the Çanakkale district, there are at least seven 40-foot specimens (Fig. 4) destined for the sort-

ing center of nearby *Alexandria Troas*, which are of a similar height and diameter at the imoscape to those of the Venetian shaft.³² In the ancient port of *Alexandria Troas*, which is fairly well preserved despite spoliation, several column shafts ready for embarkation survive, including one that is the same size of the ones

just mentioned.³³ According to a common practice in Roman times in the production of monolithic column shafts, all the specimens in question have at the imoscape a protruding collar with a squared profile, 20-25 cm high, whose function is to protect the lower edge of the column during transport operations from the quarry to the port of shipment, and from there to the destination.³⁴ A similar collar can be seen in St. Mark's column (Fig. 5): since this protective band was removed at the time of use, this means that the Venetian shaft had most probably never been used previously, but that it originated directly from a quarry, or from a port where it was waiting to be shipped, or again from a place (a port? a storehouse?) where it was waiting to be used. We can therefore assume that the shaft came from the port of *Alexandria Troas* itself, which is located on the coast of Troas opposite the island of Tenedos about 20 miles away from the entrance to the Dardanelles, along a route that Venetian vessels used to take. It remains unclear how an artifact weighing about 55 tons was embarked and transported as far as Venice: but in contrast to what is known about sea transport and *naves lapidariae* of the ancient Roman pe-

riod – especially thanks to a remarkable series of shipwrecked marble loads³⁵ – as far as I've been able to gather, little or almost nothing is known about Venetian transport.

The enigmatic winged lion (Fig. 6) possibly also came from the shores of the eastern Mediterranean. The chronicles record that by the end of the 13th century it was in need of restoration: however, they mention neither the date it was placed at the top of St. Mark's column, nor its provenance.³⁶ Some have suggested that the bronze was in the city before 1204, since despite its importance and size (4.40 m in length) it is not mentioned as one of the artifacts brought after the Fourth Crusade: but it is needless to point out that any argument *ex silentio* is arbitrary in its nature. The absence of plausible stylistic comparisons, as well as documentary data, has triggered an incredibly wide range of hypotheses, frequently completely unfounded, about the monument's provenance and date: Assyrian, Indian, Chinese, Greek, Etruscan, and Sasanian art, among others, have been discussed, and a chronology has been proposed, varying geographically, from Near Eastern protohistory to the late Middle Ages.



Fig. 6 - St. Mark's lion, currently in Venice, Piazzetta San Marco.

Major restoration started in 1985, documenting a sequence of at least five operations, the first of which might have occurred in late Antiquity, the last in the second half of the 19th

century. As is frequently the case, the restoration provided an opportunity to reconsider the bronze from its iconographic and stylistic aspects as well. The most problematic aspect



Fig. 7 - Venice, Piazzetta San Marco, St. Mark's lion, detail.

– but also the most significant concerning the provenance – is the contrast between the body that, according to the canons of Greek art, shows a naturalistic style, and the snout (Fig. 7), which is highly stylized, with a mane of long curls, whiskers, an unnaturally dilated mouth, and human-like ears: these features do find some comparisons, although not particularly apt, with the art of the Assyrian empire or

the Persian world. The presence of both Greek and Asian formal features suggests that it came from an area where the two artistic traditions coexisted: *Cilicia*, a vassal state of the Persian empire conquered by Alexander the Great, has been put forward. The capital of the region was Tarsus, close to one of the Mediterranean endpoints of the Silk Road, and that for trading reasons was highly frequented by Venetian merchants. In Antiquity, Sandon, a Hittite deity of war and physical strength, was worshipped in Tarsus, appearing on local coinage on the back of a winged griffin-lion and provided with horns: it is possible, therefore, that the bronze was originally part of a cultic group wherein a griffin-lion was both attribute and support. Today we see the result of a sequence of operations that probably commenced in early Christian times by transforming the griffin-lion into just a lion; having come into the possession of the Venetians, the statue then became the symbol of St. Mark with the addition of new wings.

The Venetians' talent for monumental assemblages is evidenced in another city symbol, the statue of the so-called "*Todaro*" (Fig. 8), the Byzantine St. Theodore who serves as a pendant to the lion on the western column of

the pier.³⁷ The sculpture that can be seen today is a copy made in 1948: for decades the original has been placed undeservingly in a corner under the portico of the Senators' Courtyard in the Doge's Palace.

For the *Todaro* the removal from the column also became an opportunity for research. The composite nature of the statue was noted, consisting of a head attributed to a Hellenistic ruler, a Roman-era torso, and several additions (legs, arms, shield, and the dragon defeated by the saint) by an unidentified late medieval sculptor. The torso with armor was probably part of a statue of Hadrian with *lorica*. The head (Fig. 9), entirely reworked, presents a youthful face with fine features, long locks of hair, and a protruding oak crown. The assumption that this figure represents a Hellenistic ruler has also been re-proposed in recent studies, but it is not tenable: the oak crown is not a standard attribute of Hellenistic royal portraiture.³⁸ In ancient Roman times, on the other hand, it was a common attribute in imperial portraits, starting from Augustus and continuing into late Antiquity. *Todaro's* crown, with a double row of highly stylized leaves, with a simple outline, and marked by



Fig. 8 - Venice, Piazzetta San Marco, Statue of the *Todaro*.

four drill holes, is identical to the one featured in several portraits of Constantine:³⁹ the head does therefore not date from the Hellenistic



Fig. 9 - Venice, Piazzetta San Marco, Statue of the *Tòdaro*, detail.

age, but from many centuries later. To support the identification with Constantine another important but frequently neglected detail should be reconsidered, as it is not visible

from below: the row of holes (Fig. 10) drilled along the upper edge of the crown that, as already noted, was used to hold a gilded bronze radiate crown.⁴⁰ The radiate crown is a recurring attribute in portraits of Hellenistic rulers and later Roman emperors as a symbol of assimilation to *Helios/Sol*. Under Constantine, the cult of Sol became predominant, and the image of the emperor assimilated to the god through the radiated crown appeared frequently both in coinage and in monuments, such as the lost Constantinopolitan column surmounted by a colossal statue of the emperor in gilded bronze.⁴¹

We can therefore assume that the *Tòdaro* head originally pertained to a larger-than-natural statue depicting Constantine in the guise of the Sun god, most probably located in Byzantium. The head was reworked on the occasion of its reuse in Venice, when the face assumed the ephobic appearance we are familiar with today.

The huge marbles display of the Basilica of St. Mark is a separate chapter in the history of Venetian reuse, well known and studied in its architectural and monumental expressions: the landmark catalog by F.W. Deichmann and

collaborators has classified the typology and style of the 600 or so capitals (about half of them reused) used in the exterior and interior of the church;⁴² other studies investigated column shafts (two-thirds from the Middle East), ornamental elements of different kinds, wall and floor cladding slabs made of polychrome marbles;⁴³ symposia dedicated to specific topics and papers of diverse nature, some of them very recent, examined the bronze horses, the so-called “Carmagnola”, the Tetrarch group.⁴⁴ There is little doubt about the origin of the large majority of the marbles being Constantinople; in a few cases, such as the Tetrarchs, or the so-called “Acritan pillars”, it is even possible to determine the monument they were originally from. Other aspects, however, are left in the shadows, such as the criteria for selecting the *spolia*, the way in which such an imposing mass of material was detected, collected, and transported, and the management of a commerce that, as seen above in relation to the capitals reused in the Basilica of Sts. Giovanni e Paolo and in Palazzo Loredan Corner Piscopia, had significant links between the public and the private spheres.

The motivations that led to the transfer



Fig. 10 - Venice, Piazzetta San Marco, Statue of the *Tondaro*, detail.

of hundreds of architectural elements destined for the Basilica of St. Mark (many of them finely carved, and therefore at risk of damage), are perhaps more evident than those that were behind the choice of the bronze *quadriga*

or the Tetrarch group. Niketas Choniates describes the Latins as a barbarian horde perpetrating unprecedented heinous acts of cruelty on the population, and violently destroying with blind violence an unparalleled artistic heritage.⁴⁵ His testimony may be biased, but it is easy to imagine that rape, looting, and devastation were such as is described in the *Narratio*. The impressive display of the Hippodrome (the largest open-air museum of ancient statuary in the late Middle Ages) was destroyed and it is to this and its fate that Niketas Choniates dedicates pages full of both hatred and nostalgia.⁴⁶ Why, among the dozens of artworks of every subject and size available in the Hippodrome, did the Venetians decide to take possession of the horses in particular? Certainly, the reference to the quadrigas of ancient Roman triumphalists played a prominent role. But the fact that it was an ideologically flexible subject was probably also influential in their decision: unlike most of the artworks described in *De statu*, which were linked to the myth and history of the Classical world, the *quadriga* could fit contemporary symbolic meanings, both politically and religiously. Located above the central archway of the West

facade, it recalled the structure of the Roman triumphal arches, as a symbol of victory over the former ally; or, according to one hypothesis, set in front of four reliefs depicting the evangelists that are now on the North facade, it was a visual representation of the legend of the *quadriga domini*, a late medieval allegory about the dissemination of the word of God in the world.⁴⁷

Similar considerations may apply to the porphyry group of the Tetrarchs, located at the outer corner of the Treasury. The image of the soldiers embracing each other recalled the ancient imperial motif of *concordia augustorum* and could have easily served a variety of uses depending on the context. According to material and measurements, an uncommon segment of porphyry column shaft reported by U. Peschlow, now located in the Cloister of St. Apollonia in Venice just behind St. Mark's, was once part of one of the columns these reliefs belonged to.⁴⁸ It possibly indicates that the monument reached the lagoon in a different guise than the present one, and that it was only later that it was adapted for its placement at the corner of the Treasury. With its enigmatic iconography (two dragons swallowing the feet of two

putti holding a table), the inscription inserted in the relief below,⁴⁹ is meant to emphasize the protective role of the four figures, thus stressing the inviolability of the Treasury of St. Mark.

Having no precedent for the use of *spolia*, the Basilica of St. Mark had to, so to speak, invent itself. In the periods that followed, apart from a few isolated cases of limited visual impact,⁵⁰ the reuse of ancient statues disappeared from the city's monumental programs. Many centuries went by before classical statues were employed, once again, to mark the most significant places in the urban landscape of the Serenissima: the chosen site was to be the Arsenal; the model, the Basilica of St. Mark; the occasion, once again, a military victory, although incomparable in its consequences with the events of the Fourth Crusade. In the course of the war waged against the Turks in the late 17th century, in the late summer of 1687 the *Capitano da Mar* Francesco Morosini was besieging the Acropolis of Athens.⁵¹ The unfortunate outcome of the episode is well known: a bomb hit the Ottoman *santabarbara*, preserved in the Parthenon cell, and the temple was severely damaged. To celebrate the ephemeral victory

and revive the memory of the historic triumph over Byzantium, plans were made to ship a pair of horses from the Western pediment to Venice: the operation failed, and the sculptures crashed to the ground. Morosini made do with three lion statues – two of monumental size, one smaller – grabbed locally (in Athens and at the Piraeus) that were placed to guard the entrance gate to the Arsenale. To match the Basilica model a fourth lion, taken from the terrace of the same name in the sanctuary of Apollo at Delos, was added a few decades later.⁵² The unfortunate episode of the Morosini bomb had, for the Venetian history of reuse, a local outcome: a female head belonging to a Parthenon pediment statue, transported to Venice by Morosini's secretary, remained in a house in San Trovaso until the early decades of the 19th century. Identified as a Parthenonian original by Giovanni Davide Weber, an Austrian antiquarian naturalized Venetian, it was sold to the Count of Laborde, who donated it to the Louvre. The Laborde marble represents the sole head from the pediments of the Athenian temple that has survived to the present day in relatively good condition.⁵³

3. *Spolia in the private sphere*

Alongside the *publica magnificentia*, and competing with State monuments, there are the *spolia* of private citizens. Since the 13th century the display of Byzantine capitals, column shafts and cladding slabs in precious marbles – especially Proconnesian, undoubtedly the most widely reused marble of ancient origin in the city, at least since the Romanesque period⁵⁴ – became a qualifying and characteristic element of the most important *domus magnae* erected on the Grand Canal. The capitals used in the arch-windows of Ca' da Mosto, Palazzo Barzizza, and Ca' Loredan Corner Piscopia were once erroneously attributed to local craftsmen in the Byzantine tradition of the 13th century. Indeed, they are at least partly inscribed to Constantinopolitan production, especially of the 5th-6th centuries, and demonstrate the ease with which private individuals in Romanesque Venice had access to pieces imported from the Eastern Mediterranean.⁵⁵ The distinctive features of these materials were the refinement of design and the high quality of their execution: because of their exotic provenance, they were particularly suitable for

displaying the wealth and the taste of the patrons.

In addition to the marbles used with a tectonic function, there are a quantity of *paterae*, formelle, string course friezes, cornices and other ornamental reliefs, which still constitute the most conspicuous elements of Venetian urban decoration. The production of *paterae* and tiles developed mainly from the 11th to the 13th century, with an appendix in the Gothic period; it is distinguished by an iconographic repertoire that combines, often with original results, Byzantine, Islamic and Western motifs.⁵⁶ The presence of flutes in the rims of some pieces, and the recurrence of diameters of uniform size, indicate that many *paterae* were obtained by cutting the shafts of ancient columns into discs.⁵⁷ In some cases, freestanding sculptures were reused. At the Franchetti Gallery of the Ca' d'Oro a *patera* of remarkable size is conserved featuring a lion attacking a bull: the back side, which retains the torso of a male figure wearing a *paludamentum*, proves that it was derived from a statue, possibly from late Antiquity.⁵⁸

In the somewhat modest scene of reuse in Gothic and Renaissance architecture,



Fig. 11 - Venice, Palazzo Mastelli at the Madonna de l'Orto, hellenistic cylindrical altar of reuse.

of note is the case of the Campo and Fondamenta dei Mori and the associated Mastelli Palace in the Cannaregio *sestiere*. Presenting a unitary figurative program, the history of this urbanistic nucleus is little known, and the timing of the reuse problematic.⁵⁹ Ca' Mastelli is an eclectic palace, datable to the end of the 15th century, in the transitional years between the Gothic and Renaissance periods; according to an unfounded 19th-century tradition, in the area there was previously a *fondaco* of the Arabs. Ca' Mastelli is called "of the camel"

because of the Istrian stone relief on the main facade, dated to the 14th or early following century, representing a merchant in oriental clothing leading a camel with a load.⁶⁰ The relief is a kind of manifesto of the mercantile activities of the Mastelli family that, according to a codex from the Marciana Library, was originally from Morea, and had been operating in Venice since the early decades of the 12th century, engaged in the spice trade. In recalling distant travels, the relief is also a summary of the more or less exotic *spolia* that adorn the palace and the adjacent area.

The cylindrical altar with garlands held up by *bucrania* (Fig. 11) inserted at the corner of the main floor is a representative example of how the provenance of a reused marble can be determined on the basis of typology and style. For a long time it was assumed to date from ancient Roman times, and it is indeed a Greek altar manufactured on some island in the Cyclades in the mid-Hellenistic age. At Paros and Delos there are several altars (Fig. 12), with both votive and funerary functions, very similar to the Venetian one both in ornamental layout and style, leaving no doubt about the provenance of the piece.⁶¹ The reuse in a late



Fig. 12 - Delos, Agora of Theophrastus, cylindrical altar.

15th century building would not necessarily imply that the marbles reached the lagoon at this time: they could have been in possession of the family from an earlier period, as the spice trade involved assiduous frequentation of the eastern Mediterranean. But the use of the artifact to support a polyphora is in perfect line with the architectural fashion of the time. Between the last three decades of the 15th and

the early 16th centuries it became customary to use column pedestals in the form of a cylindrical garlanded altar, inspired by ancient Roman altars found in several centers of *Venetia*: there are dozens of such cases (Fig. 13) in palaces, churches, headquarters of Scuole Grandi, and even in the Doge's Palace.⁶² It is very unlikely that the Mastelli altar would have been identified as a work from ancient Greece: in the view of the time, Classical Antiquity was indistinct. But those who were acquainted with the family's activities, and could foresee the extent of its commercial network, valued it as an unusual and valuable item, as it came from distant places.

The reuse of Ca' Mastelli's altar simulates a contemporary architectural solution using an ancient piece, which in turn serves as the model for inspiration of the modern. The classical sources in early Renaissance Venetian architecture form a complicated and problematic subject. The *all'antica* formal language characterizing architectural decoration in the decades from about 1460 to 1530 (i.e., from the erection of the Arsenale gate, the first city monument inspired by ancient Roman models, to the establishment of the



Fig. 13 - Venice, Palazzo Zorzi in San Severo, polyphora.

new language promoted by Doge Andrea Gritti and inspired by Jacopo Sansovino) developed forms and motifs that were inspired

by various models.⁶³ Sketchbooks and workshop repertories certainly played a major role, as did the direct observation of monuments found in the ancient Roman centers of the mainland – Brescia, Verona, Pula, but also abandoned sites such as Aquileia or *Altinum*. However, we must consider the imitation of ancient artifacts imported into the lagoon as well, which could be accurately replicated, or reworked into original shapes. A case in point are the Julian-Claudian-era reliefs (Fig. 14 a,b) with *quattuor pueri lapidei* holding Saturnian attributes from St. Vitale in Ravenna.⁶⁴ They are mentioned in a list of acquisitions that the Treviso notary and collector Oliviero Forzetta made in 1335 and had been in Venice since at least the early 15th century, reused in a house near St. Mark's Square. In 1532 they were moved to the Church of Santa Maria dei Miracoli, and during the 19th century transferred to the Archaeological Museum. The two slabs soon gained widespread fame, witnessed by an attribution to Praxiteles, and especially by a series of more or less explicit citations by major artists of the time, including Donatello, Mantegna, the Lombardo brothers and Titian.⁶⁵

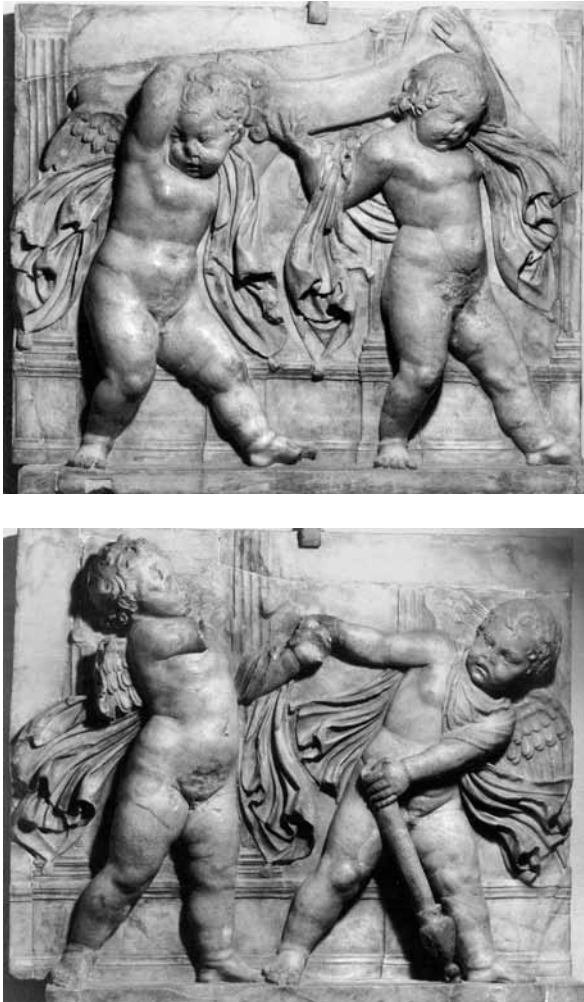


Fig. 14 a,b - Venice, National Archaeological Museum, slabs with *putti* and attributes of Saturn.

It is very likely, however, that the custom of copying classical ornamental or figurative motifs from imported marble dates from a much earlier period. Embedded at the base of the façade of Ca' Mastelli on the rio of the Madonna dell'Orto there is a row of reused frieze blocks decorated with flowers and other plant elements, and with scrolls that intertwine to form circles with the insertion of mostly animal figures (Fig. 15). These friezes were normally used as string courses and are part of a production dating between the 10th and 13th centuries.⁶⁶ The peopled scroll is one of the most frequent motifs in ancient Roman architectural decoration,⁶⁷ and it is therefore likely that the decorative pattern and figurative motifs were inspired by ancient friezes that reached Venice from some center on the mainland or from the Levant.⁶⁸

Thematically related to the camel relief affixed to the facade of Ca' Mastelli, the four Istri-an stone statues reused in the nearby Campo dei Mori portray a caravan of Orientals, from which the *campo* takes its name.⁶⁹ Little is known about the architectural history of the area, and it is therefore not yet possible to state when the sculptures were re-employed; according to some scholars, they either come from the facade of



Fig. 15 - Venice, Palazzo Mastelli at the Madonna de l'Orto, detail of the frieze.

the Mastelli palace, or from the building that preceded it.⁷⁰ The best-known statue, a kind of Venetian “Pasquino”, is called “Sior Rioba” because of the misreading of the inscription (rio

Ba/rbaro) affixed along the burden the figure holds on his shoulders, and portrays a *bastazo*, a porter employed in the Fondaci. The statue stands on a composite pedestal formed by a very



Fig. 16 - Venice, Campo dei Mori, Hellenistic cylindrical altar.

roughly crafted Ionic capital and a small cylindrical marble altar (Fig. 16) in a poor state of preservation, similar in typology and dating to the altar reused at Ca' Mastelli, which also came from somewhere in the eastern Mediterranean, Rhodes or the Cyclades. It is likely that until their arrival in Venice, the two marbles had experienced parallel vicissitudes: once they arrived in the city, the larger and better-preserved altar went to decorate the *piano nobile* of the family palace while the smaller and less well-preserved one was allocated to a humbler setting.

The other three statues, two placed on small hanging bases and a third one inserted in



Fig. 17 - Venice, Fondamenta dei Mori, statue of a *Moor*.

a Lombard-style niche (Fig. 17), are placed in the *campo* and nearby Fondamenta dei Mori.⁷¹

The Venetian taste for creating eclectic figures using heterogeneous stones is evidenced by the voluminous turbans made of (Proconnesian?) marble that were used to ethnically connote characters wearing Western clothing as oriental, and whose original identity is problematic. They are thought to be contemporary additions to the reuse of the statues, but the incongruous dimensions clearly prove that they, too, are *spolia*: similar attributes surmount *stelae* or columnar Islamic funerary monuments, frequent in cemeteries in present-day Turkey and elsewhere.⁷² The turbans on the statues of the Moors provide an example of a phenomenon that to my knowledge has been little studied, that of the reuse of material from the Islamic world. The most famous case is the so-called “chair of St. Peter” in the homonymous church in Castello: the backrest is formed from a funerary stele bearing a Koranic text transcribed in the 11th or 12th centuries.⁷³

I cannot discuss here other ancient and *all'antica* reused artifacts in the area, such as the cylindrical altar in Istrian stone supporting the Moor in fig. 17, a late 15th-century imitation of ancient Roman models; or the statuette of Hercules leaning against a tree inserted in

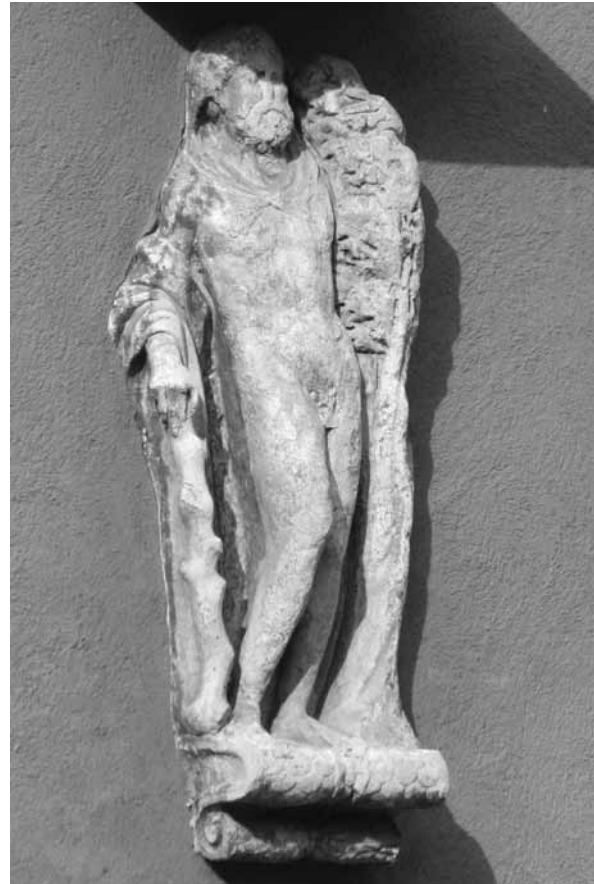


Fig. 18 - Venice, Fondamenta dei Mori, house of Tintoretto, relief with Hercules.

the main floor of Tintoretto's house, pertaining perhaps to a sarcophagus depicting the Labors

of Hercules, or a Lombard copy derived from an ancient model⁷⁴ (Fig. 18).

There is an evident thematic coherence in the complex: the merchant leading the camel in the relief of the palace, and the statues of Moors with turbans allude to the eastern origins of the Mastelli family, while celebrating the vastness of its trade; the Hellenistic altar cites a contemporary architectural practice by making use of an exotic, and therefore unusual and valuable, artifact. As in the Venetian-Byzantine *domus magnae*, the incorporation of marble from distant countries emphasizes the prestige of the family. A distant origin as a guarantee of quality would become a key criterion of evaluation for collecting ancient sculpture, which precisely in the years between the end of the 15th century and the beginning of the following century was taking its first steps in Venice.

There is a 'Venetian way' to reuse. It is grounded in the peculiarity of the city's historical events: the "*origini libere e selvagge*" (free and wild origins) – that is, independent of the prestigious but cumbersome legacy of ancient Rome; the filiation from Byzantium; the mari-

time vocation, and the openness to the Levant, favored by its geographic position; the subsequent realization of a commercial and political network without parallel in late medieval and early modern Europe; and I also venture a psychological need that was felt, when confronted with a proto-urban landscape dominated by the mud of the salt marshes, to adorn the city with a solid and shiny material such as marble. Intertwined with these aspects, peculiar to the Venetian case, were needs that were shared by most of the developed centers of contemporary Italy: the urge to create civic symbols of identity, to give appropriate garb to the most significant monuments, and to enjoy private luxuries.

No Italian city was able to compete with Venice in its relations with the Levant; not even cities like Genoa, which also had long-standing connections with the Byzantine world. The German traveler who in the mid-14th century claimed that Genoa was all built "*con marmi e colonne trasportate da Atene*"⁷⁵ made a blunder: Genoese reuse is 'romanocentric', as is that of the other maritime republics, Pisa and Amalfi, for whom Rome was an obvious ideological referent, and at the same time a convenient and almost infinite emporium of available marbles.

In an imaginary geography of Italian reuse Venice occupies an atypical position: compared to the widespread practice of using local antiquities, or those imported directly from Rome, which were even more sought-after and valuable, the relationship it has with the Levant makes it almost a *unicum*; and it is no coincidence that, if we look for some parallel in the peninsula, no matter how distant, we find it in Adriatic centers exposed to Byzantine influence such as Bari. The Venetians' originality in the use of antiquities is manifested both in the marbles intended for cladding and in the artworks selected to mark the most significant places in the monumental fabric of the city: in the first case, we admire their creativity in adapting *spolia* to the local architectural tradition; in the second, we note the privilege, granted for centuries almost as a monopoly, of having taken from what we consider, perhaps unconsciously, the most living legacy of the Classical world.

Addendum

During the conference “Marco Polo, the Book, and Asia: Research Perspectives Twenty Years Later”, held in Venice from September 11-14,

2024, G. Artioli, M. Vidale, and collaborators presented a paper titled “The Chinese Identity of the ‘Lion’ of St. Mark’s Square and Its Impact on Medieval Venice”. The paper explored recent research on the Lion of St. Mark: isotopic analysis of the lead suggests its origin from caves located in the lower Yangtze River basin, while iconographic comparisons indicate that the statue may be a reworking of a ‘tomb guardian’ from the Tang Dynasty (609-907 CE).

Endnotes

¹ The literature regarding Venetian commercial expansion is vast, as well as beyond my area of expertise: I limit myself to mentioning, among the most recent and/or important publications, TENENTI, TUCCI 1991; HOCQUET 2006; and most recently ORTALLI, SOPRACASA 2017. The subject of “Venice and Antiquity” offers much more restricted literature and has been the focus of a number of research and investigations in recent years, concerning both single monuments and more general aspects. For an overview of the reuse of antiquities from the late Middle Ages to the early Renaissance SPERTI 1996, and SPERTI 2019; with a focus on the Basilica of St. Mark, GREENHALGH 2009, pp. 421-439. Overall, on the discovery of ancient sculpture in Venice s. GREENHALGH 1990. On the main monuments of the area around St. Mark’s (the four horses, the bronze lion, the Tetrarchs, the so-called “*Todaro*”): PEROCO 1977, especially p. 27 ff.; SCARFÌ 1990; CONCINA, FAVARETTO, SCHREINER

2013. On the lions of the Arsenale SACCONI 1991, p. 19 ff.; for a number of cases of reuse of ancient statues and reliefs in churches and palaces TRAVERSARI 1991 (Justice at Rialto), TRAVERSARI 1994 and LAZZARINI, PILUTTI NAMER 2020 (St. Paul/Asclepius at San Polo), SPERTI 1997 and SPERTI 2004b (reliefs at San Canciano, Weber house). The subject of the reuse of ancient Roman and especially Byzantine capitals has been investigated several times: for the Basilica of St. Mark DEICHMANN 1981, MINGUZZI 2000, SPERTI 2016; in Gothic churches: PILUTTI NAMER 2008-2009 (Basilica dei Frari), BARSANTI, PILUTTI NAMER 2009 (Sts. Giovanni e Paolo); Fondaco dei Turchi: PILUTTI NAMER 2016, with emphasis on the culture of restoration and nineteenth-century copies/imitations; Romanesque palaces: BARSANTI 2002. Also, of importance for the history of collecting antiquities, the antiquarian tradition, and the relations with artistic culture have been the conferences TRAVERSARI 1990, and TRAVERSARI 1996; essential for the history of collecting antiquities FAVARETTO 2002. A recent symposium on the reuse of ancient materials in the centers of the Tre Venezie also addresses some Venetian cases: CUSCITO 2012, in particular the papers by L. Rebaudo, M. Pilutti Namer, and L. Calvelli; the conference *Pietre di Venezia* (CENTANNI, SPERTI 2015) explored several aspects of reuse of sculpture, architectural sculpture and other materials, and also the relationship between artistic culture and antiquarian tradition. Finally, FORTINI BROWN 1996, essential for an ideological and cultural framework of the relationship of the Venetians with Antiquity.

² The most cited source is the fifteenth-century *Cronica Anonima* referring to the Contarini reconstruction of the Basilica of St. Mark, and thus to the last third of the eleventh century, in which it is reported that “*molti zentilomeni et populari mandono a tuor marmori*

in Aquilegia et a Ravenna, et molti mandono a Costantinopoli”: CECCHETTI 1886, p. 210, no. 812; analogous accounts in CECCHETTI 1886, p. 11 no. 87; p. 211, no. 823. In general, on sources relating to the importation and use of stone material SPERTI 1996, p. 122 ff.; FORTINI BROWN 1996, 29 and *passim*; GREENHALGH 2009, p. 435 f.; PILUTTI NAMER 2012, p. 177 ff.; PENSABENE 2015, p. 24 ff.

³ “*Gabrieli dandulo capitaneo galearum nostrarum. Cum ecclesia nostra sancti Marci indigeat marmoribus cuiuscumque pulcre condicionis, et ad nostrum auditum pervenerit, quod in insula micholarum, et eciam alii insulae romanie, sint et reperiantur pulcherima marmora, et cuiuscumque condictionis et coloris prudenciam vestram rogamus, per nos et nostrum consilium precipiendo mandantes, quatenus com eritis in dictis partibus micholarum, et aliarum insularum in quibus dicitur quod talia marmora reperiuntur quod inquiri faciatis in omne parte, de ipsis marmoribus qui essent in astis vel clapis astarum et mediis columpnis albis vergatis viridis porfis et cuiuscumque condictionis, et si reperientur de pulchris de eis accipi faciatis, et poni in nostris galeis, per modum savorne, non agrevando propterea ipsas galeas, nec propterea facta nostri comunis vobis comissa, dimittendo in preiudicium negotiorum ipsorum et nos illis qui propterea se fatigarent, faciemus satisfaceri, per procuratores sancti marci sicut erit conveniens atque iustum*”. On the document: CECCHETTI 1886, XII, p. 13, no. 99; THIRIET 1966, I, p. 122 f., no. 164; SPERTI 1996, p. 122 f.; FORTINI BROWN 1996, p. 29. On Gabriele Dandolo KNAPTON 1986. On the relations of Venice with *România* THIRIET 1959; several contributions by the same author collected in THIRIET 1977.

⁴ No systematic excavations have been carried out on the island: see BONACASA 1963.

⁵ SIEBERT, PLASSMANN 2005; on the Crete of Buondelmonti also VAN SPITAEI 1981. In general, BESCHI 1986, p. 316 ff.; FORTINI BROWN 1996, p. 77 ff.

⁶ Venice, Marciana Library, Cod. Lat. XIV 45 (4595), fol. 5, fol. 43; FORTINI BROWN 1996, figs. 79, 80.

⁷ BUONDELONTI 1981, p. 155 f.

⁸ State Archive of Venice, Archive of the Duke of Candia, quad. 17, f. 34; THIRIET 1966, II, p. 164, no. 1340. For the following SPERTI 1996, p. 123.

⁹ On Buondelmonti and Ciriaco d'Ancona in Crete see BESCHI 1984, p. 19 ff.; more generally on Ciriaco's travels several contributions in POSSEDONI 2002, p. 101 ff.; further bibl. in BODON 2005, p. 164 and note 29.

¹⁰ For a short summary on the archaeology of *Hierapytnal/Hierapetra* see TSIPOPOULOU 1995.

¹¹ VAN SPITAEI 1981, p. 105.

¹² BESCHI 1972-1973; BESCHI 1985.

¹³ On the complete story see TSIKNAKES 1990-1991; SPERTI 1996, p. 123.

¹⁴ Most recently see MONTALI 2006, p. 31 f. On the archaeology of Gortyna see DI VITA 1994.

¹⁵ LAZZARINI 2002b, p. 257 f.; PENSABENE 2013, p. 295. The Caristian marble had a special religious valence, as the veins evoked the wood of the Cross: see LAZZARINI 1997, p. 311.

¹⁶ LAZZARINI 1997, 317 ff.; MINGUZZI 2000, p. 41 and *passim*; LAZZARINI 2002b, p. 257; for an overview of the varieties of marble present in the Basilica of St. Mark see DA VILLA URBANI 2000, p. 172 ff.

¹⁷ See MAGUIRE, NELSON 2010.

¹⁸ PENSABENE 2013, p. 103 f., p. 138 ff.

¹⁹ On this aspect see also FORTINI BROWN 1996, p. 16; SPERTI 2019, p. 185 ff.

²⁰ HOCQUET 2017, p. 56.

²¹ LOMBARDO 1951, p. 42 f., no. 55; LAIOU 1982, p. 15 f.; FORTINI BROWN 1996, p. 59.

²² BARSANTI, PILUTTI NIMER 2009.

²³ BARSANTI 2002, p. 63 f.

²⁴ On this point see a note in LAZZARINI 1997, p. 313 f.

²⁵ BORRELLI VLAD, GUIDI TONIATO 1977, p. 137 ff.

²⁶ Most recently EFFENBERGER 2013, p. 50 f. On the story of Rudolf Naumann's discovery of the foot, see the testimony of his daughter: NAUMANN-STECKNER 2013.

²⁷ On the general question TIGLER 1999-2000; see also PENSABENE 2015, p. 40 f.; SPERTI 2015, p. 175 ff.

²⁸ SCHULZE 1989, p. 181. One column is still standing; the other one collapsed in the 16th century.

²⁹ SCHULZ 1992-1993, p. 146; most recently BARRY 2010, p. 10 ff.

³⁰ On the Troad granite, also called "*marmor troadense*", see LAZZARINI 1987, p. 162 and distribution map in fig. 24; PONTI 1995; LAZZARINI 2002b, p. 246; PENSABENE 2013, p. 398 ff. On the Syenite see LAZZARINI 1987, p. 158; LAZZARINI 2002b, p. 228 f.; PENSABENE 2013, p. 254 ff.

³¹ On the issue of provenance see TIGLER 1999-2000, p. 1; SPERTI 2015, p. 176. For the following SPERTI, ZINATO 2017.

³² Yedi Taşlar shafts: h. 11.50 m, lower diam. 1.60/1.66 m (PONTI 1995, 294 ff.; PONTI 2002, 291; PENSABENE 2013, fig. 8.45); St. Mark's column shaft: h. 11.89 m ca., lower diam. 1.69 m.

³³ PONTI 1995, p. 312 ff., figs. 24-25; PENSABENE 2013, p. 398.

³⁴ PONTI 1995, p. 313; PONTI 2002, p. 295. The use of a collar set for protecting the imoscape is a

standard practice in the production of monolithic shafts: e.g., PENSABENE 2013, fig. 10 (Turkey, Afyon, Docimian marble), fig. 11 (Egypt, *mons Claudianus* granite).

³⁵ A summary with updated bibliography in PENSABENE 2002, p. 34 ff.; PENSABENE 2013, p. 147 ff.

³⁶ For the following see SCARFÌ 1990.

³⁷ For the following see SPERTI 2015.

³⁸ SPERTI 2015, p. 181 ff.

³⁹ For instance, the portraits of the colossal statues erected on the balustrade of the Capitoline Hill in Rome: von HEINTZE 1979; most recently PRUSAC 2011, p. 148, nos. 315-317, fig. 63 a-c, with earlier bibliography.

⁴⁰ SARTORIO 1947, p. 133. On the radiate crown is essential BERGMANN 1998

⁴¹ Bibliographical references in SPERTI 2015, p. 184.

⁴² DEICHMANN 1981; see also MINGUZZI 2000.

⁴³ LAZZARINI 1986, p. 86 ff.; LAZZARINI 1997; FAVARETTO 2000; *La facciata nord* 2006; PENSABENE 2015, p. 29 ff. More broadly see TIGLER 2019.

⁴⁴ On the so-called “Carmagnola” see BRECKENRIDGE 1981. For the Horses and Tetrarchs see below.

⁴⁵ PONTANI 2014, p. 259 ff. (XVIII, 5-7).

⁴⁶ PONTANI 2014, p. 415 ff. On the antiquities of the Hippodrome BASSETT 1991 (St. Mark’s horses in note 20).

⁴⁷ JACOFF 1993. A different opinion on the original location of the reliefs can be found in TIGLER 2019, p. 131. A Roman-age dating, confirmed also by technical analyses of the metal alloy, is now a consensus hypothesis, with a preference for the late Antique age. Key archaeological bibl.: MAGI 1970-1971 (dating in the Severan age); BORRELLI VLAD, FOGOLARI, GUIDI TONIATO 1977; GALLIAZZO 1982; GHEDINI 1983; BORRELLI VLAD

1997. For the Horses in the Renaissance see BODON 2005, p. 243 ff.

⁴⁸ NIEWÖHNER, PESCHLOW 2012, p. 343 ff.

⁴⁹ TIGLER 1995, p. 221 ff., no. cat. 224 ff.

⁵⁰ For instance, the statuette of deified Ptolemaic queen depicted as Justice, located in the early sixteenth century at the corner of the Rialto Bridge and the palace of the Dieci Savi: TRAVERSARI 1991.

⁵¹ For the historical background and the archaeological implications see PAVAN 1983, p. 169 ff., p. 185 ff.; BESCHI 1986, p. 342 ff.; SACCONI 1991; BESCHI 1995.

⁵² SACCONI 1991, p. 51 ff.

⁵³ SACCONI 1991, p. 49 f.; BESCHI 1995, who attributed it to the figure of Iris in the western pediment. Weber owned other ancient sculptures, from Attica and the Cyclades, that are still displayed on the exterior façade of the St. Canciano palace: SPERTI 1997, SPERTI 2004b.

⁵⁴ See LAZZARINI 2015: the column shafts alone are nearly 1,000 (*ibid.*, 146, lista in tab. 1, 153 ff.). See also in this volume PT 1.3.

⁵⁵ For capitals in Veneto-Byzantine palaces see BARSANTI 2002. In Romanesque architecture, Byzantine capitals are also frequently located in churches, such as St. Maria Assunta and St. Fosca in Torcello (GUIGLIA GUIDOBALDI 1995), Sts. Maria e Donato in Murano (SPERTI 2004a), and in buildings with a commercial function, such as the Fondaco dei Turchi (PILUTTI NAMER 2016, also essential to the problem of medieval imitations and nineteenth-century operations).

⁵⁶ The reference study is ŚWIECHOWSKI, RIZZI 1982.

⁵⁷ ŚWIECHOWSKI, RIZZI 1982, p. 21 f.; RIZZI 2014 (1987), p. 37, note 13.

⁵⁸ ŚWIECHOWSKI, RIZZI 1982, p. 74, no. 250. For

other examples re-carved from sculptures or inscriptions RIZZI 2014, p. 37, note 13; ŚWIECHOWSKI, RIZZI 1982, p. 22.

⁵⁹ SPERTI 1996, p. 129 ff.; SPERTI 2019.

⁶⁰ RIZZI 2014, p. 268 f., no. cat. 174; HOWARD 2000, p. 151 fig. 181.

⁶¹ SPERTI 1996, p. 130 ff.

⁶² The reference work is TURETTA 2006; see also SPERTI 1996, p. 132 ff.

⁶³ CERIANA 2003; SPERTI 2006.

⁶⁴ Archaeological Museum of Venice: most recently BESCHI 2003; CERIANA 2003, p. 127 ff.

⁶⁵ A partial list in BESCHI 2003, p. 205 f.; other examples in CERIANA 2003.

⁶⁶ DORIGO 2003, p. 449 ff.; further bibliography in SPERTI 2019, at note 53.

⁶⁷ The reference works is still TOYNBEE, WARD PERKINS 1950.

⁶⁸ Other similar cases could easily be included:

for instance, the two reliefs with Labors of Heracles in the western facade of the Basilica of St. Mark, the one with the wild boar of Erimantus datable perhaps in the 5th cent. CE; the local reworking, with the hero in the same posture but with the variant of the Cerynitian hind, in the 13th (TIGLER 1995, respectively p. 85 f., no. 85; p. 91 f., no. 91).

⁶⁹ For the following see SPERTI 2019, with previous bibliography. The dating of the statues is controversial, spanning from the late 13th to early 15th centuries.

⁷⁰ RIZZI 2014, p. 272.

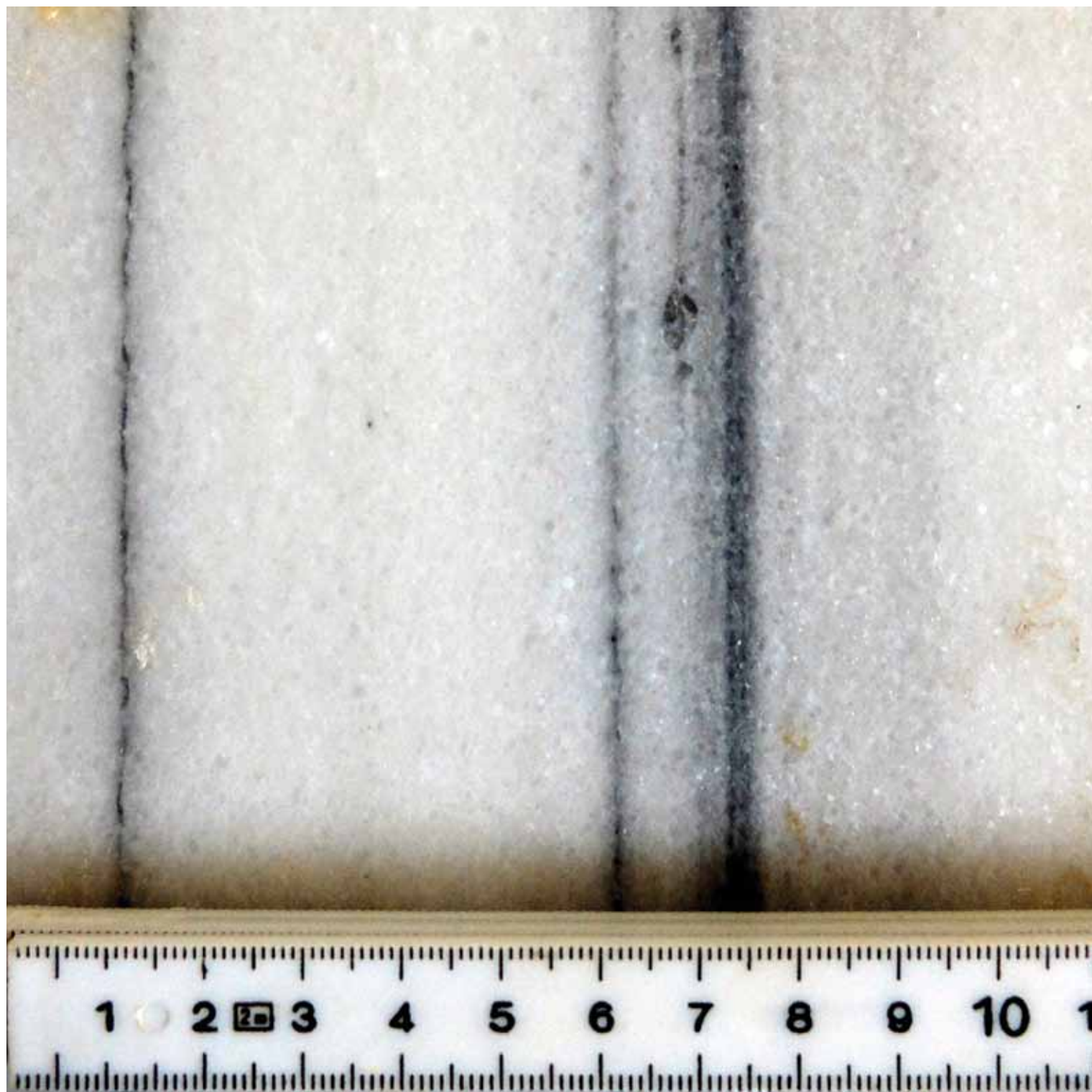
⁷¹ RIZZI 2014, no. 177, p. 270 ff.

⁷² For instance, LAQUEUR 1993, p. 119 ff., p. 161 ff.; the most ancient examples date to the second half of the 15th century.

⁷³ HOWARD 2000, p. 98, fig. 109.

⁷⁴ SPERTI 2019.

⁷⁵ Ludolph von Suchem, quoted in BESCHI 1986, p. 326.



PT 1 - Chapter 3

On Proconnesian Marble and Its Use and Reuse in Venice

LORENZO LAZZARINI

*This study is dedicated to my wife Mieke Van Molle
and to my daughter Livia, with much love*

Proconnesian marble is by far the most ‘ancient marble’ reused in the palaces of medieval Venice,¹ where it was probably brought in small quantities at an early stage of the city’s development along with other stone and brick *spolia*² taken from the ancient Roman buildings of the *X Regio Augustea Venetia et Histria* and mainly from nearby *Altinum*,³ but perhaps also from other centers such as *Patavium*,⁴ *Opitergium*, *Concordia*, that were not far and all connected via rivers to the Venetian lagoon.⁵ As noted in the earliest chronicles, even the ancient Roman cities of Aquileia, to the north, and Ravenna, to the south, contributed to the shipment of lithic materials to Venice via sea, and preponderant among these must have been the architectural elements made of Proconnesian marble, which is white marble in the strict sense of the word⁶ and that is still the most abundant in these two important Adriatic sites today.⁷

In the centuries following the birth of Venice, and throughout the Middle Ages, as Venetian trade expanded throughout the Adriatic and the Levant, a far greater quantity of Proconnesian marble was imported in the city from those regions, mostly by private initiative. Galleys laden with salt, processed and unprocessed metals, lumber and other heavy materials that

Fig. 1 - Macroscopic appearance of the *listato* Proconnesian marble, the most common variety present in Venice.

after the *muda* returned from the Eastern Mediterranean with a hold full of light goods such as grains, pepper and other spices, as well as valuable goods such as fabrics, luxury ceramics, etc., that often needed to be properly ballasted in order to be better balanced. And thus, what better ballast than columns, capitals, pluteuses, marble blocks and slabs, in short, already worked stones that could meet the demand for durable building materials in a city for centuries built primarily of wood, swamp reeds and thatch that aspired to become a metropolis? Excluding a possible exploitation of the ancient quarries of Aurisina that occurred from the 9th to the 13th century, it was only from the 14th century onward that Venice had direct access to its own stone quarries (in Istria, after the 1260 dedication of Poreč and the 1276 conquest of Justinopolis), and even later⁸ to those in the mainland: in Padua (for Euganean trachyte), in Vicenza (for the soft stones of the Berici hills) and in Verona (for the limestones and *lumachella* of the Lessini hills). On the other hand, an almost unlimited quantity of stone materials from the abandoned ancient Greek and Roman coastal cities of the cen-

tral and eastern Mediterranean was available along the routes traveled by the Venetians, especially for the galleys of *Barbaria* (North Africa), *Romània* (Greece and Turkey), Syria, and Alexandria, and it could easily have been purchased at low prices or spoliated out without control with great profits for the Venetian shipowners.⁹

A key period for the provision of ancient marble and stone was undoubtedly the 13th century, from the very beginning, when in 1204 the Venetians contributed to the conquest of Constantinople in the course of the Fourth Crusade, and then during the sixty years of Latin rule of the capital when they devoted themselves to the systematic despoliation of what was most precious in its palaces, lithic materials included. Large quantities of the latter, and especially of Proconnesian marble, came from the demolition of Byzantine buildings in Constantinople and were reused for centuries in the Basilica of St. Mark¹⁰ and in other medieval¹¹ and Gothic as well as Renaissance palaces in Venice. This article aims to provide an initial qualitative and quantitative account of them. However, an assessment of the latter also makes it possible

to assume that in the 13th century there was a supply of Proconnesian marble of blocks quarried *ex novo* on the homonymous island, which was controlled by the Latins during the decades of their occupation of Constantinople, as it was situated along the major sea route that led to the capital of the Byzantine empire. Indeed, a large number of blocks of the *fasciata* variety became necessary as they were to be used in the whole interior and exterior facing of the Basilica of St. Mark, and in part also in its floor.¹² They were appropriately sawn into slabs that were parallel to each other, then put in place *a macchia aperta* (sometimes reported as “book-matching” in literature), thus forming that stunning pattern of concentric lozenges quite similar to textile drapes that we can still admire today.¹³ In fact, the homogeneity of this whole design, which in total covers about 3500 square meters, is so remarkable (featuring two different designs for the exterior and the interior) that, for self-evident reasons (there could not have been an ancient Roman or Byzantine building with such extensive cladding to spoliare), we should conclude it was derived from quarry blocks extracted *ad hoc*.

1. *Proconnesian marble, its quarries and a short history of its use*

Marmor proconnesium is the name by which it is mentioned in Diocletian’s edict of maximum prices in 301 CE,¹⁴ the marble that was quarried on the island called “*Prokònnesos*” in Greek, in ancient times belonging to Mysia, now corresponding to the present Turkish island of Marmara¹⁵, an island that is left to starboard after crossing the Dardanelles Strait sailing in the direction of Constantinople (Istanbul). The ancient city of Prokonnesos, located in the southwestern part of the island,¹⁶ was founded by Milesian settlers around 670 BCE, at the same time as the cities of *Priapus* and *Abydus* (Strabo 13.I.12). The island is located very close to the Kapıdağı peninsula where the ancient city of *Cyzicus* (now Balkiz, near the town of Erdek) thrived and controlled its quarries for centuries, at least from 362/1 BCE, the date when the city of Prokonnesos was vanquished at war, after which it remained under the influence of the neighboring metropolis.¹⁷ This event explains the name *marmor cyzicenum* (Pliny, N.H.5, 44) by which our marble was known in ancient Roman times. This marble

is also mentioned by Strabo (7, fr.55, 13.1.16). Other names by which it was frequently called by stonemasons from the 19th century onward are *marmo greco* (Greek marble) (undifferentiated), especially in Venice, *marmo greco fetido* (fetid Greek marble) and *marmo cipolla* (onion marble) in Rome and other ancient Italian cities because of the acrid odor from the hydrogen sulfide/sulfur compounds it emits when worked.

Generated in the Paleozoic by regional medium-grade metamorphism of partially dolomitic limestones,¹⁸ this marble is nearly always characterized by a distinct foliation that is emphasized by more or less dark and thick (broad) gray levels alternating with white areas, so that there are several varieties: the *statuario*, very rare, to medium-sized (2-3 mm) crystals¹⁹ uniformly white with a tendency toward a slightly cerulean hue (used for sculpture); the *listato* to crystals as above, white with more or less frequent thin (millimeter to centimeter) gray/bluish streaks, often perfectly straight and isoparalleles (Fig. 1) and fine-grained; the *fasciato*, with more or less wide (centimeter to decimeter) gray bands, and grain similar to the preceding; the *veined*, with irregular spots and

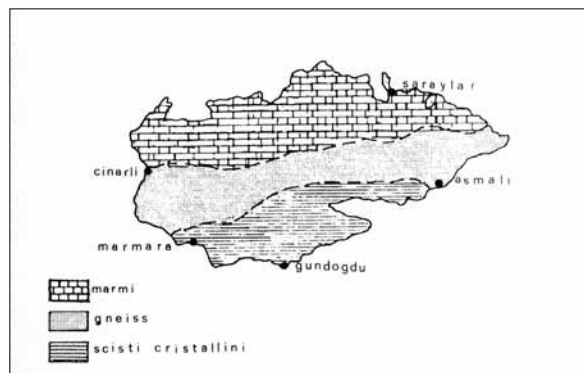


Fig. 2 - Geological map of the NW of Turkey showing the location of Marmara Island (ancient Prokonnesos) and the extent of the marble basin occupying its northern part.

veins. All these are varieties that owe their appearance to the type of quarry cut, however widely used in architecture, but often also in sculpture. The lists, bands, veins, and spots are due to carbonaceous/graphite substance in fine black particles, sometimes of bluish appearance, concentrated in levels or spots, corresponding to organic matter present in pre-metamorphic limestone (an organogenic limestone) partially burned during metamorphism. Their presence sometimes makes it possible to observe micro-faulting in columns²⁰ and slabs.

Quarrying could take advantage of these varieties, particularly the foliation they present,

enhancing their decorative capacity, depending on whether it took place parallel to the foliation itself, and thus to the strips, bands, veins (i.e., to the “verso”), or perpendicular to it (to the “contro”), or inclined (to the “second”): the ancient Romans extracted this marble mostly by taking advantage of the first layering, whereas the Byzantines took advantage of the second.²¹

Proconnesian marble quarries have been, and still are, open north to the centre of the island of Marmara where proper marbles (that is, classified as such petrographically) outcrop (Fig. 2). They were first briefly described by Texier (1862, pp. 161-2), then by Hasluck (1909, pp. 11-13), and recently in more detail in various notes by Asgari and by Kokkorou-Alevra et al.²² They are mostly located on the Northern side of the Marmara Island, immediately south of the ancient port-village of Palatya, modern Saraylar, near a vast marbled area of about 40 km² facing the sea (Fig. 3), a fact that facilitated their easy and inexpensive transportation throughout the Mediterranean at different times from Antiquity to the present day. In ancient Roman times, and later, a large number of them were opened in an amphitheater shape on the slopes of low hills (100-300 m asl) (Fig. 4),

whose ravines (*debris*), which were occasionally excavated to accommodate modern mining, revealed a large number of unfinished artifacts. Initial processing of this marble (as was often the case for many others that were used in large blocks) actually took place in the quarry, partly in order to decrease the weight of the artifacts to be transported. Architectural elements and sarcophagi were often made in series, according to standard measurements, or upon order.²³ Proconnesian marble was mainly used in the production of columns, capitals, bases and other architectural elements such as entablatures, cornices, facing slabs, pluteuses and *transennae*, etc., but also for a large number of sarcophagi (those with smooth and garlanded cases were characteristic and abundant²⁴) fountain basins and baptismal fonts, statuary, etc. Many of these products were, as mentioned, semi-finished and stockpiled at Proconnesus waiting to meet market demands, but they were also worked and finished on commission already from the early ancient Roman imperial age,²⁵ while in the Byzantine era entire marble furnishings for churches were occasionally required, such as the one sunk near the Sicilian coast in the surroundings of Marzamemi.²⁶ In

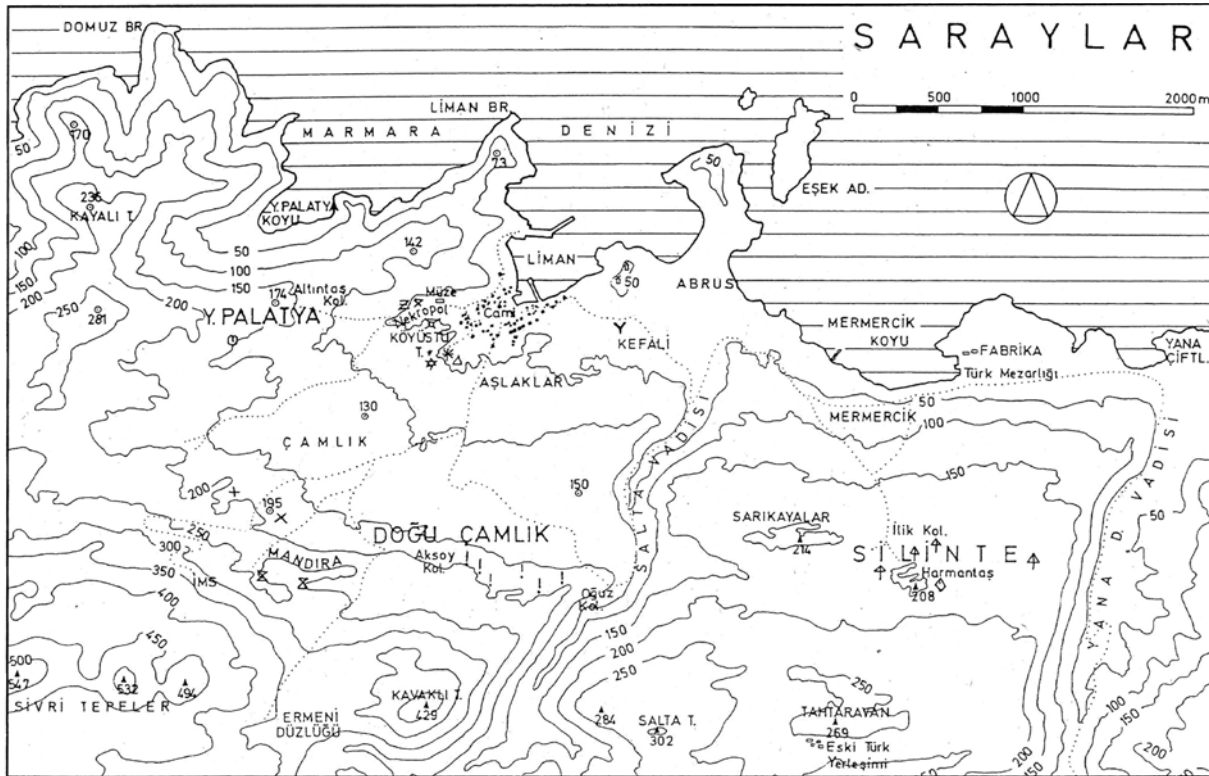


Fig. 3 - Detail of the topography of the marble basin behind the harbor (Liman) of Saraylar village where the majority of ancient and modern Proconnesian marble quarries are located.

contrast to other more valuable marbles, such as Docimian marble, inscriptions are not as abundant in the Proconnesian quarries and among the blocks extracted from them²⁷ as one would

expect given the size of the Proconnesian quarries in the ancient Roman period, and many of the painted ones – probably present in greater numbers – have been lost, limiting the infor-



Fig. 4 - An ancient quarry front south of Saraylar showing the typical marks left by a heavy pick.

mation regarding the management of the quarries themselves.²⁸

Already quarried in Archaic Greek times (*kouroi* and other sculptures from the 6th-5th centuries BCE are known from *Cyzicus*, *Byzys*, and other *poleis* of southwestern Thrace, Mysia, and Troas²⁹), Proconnesian marble was more widely used in Classical (e.g., in the mauso-

leum at Halicarnassus dedicated to the satrap Mausolus) and Hellenistic times (e.g., in the altar at Pergamum). During the 1st century CE, it is highly likely that the quarries became imperial property: they appear to have been very important, even for Rome, from the 3rd century onward (after the silting up of the canal port of the city of Luna on the Magra River,

which made it difficult to send Luna marble to the capital), and throughout the late Antiquity. Proconnesian marble artifacts then reached all provinces of the empire, from *Iberia* to *Palmyra* in Syria,³⁰ and from northern Europe to northern Africa, partly because of its low cost.³¹ The predominant use in ancient Roman time was for architectural elements, sarcophagi and basins, and much less so for statuary. In the following centuries Proconnesian marble became the most widely used throughout the Byzantine and Ottoman periods: indeed, it is the stone material for the construction and decoration of the great monuments of Constantinople-Istanbul,³² and is found everywhere in mosques, even in the remotest localities of the Ottoman empire, both as reused material and as *ex novo* quarried marble.³³ In Byzantine and Ottoman times, the spread of Proconnesian marble was concentrated mainly in the eastern areas of the Mediterranean. All in all, it can be said that, in terms of quantity of its use and almost ubiquitous presence in the ancient world, it is undoubtedly the most important marble in the strict sense in Antiquity, owing its great and constant fortune to its good quality, the proximity of its quarries to the sea and the very con-

siderable extent of its deposits, a fortune that in part continues to this day.

2. *Proconnesian marble in Venice*

A discerning visitor who passes through the *calli* and *campielli* of Venice, or sails along the Grand Canal and major canals, and raises her head to admire the buildings above her, even without having a particularly attentive and expert eye, immediately detects the astonishing abundance of columns of striped or zoned with gray white marble,³⁴ which support loggias and porticoes, or simply adorn arch-windows (*polifore*), facades and apses,³⁵ sometimes partly decorated with the same marble. If the visitor then approaches church portals and palaces, and enters them, he will almost find themselves surrounded by an inconsiderable presence of many other types of artifacts as well. But if he limits himself to a visit to the Basilica of St. Mark alone, or enter the Doge's Palace,³⁶ he will get the same impression, and he cannot help but wonder about the primary and, if familiar with Venetian history, even secondary origin of this marble. He will rarely find an



Fig. 5 - One of the four Byzantine plutei reused in the iconostasis of the Basilica of St. Maria Assunta at Torcello: the peacocks depicted in it symbolize the immortality of the soul.

answer to such questions because of the scant and negligent attention that guidebooks (even the most sophisticated ones) and architectural history studies (albeit extensive) devoted to the stone materials composing the Venetian buildings.

This result is even more discouraging if we consider that the marble in question is actually Proconnesian, and that it is by far, at least quantitatively, the most significant in the ancient history of the Mediterranean area as a whole, as well as being almost omnipresent in Venice.³⁷ In fact, it constitutes the columns (and coverings) on the exterior and interior of the oldest Romanesque churches and palaces,³⁸ called “Venetian-Byzantine” in Venice, such as Ca’ Loredan and Ca’ Farsetti, Ca’ da Mosto, Palazzo Barzizza, the Fondaco dei Turchi,³⁹ but also the slabs on the facades of the Basilica of St. Mark, etc. For the interior, noteworthy are the *transennae* and plutei of this same Basilica and those of Torcello (Fig. 5). But it is even abundant in Gothic buildings, persistent in Renaissance and to be found in Baroque buildings. Proconnesian marble is also present as pilasters and architraves (jambs) of many portals (e.g., of the Basilicas of the Frari and of Sts. Giovanni e Paolo, Fig. 6, of the Church of St. Maria Formosa, etc.), ferrules of arches (e.g., those above the main portal of the western facade of the Basilica of St. Mark,⁴⁰ and those of the Polo houses), window surrounds, capitals (consider the large number and chronological and typologi-



Fig. 6 - The Gothic Portal of the Basilica of Sts. Giovanni e Paolo with six medium-sized columns of Proconnesian marble.

cal variety of these found on the exterior and interior of the Basilica of St. Mark⁴¹), bases, etc. It was also used, albeit much more rarely, for sculptures and for reliefs (the most famous ones are the Byzantine ones in the Basilica of St. Mark, the tondo with an emperor in Campiello Angaran,⁴² and, among the Gothic ones, the walled saint in the bell tower of St.

Sylvester), episcopal chairs (such as those of St. Anastasia in the Basilica of St. Mark,⁴³ and of St. Peter's at Castello), crosses and other small sculptures inserted on the exterior of buildings⁴⁴ including numerous erratic or on site⁴⁵ tiles and *paterae*. Also important are some *vere da pozzo* (well heads),⁴⁶ and beautiful *a macchina aperta* composite slabs of wall coverings, for example in the apse of the Basilica of St. Maria Assunta on Torcello, and floors, as in the case of the ones in the main nave of this same church and the so-called 'sea' of the Basilica of St. Mark (Fig. 7).⁴⁷ Among the parietals, other numerous examples are the very common slabs put in place to frame Gothic arch-windows; among the pavements, mention should also be made of tomb slabs and those outlining altars: renowned for their fine quality and symbolic meanings are those of the Church of St. Zaccaria⁴⁸; in addition, basins of holy water fonts (of particular note are the Romanesque ones of St. Maria Assunta on Torcello, Sts. Maria and Donato on Murano, St. Giacomo dall'Orio and St. Fantin in Venice), sarcophagi (e.g., inside and outside the Basilica of Sts. Giovanni e Paolo) and reliquaries,⁴⁹ *transennae* and *plutei* (such as the valuable collection of those reused

in the Basilica of St. Mark⁵⁰), altar balusters and staircases (as in the Golden Staircase in the Doge's Palace⁵¹), etc.

Of all these typologies of Venetian reuse, two in particular should be emphasized and explored in depth owing to their importance and diffusion, including quantitative: the aforementioned *a macchia aperta* (book-matching) slab cladding, and the reuse of columns. Of the former, because of its beauty and rarity in Italy, mention should be made of the vast wall covering made of Proconnesian marble slabs, placed both inside and outside the Basilica of St. Mark. It is a proper masonry facing that had other but considerably inferior comparisons in a few other monuments in ancient cities, such as in St. Sophia in Constantinople, and in churches in Thessaloniki, Ravenna and Aquileia. In the Venetian Basilica the original veneering slabs were, as mentioned, obtained by sawing from the same block of quarried Proconnesian marble of the *fasciata* variety, and then put in place juxtaposed to form fantastic mesh patterns composed of lozenges, certainly following an earlier Byzantine fashion.⁵² Unfortunately, almost the entire northern wall of the Basilica, much of the southern, and other small areas of



Fig. 7 - The *fasciato* Proconnesian slabs on the floor of the nave of the Basilica of St. Mark; part of the so-called 'sea' appears at the top.

the western facade were affected by the extensive replacement restorations of the second half of the 19th century carried out by P. Saccardo⁵³ causing extensive damage to the Basilica as a whole. A. Zorzi expressed himself on the sub-

ject at the time as follows: “The replacement on both restored sides, of the marble slabs, sawn and arranged, not transverse a *macchia aperta* in interrupted lines, but a *macchia aperta* perpendicular in straight lines, has the inconvenience of having removed all its antique character [...] the old marble parts [...] present a varied and stupendous quality of *macchia* [...] and that is how many of the removed slabs appeared, while the parts that have been replaced in the recent past, and in our day are of an almost regular geometrical *macchia*, with parallel lines [...]. Thanks to the manifold variation of vein and color, these marbles constituted a specialty of the Catholic Monument [...]. Observe how the old *macchia* detached from the lines, perpendicular to the columns, while now, being also perpendicular [...] it goes beyond the line of the shaft confused with those of the wall.”⁵⁴

A fine example of how stunning the decorative effect of the Proconnesian *a macchia aperta* slabs must have been immediately after they were put in place is in the magnificent cross with porphyritic elements that is now to be found in the passageway that leads from the Basilica of St. Mark to the bishop’s palace, originally in the Church of St. Maria dei Miracoli.

Regarding Proconnesian marble columns, their incredible abundance in Venice had never been highlighted before the census I presented in 2015.⁵⁵ The latter was then supplemented, and the results are reported in the present paper, which is not exhaustive (this would have required extra time, and also the possibility of entering many private buildings that are usually not accessible), but certainly constitutes a survey that is broadly representative of the *status quaestionis*, and very indicative of the success of Proconnesian marble in Venice over the centuries.⁵⁶

This success in Venice is not only related to the precipitous structural use of columns,⁵⁷ but also to their decorative use as can be seen, for example, in the facades of the Basilica of St. Mark⁵⁸ for the small columns and, for the very small ones, in the external apse of Sts. Maria and Donato at Murano, in the elevations on the Grand Canal of the Fontego dei Turchi and Ca’ Farsetti for the Venetian-Byzantine period, and in the Arsenale portal for the Renaissance: all these columns were not put in place as load-bearing architectural elements, but for embellishment only. This ornamental use is also evident in the columns of the arch-windows of



Fig. 8 - Columns of small and very small Proconnesian marble on the facade of Palazzo Soranzo on Campo San Polo: the one in the center of the hexafora stands between two of red *broccato* from Verona.

many palaces (Fig. 8),⁵⁹ where Proconnesian marble is reserved for the central position, thus recognizing its greater value related to its decorative and exotic ('Greek') origin. The same can be said for the frequent presence of columns inside religious and other buildings, even of little importance such as the church of St. Antonin, where they are part of altars (9 columns in that church), or of exceedingly high artistic interest such as the funerary monument of Francesco

Venier by Jacopo Sansovino (6 columns, Fig. 9) in the Church of St. Salvador. It is worth noting that this ornamental choice is then connected to a familiarity with 'Greek marble' (Proconnesian) that endured for centuries, with a revival in its reuse at the beginning of the 19th century when Gianantonio Selva installed many columns in his renovated neoclassical churches of St. Maria Maddalena and St. Maurizio.

It is also worth mentioning its importance resumed for the 19th century restoration works of the northern façade of the Basilica of St. Mark⁶⁰ for which starting in the second half of that century a large amount of the deteriorated original slabs had to be substituted with new ones. An analogous quite large intervention was performed well before, in 1504, with the permanent closure of the "Porta da Mar" to transform its back space into the funerary chapel of the powerful cardinal Giovanbattista Zen. This was made with slabs of Proconnesian marble installed with the traditional *a macchia aperta* technique (Fig. 10), to be removed in the second half of the nineteenth century to accommodate the present veined Carrara marble with the insertion of a *verde antico* cross⁶¹ and a base of Tuscan *pavonazzetto*.⁶² Proconnesian



Fig. 9 - Funerary monument of Francesco Venier by Jacopo Sansovino in the Church of St. Salvador.

marble was also used in small quantities for much more limited repair work in other parts of the Basilica's external face, and in the early 20th century also for the reproduction of ancient reliefs (*patere* and *formelle*) by some stone-

masonry firms such as the Dall'Era family (Fig. 11), whose activity continued until a few decades ago to supplement the demand for copies for tourists and for *all'antica* decoration of local buildings.⁶³



Fig. 10 - The 16th-century plugging of the *Porta da Mar* of the Basilica of St. Mark, featuring a marble facing added after 1504. The facing comprises deteriorated Proconnesian marble slabs arranged in the *macchia aperta* (book-matching) technique. The photograph predates the 1880 marble replacements.

Other more recent uses of our marble in Venice was sporadic, as indirectly evidenced by the two small columns in the important *capi-*



Fig. 11 - The owner and the stonemasons of the Dall'Era firm in their workshop at Santa Fosca at the beginning of the 20th century; in the background are visible some of their products that were frequently carved in Proconnesian marble.

tello dedicated to the Madonna placed on the southern facade of the Rialto Bridge (Fig. 12).

The vast majority of the columns identified are reused, as is unequivocally proven by their very common reworkings, usually consisting in the elimination of the imoscape for the purpose of dimensional adaptations (height reduction),⁶⁴ and by the frequent carving of a 'diamond' collar just below the sommoscape. The latter obviously often involved considerable effort by Venetian stonemasons who had



Fig. 12 - The two very small Proconnesian marble columns in the *Capitello della Madonna* (1923) on the left side of the southern front of the Rialto Bridge.

to produce a reduction in the original diameter of the column. It is believed, however, that it cannot be entirely ruled out that some Venetian columns may be of primary use, that is, corresponding to an *ex novo* carving carried out

during the sixty-year Latin rule of Constantinople (including the island of Marmara) or to purchases from the Byzantines or the Ottomans made by the Venetians in later centuries.

3. *Conclusions*

It can be concluded from all that has been written above, in particular about the extensive use for various uses, architectural or not, that the proper marble of Venice is no doubt the Proconnesian from the Isle of Marmara in present-day Turkey. The marble prevalent in the city and the lagoon is not the Carrara marble as we would expect given its origins geographically much closer to Venice.

This conclusion is further supported by the quantitatively updated results (as of spring 2024) from the census of Proconnesian marble columns found in Venetian buildings, presented in the Appendix A1, A2 and summarized below (Tables 1-4). The latter tables include columns identified by the author both inside and outside religious and non-religious buildings in Venice and on the islands of the lagoon. The columns have been categorized by predominant historical periods (Venetian-Byzan-

tine, Gothic, Renaissance, Baroque, Modern). An additional classification based on column size was attempted, though it should be considered tentative, as measuring the shafts accurately was often very difficult, particularly for those located outdoors or in distant or elevated positions.

From Tables 1-2 of the Appendix, it can be deduced that a total of 700 columns occurs on the exterior and interiors of religious buildings in Venice and the islands. Of these, the largest number, as was to be expected, belongs to the Veneto-Byzantine period, although in interiors, the numerical presence attributable to the Renaissance is fully comparable, if not a bit higher. The number of columns installed inside buildings in the latter period is much higher than in the Gothic one, a number that remains relevant also in the Baroque times: this is quite surprising, and fully unexpected. As for the columns' dimensions, in the exteriors, small columns (3-5 m, equivalent to 10-15 Roman feet) largely prevails in the Veneto Byzantine period over the very small (up to 3 m) ones, while the medium typology (5-6 m, corresponding to a maximum of 20 Roman feet, including the lower part of shafts usually cut in Venice) is dominating in the interiors. In tables

3-4 is evident that the total columns of the non-religious buildings are 583, much less than that of the religious buildings. In the exterior of non-religious buildings (public and private) gothic columns prevails over those installed in the Veneto-Byzantine and Renaissance ages, that show almost equal numbers. As easily predictable, very few are present in the Baroque and modern architectures. As for the dimensions, the largest number results by far that of the very small columns in all periods, although also small columns are quite abundant. In the interior of the same category of buildings, the numbers of columns are much reduced and not comparable to those outside buildings.

Summing up the columns present in the interior and exterior of all the Venice and Lagoon buildings so far investigated (Chioggia excluded), we reach a grand total of 1,283 columns of Proconnesian marble, a remarkable number that to the knowledge of the present writer may find a competitive comparison only in ancient Rome and Constantinople.

I shall leave to further research the task of additions and better insights into the actual number of Proconnesian columns in Venice, a phenomenon that, as is however proved here, constitutes indirect evidence of the exceptional

fortune of this marble in the ancient world, and of the extraordinary scale and prosperity of Venetian trade with the Levant.

CATALOG OF A SELECTION OF COLUMNS IN OPERA IN VENICE

Shown in greater detail below than in the attached table are the Proconnesian marble columns found in the Basilica of St. Mark and the Doge's Palace; in some cases, the type of cut with respect to the location of the marble foliation is also specified.

The Basilica of St. Mark

The Proconnesian marble in the Basilica of St. Mark is represented by a considerable number of columns, many beautiful ones of banded veined marble cut to the *contro*, others cut on the *verso*, and still others along intermediate planes. All are to be considered of 'Venetian-Byzantine' age. A still partial analysis which was conducted externally and is reported below, led to the detection of a total of 178 artifacts.

WEST FACADE

Lower part: 34 columns in the 1st order all *fasciata*, 33 columns in the 2nd order of which only one is *listata*:

1 corner column 1st order in the Corner of St. Alipius; 8 columns 1st order of the portal of St. Alipius (of which seven on the *contro* and one on the *verso*); 6 columns in the 2nd of the portal of St. Alipius (*contro*); 2 columns in the 2nd order of the right pillar of the portal of Sant'Alipius (*verso*); 12 columns in the 1st order of the Portal of St. Peter's (*verso*); 2 columns in the 1st order of the main portal (*verso*); 2 columns in the 1st order of the left pillar of the main portal (*verso*); 2 columns in the 1st order of the right pillar of the main portal, cut to the *contro*; 6 columns in the 2nd order of the left pillar of the main portal (*verso*); 6 columns in the 2nd order of the right pillar of the main portal, cut to the *contro*; 6 columns in the 1st order of the portal of St. Clemente (*verso*); 10 columns in the 2nd order of the portal of St. Zeno (*verso*); 2 columns in the 2nd order of the left pillar of the portal of St. Zeno (*verso*); 1 corner column in the 1st order in the *Loggia della Pietra del Bando* (*verso*); 1 corner column in the 2nd order in the *Loggia della Pietra del Bando* (*verso*).

Upper part: 15 columns in the 1st order, 4 columns in the right corner in the three orders, 4 columns in the left corner in the three orders, 4 columns in the 4 central minarets.

NORTH FACADE

42 columns in the 1st order, some of which are listed cut to the *contro*

37 columns in the 2nd order, of which listed and cut to the *contro* (see Table 13 and Tables 16 to 22)

2 small columns in the 3rd order on either side of St. Christopher's statue (Table 13).

SOUTH FACADE

32 total columns, including: 4 columns in the 1st order of the façade; 2 columns in the 1st order in the outer part of the *Loggia* of the *Pietra del Bando*; 6 columns in the 2nd order of the façade; 4 columns in the 2nd order in the outer part of the *Loggia* of the *Pietra del Bando*; 7 columns in the two upper arches of the ex *Porta da mar* and the Baptistery; 9 columns in the minarets above the upper arches of the ex *Porta da mar* and the Baptistery; 4 columns of the single-lancet windows in the 3rd order in the Baptistery Gate.

INTERIOR

For the interior of the Basilica, suffice it to mention among the very many, the 6 large columns of the nave and the 8 of the two wings of the transept in front of the *Nicopeia* and Sacrament altars.

Doge's Palace

In the loggia of the inner courtyard that runs on three sides on the 2nd floor of the palace there are as many as 72 small columns (25-35 cm in diameter) of Proconnesian marble, mostly of the *verso* type, that is, with the gray foliation parallel to the length of the shaft. In the eastern wing of the palace, on the exterior facade facing the courtyard, there are, in fact, 8 pairs of them, alternated with pairs of Istrian stone, while in the other two wings, the southern and western ones, they are placed in 4s (2 on the exterior and 2 on the interior) in the same loggia, in numbers of 24 and 32 respectively, forming in turn a kind of 5-column pillar, the fifth of which, in the center, is always made of Istrian stone. In these two wings, the 'pillars' with marble are alternated with pentastyle pillars of Istrian stone. Again, in the very same open loggia, in the eastern wing,

on each side of some of the portals are 3 other small columns, while in the nearby *Sala del Piovego* there are four medium-sized columns of fine quality (two partially walled) with a diameter at the base of 48.5 cm. In the main (south) facade facing the basin, at the sides of the large central window are two small columns; two more very small ones are located at the upper ends of the same facade.

Endnotes

¹ For the best historical-archaeological framework of early Venice, see DORIGO 2003. For the archaeology of the lagoon, CANAL 2013.

² Luni marble also arrived in Venice in small quantities; it would later reach Venice sporadically (see, e.g., Nino Pisano's *Madonna and Child of Sts. Giovanni e Paolo*), but in greater quantities at the end of the 14th century first with the Delle Masegne family (a family of sculptors responsible, among other works, for the statues in the marble *saeptum* of the Basilica of St. Mark), and then with the Lamberti family (with the creation of the Gothic crowning of St. Mark's). Carrara marble would, however, in absolute terms, always remain quantitatively subordinate to the Proconnesian.

³ A small Proconnesian marble column is present in front of the small modern church erected at the previous National Archaeological Museum.

⁴ Proconnesian marble is quite common in Padua, and even reused inside churches, see DE VECCHI, LAZZARINI 1994, p. 112; VEDOVETTO et al. 2023.

⁵ For the import of colored marble into the Augustan *X Regio*, see the recent study by LAZZARINI, VAN MOLLE 2015. Proconnesian marble is found everywhere in the ancient Roman remains of the cities of the *X Regio*, mainly as slabs and tiles, more rarely as sarcophagi, and even more rarely in the form of columns (to my knowledge, in addition to *Altinum* and Padua, in Aquileia, Concordia, and Oderzo).

⁶ Intended as carbonate rock formed by metamorphism of pure limestones/dolostones.

⁷ A notable survey of ancient columns fitted in Ravenna's Basilicas and churches is that of NOVARA 2002, who describes about 250 Proconnesian marble shafts at pp. 10-18.

⁸ It was only after the beginning of the 15th century that Venice began to expand on the mainland by acquiring, or conquering, Padua, Vicenza, and Verona, the latter being the richest province in stone materials for construction and decoration.

⁹ For an introduction to the phenomenon of spoliation in the ancient and medieval world, see DE LACHENAL 1995; for reuse, in addition to the numerous contributions by L. Sperti (this volume) and P. Pensabene that it would be too long to mention, BERNART et al. 2008.

¹⁰ LAZZARINI 1997. For a detailed history of fourteenth- and fifteenth-century Venetian palaces see RÖSSLER 2010.

¹¹ On some of the latter, including the important Ca' Loredan and Ca' Dandolo on the Grand Canal, see SCHULZ 2004.

¹² Especially in the main nave, where the large slabs in the center of the transept forming the 'sea', and others of the same size, can only have been specially commissioned in the quarries. See also, in this volume, PT 2.2.

¹³ ROSENBERG 2022, p. 128. This design is excellently preserved in the interior walls of the Basilica, although much obscured by past conservation treatments with oils

and greases now completely darkened, while it was much distorted by 19th century heavy restorations (almost completely obliterated in the north wall) in the exterior facades.

¹⁴ LAZZARINI 2010a.

¹⁵ HASLUCK 1909.

¹⁶ DANOFF 1974, p. 560.

¹⁷ AVRAM 2004, p. 994.

¹⁸ MONNA, PENSABENE 1977, pp. 146-147.

¹⁹ It is never fine-grained, that is, average size under mm 2, as reported in BELTRAME 2021, p. 437.

²⁰ In Venice, some examples are visible in the portal columns of the Basilica of Sts. Giovanni e Paolo, and in the interior portal of the hallway of the nearby Scuola Grande di San Marco.

²¹ The exploitation on the “verso” is obviously the easiest and fastest, and thus allows for greater daily production. It was preferred by the ancient Romans, while Byzantine exploitation to the “contro” was more difficult even if the columns would had been more properly loaded and more decorative. In both cases they resembled tree trunks, an aspect sometimes symbolically exploited to indicate the trunk of the sacred cross (as for example in the *Altinum* reuse, cited in note 3).

²² The most important contribution is ASGARI 1978. See also KOKKOROU-ALEVRA et al. 2006.

²³ ASGARI 1988.

²⁴ MONNA, PENSABENE 1977, pp. 159-167.

²⁵ LAZZARINI 1990, pp. 259-260. The quarries were most likely imperial property.

²⁶ KAPITÄN 1969; BELTRAME et al. 2019.

²⁷ ASGARI, DREW-BEAR 2002.

²⁸ PENSABENE 2013, pp. 317-348.

²⁹ Statuary and reliefs from the Greek Archaic and Classical periods are preserved in the museums of Istanbul, Çanakkale, and in the lapidary of the Erdek Pub-

lic Gardens. Herodotus narrates that Xerxes had a marble throne, possibly Proconnesian (POGGIO 2021), erected at Abydos in the Troad, from which he could view his army preparing for the 2nd Greek-Persian War (480-79 BCE). Proconnesian marble is mentioned, improperly, by Vitruvius among those used for the Artemision of Ephesus, which was in fact built with local marble.

³⁰ WIELGOSZ 2000.

³¹ It is the cheapest marble mentioned in Diocletian's Edict on Maximum Prices (dated the year 301 CE), where it cost 40 *denarii* per cubic foot, a low price that was due to its availability, ease of extraction and, above all, proximity of the quarries to the sea. On the price of marble in the Roman period, see LAZZARINI 2010.

³² FREELY, ÇAKMAK 2010.

³³ VATIN 2000. It should be noted that this scholar relied a little too much on Ottoman documentary evidence of an overall limited extraction of Proconnesian marble by the Turks, and he evidently did not travel enough to the Levant to observe the effective use of this marble in many Ottoman monuments located everywhere.

³⁴ This chromatic and textural characteristic (the veins are mostly long, straight and isoparallel to each other) makes it immediately distinguishable from Carrara marble, generally only speckled and irregularly veined, and from the much more abundant Istrian stone, very fine-grained uniformly milky-white limestone. A reliable identification, however, could only be achieved archaeometrically through laboratory analyses such as minero-petrographic examinations of thin sections and the determination of the ratio of stable isotopes of Carbon and Oxygen (ASGARI, MATTHEWS 1995; ANTONELLI, LAZZARINI 2015).

³⁵ Venice is one of the few Mediterranean cities where columns are used on the exterior of buildings (but often inside) for decorative purposes only.

³⁶ For a study of external stone materials see ROMANELLI 2004.

³⁷ It is also found on the Venetian islands and hinterland, including abundantly in Chioggia (see, e.g., the three columns placed outside the cathedral, leaning against the masonry and, inside, the twelve columns in the Church of St. Andrea and the four in the Basilica of St. Giovanni Apostolo).

³⁸ For Venetian churches in general: FRANZOI, DI STEFANO 1976; for notable palaces and mansions, BASSI 1976; ZORZI, MARTON 1989.

³⁹ The facade on the Grand Canal of this building, as it is known, was rebuilt by C. Boito in the second half of the 19th century, with the use of much marble brought in from the island of Tinos (Greece) (LAZZARINI, ANTONELLI 2003), but also preserving most of the columns (of the 2nd and 3rd orders), original tiles and *paterae* in Proconnesian marble.

⁴⁰ LAZZARINI 1995.

⁴¹ MINGUZZI 2000b, pp. 123-157.

⁴² LAZZARINI 2019.

⁴³ LAZZARINI 2006.

⁴⁴ RIZZI 2014.

⁴⁵ SWIECHOWSKI et al. 1982.

⁴⁶ RIZZI 2007.

⁴⁷ LAZZARINI 2012.

⁴⁸ DELIWING 1974.

⁴⁹ LAZZARINI 1992.

⁵⁰ ZULIANI 1970. It is very odd that in the entire volume, dedicated to these extremely important reliefs, Proconnesian marble is never mentioned.

⁵¹ On the Doge's Palace, its history, materials and restoration, see ROMANELLI 2004.

⁵² This trend has also largely influenced the more or less contemporary Islamic religious architecture, suffice it to

mention the example of the interior linings at the Mosque of Omar (the Dome of the Rock) in Jerusalem.

⁵³ SACCARDO 1892.

⁵⁴ ZORZI 1877, pp. 83-85.

⁵⁵ LAZZARINI 2015.

⁵⁶ Research on Venetian palaces has been particularly difficult because of their correct identification that is made extremely arduous owing to frequent homonymy. In this paper I referred to Elena Bassi's seminal study (BASSI 1976) and the Touring Club Italiano's guide to Venice (*Venezia* 2005).

⁵⁷ This is the case with palaces, although the particular position (e.g., in the center of arch-windows or on the sides of windows on the main facades of patrician houses) chosen for Proconnesian marble columns is representative of their greater prestige and decorative effect.

⁵⁸ In the facades of the Basilica, the Proconnesian marble columns (such as those of *verde antico*, red porphyry, etc.) 'bear' very little weight, and instead they have a much more decorative functions, also because of their blue-gray striping.

⁵⁹ For example, in the facade of Palazzo Soranzo in Campo San Polo, or of Ca' Foscari and the eponymous Palazzo Foscari in St. Sofia, both overlooking the Grand Canal.

⁶⁰ ZORZI 1877.

⁶¹ On this important decorative stone see LAZZARINI 2007a, pp. 223-244.

⁶² This base was the subject of a specific study: LAZZARINI 1999.

⁶³ The stonemasons' workshop "Bottega di tajapiera Dall'Era" that was established in 1896 at St. Fosca in the surroundings of Palazzo Giovannelli at Cannaregio was closed at the beginning of this century.

⁶⁴ The most emblematic case is that of the large columns of the Madonna dell'Orto.

Appendix

by LORENZO LAZZARINI

Tab. 1 - Columns present at the exterior of buildings (VB, Veneto-Byzantine; G, Gothic; R, Renaissance; B, Baroque; Mo., modern; very small- up to 3 m; small 3-5 m; medium > 5 m, ev. including the removed imoscape).

RELIGIOUS buildings in Venice and the lagoon area (churches, monasteries, etc.): EXTERIOR	VB	G	R	B	Mo.	TOT
Number of columns	231	23	13	7	-	274
Very small	63	17	4	1		85
Small	168		9	6		183
Medium		6				6

Tab. 3 - Columns present at the exterior of buildings (VB, Veneto-Byzantine; G, Gothic; R, Renaissance; B, Baroque; Mo., modern; very small up to 3 m; small 3-5 m; medium > 5 m, ev. including the removed imoscape).

NON RELIGIOUS (public and private) buildings in Venice and the lagoon area: EXTERIOR	VB	G	R	B	Mo.	TOT
Number of columns	132	255	128	6	9	531
Very small	90	141	89		8	
Small	42	206	40		1	
Medium						

Tab. 2 - As for Tab. 1, but columns present at the interior of buildings.

RELIGIOUS buildings in Venice and the lagoon area (churches, monasteries, etc.): INTERIOR	VB	G	R	B	Mo.	TOT
Number of columns	173	13	190	50	-	426
Very small	19	1	104	36		151
Small	64	2	84	14		166
Medium	90	10	2			102

Tab. 4 - As for Tab. 3, but columns present at the interior of buildings.

NON RELIGIOUS (public and private) buildings in Venice and the lagoon area: INTERIOR	VB	G	R	B	Mo.	TOT
Number of columns		13	35	2	2	52
Very small		9	15		1	
Small			20	2	1	
Medium		4				

A1. *Proconnesian marble columns found in Venetian RELIGIOUS buildings*

	Period	Location	Estimated Size	Numbers of Columns
COLUMNS INSTALLED AT THE EXTERIOR				
St. Apollonia	R	polyphora in the cloisture	VS	2
St. Fosca, Torcello	VB	facades	VS	16
St. Giacomo at Rialto	G	Portico	VS	5
St. Giorgio (island of)	R	entrance to the monastery	S	2
Sts. Giovanni e Paolo	G	main portal	M	6
St. Mark (Basilica of)	VB	facades	S	168
St. Margherita	R	main portal	VS	2
Sts. Maria e Donato, Murano	VB	apse	VS	46
St. Maria Gloriosa dei Frari, crowning element	G	pinnacles	VS	12
St. Maria Gloriosa dei Frari, Convent	B	Trinity cloister	VS	1
St. Sebastiano	R	main facade	S	7
St. Simeone Profeta	VB	lateral portico	VS	1
Seminario Vescovile	B	main portals	S	4
Seminario Vescovile	B	entrance to the grand staircase	S	2
			TOTAL	274

COLUMNS INSTALLED AT THE INTERIOR

Madonna dell'Orto	G	main nave	M	10
Madonna dell'Orto, Contarini Chapel	R	St. Agnes altar	VS	2
Madonna dell'Orto, Contarini Chapel	R	funerary monuments	VS	12
Santuario dell'Annunciazione, Pellestrina	B	high altar	S	4
Ognissanti	R	barco (gallery)	S	2
St. Antonin	R	high altar	S	4
St. Antonin	R	lateral altars	VS	5
St. Canciano	R	high altar	VS	2
St. Cassiano	R	high altar	S	2
St. Eufemia, Giudecca	R	1 st altar to the right	VS	2
St. Fantin	R	1 st altar to the right	VS	4
St. Felice	R	lateral altars	VS	22
St. Felice	R	arch at the baptistry's entrance	VS	2
St. Francesco della Vigna	R	lateral altars	S	2
St. Francesco della Vigna	R	lateral altars	VS	6
St. Giacomo at Rialto	R	altar to the right	VS	2
St. Giacomo at Rialto	VB	main nave	M	6
St. Giacomo dall'Orio	VB	lateral entrance	VS	2
St. Giacomo dell'Orio	R	arch at the baptistry's entrance	VS	2
St. Giovanni Elemosinario	R	St. Catherine altar	VS	2
St. Giorgio (island of)	R	Monastery, internal Buora's portal	S	2
St. Giorgio (island of)	R	altars side by side of the transept	S	8

St. Giorgio (island of)	R	counterfacade	S	2
St. Giorgio (island of)	R	Funerary monument of F. Memmo	VS	2
Sts. Giovanni e Paolo	R	Funerary monument of A. Venier	S	2
Sts. Giovanni e Paolo	G	lateral portal of the transept	S	2
St. Lio	B	1 st altar to the right	S	2
St. Lio	B	altar to the left of the high one	VS	2
St. Lorenzo	B	in the central partitions	VS	8
St. Mark (Basilica of)	VB	nave, transept, apses, walls	M	50
St. Mark (Basilica of)	VB	transept, apses, walls	S	30
St. Maria Assunta, Torcello	VB	nave, transept, apses, walls	M	18
St. Maria Assunta, Torcello	VB	iconostasis, pulpit	VS	9
Sts. Maria e Donato, Murano	VB	nave, transept, apses, walls	S	24
Sts. Maria e Donato, Murano	VB	lateral chapel, sacristy	VS	2
Sts. Maria e Donato, Murano	VB	nave, transept, apses, walls	M	14
Sts. Maria e Donato, Murano	VB	later, left chapel	S	2
St. Maria Elisabetta, Lido	B	St. Apollonia altar	VS	2
St. Maria Formosa	R	altars and partitions	VS	5
St. Maria Gloriosa dei Frari	R	A. Vittoria's altar	S	2
St. Maria Gloriosa dei Frari	G	sacresty	VS	1
St. Maria Gloriosa dei Frari	R	Pesaro's altar	S	2
St. Maria Gloriosa dei Frari	R	Pesaro's tomb	VS	2
St. Maria Maddalena	B	lateral altars	VS	4
St. Maria Mater Domini	R	1 st altar to the left	VS	2
St. Maria Valverde	B	chorus, on the sides	VS	2
St. Martino	R	4 th altar to the left	S	2
St. Maurizio	B	lateral altars	S	8
St. Maurizio	B	high altar	VS	6
St. Moise	B	baptistry	VS	2
St. Nicolò dei Mendicoli	VB	arch of the transept	VS	4
St. Nicolò dei Mendicoli	R	Barco (gallery)	S	4
St. Pantalon	B	baptismal font	VS	2
St. Pietro in Castello	VB	Lando chapel	VS	2
St. Polo	R	altars, and chapels to the right	S	12
St. Raffaele Arcangelo	B	altar to the left of the high altar	VS	4
St. Raffaele Arcangelo	B	baptistry	VS	2
St. Rocco	R	lateral altars	VS	16
St. Rocco	R	counterfacade	S	4
St. Rocco	B	Scoletta, altar at the entrance	VS	2
St. Salvador	R	Venier funerary monument	VS	2
St. Salvador	R	Venier funerary monument	S	4
St. Sebastiano	R	lateral altars	VS	4
St. Sebastiano	R	high altar	S	2
St. Simeone Grande	R	apsidal altar to the right	VS	4
St. Stefano	R	winter chapel	S	2
St. Vidal	R	lateral altars	S	10
St. Zaccaria	R	main apse	S	14

St. Zaccaria	R	main apse	M	2
St. Giovanni Decollato (Zandegolà)	VB	nave	S	8
St. Giovanni Decollato (Zandegolà)	R	altar to the left of the high altar	VS	2
St. Zulian	R	base of the organ	S	4
St. Zulian	R	1 st altar to the right	VS	2
TOTAL				426
GRAND TOTAL				700

A2. *Proconnesian marble columns found in Venentian NON RELIGIOUS buildings*

	Period	Location civic no.	Estimated Size	Numbers of Columns
COLUMNS INSTALLED AT THE EXTERIOR				
Ca' Barzizza	VB	San Polo, facade on Grand Canal	VS	12
Ca' Bernardi	R	San Polo, civ. 1321, facade on Rio dei Meloni	VS	3
Ca' Bernardi	R	San Polo, civ. 1321, facade on Rio dei Meloni	S	3
Ca' Cappellis	G	Cannaregio, Calle Larga G. Gallina, civ. 5400, canal facade	VS	3
Ca' Cappellis	G	Cannaregio, Calle Larga G. Gallina, civ. 5400, canal facade	S	3
Ca' Corner-Martinengo-Ravà	R	San Polo, facade on Grand Canal	S	3
Ca' da Mosto	VB	Cannaregio, facade on Grand Canal	S	3
Ca' d'Oro	G	Cannaregio, facade on Grand Canal	S	4
Ca' d'Oro	G	Cannaregio, facades	VS	11
Ca' Farsetti	VB	San Marco, facade on Grand Canal	VS	40
Ca' Farsetti	VB	San Marco, facade on Grand Canal	S	4
Ca' Farsetti	VB	San Marco, back entrance	S	2
Ca' Foscari	G	Dorsoduro, 3 facades on Grand Canal	VS	18
Ca' Loredan	VB	San Marco, facade on Grand Canal	VS	8
Ca' Loredan	VB	San Marco, facade on Grand Canal	S	12
Ca' Loredan	VB	San Marco, facade on Grand Canal	M	4
Ca' Nobili-Corner	G	Dorsoduro, Campo Santa Margherita, internal courtyard	VS	3
Ca' Sanudo	G	San Polo, Calle Pezzana, civ. 2165	VS	1
Ca' Tron	R	San Croce, facade on Grand Canal	S	6
Casa del Tintoretto	G	Cannaregio, canal facade	VS	2
Casa del Remigio Barbaro	Mo	Burano	VS (fragm.)	1
Casetta Dandolo	G	San Marco, facade on Grand Canal	VS	2
Corte Corner	Mo	San Croce, San Zandegolà, civ. 1704	S	1
Fontego dei Turchi	VB	San Croce, facade on Grand Canal	VS	28
Fontego dei Turchi	VB	San Croce, facade on Grand Canal	S	6
Palazzo Agnusdio	G	San Croce, civ. 2060, canal facade	VS	2
Palazzo Balbi Valier	R	Dorsoduro, facade on Grand Canal	VS	5

Palazzo Barbarigo	R	San Marco, facade on Grand Canal	VS	4
Palazzo Barbaro (ora Curtis)	G	San Marco, facade on Grand Canal	VS	1
Palazzo Bembo	G	San Marco, facade on Grand Canal	S	3
Palazzo Bernardo Nani, now Lucheschi	R	Dorsoduro, San Barnaba, facade on Grand Canal	S	2
Palazzo Bon-Zorzi	G	Castello, civ. 4930, facade on Rio San Severo	VS	4
Palazzo Businello	G	San Polo, facade on Grand Canal	VS	12
Palazzo Cappello-Layard	R	San Polo, facade on Rio San Polo	S	2
Palazzo Contarini delle Figure	R	San Marco, facade on Grand Canal	S	3
Palazzo Contarini-Michiel	R	Dorsoduro, civ. 2794, facade on Grand Canal	VS	2
Palazzo Corner-Contarini dei Cavalli	G	San Marco, facade on Grand Canal	S	5
Palazzo Da Mula	G	Murano, main facade	VS	2
Palazzo Dario	R	Dorsoduro, facade on Grand Canal	VS	2
Palazzo Dolfìn	G	Cannaregio, facade on Grand Canal to the right of Ca' da Mosto	VS	5
Palazzo Dolfìn-Bollani	G	Cannaregio, Santa Marina, civ. 6075, campo facade	VS	2
Palazzo Dolfìn-Bollani	G	Cannaregio, Santa Marina, civ. 6075, canal facade	VS	3
Palazzo Donà della Madoneta	VB	San Polo, facade on Grand Canal	S	6
Palazzo Ducale	G	San Marco, courtyard	S	72
Palazzo Emo alla Maddalena	B	Cannaregio, facade on Grand Canal	S	2
Palazzo Erizzo alla Maddalena	G	Cannaregio, facade on Grand Canal	S	2
Palazzo Falier	VB	Cannaregio, facade on Rio dei Santi Apostoli	S	3
Palazzo Foscari	G	Dorsoduro, facade on Grand Canal	VS	2
Palazzo Foscari-Contarini, now seat of a bank	R	San Croce, facade on Grand Canal near Casa Adoldo	VS	4
Palazzo Garzoni-Moro	G	San Marco, facade on Grand Canal	S	3
Palazzo Giustinian	G	Dorsoduro, facade on Grand Canal	S	3
Palazzo Giustinian-Persico	R	San Polo, facade on Grand Canal	S	1
Palazzo Giustinian-Pesaro	G	Cannaregio, facade on Grand Canal	S	3
Palazzo Giustinian-Querini	R	San Polo, facade on Grand Canal	S	2
Palazzo Grimani (San Luca)	R	San Marco, monumental courtyard well	VS	2
Palazzo Gritti-Badoer	G	Castello, Campo Bandiera e Moro	VS	3
Palazzo Gritti-Pisani, now Gritti Palace Hotel	G	San Marco, facade on Grand Canal	VS	4
Palazzo Lanfranchi	B	San Polo, facade on Grand Canal	S	4
Palazzo Lion-Morosini	VB	Cannaregio, facade on Grand Canal	S	2
Palazzo Loredan dell'Ambasciatore	G	Dorsoduro, facade on Grand Canal	S	3
Palazzo Malipiero	R	San Marco, San Samuele, facade on Grand Canal	VS	4
Palazzo Manolesso-Ferro	R	San Marco, facade on Grand Canal	VS	3
Palazzo Maravegia	G	Dorsoduro, civ. 1071, near ponte de le Maravegie	VS	2
Palazzo Marcello alla Maddalena	R	Cannaregio, facade on Grand Canal	VS	4
Palazzo Mastelli - Casa "del cammello"	R	Cannaregio, canal facade	VS	4
Palazzo Moro	R	Dorsoduro, San Barnaba, facade on Grand Canal	S	6
Palazzo Pasqualigo	R	Cannaregio, civ. 5514, canal facade	VS	1
Palazzo Pesaro Papafava	G	Cannaregio, facade on Canale della Misericordia	VS	2
Palazzo Pisani	G	Cannaregio, Santa Marina, civ. 6103, main facade on the canal	VS	3
Palazzo Priuli	G	Castello, Rio dell'Osmarin	VS	5
Palazzo Priuli-Bon	G	San Croce, facade on Grand Canal	VS	2
Palazzo Sagredo	G	Cannaregio, facade on Grand Canal	VS	2
Palazzo Soranzo	G	San Polo, Campo San Polo, civ. 2169-71	VS	8

Palazzo Soranzo-Van Axel	R	Cannaregio, canal facade & internal courtyard	S	6
Palazzo Tiepolo	R	San Polo, facade on Grand Canal	VS	3
Palazzo Vendramin-Grimani	R	San Polo, civ. 2033, facade on Grand Canal	VS	6
Palazzo Vitturi	G	Castello, Campo Santa Maria Formosa	VS	2
Palazzo Zorzi a San Severo	R	Castello, street facade	VS	2
Palazzo/Palazzetto	R	Cannaregio, civ. 993, facade on Fondamenta di Cannaregio	VS	2
Palazzo/Palazzetto	G	Cannaregio, Strada Nuova, civ. 2217	VS	3
Palazzo/Palazzetto	G	Cannaregio, civ. 2347	VS	1
Palazzo/Palazzetto	R	Cannaregio, c/o Ponte Belli, civ. 3713	VS	3
Palazzo/Palazzetto	R	Cannaregio, Calle San Felice, civ. 3714	VS	3
Palazzo/Palazzetto	G	Cannaregio, Campo Santa Sofia, civ. 4204	VS	1
Palazzo/Palazzetto	R	Cannaregio, Campiello de la Cason, civ. 4509	VS	3
Palazzo/Palazzetto	VB	Cannaregio, Campo San Lio, civ. 5658	VS	1
Palazzo/Palazzetto	R	Cannaregio, Campo Santa Marina, civ. 6043	VS	2
Palazzo/Palazzetto	G	Castello, c/o Ponte degli Scudi, civ. 2654A	VS	3
Palazzo/Palazzetto	R	Castello, civ. 2865	VS	2
Palazzo/Palazzetto	G	Castello, Riva degli Schiavoni, civ. 4110, Hotel Gabrielli facade	VS	3
Palazzo/Palazzetto	Mo	Dorsoduro, Zattere, civ. 1386	VS	1
Palazzo/Palazzetto	G	Dorsoduro, Zattere, civ. 1416	VS	2
Palazzo/Palazzetto	G	Dorsoduro, Zattere, civ. 1417	S	2
Palazzo/Palazzetto	G	Dorsoduro, civ. 3101, facade on Rio di San Trovaso	S	2
Palazzo/Palazzetto	G	Dorsoduro, Corte Marcona, civ. 3883	VS	2
Palazzo/Palazzetto	R	Giudecca, civ. 218-224	VS	1
Palazzo/Palazzetto	R	Giudecca, civ. 588	VS	1
Palazzo/Palazzetto	R	San Croce, Riva di Biasio, civ. 1299A	VS	1
Palazzo/Palazzetto	G	San Croce, Calle Larga San Giacomo, civ. 1662	VS	4
Palazzo/Palazzetto	R	San Croce, Campo San Zandegolà, civ. 1674	VS	3
Palazzo/Palazzetto	G	San Croce, civ. 2084, facade on Fondamenta di Ca' Pesaro	VS	3
Palazzo/Palazzetto	R	San Marco, Ponte dei Bareteri, civ. 573	S	2
Palazzo/Palazzetto	G	San Marco, civ. 2759	S	1
Palazzo/Palazzetto	Mo	San Marco, Campo Manin, civ. 4021	VS	2
Palazzo/Palazzetto	G	San Marco, Merceria San Salvador, civ. 5023, 2 facades	VS (fragm.)	4
Palazzo/Palazzetto	R	San Marco, civ. 5496, canal facade	VS	1
Palazzo/Palazzetto	G	San Marco, Calle della Bissa, civ. 5527	VS	2
Palazzo/Palazzetto	VB	San Marco, civ. 5690	VS	1
Palazzo/Palazzetto	G	San Marco, Campiello de la Feltrina	VS	2
Palazzo/Palazzetto	G	San Polo, Campo San Silvestro, civ. 1125	VS	1
Palazzo/Palazzetto	R	San Polo, civ. 1337 near ponte Colombo	VS	2
Palazzo/Palazzetto	G	San Polo, civ. 1662	VS	4
Palazzo/Palazzetto	R	San Polo, civ. 1754, facade on Rio del Megio	VS	1
Patronato Pio X	Mo	Lido, courtyard	VS	1
Prada Boutique	Mo	San Marco, Calle XXIII Marzo	VS (fragm.)	3
Scuola Grande San Rocco	R	San Polo, facades	VS	15
Scuola Grande SanM.Carità	R	Dorsoduro, cloisture courtyard	S	4

TOTAL

523

COLUMNS INSTALLED AT THE INTERIOR

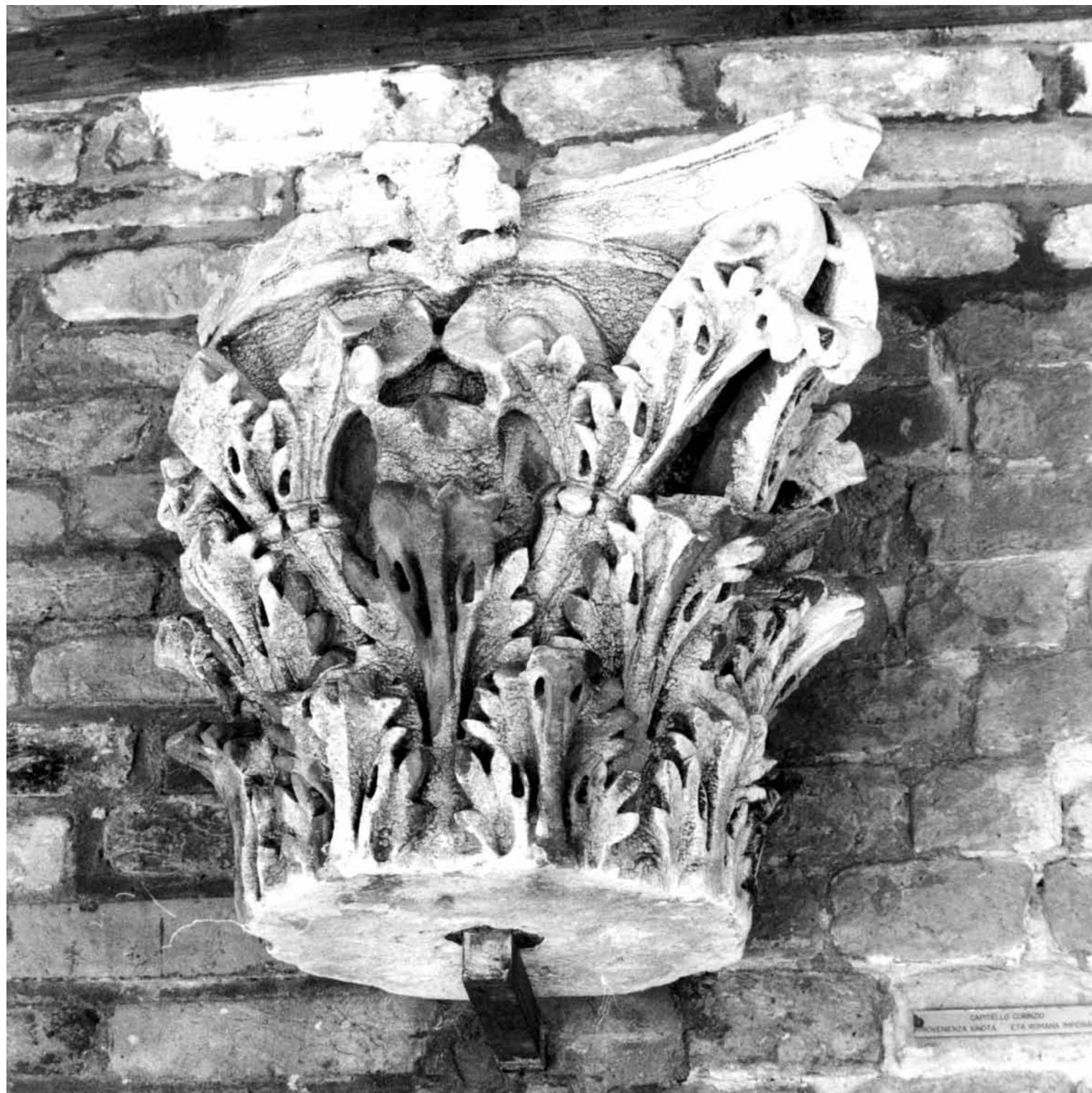
Biblioteca Marciana	R	San Marco, entrance hall	S	2
Ca' Rezzonico	B	Dorsoduro, entrance hall to 1st floor	S	2
Palazzo Ducale	G	San Marco, Sala del Piovego	M	4
Palazzo Loredan-Vendramin-Calergi	R	Portal at the end of the staircase	S	4
Palazzo Maravegia	G	Dorsoduro, civ. 1071	VS	2
Palazzo Stern	Mo	Dorsoduro, civ. 2792A, entrance	VS	1
Palazzo Stern	Mo	Dorsoduro, civ. 2792A, entrance	S	1
Palazzo	R	Cannaregio, Strada Nuova, civ. 2215, Romanian Institute of Culture	VS	1
Palazzo	G	Santa Croce, civ. 1674 near San Zandegolà Church	VS	3
Palazzo	G	San Marco, Piazzetta dei Leoncini, civ. 305	VS	2
Scoletta di San Rocco	R	San Polo, civ. 3052, altar	VS	2
Scuola Grande Misericordia	R	Cannaregio, portal at the top of the staircase	S	4
Scuola Grande San Giovanni Evangelista	R	San Polo, staircase and Sala Capitolare	VS	5
Scuola Grande San Marco	R	Cannaregio, interior portal of the entrance hall	S	2
Scuola Grande San Marco	R	Cannaregio, entrance to the Sala Capitolare	S	2
Scuola Grande San Rocco	R	San Polo, entrance hall	VS	7
Scuola Grande San Rocco	R	San Polo, entrance to Sala Capitolare	S	4
Scuola Grande San Rocco	R	San Polo, entrance to Sala dell'Albergo	S	2
Scuola Vecchia Misericordia	G	Cannaregio, entrance near staircase	VS	2

TOTAL 52

GRAND TOTAL 575

Legend: VB = Veneto-Bizantine R = Renaissance
VS = Very Small M = Medium
G = Gothic B = Baroque
S = Small Mo = modern

**Part Two - FOCUS ON THE BASILICA
OF ST. MARK**



PT 2 - Chapter 1

The Most Ancient Roman Capitals Reused in the Basilica of St. Mark: Chronology and Provenance

LUIGI SPERTI

In the field of Byzantine architectural decoration, the monumental decorative apparatus of the exterior facades of the Basilica of St. Mark in Venice is a subject of significant scholarly interest. Indeed, it evokes the Fourth Crusade and one of its most notable consequences, namely the prolonged and relentless despoilment of Constantinople perpetrated by the Venetians, which resulted in the deterioration of the city's most significant monuments.

It is widely acknowledged that the facades of the Basilica display a comprehensive and multifaceted assortment of Constantinopolitan sculptural architecture, particularly from the late Antiquity and the Justinian age.¹ Nevertheless, the quantity, significance, and quality of the Byzantine artifacts, particularly the capitals, are such that they overshadowed the relevance of a number of Roman-age items, which have not received the attention they deserve in the seminal *Corpus* edited by F. W. Deichmann in 1981, as well as in subsequent contributions. These capitals are of heterogeneous types, including Corinthian, Corinthianizing, and figured capitals, which in some cases date back to the early Roman imperial period. They may therefore be considered evidence of the use of heterogeneous sources in the supply of architectural *spolia*, including the ruins of inland ancient Roman cities and the Adriatic centers located along the trade routes to the Levant.

Fig. 1 - Venice, Basilica of St. Mark, Museum of St. Mark, Deichmann's Capital A10.

In the *Corpus*, the list of *Antike Kapitele* includes five capitals. However, the list is incomplete and includes a few items that, although they present a decorative scheme and stylistic features that refer to the ancient Roman architectural repertoire, must be attributed in all likelihood to Venetian masters of the Lombardesque period.² This evidence indicates that restoration work on the architectural sculpture of the decorative apparatus of the Basilica of St. Mark was undertaken on a regular basis over time.³ Of particular importance here is the extensive restoration program that took place in the second half of the 19th century, the extent and scope of which are not entirely clear even from the extant documentation. Furthermore, it is important to consider another well-documented phenomenon that is often discussed in the *Corpus*: the frequency of pieces that underwent a process of rework.⁴ In some cases, the alteration of a given piece was so extensive that it resulted in a shift in the capital's type.⁵ In other cases, the intervention is more discreet as is the case, for instance, of the figured capital of Severan age located in the north wing of the west terrace, that shows selective rework (no. 572, see below). Indeed, the two crowns of

leaves retained their original appearance, while the figures in the upper register, between the *summa folia* and the abacus, have been extensively reworked. Finally, I recall the group of capitals that are no longer in place, and which are conserved today in the Cloister of St. Apollonia and in the Museum of St. Mark⁶: to the best of my knowledge, the original location of these capitals in the Basilica is unknown. Among them is capital no. A 10 (Fig. 1), which, along with no. 22, is the most ancient known example of a Corinthian capital in the Basilica of St. Mark.⁷ It is a canonical Corinthian capital, that was crafted from marble and relatively modest in scale, exhibiting on the upper surface of the abacus a squared *scamillus* and traces of a medieval-age restoration of a volute. The acanthus leaf shape, with flattened central ribs, open fan-shaped lobes with partially overlapping leaflets, eyes with an ogival profile, and caulicles slightly inclined ending with a crown of inverted petals, is comparable with a series of capitals of the *X regio* datable to the Julio-Claudian age, whose examples include those from the Porta dei Leoni in Verona,⁸ a pilaster capital in the Archaeological Museum of Aquileia,⁹ and a fragmentary one in the Museum of Altino.¹⁰



Fig. 2 - Venice, Basilica of St. Mark, Deichmann's Capital no. 22.

Similar observations can be made regarding the sole capital from the early imperial Roman age reused in the interior of the church in the north wing of the transept.¹¹ This is Deichmann's capital no. 22 (Fig. 2), which represents a canonical Corinthian type and is larger in size than no. A10. Despite the gilding, which was a common feature of many capitals *in opera* inside the church, the decoration of this piece is sufficiently legible and retains most of its original appearance. Deichmann compares this



Fig. 3 - Venice, Basilica of St. Mark, Deichmann's Capital no. 601.

item to no. A10 and dates it to the 2nd century CE. This is an accurate juxtaposition in terms of both type and style; however, it requires revision with regard to dating, as the proportions, the form of the *ima* and *summa folia* and of the

caulicles all refer to the same chronology as no. A10. The treatment of the acanthus and the use of a characteristic motif, such as the tortile ring placed at the crowning of the caulicles, suggest a close comparison with three pieces coming from the same building now at the Archaeological Museum of Istria in Pula.¹² However, the rendering of the capital in the Basilica is undoubtedly of superior quality, as evidenced by the fine detail of the serrated rim in the central rib of the acanthus leaves. It is evident that this capital is a north Italic production of superior quality manufactured during the Julio-Claudian period, and it is plausible that it was part of an important public building.

The Corinthian capital no. 601 (Fig. 3) was reused in the east corner of the upper floor of the south facade and can be probably dated too to the early Roman imperial period.¹³ In the *Corpus*, it is dated in the 1st century CE alongside a group of three capitals (Fig. 4) with a similar decorative scheme, which are placed as support of the eastern tabernacle of the north facade. These capitals have been postulated as 14th or 15th century reworkings of ancient models.¹⁴ Considering the style of the leaves and some decorative elements such as the axial mo-

tif of the converging stems, these capitals definitely seem to be Lombardesque creations and re-proposals of an ancient Roman capital of the so-called “Corinthianizing type”, which was very fashionable between the end of the 15th and the beginning of the 16th century.¹⁵ Nevertheless, the coarse rendering of the details and the absence of accurate comparisons with the proto-Renaissance decorative repertoire may indicate that these capitals were installed during the 19th century, in the period of the restoration work carried by the architect Giambattista Meduna.¹⁶

In contrast, the capital no. 601 presents a pattern that, with endless variations, is widely attested in imperial-age architectural decoration. In the classification of U.-W. Gans, it is included among the so-called “*Lyrakapitelle mit Blattvoluten und verbundenen Rankenstielen*”, a very large group of capitals datable between the early Roman imperial age and the middle of the 2nd century CE.¹⁷ These capitals are characterized by a crown of leaves at the base, which is frequently heterogeneous in type, and a pair of racemes with a calyx, which are joined along the axis to the abacus flower stem. The dating of these artefacts is more challenging than that



Fig. 4 - Venice, Basilica of St. Mark, Deichmann's Capitals nos. 613-605.

of standard Corinthian capitals, as the most commonly used leaf types¹⁸ are less susceptible to change over time than the acanthus used in the canonical type. The most closely related

type comparisons to the Basilica capital are two pieces in the Magazzino del Foro in Pompeii, which are dated to the Augustan period.¹⁹ Additionally, the capital can be compared to a group

of pilasters crafted by local workshops from the second half of the 1st century CE now at the National Archaeological Museum of Parma²⁰ and a few capitals datable between the 1st and the 2nd centuries CE currently in the Museo Lapidario (so-called “Piccolo Mercato”) in Ostia.²¹

In the absence of close live examination and considering the objective difficulties of dating this type of capitals, I would date the Venetian marble within the 1st century CE, as evidenced by the absence of drilling and the still rather naturalistic rendering.

Deichmann also attributes to the 1st century CE, albeit doubtfully, capital no. 428, which is located on the first eastern apse of the northern facade (Fig. 5). This is decorated in the corners with pairs of cornucopias while in the middle of the two main sides there are a trident and a kind of winged caduceus.²² Despite the apparent similarity to the type of figured capitals with cornucopias from the Roman period, an ancient origin is unlikely: all the ancient items conserved, both the ones carved on a more or less monumental scale and the miniature versions reproduced on funerary altars, without exception present the cornucopias in an upright position²³ and not tilted outwards, as if they were figured volutes. The fact that this is a



Fig. 5 - Venice, Basilica of St. Mark, Deichmann's Capital no. 428.

Renaissance artifact is confirmed by a comparison with the drawing of a capital with cornucopias placed in a similar position that appears in the so-called “Mantegna Codex”, which is considered “a fifteenth-century reworking of motifs derived from antiquity”.²⁴ Moreover, in any ancient capital do the cornucopias appear paired as in this case, with a trident or similar motifs such as the curious plant stem with leaves turned into wings found in the center of one of the two main sides.²⁵ In contrast, the combination of a cornucopia and a trident demonstrates the Lombardesque inclination to integrate diverse,

often disparate, ancient motifs. In some instances, these motifs lack intrinsic meaning, while in others, they are employed as a visual reference to contemporary values and ideas. In the present case, I suggest that it is plausible to interpret the combination of the horn of plenty and the trident as a symbol of wealth based on maritime trade, a meaning that for the Venetians of the time was even trivial.

The attestation of Renaissance capitals on the exterior of the Basilica is rare but documented. According to Wolters, the composite capital no. 385 – located on the lower floor of the southern facade – was placed *in opera* after the fire that ravaged the adjacent Doge's Palace in 1482;²⁶ a similar argument can be made with regard to no. 515, which is located on the upper floor of the same facade.²⁷ This is probably a Lombardesque product inspired by ancient Roman Corinthianizing capitals with vegetal volutes.

Among the most ancient capitals reused in the Basilica of St. Mark, an interesting but problematic case is the one of the figured capital no. 572, located in the northern corner of the loggia of the Four Horses (Figs. 6-7). Deichmann dates it to the 2nd or 3rd century CE, and points to an identical item that was once in Rome in the

Hotel Costanzi.²⁸ He also suggests that the piece may have been moved to its present location in the 19th century.²⁹ It is known that in 1903 it was restored: it was disassembled and “the re-assembly of the work of art was carried out in the workshop with scrupulous respect for its authenticity”. It was additionally observed that prior to its reuse in the Basilica, the artifact had undergone another form of reuse, namely the hollowing out of the upper face of the abacus, which was likely intended for use as a stoup.³⁰ The figurative apparatus of the capital, as already noted in the *Corpus*, shows clear signs of medieval reworking. I think it likely that this happened during the reuse process: considering that the artifact was in need of restoration in the early 20th century, it seems unlikely to me that the reworking process took place in the 19th century. This capital belongs to a particular group of figured capitals from the Severan age, characterized by one or two crowns of acanthus leaves and a figured upper register, in some cases quite elaborate. Among the most renowned pieces of this type is the monumental capital known as “della Pigna” in the Vatican,³¹ as well as a pair of items decorated with an unconventional assembly of deities enclosed by angular Victories that were reused



Fig. 6 - Venice, Basilica of St. Mark, Deichmann's Capital no. 572, west side.

in the former church of St. Felice in Pisa³². In contrast, the Venetian capital presents a poor executed acanthus ornamentation in which ribs, lobes and eyes are carved from deep grooves and drilled holes, with an effect that is markedly different from the still relatively naturalistic rende-

ring of most contemporary artifacts. The closest comparison to this capital must be made with a composite artifact from the Villa Mattei now in the Museo Nazionale Romano, which is decorated in the center of each side with winged Victories, who also wear a garment quite similar to that of the female figure on the southern side.³³ In the latter, the two sides are not visible, but F. Matz's description of the figurative register of the capital in Rome made it clear that the same scene was depicted on the two opposite sides. The western side of the Venetian capital (Fig. 6) shows from the left a helmeted female figure,³⁴ in the middle a male figure with a completely reworked head covered by a cloak that extends over the shoulders and the left forearm, and in the right corner another naked male figure with a short *chlamys* on his right shoulder and in his left hand an attribute that can be identified as a caduceus. On the south-facing side (Fig. 7) a Nereid appears in the center in frontal view, dressed in a *peplos* and a cloak that the wind swells in a *velificatio*, and seated on the rump of a Triton facing to the right. As in the capital of Rome, the opposite face showed the same two figures, but with the Triton facing left. The marine scene represents an iconographic pattern that is extensi-

vely documented in the corpus of contemporary artistic production, in particular in the numerous sarcophagi with *Meerwesen* produced from the Trajanic age until the 4th century,³⁵ where the Nereids, are almost regularly depicted nude or semi-clothed, regardless of the type of mount. Indeed, clothed sea nymphs are rare in ancient Roman art,³⁶ while the iconography of clothed Nereids appear much earlier in time, for example depicted on the 4th century BCE Apulian ceramics, or chiseled on contemporary bronze mirrors, or even reproduced in the famous pebble mosaic of Olinthus.³⁷

Within the type of figured capitals, the representation of nautical themes, and in particular of Tritons and/or Nereids, is very rare. The most renowned piece of this type is the monumental capital situated on the extant column of the two that demarcated the termination of the *Via Appia* at Brindisi, with the angles defined by pairs of Tritons in frontal perspective,³⁸ and which is dated to the same years as the Basilica's *spolium*. A comparison with a fragment in the Bardo Museum in Tunis, which partially preserves a semi-enclosed Nereid seated on the rump of a Triton,³⁹ provides limited insight: the capitals of Venice and Rome appear to be *unica* in



Fig. 7 - Venice, Basilica of St. Mark, Deichmann's capital no. 572, south side.

terms of the decoration of the sides in question and of the relationship between the scenes represented on the adjacent sides.

The interpretation of the scene on the other two sides is more problematic. In the capital in Venice, the central figure displays an

awkward intervention involving the entire head and potentially the upper torso. F. Matz (and von Mercklin, who echoes him *verbatim*) describes a bearded figure “*mit zeusähnlicher Gesichtsbildung*” in the capital of the Hotel Costanzi, which he interprets as *Caelus* because of the presence of the cloak; he also identifies the other two figures as Minerva with shield and helmet but without *aegis*, and Mercury with *petasus* and caduceus.⁴⁰ As for the angular figures, the Venetian replica⁴¹ confirms this interpretation: in regard to the identity of Minerva, it is evident that there can be no doubt. The opposite figure shows an iconographic type often adopted for images of Mercury,⁴² although the supposed caduceus he holds in his left hand is schematically represented; it seems to me that Matz’s interpretation is more accurate, particularly given the presence of one fin on the *petasus*. Nevertheless, the characterization of the central figure is less straightforward and open to interpretation. Matz describes a bearded deity with his cloak stretched above his head, but in the Venetian capital the cloak, which has not been altered by post-antique intervention, is simply resting on his shoulders. It seems reasonable to conclude that this is not *Caelus*, given that the mantle he

holds up to symbolize the celestial vault is depicted without exception in ancient Roman art as puffed up by the wind and stretched in an arc over his head.⁴³ An alternative interpretation of the figure is that it represents Jupiter: nevertheless, the absence of a corresponding figure on the Roman capital precludes the formulation of definitive conclusions. Thus, the meaning of the overall scene and the relationship between it and the marine theme present on the other two sides remain unresolved.

Among the ancient Roman capitals in the Basilica’s *Corpus*, W. Deichmann identifies the two *Blattkelchkapitelle* (nos. 274 and 275) (Fig. 8) as reused in the eastern corner of the northern facade, adjacent to the Porta dei Fiori.⁴⁴ The pieces belong to a particular type, which can be dated to the last decades of the 1st century BCE and which was mainly used in Greece and *Asia Minor*. This type also experienced uncommon fortune in post-Antiquity. The seminal work of Ch. Börker identifies two main groups: the first, which was widespread in Greece, shows the *kalathos* covered with lanceolate leaves; the other, which was found in *Asia Minor*, makes use instead of leaves with a rounded upper edge.⁴⁵ In both types, the lower crown is almost invariably



Fig. 8 - Venice, Basilica of St. Mark, Deichmann's capital no. 274 (at left) and no. 275 (at right).

formed by traditional acanthus leaves. The capital type, also referred to as the “Aeolian”, “chalice-shaped”, or “Pergamene” capital, has been the subject of recent studies in relation mainly to large Microasiatic centers, such as Pergamum

and Ephesus⁴⁶, while in the western provinces, as well as in the African provinces, is rarely attested.

P. Liljenstolpe posits that the only two cases in Italy where the type can be linked to a monumental context of the Roman period

are the portico of the amphitheater at *Lupiae*/Lecce, from the Trajanic or Adrianic period, and the coeval *Heliocaminus* from the Hadrian's Villa at Tivoli.⁴⁷ Nevertheless, there are a number of isolated ancient capitals, the earliest of which date from the period of the Second Triumvirate: these are found throughout the Italian peninsula, from the south to the Cisalpine.⁴⁸

Due to the prestige of the Basilica of St. Mark where they have been reused, the two Venetian capitals are among the most frequently cited examples of the type.⁴⁹ Deichmann posits that these capitals were among the *spolia* of the ancient Roman period and proposes to date them between the 2nd and 3rd centuries CE. In the *Venetia et Histria*, the capitals of the type in question are dated to the 2nd century CE, although evidence is sporadic. The most well-known example of this type is a capital made by Proconnesian marble reused in the Basilica of St. Eufemia in Grado: once dated to the 3rd or 4th century CE, it has been recently dated to the first decades of the 2nd century.⁵⁰

The two Basilica's *spolia*, however, exhibit a rendering of the acanthus that is not comparable to any other ornament in the ancient Roman period. Furthermore, the abacus of both

pieces has sufficiently projecting leaf decoration, which indicates that they were not the result of post-antique rework but were originally drafted in this manner.⁵¹ Although there are some apparent discrepancies, including the *kalathos* encased in a double row of leaves with alternately rounded and pointed ends in no. 275 and a single row in no. 274, as well as the ancillary decoration of the abacus in different parts, the two pieces appear to originate from the same workshop. This is evidenced by the identical measures and the correspondence of the acanthus leaves, which are more deteriorated in no. 275, as well as by other details such as the molding of the abacus and the central ribbing of the water leaves. A close comparison can be found in the Romanesque churches of Apulia, particularly in the capital inserted in the facade of St. Basilio in Troia.⁵² In addition, a similar capital is conserved in the south women's gallery of St. Nicola in Bari, where the acanthus is rendered in a similar manner.⁵³ In the absence of a series of capitals datable on extra-stylistic criteria, any attempt at a chronological assessment of these pieces, and of other typologically similar found in Bari itself and elsewhere,⁵⁴ is bound to remain haphazard. With regard to the two Ve-

netian *spolia* nos. 274 and 275, the Roman-age dating proposed in the *Corpus* does not seem acceptable. In a tentative chronological proposal, Ch. Börker recalls the foliate decoration of the abacus, which he associates with similar solutions used in the Constantinopolitan production of the Justinian age.⁵⁵ This is a highly indicative dating, but one that could be confirmed by comparison with the acanthus leaves of a late Antique Corinthian capital from the Amr Mosque in Cairo.⁵⁶ During the reuse process, both capitals, which were evidently in a poor state of conservation, underwent significant alterations. Indeed, the crowns of the acanthus leaves and the edges of the lobes were both regularized.

In the introductory pages of the *Corpus*, J. Kramer devotes significant attention to the question of provenances.⁵⁷ In light of the predominant types of capitals conserved in the Basilica, Deichmann identifies Constantinople as the primary source of *spolia* for Venice. Indeed, the most ancient *spolia* refer to a closer geographical horizon and to sources of supply that can be identified in two ways. On the one hand, they can be traced in the ancient Roman ruins available in the hinterland of Venice. On the other hand, they can be traced in the Adriatic ports

and coasts frequented by Venetian merchants. However, this scenario does not include figurative capital no. 572, the sole exception, which will be discussed in greater detail later. Recent studies have uncovered an extensive and well-documented use of ancient material, stone in particular, but not exclusively, for the foundations of monumental buildings, bell towers, and other structures in Venice. To remain in the vicinity of the Basilica, I will limit myself to mentioning the decorated architectural elements, parts of funerary altars, and numerous epigraphs that emerged during the reconstruction work following the collapse of the bell tower of St. Mark in 1902, and at least in part were conserved.⁵⁸ The prehistory of Venetian reuse of ancient materials is marked by a utilitarian attitude, which informs the criteria of selection of *spolia*. The reusability of blocks of regular shapes and slabs of valuable stones was facilitated by the fact that no further intervention was required. The earliest example of an ancient monumental *spolium* that has been preserved is the bronze statue of the lion, which was placed on the eastern column of the pier at a date between the end of the 12th century and the mid-13th century.⁵⁹ In the same period, the decoration of the fac-

des of the Basilica of St. Mark was being carried out, thanks to the immense quantity of valuable architectural material made available after the Fourth Crusade. But it is not surprising that the initial instances of ancient stone materials were employed not only for their tectonic suitability but also for their inherent formal attributes. In an even earlier architectural phase of the Basilica, namely the Contarinian phase, an ancient Roman capital (no. 22), evidently selected due to its exceptional state of preservation, was reused and adapted to the building. Capitals no. 22 and the now decontextualized A10, in my opinion, constitute a minute minority – according to J. Kramer, about one twentieth of the total – of Western provenance.⁶⁰ It is likely that the origin of these capitals can be traced to some of the ancient Roman centers of the *Venetorum angulus* and the northern Adriatic coast. Regarding the latter, the much-quoted 16th-century chronicle of the Contarini factory of San Marco, which records how “*molti zentilomeni et popolari mandono a tuor marmori in Aquilegia et a Ravenna, et molti mandono a Costantinopoli*”, is an indispensable reference.⁶¹ In 2004, W. Dorigo correctly identified that the focus on marble (“*marmori*”) as opposed to the more common

building stones referenced in other sources relating to the basilica or other religious buildings, seems to indicate a shift from diverse forms of reuse. This changed from utilitarian purposes, which prevailed in the very first centuries of Venetian building history, to a more conscious use of ancient materials. Indeed, these pieces were reused in a function similar to the one they had in the original context: they were selected and used primarily for their aesthetic value.⁶²

The provenance of Corinthian capital No. 22 is uncertain; while the type is prevalent throughout the peninsula, it is probable that the piece originated from *Altinum*, *Aquileia*, or another north Adriatic center,⁶³ given the geographical convenience of such a location.

The case of figured capital no. 572, however, is more complex. A comparison with a replica in Rome now lost leaves no doubt as to the piece's origin. However, this raises a series of questions, including the date of its arrival in the lagoon. The hypothesis that this is a late insertion in the palimpsest of the Basilica, dating back to 19th century interventions,⁶⁴ is based on tenuous considerations. Among these are the typological peculiarity of the capital in the overall framework of the Basilica's external decora-

tive apparatus, or the remarkable discrepancy between the lower diameter of the item and the one of the shaft supporting it. However, this discrepancy is not significant, as it recurs in many other cases. If the artifact required restoration in the early 20th century, it is unlikely that it had been placed *in situ* for several decades. It can therefore be posited that any provenance from medieval Rome would necessitate hypotheses such as that of overland transportation, a theory that is not in conflict with the methods of archaeological and historical investigation used for the supply of ancient materials in late medieval Venice.

The earliest sculptures from Rome reached Venice in the early decades of the 16th century: these were found in the Antiquities' collections of the time, primarily that of Domenico Grimani.⁶⁵ Indeed, in the geography of Italian reuse in the last centuries of the Middle Ages, the myth of the *altera Roma* is primarily a Tyrrhenian phenomenon. All along the Adriatic Sea applied different geographical, political, and ideological factors, leading to the emergence of distinct models:⁶⁶ this is the reason why Capital no. 572 stands out from the decorative apparatus of the Basilica of St. Mark and more broadly

from the landscape of antiquity in Venice during the late Middle Ages.

In regard to *Blattkelchkapitelle* nos. 274 and 275, their origin from the Adriatic region seems to be the most probable hypothesis, while a Constantinopolitan provenance is untenable: indeed, the type in question is not attested in the capital of the Byzantine empire.⁶⁷ In his proposal, Ch. Börker suggested that the provenance should be traced back to a center of Byzantine tradition, particularly Ravenna.⁶⁸ Indeed, the sources explicitly mention some trades in "*marmori*" (marbles) between Ravenna and Venice; furthermore, the presence of Roman sculpture from Ravenna in the city is archaeologically attested since the first decades of the 14th century.⁶⁹ Nevertheless, even in Ravenna there are no documented capitals of the type in question, which, however, can be found in Apulian Romanesque architecture. Indeed, the historical relationship between Apulia and Venice can be traced back to the early stages of the monumental development of Venice, for instance considering the Church of St. Giacomo in Rialto. The building can be dated to the second half of the 11th century and a small group of late Antique capitals reused in the interior

exhibits such close affinities with similar *spolia* from St. Nicola in Bari that an Apulian origin can be assumed for them.⁷⁰ In my opinion, the relationship between Venice and Apulia is a topic that requires further investigation: once expanded to include the entire corpus of reused capitals found in both religious buildings and *palazzi*, this research could provide significant insights into the modes, times, and geographic extent of the centuries-long acquisition of stone artifacts in Venice, which played a pivotal role in the monumental history of the city.

Endnotes

¹ For an analysis of the spoliations perpetrated during the Fourth Crusade see DORIGO 2004, pp. 6-13, with further bibliography. For the capitals see BUCHWALD 1962-63, pp. 181-185; DEICHMANN 1981, pp. 1-7. For the capitals coming from the eastern Mediterranean before 1204 see BARSANTI 2002, p. 59, with further bibliography at note 1, and BARSANTI 2005, note 5 for the updated bibliography on Constantinopolitan capitals.

² DEICHMANN 1981, p. 1, note 6: these are the capitals nos. 22, 274, 275, 428, 572. In order to facilitate the identification of each capital, I employed the numbering system used by Deichmann and his colleagues in the *Corpus*. As we shall see, no. 428 is most likely a Renaissance work, while nos. 274-275 are post-antique. I do not consider Corinthian capitals nos. 3 and 4 as they can be dated to the late Antiquity: on these items see SPERTI 2004a, p. 235, notes 27-28.

³ The 19th century restorations of the Basilica have been the subject of a limited number of studies, have often focused on general principles or overtly polemical in nature. Consequently, there is a paucity of evidence pertaining to the specific interventions that have been carried out. ZORZI (1877), criticized the lack of care exhibited in Meduna's restorations and the excessive replacement of damaged pieces. For further insight, see SEGUSO 1879. For recent summaries that place particular emphasis on the ideological and theoretical assumptions that informed these restorations see DALLA COSTA 1983; ROMANELLI 1997; CRISTINELLI 1999; MINGUZZI 2006.

⁴ See DEICHMANN 1981, p. 2.

⁵ FARIOLI CAMPANATI 1982, p. 101.

⁶ A considerable quantity of stone fragments of diverse types, pertaining to the Basilica, were incorporated into the wall of the small Church of St. Teodoro in the late 19th and early 20th century. In 1969, the stone fragments were relocated to the nearby cloister of St. Apollonia: see FORLATI 1975, pp. 185-196; MINGUZZI 1995. In the early 2000s, some of the most well-preserved pieces were placed in the Museum of St. Mark: see FAVARETTO, DA VILLA URBANI 2003, p. 27 (E. Vio).

⁷ Once in the cloister of St. Apollonia, now in the Museum of St. Mark. Height 45 cm, abacus diagonal 52 cm. DEICHMANN 1981, pp. 144-145, table 48; FAVARETTO, DA VILLA URBANI 2003, no. 18, pp. 186 (S. Minguzzi). The capital is generally dated to the Roman imperial age.

⁸ KÄHLER 1935, p. 161-163, figs. 21-22.

⁹ CAVALIERI MANASSE 1978, pp. 61-62, no. 28.

¹⁰ SPERTI, TIRELLI 2007, p. 119, no. 44, table XXIII. A similar capital, although of later production, from Altino is housed in the Canossa Reali Collection in Dosson, near Treviso. (SPERTI, TIRELLI 2007, p. 119, no. 45, table XXIII).

Another comparison can be found in Trento (MICHELINI 2002). In general, on the development of Corinthian capitals in northern Italy during the 1st century CE, see HEILMEYER 1970, pp. 131-133.

¹¹ *Dettagli di altari* 1881, pl. 256, fig. 5 (and not 6, as erroneously indicated); BUCHWALD 1964, p. 148 fig. 51; DEICHMANN 1981, p. 34 no. 22.

¹² CAVALIERI MANASSE 1978, pp. 134-136, nos. 103-105, table 47. Height 70 cm, abacus diagonal 101 cm.

¹³ DEICHMANN 1981, p. 131, table 44; MINGUZZI 2000, p. 111. Height 36 cm, abacus diagonal 51 cm.

¹⁴ DEICHMANN 1981, pp. 133-134, nos. 613-615.

¹⁵ See various examples in IPPOLITO 2009-2010.

¹⁶ See bibliography mentioned here at note 3.

¹⁷ See GANS 1992, pp. 90-107, nos. 141-205.

¹⁸ GANS 1992, pp. 2-3, figs. I-V.

¹⁹ From the *Casa degli Amorini dorati*: RONCZEWSKY 1931, coll. 12-14, no. 3, fig 1; GANS 1992, pp. 23, 25, and no. 36.

²⁰ ROSSIGNANI 1975, pp. 37-39, nos. 10 and 13, table VIII; GANS 1992, pp. 96, 103, no. 162.

²¹ PENSABENE 1973, e.g., p. 138, no. 557; p. 139, nos. 559, 560: see GANS 1992, pp. 97, 104, nos. 170, 172; pp. 99, 106, no. 197.

²² *Dettagli di altari* 1881, pl. 10 fig. 14; DEICHMANN 1981, pp. 100-101, pl. 28; MINGUZZI 2000, p. 87. Height 29 cm, abacus diagonal 40 cm.

²³ MERCKLIN 1962, pp. 272-275, nos. 640-649, figs. 1251-1264.

²⁴ Cod. Destailleur OZ 111, f. 10 r.: LEONCINI 1993, pp. 61, 92.e, table on p. 147. Another illustration of the same architectural element is found in the so-called "Taccuino Bambaia", which may have been derived from a common source. It is plausible that the inspiration for these

drawings was based on authentic artifacts that were not widely available, yet nevertheless documented in the architectural ornamentation of the Venetian early Renaissance: see, e.g., the figured capital with cornucopias of the portico of the Palazzo dei Rettori in Belluno, in PAOLETTI 1893, p. 259, pl. II, 138, 2, that can be dated to the end of the 15th century. In f. 12 r. of the codex known as "Mantegna codex" there are two other drawings reproducing similar pieces: see LEONCINI 1993, p. 93, d.f, tav. on p. 149.

²⁵ Furthermore, this motif is also present in one of the capitals mentioned in the preceding note, which serves to confirm the modern origin of the piece (f. 12 r., f).

²⁶ DEICHMANN 1981, p. 94: see DEMUS et al. 1995, p. 216 (G. Tigler); WOLTERS 2007, p. 108.

²⁷ DEICHMANN 1981, p. 117, table 38.

²⁸ Height 51 cm; diagonal abacus 65 cm. V. *Dettagli di altari* 1881, tables 157-158, nos. 223-224; DEICHMANN 1981, p. 126, table 42; MINGUZZI 2000, pp. 105, 112, fig. on p. 106. For the replica in Rome, which went missing probably around 1900, see MATZ, DUHN 1881, pp. 4-5, no. 3449; MERCKLIN 1962, p. 167, no. 402.

²⁹ DEICHMANN 1981, p. 1 note 5; see also MINGUZZI 2000, p. 112.

³⁰ MANFREDI 1904, pp. 64-65. The use of capitals as stoups was a well-documented practice: see the well-known example of the Cathedral of Grado, in CAVALIERI MANASSE 1978, pp. 60-61, no. 26.

³¹ MERCKLIN 1962, pp. 156-158, no. 384, figs. 737-747; FREYBERGER 1990, pp. 120-121, no. 296, table 43d.

³² Later the church became the headquarters of the Cassa di Risparmio in Via Ulisse Dini: MERCKLIN 1962, pp. 171-173, no. 413, figs. 802-807; TEDESCHI GRISANTI 1975; SETTIS 1992.

³³ MERCKLIN 1962, p. 164, no. 392, figs. 781-782; MARTINI 1981.

³⁴ The head that is clearly visible in the photograph used by Deichmann (reposted here) has suffered considerable damage, and the helmet is no longer discernible.

³⁵ Of fundamental importance is RUMPF 1939; for a concise update see KOCH, SICHTERMANN 1982, pp. 195-197.

³⁶ SZABADOS, ICARD GIANOLIO 1992, p. 821. It is evident that there are numerous exceptions, including some of great significance. One such example is the remarkable depiction of the Nereids riding sea creatures in the base of *Domitius Ahenobarbus* in Munich: see STILP 2001, pp. 43-44, and figs. 3, 4, 8, 18-19.

³⁷ See, e.g., RUMPF 1939, p. 113, fig. 159 (mosaic of *Olinthus*); SZABADOS, ICARD GIANOLIO 1992, nos. 340-345, 396, 399 (ceramics, mirrors).

³⁸ MERCKLIN 1962, p. 170, no. 411, fig. 809.

³⁹ MERCKLIN 1962, p. 256, no. 618, fig. 1185.

⁴⁰ MATZ, DUHN 1881, p. 5.

⁴¹ The photo is from 1966; the photo campaign for the *Corpus* began in the early 1950s; see DEICHMANN 1981, *Vorwort*.

⁴² See, e.g., numerous classicist statues of the early Roman imperial age, in SIMON, BAUCHENS 1992, nos. 11, 13-14, etc.

⁴³ See numerous examples in TRAN TAM TINH 1994.

⁴⁴ Height 53 cm, abacus diagonal 62 cm. Marble. DEICHMANN 1981, p. 1, note 6, pp. 6, 70; see also MINGUZZI 2000b, pp. 84, 119, 127.

⁴⁵ BÖRKER 1965, pp. 14-176 (Greek type), 197-201 (Microasiatic). The classification recently proposed by P. LILJENSTOLPE (1997-1998, pp. 93-96) includes two additional subgroups. However, in my opinion these could be

considered variants of the composite capital. The relevance of some fragments to the Tower of the Winds in Athens, which would make them the oldest evidence of the type, is still under discussion (see BÖRKER 1965, pp. 135-137). The oldest example comes from Agrippa's *Odeion* in Athens: see THOMPSON 1950 p. 46, 86, tables 34a, 35a; THÜR 1989, p. 99; LILJENSTOLPE 1997-1998, p. 101. For late Antique and medieval capitals see KAUTZSCH 1936, pp. 210-213; BÖRKER 1965, catalog at pp. 177-196.

⁴⁶ For Pergamon see ROHMANN 1998, pp. 30-36 (*Trajanum*), pp. 71-79 (*Asklepieion*). On Ephesus see THÜR 1989, pp. 90-101 (Hadrian's Gate). According to CH. BÖRKER (1965, pp. 197-198) the most ancient Microasiatic capitals are those used in the Trajanum at Pergamon; but W. ALZINGER (1974, pp. 92-94) reported a group of capitals from Ephesus dating to the middle Augustan age. For a summary of the dating and diffusion of Microasiatic capitals (in addition to the two centers mentioned, numerous items are attested at *Miletus*, *Smyrna*, *Labraunda* and elsewhere) see also LILJENSTOLPE 1997-1998, pp. 104-117.

⁴⁷ See LILJENSTOLPE 1997-1998, p. 117. The capitals from Lecce were reused in Otranto cathedral: see PENSABENE 1972; VERGARA 1980, pp. 60-65; VERGARA 1981, p. 98-99, nos. 34-35. On the capital from the Hadrian's Villa see BÖRKER 1965, p. 81, BK 24. Among the items referable to a type akin to the *Blattkelchkapitelle*, the capitals with a calyx of lanceolate leaves but of Corinthian scheme (so-called "*Kapitelle mit verdecktem Kalathos*", see GANS 1992, pp. 64-71), two items pertinent to the decorative apparatus of the Herculaneum theater should be mentioned, datable with the building in the Augustan age: see NUZZO 2010, pp. 390-392, figs. 17-19.

⁴⁸ See the capital from the villa of Capo Massa in Sorrento, now in the G. Vallet Museum, in NUZZO 2010, p.

392, fig. 20. For other examples see WARD PERKINS 1948, pp. 66-69; PENSABENE 1986, pp. 323-324.

⁴⁹ In addition to the reference bibliography cited in note 44, see WARD PERKINS 1948, pp. 67-68; BÖRKER 1965, p. 189, BK 138; BERTELLI 1987, p. 389, note 57; ANDREASSI, RADINA 1988, p. 425, no. 880 (R. Cassano); PILUTTI 2004, p. 290; BARSANTI 2005, p. 81.

⁵⁰ WARD PERKINS 1948, p. 67; SCAMACCA 1965, coll. 141-143, fig. 1; BÖRKER 1965, p. 179, BK 101; correct dating in PILUTTI 2004, p. 290, no. 17; PENSABENE 2006, p. 381, no. 4d. The capital is comparable in the acanthus style to an item of Trajanic or Adrianic age in the Archaeological Museum in Verona, see SPERTI 1983, p. 55, no. 51. A fragmentary capital similar to the one in the Basilica of St. Euphemia is found at the Grado *Lapidarium*: LOPREATO 1990, p. 16, fig. 12, herodedated to the 3rd century CE, but likely coeval with the one in the Basilica.

⁵¹ For a more detailed view of the ornament, see MINGUZZI 2006, fig. on p. 44.

⁵² BELLI D'ELIA 1975, p. 26, no. 31; PENSABENE 1990, p. 43, fig. 61.

⁵³ BERTELLI 1987, pp. 388-389, fig. 19; ANDREASSI, RADINA 1988, pp. 414, no. 854, fig. 612; the capital is dated generically "from the late 4th century onward", yet this dating is based on irrelevant comparisons.

⁵⁴ Bari, Church of St. Gregorio: ANDREASSI, RADINA 1988, pp. 424-425, no. 880 (R. Cassano); Cathedral: ANDREASSI, RADINA 1988, p. 432, no. 893, fig. 652 (R. Cassano). For a 3rd-century capital in the Cathedral of Gerace see PENSABENE 1990, p. 84, fig. 116.

⁵⁵ BÖRKER 1965, p. 189.

⁵⁶ KAUTZSCH 1936, p. 35, table 8, no. 110.

⁵⁷ DEICHMANN 1981, pp. 1-7.

⁵⁸ See PILUTTI NAMER 2012; CALVELLI 2012. On the reuse of ancient Roman inscriptions in Venice, with particular reference to *Altinum*, see also CALVELLI 2011.

⁵⁹ On the lion of St. Mark see SCARFÈ 1990, SPERTI 1996, p. 120, SPERTI 2019 and OLCZAK 2020; on the context see TIGLER 1999-2000.

⁶⁰ DEICHMANN 1981, p. 1; see also SPERTI 1996, p. 121.

⁶¹ See DORIGO 2004, p. 3, with further bibliography in note 17.

⁶² On the origins of the reuse of antiquities in Venice and the related written sources see at least GREENHALGH 1990, pp. 159-161; FORTINI BROWN 1996, pp. 15-20; SPERTI 1996, pp. 119-129; DORIGO 2004; PILUTTI NAMER 2012, especially pp. 166-173.

⁶³ Where it is attested by a number of capitals: see, e.g., SCRINARI 1952, nos. 47-74; SCRINARI 1956, nos. 33-41; CAVALIERI MANASSE 1978, nos. 33-37, 58, 96, etc.; SPERTI, TIRELLI 2007, pp. 120-123; see also GANS 1992, indexes Aquileia, Pula, Trieste.

⁶⁴ See above, note 29.

⁶⁵ FAVARETTO 1990, pp. 84-93.

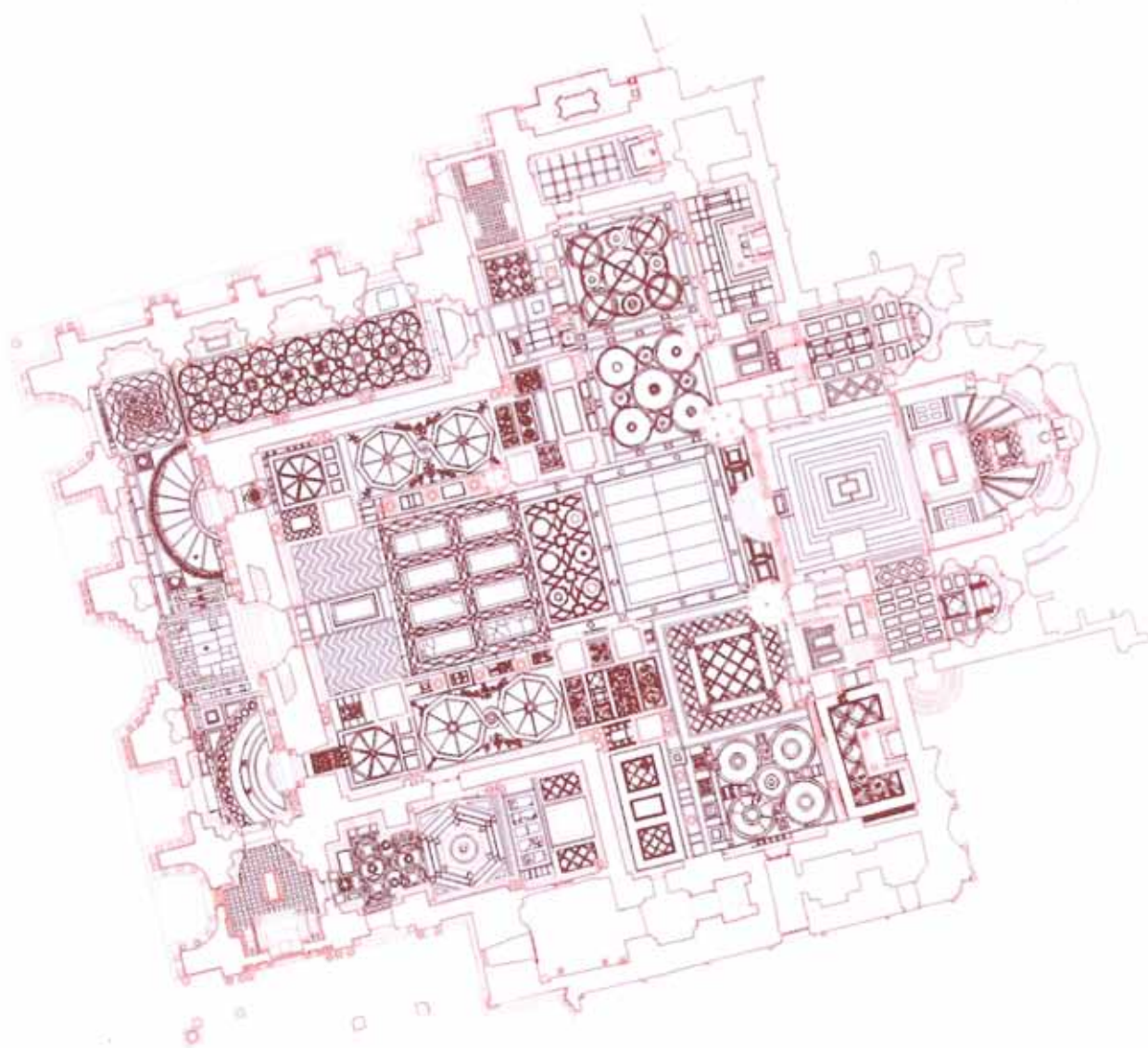
⁶⁶ SPERTI 1996, pp. 126-128.

⁶⁷ BARSANTI 2005, p. 81.

⁶⁸ BÖRKER 1965, p. 189.

⁶⁹ As evidenced by the well-known case of the relief with the four *pueri lapidei* from San Vitale, which is currently on display at the Archaeological Museum of Venice: see FAVARETTO 1990, pp. 33-37.

⁷⁰ SPERTI 2004a, pp. 237-238; PILUTTI NAMER 2017.



PT 2 - Chapter 2

Marbles and Stones in the Floors of the Basilica of St. Mark

LORENZO LAZZARINI*

The floor of the Basilica of St. Mark's is undoubtedly the most beautiful and important of all the antique floors that can be seen in Venice, and by far one of the most remarkable of all the medieval examples in the Mediterranean area, and not only because of its splendid design, but also because of the preciousness and rarity of many of the marbles and stones that compose it. While the historical, typological, photographic, iconographic and symbolic aspects of this floor have been extensively investigated,¹ as well as those related to its restoration,² the issues strictly related to the stone materials employed in it have only been preliminarily addressed in the past in several contributions by the writer.³ These papers were only intended to provide a first exploratory identification and/or methodological survey of the state of authenticity of the distinct areas in *opus sectile* and of the occurrence of the main lithic types, including some of rare occurrence. It was on the occasion of the publication of a rather more recent volume on the floor of the Basilica of St. Mark edited by E. Vio⁴ that the author was able to focus his analysis on the materials composing the floor itself and the timing of its execution.⁵

Indeed, after the pioneering surveys conducted by A. Visentini (1725-1729, scale 1:1000) and A. Pellanda (1860 ca.), the 1879 survey by N. Moretti for F. Ongania (on a scale of 1:33, with details on a scale of 1:10)

Fig. 1 - Plan of the Basilica of St. Mark, Venice, showing the drawing of its floors.

and the recent photogrammetric surveys initiated in 1981 provided only very limited information regarding the lithotypes. It was only through direct inspection and the point survey, on a scale of 1:1 and with high resolution, conducted by the Laboratory of Photogrammetry of the Polytechnic of Milan using the orthophotoplane technique, that the author was able to identify all the lithotypes that could be recognized autoptically and to divide them between *ancient* and *modern*. The term *ancient* is employed to describe marbles that belong to the classical and Byzantine *marmoraria* tradition and were utilized in the original drafting, which is dated to the 11th-12th centuries, of the Basilica floor. In contrast, the term *modern* is used to refer to marbles that pertain to later additions and restorations. The identification of marbles and stones was based on the expertise gained by the writer in several decades of field and laboratory studies carried out in the ancient quarries of a great number of marbles and stones extracted by ancient Greeks, Romans and Byzantines in the Mediterranean area, as well as thanks to regular visits to a large number of monuments and archaeological sites in this same area. In recent

years, this expertise has also been extended to Italian stones from modern quarries. All this made it possible for the author to establish the origin of the vast majority of colored lithotypes and of many white and gray marbles in the strict sense of the word,⁶ even in small and frequently damaged artefacts, such as in many tiles that compose the Basilica floor. In addition, for a considerable length of time and on several occasions, the author devoted specific research to the diverse stone materials present outside and inside the Basilica, and this research is reflected in many publications on the subject,⁷ all of which served greatly to broaden his knowledge of the materials and to address the study presented in this essay, undoubtedly the most challenging, specifically, regarding the entire *Marciana* area.⁸

It is evident that the accurate identification of marbles and their primary provenance⁹ is not merely a chapter in the advancement of knowledge about a monument. It can also provide insights into their potential secondary provenance¹⁰ (at least for some of the reuses), as well as significant indications for dating replacement restorations carried out in the past¹¹ and for undertaking future additions.¹²

In the investigation of the floor of the Basilica of St. Mark, the original state of its diverse parts was taken into account, as this resulted from the examination of historical documents and from the recently carried out results of technical-scientific analyses. The aforementioned investigations have enabled the formulation of a comprehensive plan,¹³ which indicates that only a minor portion (approximately 20 percent of the total area, primarily pertaining to the nave) of the floor is believed to be authentic. The remaining 80 percent has undergone extensive restoration work, particularly during the 19th and early 20th centuries, and subsequently in the latter half of the 20th century.

If this estimate and conclusion were accurate, it would be relatively straightforward to identify instances of extensive ancient remodeling (e.g., in the so-called “15th-century panels” traditionally believed to have been inspired by drawings by Paolo Uccello visible in front of the right ambo) and instances of complete modern renovations (e.g., in the two side aisles) or extensive restorations with the insertion of modern stones (e.g., at the entrance to the inner door in front of the *Nicopeia*). However,

it cannot be argued that most of the design of the Basilica’s marble ‘carpet’ has been distorted by restorations.¹⁴ Nevertheless, although challenging to undertake, a comprehensive study is necessary to map the sporadic insertions of modern marbles, based on their accurate identification, in order to ascertain the current status of the authenticity of the floor materials.

What is certainly for the most part authentic, as said earlier, is the design of the floor, which even in the remakes has been mostly preserved over the centuries. The design was likely conceived and executed contemporaneously with the expansion of the Basilica, which was initiated by Doge Domenico Contarini. This expansion was likely inaugurated in 1094 under Vitale Falier, or at the very least, prior to the period between 1110 and 1150.¹⁵ The design for the Basilica floor seems to be of Western derivation, as argued by Barral i Altet (1997), who pointed out the peculiar mixture of *opus sectile* and *tessellatum* technique in the overall design, to be included in the Adriatic *koiné*, rather than of Eastern origin as held by Farioli Campanati (1997). Moreover, it is evident that a significant portion of the decorative geometric motifs of the Basilica’s *opus sectile* are largely

derived from ancient Roman models, particularly those of late Antiquity.¹⁶

Upon a cursory examination of the various components of the floor, from the exterior to the interior, and a consideration of the identification of the stones and marbles currently in place, a number of noteworthy peculiarities emerge. These include the presence of remarkable marble qualities in terms of size, quality, and rarity. It is not feasible to provide a comprehensive account of the various stone and marble types present in the floor, given the considerable number of species typically found even in a sole square meter. Instead, this description will focus on representative samples, with an emphasis on their distinctive characteristics.

Western arm of the narthex: in the central part, corresponding to the present main entrance to the Basilica are large slabs of Proconnesian marble, *broccato rosso* from Verona, *Arbe Breccia* (of fine quality, including a rectangle of the rare *semesanto pallido* variety), Naxian (?) marble, and a beautiful rectangular slab cut from a column of *pavonazzetto* of the best quality. On the left side of the narthex to the central

(northern) side are large tondos of *broccato rosso* from Verona (46 cm d.), and small tondos (11.5 cm d.) of *porfido rosso* and *verde antico*, of *rosa corallo*, *fior di pesco*, and *Arbe Breccia*; note fine square and rectangular tiles of *breccia di settebasi* (and *semesantone*), *africano*, *portasanta*, *cipollino rosso*, *breccia corallina*, *occhio di pavone*, *bigio lumachellato*, *cipollino verde*, *alabastro di Castelnuovo dell'Abate*, *granito misio* and *lumachella a Megalodon pallida*. At the same side, but in between the two previously described (especially in the band bordering the large semicircle that departs from the inner façade of the Basilica), there are numerous small tondos (18 cm d.) of *Arbe Breccia*, *marmo d'Aquitania*, *portasanta*, *africano* (Fig. 2), *cipollino rosso*, *occhio di pavone*, *cipollino bigio*, *breccia di Seravezza*, *bigio lumachellato*, *breccia corallina scura*, *porfido verde antico*, *pavonazzetto*, *verde antico*, *granito del foro*, *fior di pesco*, *porfido rosso antico*, *grigio carnico*, *alabastro di Castelnuovo dell'Abate*. In the fill within this semicircle, which has been integrated extensively by modern restorations, in addition to many of the ancient marbles already mentioned, there is *broccatello di Spagna* and modern stones such as *portoro*, *arabescato orobico*, *rosso di Levante*, *grigio* and



Fig. 2 - Western Narthex, northern side; semicircle with running ribbon decorated with tondos of *rosso di Verona* and *breccia corallina* (at left), one of *africano* (on right) and one of *iassense* and *grigio carnico* (center).

fior di pesco carnico, giallo reale, libeccio; in one area decorated with a pattern of small squares and perspectival triangles, *pietra di Aurisina* (*granitello* variety), *grigio di Roverè*, a *nero assoluto* marble (probably *lavagna*), and *cogolo maschio* were used. In the area to the right of the central band, the large semicircle symmetrical to the previous one, has in place large roundels (49 cm d.) of *occhio di pavone* (with much reworked Rudists), certainly obtained by sawing the same ancient column, of *pavonazzetto* of fine quality, of Proconnesian marble and *bigio antico*, interspersed with other smaller tondos

(10 cm d.) of *giallo antico, lumachella di San Vitale, Arbe Breccia, greco scritto, calacatta, portasanta, bigio antico, breccia corallina, pavonazzetto*. The floor of the southmost section of the narthex, currently occupied by the Zen Chapel, is a Renaissance one¹⁷ with large hexagons of *broccato rosso* from Verona and Proconnesian marble interspersed with lozenges of *nero assoluto* (again probably made up of *lavagna*).

Northern arm of the narthex: at the entrance, next to the Porta dei Fiori, a fine star inscribed in a circle and large square with wedges of *rosso antico* and *giallo antico*, then edging of segments of *rosso antico* and green porphyries; in the 'bottom', *pavonazzetto, fior di pesco, occhio di pavone, breccia di settebasi, verde antico, portasanta, rosso antico, porfido rosso antico, pavonazzetto, bardiglio*, but also *giallo Mori* and *verde Alpi*; in the bands delimitating the square are Proconnesian and Naxian marble; in the filling of the square and the surrounding rectangle are *bardiglio* and *semesanto di Arbe*. On the right side of the large square, filling with small lozenges, squares and triangles of: *portasanta, broccato di Verona, arabescato orobico, bigio lumachellato, breccia di setteba-*



Fig. 3 - Northern Narthex, octagon of *fior di pesco* of the rare purple variety.



Fig. 4 - Northern Narthex, octagon of *fior di pesco*, holotype of fine quality.

si, lumachella occhio di pernice, Proconnesian marble, *bigio antico*, *occhio di pavone*, *Arbe Breccia*, *nero nube*, *pavonazzetto toscano*, *fior di pesco*, *africano*, *porfido rosso antico*, *porfido verde antico*, *puddinga di Hereke*, *nero di Roverè*, *breccia corallina*; on the left side, less lithotypes than above, many from restoration, including *pavonazzetto toscano*, *grigio carnico*, *libeccio*, *alabastro di Castelnuovo dell'Abate*. In the two large octagons that are immediately adjacent, which are divided into segments filled with triangular tiles, there are many of the ancient and modern lithic species seen above, with in

addition, respectively, of *broccatello di Spagna*, *cipollino rosso venato*, *marmo pentelico*, *nero assoluto*, *fior di pesco carnico*, *cogolo*, *giallo reale*, *broccatello di Siena*. In the middle of the two large octagons are two small octagons, carved from one same column then molded, of *breccia verde d'Egitto* (12 cm side), while in the intermediate space between the two large octagons is a beautiful and somewhat larger one (16 cm side), of the rare (allotype) violet variety of *fior di pesco* minute grain¹⁸ (Fig. 3); of the holotype variety, however, are two other octagons (Fig. 4) in the remaining floor of the northern



Fig. 5 - Northern Narthex, octagon of *marmo di Aquitania*.

narthex placed symmetrically (still in the center of large filled octagonal rosettes) to others of *bigio antico*, *fior di pesco* (holotype), *marmo d'Aquitania* (13.5 cm side) (Fig. 5), *pomarolo* (*Arbe Breccia*), *cipollino rosso*, *africano*, *sienite rossa*, *verde antico*, *breccia di Seravezza*, *lumachella di San Vitale* gray and red, *bigio antico*, *granito misio*, *pavonazzetto*, *cipollino bigio*. In the fills of the remaining large octagons of the narthex, there are variably present and copious tiles of the lithotypes already seen above, with the addition of *pietra di Aurisina*, a rare *alabastro dorato* (a rectangular tile stands un-

der a hexagon of red *sienite*), *rosso del Cattaro*, *nero di Varenna*, *greco scritto*, *libeccio*.

Central nave: at the entrance, in the central band, are two large, equal-sized slabs (109 × 41 cm) made by dissecting at length an ancient Roman column (1.5 feet) of Egyptian red porphyry: they convey to the educated visitor entering the Basilica the message: "You are entering the house of the King of Christians". Unfortunately they are framed by dark modern rectangular slabs of *verde Alpi* that probably replaced the original but deteriorated ones of *verde antico*. Then there are slabs of Proconnesian marble and *Arbe Breccia*. These are followed by a small lozenge panel of *cipollino rosso venato*, *breccia corallina*, *portasanta*, *greco scritto*, *occhio di pavone*, *pomarolo*, abundant Proconnesian, etc., in a frame that contains squares of these same marbles, with the addition of *africano*, *breccia di Hereke*, *broccato rosso di Verona*, *bardiglio*, etc. Then there is a modern rectangular band of perspectival squares of *giallo Mori*, *grigio di Roverè* and white Carrara marble; followed by a band of fine original slabs of *portasanta*, with replacement slabs of *broccato rosso* from Verona in the center; a large, slightly off-center slab of Proconnesian (which, like the



Fig. 6 - Central nave, the so-called 'sea' composed of 12 beautiful large slabs of Proconnesian marble installed with the book-matching technique.

other three similar ones in the side bands, and those in the so-called 'sea' (Fig. 6) are believed by the present writer to have been ordered *ad hoc* on the island of Prokonnesos) within a frame of *portasanta* with spurious insertions of *occhio di pavone* (Fig. 7) and *broccato rosso* from Verona. Continuing toward the transept, there is a band with inserted lozenges and tondos of *portasanta*, *pomarolo*, *broccato rosso di Verona*, etc., filled with triangles of the two porphyries and other ancient marbles, then again a panel with large Proconnesian slab and the frame as above, and one band of *lumachella di San Vitale* with small whitish *Lithiotis problematica* shells on a black background, bisecting the width of the entire aisle.

In the two side bands of the nave floor, there are areas marked by zigzag slabs of Proconnesian within which are fills of ancient marbles mainly, including *breccia di settebasi*, *pavonazzetto*, *fior di pesco*, *granito del foro*, *porfido verde antico*, *granito misio*, *cipollino verde*, *semesantone*, *greco scritto*, *giallo antico*, etc. and modern replacements. This is followed by a band consisting of a wide slab (43 cm) of *portasanta* also interrupted by replacements of *broccato rosso di Verona*. Then come vast fields consisting, as mentioned above,



Fig. 7 - Central nave, detail with tondo of *portasanta*, lozenge of the same stone (*a stuoia* variety) and part of a frame, also originally of *portasanta*, with replacements of *broccato rosso di Verona* (at bottom) and *occhio di pavone rosso*.

of three large rectangles (230 × 140 cm) of Proconnesian marble bordered by bands containing lozenges (about 60-70 cm long side) of *porta-*

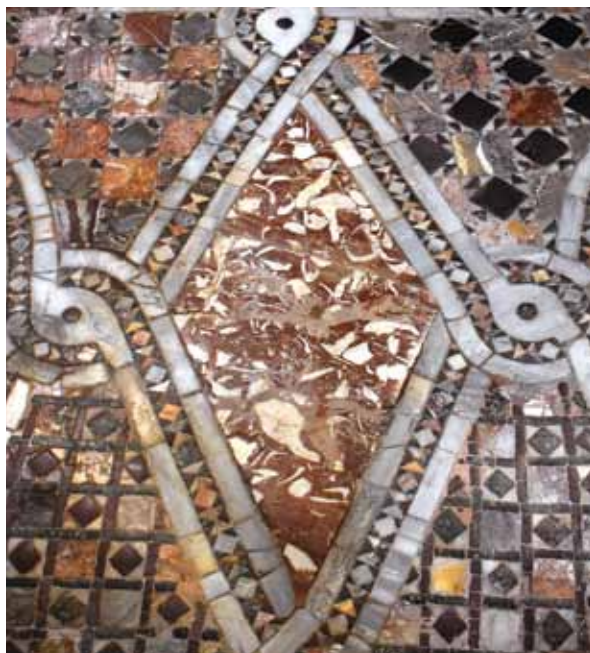


Fig. 8 - Central nave, large lozenge of red *lumachella a Megalodon*.

santa (of different variety, including *a stuoia*), *pomarolo*, *lumachella di San Vitale*, alternating with rods (20 cm d.) of *broccato rosso di Verona*, *africano*, *pomarolo*, *verde antico*, *portasanta*, even of the variety *bigia*, and *lumachella a Megalodon*, filled once again with triangles of the two porphyries and other ancient marbles. Beyond the

lumachella nera band that forms a proper horizontal caesura of the floor at almost the center of the nave, an area with six large, filled rosettes follows, interspersed with large lozenges of *portasanta* and *lumachella a Megalodon* (Fig. 8) and squares of the same *lumachella* (68 cm side). In the center of the rosettes are two *rotae* (62 cm d.) of *breccia corallina* of the highest quality, and others smaller of *verde antico* (one with 50 cm d.) and of stones composed in a round shape, resulted from restoration. These are followed by a wide band of squares and triangles of the two porphyries, but also of *granito della sedia*, of *diorite egiziana*, of *africano verde*, *giallo antico*, Proconnesian marble, etc., with inserted tondos of *porfido rosso antico* and of *lumachella a Megalodon*, with a band of *broccato rosso di Verona*. We then find the 'sea', framed under the iconostasis by a running slab, again of *broccato*, and a band of small triangular and square elements of porphyry and Proconnesian (Fig. 9) quite similar to that which will be better described below in regard to the central part of the transept.

Left aisle: the floor was totally remade in the 19th century, though with extensive use and re-use of many of the ancient lithotypes already



Fig. 9 - Central Nave, knot with large red porphyrite tondo in the *opus alexandrinum* band surrounding the 'sea'.



Fig. 10 - Left aisle, the dodecahedron pentagon composed of *cogolo bianco*, *grigio di Roverè*, *nero del Belgio* (?).

seen above: of note are only the three tondos, albeit modern as well, one of *verde Alpi*, one of *macchia vecchia di Arzo* and the last one of *fior di pesco* of bad quality. Near the door is the famous dodecahedron pentagon design formed by *cogolo maschio*, *grigio di Roverè* e *nero del Belgio* (?) inserted in a tondo of *broccato rosso di Verona* (Fig. 10).

Right aisle: the floor, also extensively remade as was its counterpart on the left, seems to better reflect the original design in terms of stone materials. The large tondos are of *broccato rosso*

di Verona and Proconnesian marble, while the hexagons are of *cipollino bigio* and *cipollino rosso venato*. In the triangular fills of the large hexagonal rosettes, there are both ancient marbles such as *portasanta*, *giallo antico*, *granito del foro*, *breccia corallina*, *fior di pesco*, *breccia di settebasi*, etc. and modern such as *arabescato orobico*, *pavonazzetto toscano*, etc.

Transept: the central part, is covered by the so-called 'sea' formed by large slabs (about 1.5 × 4 m) of Proconnesian, bordered on all sides by a wide band, already mentioned above, with *ser-*



Fig. 11 - Southern transept, one of the Renaissance design panels obtained with the same stones as in Fig. 10.

pentino corning and filling with small triangles of the two porphyries (and other stones of similar color and texture) and Proconnesian marble, in which are prominent knots (and small quincunxes atop the vertices) formed by a central *rota* of red (or green) porphyry with above and below

two green *serpentino* (or red porphyrite) rods, set in rectangles also filled by the aforementioned porphyries and other similar stones. It should be noted that the Proconnesian slabs were cut from the same large block of marble and put in place in the so-called “book-matching” pattern with

the long side facing the iconostasis. The 'sea' enabled, and enables, the worshippers to *walk on water* like Jesus Christ, and is perhaps the most important transposed symbolic expression in marble of the floor of the Basilica of St. Mark overall (BARRY 2007; PAIER 2010 and 2012).

In the southern section of the transept floor, opposite the altar of the Sacrament, within quincunx are two large *rotae* (97 cm d.) made of *broccato rosso di Verona*, two of them smaller (60 cm d.) of *granito misio*, and two of the same size of *granito del foro*, the latter four derived by dissecting Roman columns two feet in diameter. In addition, there is a fine frame with *porfido rosso antico* square (30 cm side) in the center and contour of triangles of the two antique porphyries, alternating red and green. In the center of the rose window (*oncia*) in front of the altar, large tondo (39 cm d.) of *occhio di pavone rosso*. In the Renaissance-style floors opposite, slightly to the right of the porphyry ambo (known as *pergolo*), are elaborate and fine geometric designs consisting of tiles of various shapes of *broccato rosso di Verona*, *breccia e semesanto di Arbe*, *cogolo maschio*, *nero assoluto*, *grigio di Roverè* (Fig. 11), *giallo Mori*, *marmo di Carrara bianco*, Proconnesian marble, blue



Fig. 12 - Northern transept, one of the ounces of the large quincunx presenting in the center a fine serpentine *rota* inscribed in bands of *porfido rosso* and *verde*, of *giallo antico* and Proconnesian marble.

opaque glass enamel. In the squares in the corners of this section of transept are squares of *rosso* and *verde* porphyries, of *pavonazzetto*, and triangles of *pietra rossa del Cattaro*.

In the large and fine quincunx on the northern side, whose design refers to the vault of heaven (FOSTER 1991), are splendid items of the two porphyries, but also of other beautiful stones, such as the *giallo antico* (also in the *brecciata* variety) (Fig. 12) contouring the central *oncia* (whose original 'center' with four porphyritic tondos, two *rosso* and two *verde*, is on dis-



Fig. 13 - Northern transept, fine square of *breccia d'Egitto*, red variety, inscribed in a band of *serpentino*.

play in the Museum of St. Mark) composed by triangles, made of porphyry and Proconnesian marble, of increasing size from the center outwards. In the center of the four lateral ounces are four beautiful tondos of *porfido rosso antico* (46 cm d.), while in an intermediate position there are an equal number of *porfido verde antico* (36 cm d.). In the fillings there are almost all the most important Basilica lithic types, both ancient, including *granito del foro* and Mysian granite, *marmo di Aquitania*, *africano*, *giallo antico*, *occhio di pavone*, etc., and modern, including *giallo Mori*, *lumachella di San Vitale*,

alabastro di Iano di Montaione, *libeccio*, etc.

In the northernmost section of the transept, the floor in front of the *Nicopeia* altar is also formed by rosettes (ounces) filled with tiles of various shapes and sizes; in the center of the two central ones is a beautiful tondo (42.5 cm d.) of *porfido rosso antico* (*brecciata* variety), and a smaller one (30.5 d.) of *alabastro di Castelnuovo dell'Abate*, while on the sides is a tondo of *fior di pesco* and one of *porfido rosso antico*; the fillings are of the customary mixture of ancient and modern marbles. This floor is embedded in a frame containing at both ends of the central part four squares of the extremely rare red variety of the *breccia verde d'Egitto* (26 cm side)¹⁹ (Fig. 13); with respect to the altar, looking West, on the left side is a square of *granito verde fiorito di bigio* (25 cm side), while looking East there is one of *fior di pesco* of purple variety. On the right side there is a double frame in which are included, going toward the altar, squares approximately 23-24 cm side of: *diaspro di Barga*, *sienite rossa*, *cipollino rosso*, and *porfido verde antico*, *breccia verde egiziana*, *diaspro rosso di Giuliana*. In the band framing the west transept in front of the ambo on the left are two fine squares (23.5 cm side) of *granito della sedia di San Pietro* (*ophite*) (Fig. 14):



Fig. 14 - Northern transept, squared 'mirror' of *granito della sedia di San Pietro*.

two others are inserted in the band perpendicular to this one that runs toward the same ambo. In the fine rosettes near the intercolumn of the same side of the transept, in addition to the two green and red *porfido*, are tiny triangular tiles of *granito*

verde fiorito di bigio of the finest quality.

In the floor within the precincts of the *Nicopeia* altar are two remarkable small squares of *diaspro di Barga* as well as two wonderful squares of *alabastro di Castelnuovo dell'Abate*



Fig. 15 - Left side of the altar of the *Nicopeia*, square of *alabastro di Castelnuovo dell'Abate* inscribed in a larger one filled with triangles of *serpentino* and *granito verde fiorito di bigio*.

that appear almost like an agate (Fig. 15), inside squares with rectangles of *granito verde fiorito di bigio*.

In the floor in front of the Mascoli Cha-

pel are four large and beautiful tondos of *fior di pesco* (36 cm d.) and between them, in the center, two of *breccia di Hereke* (34.5 cm d.), with a tondo of *porfido rosso* in the middle of

them all; all of them were made by sawing ancient columns and definitely a single one from the Roman age with a diameter of a little more than a foot, for the *fior di pesco*.

In the northern part of the presbytery, which can be reached by several steps, between the left ambo and the *Madonna Nicopeia* altar, at whose base is a beautiful tondo of *cipollino rosso venato* (Fig. 16), of note is a beautiful 'mat' formed by a large number of *fior di pesco* squares, set in a frame containing rectangular elements of white marble, including some of white *marmo tasio dolomitico*.

Once back in the central part of the Basilica, after climbing the steps in the center of the choir screen that lead to the presbytery, as at the inner entrance to the Basilica, one immediately sees a rectangular slab of *porfido rosso antico* (117 × 44 cm, probably taken from the same column as at the entrance), placed there with the same intent, that is, to signal the arrival at the most sacred place in the church, as does the next larger slab (125 × 86 cm) of the same stone and the *rota* that stands in front of the apsidal altar, in correspondence with the Pantocrator's mosaic featured in the basin (Fig. 17). On the left



Fig. 16 - Northern access to the presbytery, fine rota of *cipollino rosso*, veined variety.

side of the ciborium are fine squares of *nero assoluto*, *bigio antico* and *cipollino rosso venato* embedded in large rectangles framed by slabs of *marmo pentelico* and *Arbe Breccia*, and filled with smaller squares of *alabastro fiorito*, *broccatello di Spagna*, *granito misio* and *troadense*, *pavonazzetto toscano*, *libeccio*, etc. On the sides, and in front of the Pala d'Oro, are fine frames of *portasanta a stuoia* and lozenges of this same stone, of *broccato rosso di Verona* and *bigio antico*. On the right side of the ciborium are fine large squares of *pomarolo* and *nero assoluto*, and some smaller



Fig. 17 - The *rota porfiretica* in the floor in front of the main apsidal altar.

of *occhio di pavone*, *portasanta*, *libeccio*, etc.

The floor of the baptistery, surrounding the large baptismal font of *puddinga di Hereke* (measuring 1.95 m in diameter, no doubt of

Constantinopolitan manufacture and origin)²⁰ shows the customary rosette designs, but of a more recent restoration, and here completed by tiles of a more limited variety of lithic types.

Of note are large squares of *lavagna* (which can certainly be identified by its typical morphological deterioration: exfoliation) and Proconnesian marble as well as, in the fillings, much *pomarolo*, *broccatello di Spagna*, *portasanta*, *fior di pesco* and several modern stones. In the rest of the floor, it is worth mentioning the four roundels (40 cm d.) of *africano*, of fine quality albeit much deteriorated, and they too are carved from the same ancient column as the many others noted above.

A detailed analysis of the marbles and stones of the Basilica floor allows us to draw some general considerations about the main phases of the floor's construction, the abundance of stone types, and their primary and secondary provenance. The primary provenance relates to the quarries from which the stones were extracted, while the secondary provenance concerns the dating and location of the monuments plundered by the Venetians.

With regard to the first point, the fre-

quency and considerable amount of lithotypes that were infrequently used in Roman times, such as *Hereke Breccia* and *Arbe Breccia*, and *lumachella occhio di pavone* and *a Megalodon*, or rarely used in the Roman cities of the North Adriatic area such as *portasanta* and Mysian granite, indicate that the Basilica floor was extensively 'modernized' after the Fourth Crusade. A significant influx of Byzantine marbles, particularly Microasiatic ones, occurred at this time. Among these was Proconnesian marble, which arrived in large quantities, as well as the aforementioned stones. It is probable that the Contarinian laying of the floor was comparable to that of other religious buildings in the Lagoon (e.g., St. Maria Assunta on Torcello, Sts. Maria and Donato on Murano) and of the Venetian churches of St. Lorenzo, St. Zaccaria, and St. Bartolomeo.²¹ In fact, the designs for these floors were of a Western-Adriatic setting²² and featured stone types that were restricted to Roman ones that were typically found in the *X Regio*.²³ The second and current design, which has been significantly influenced by Byzantine-Justinian style, particularly with the incorporation of the large Proconnesian slabs,²⁴ has resulted in a significant alteration to the origi-

nal design. This is due to the presence of the slabs themselves, clearly of primary origin, of the wide bands-frames of *portasanta*, the wide square or lozenge-shaped tiles, which are once again of *portasanta* or *lumachella a Megalodon*, the *rotae* of *occhio di pavone* and *granito misio*, and other elements. Further extensive remodeling occurred in the first decades of the 16th century, likely during the Sansovinian restorations of the Basilica. This remodeling involved the inclusion of discrete quantities of the black variety of *lumachella di San Vitale*, and, later in the Baroque period, the replacement of some ancient marbles with similar stones from Tuscany and Liguria (*marmo di Carrara*, *breccia medicea*, *giallo di Siena*, *rosso* and *verde* of *Levanto*, *portoro*), as well as stones from the *Triveneto* (*grigio carnico*) and even from Sicily (*libeccio*).

The more recent history of the floor, spanning the nineteenth and twentieth centuries, is predominantly a history of replacements and additions, some of which were quite extensive. Fortunately, this is well documented, including in the form of archival materials, and has been effectively reconstructed.²⁵ The history of alterations is now over thanks

to the increased attention devoted to the preservation of both the design and the ancient materials. It is important to note that numerous rare marbles, particularly those of Egyptian origin (such as the *granito della sedia* and *granito verde fiorito di bigio*, the red variety of the *breccia verde egiziana*, etc.), were imported to Venice as gifts from the City of Rome to the Procuratoria of the Basilica of St. Mark for restoration and additions. This occurred after the renowned recovery at the Marmorata, which was the marble emporium of the *Urbs*, of a considerable quantity of blocks and splinters of ancient stone workings in P. E. Visconti's late 19th-century excavations.²⁶ Indeed, the above types are extremely rare, or absent, in the archaeological remains of ancient Roman settlements in the north Adriatic area.

With regard to the overall occurrence of stone types, if we limit our analysis to the original, or at the very least, older types, Proconnesian marble emerges as the most prevalent in all regions of the Basilica floor. As previously stated, this is largely the result of primary quarrying. The two porphyries, *rosso egiziano* and *verde greco*, with the first one being more abundant than the second, are likely to have been sourced from a sec-

ondary provenance. This can be sought in the Constantinopolitan area, given the rarity of large pieces of these two precious marbles in Roman Adriatic contexts. This is followed by the *portasanta*, a *breccia* quarried in approximately equal quantities in ancient Roman and early Byzantine age. As with the porphyries, the latter provenance is more likely than the former.

A separate discussion is warranted regarding *pomarolo* (*Arbe Breccia*), which is one of the most significant stones in terms of both frequency and aesthetic value in the Basilica. It is evident that this stone was of primary quarrying material. *Pomarolo* is often confused with *breccia corallina*,²⁷ which it replaced quite often in the Adriatic area during the ancient Roman period. Examples of *pomarolo* can be found in the temple of Augustus at Pula (Croatia), as well as in *opera sectilia* the author recently found in a *domus* at Montegrotto Terme, in the province of Padua. *Pomarolo* arrived in Venice in the 13th century during one of the numerous periods of Venetian rule over the island of Rab, which alternated with the rule of the Huns and Croats.²⁸ The arrival of the *Arbe Breccia* was likely facilitated by the conquest of Zara (Zadar) in 1202,

which opened the access to northern Dalmatia for the Venetians. *Pomarolo* was initially employed in interior architectural elements, particularly in flooring, although it was also used in exterior applications such as for the stylophorous animals now at Ca' d'Oro. From the Gothic period onwards, it was also utilized for columns, as evidenced e.g. by the façade of Ca' Foscari and the St. Servolo church, and portal jambs, as seen for instance in the door surrounds of the baptistery of the Basilica of St. Mark. In its two varieties, holotypic and *semesanto*, *Arbe Breccia* is nearly ubiquitous in the Basilica floor. It is likely that this material was placed during the thirteenth-century remodeling assumed above, but it also occurs in later additions and restorations (see e.g. Fig. 14).

It is challenging to ascertain the provenance of the other significant reused stones in the Basilica floor. However, it can be reasonably assumed that, in addition to Constantinople, all the medieval ports of call in the Levant (especially on the coasts of Greece, *Asia Minor* and the Near East)²⁹ situated in ancient Greco-Roman and Byzantine centers were potential sources of supply and/or accumulation of ancient marbles. In medieval times, these

stones were considered highly prized and sought-after commodities, to the extent that they were hoarded. For example, a recent discovery in Acre (now Akko, Israel) proved that, in the late 13th century, at the time of impending wars, a deposit of such stones was buried awaiting better times.³⁰ This deposit included Greek, Microasiatic, and, to a lesser extent, Egyptian stones. Indeed, ancient marbles have been transported extensively from the East to the West Mediterranean starting from the classical period up to the present. Their beauty and/or symbolic meanings have consistently attracted the attention of visitors, regardless of cultural background. It is the great fortune of Venice that many have ended their journey in this city, where the Basilica of St. Mark has provided an ideal home for them.

Endnotes

* I wish to dedicate this paper to the dear memory of Paolo Morachiello, Professor of History of Ancient Architecture at the IUAV University of Venice, who supported continuously the foundation I made of the LAMA (Laboratorio di Analisi dei Materiali Antichi – Laboratory for the analysis of ancient materials) that is celebrating its 30th anniversary in 2024.

¹ See, most recently: BARRAL I ALTET 1985 and

1997; POLACCO 1990; BRUYÉRE 1993; FARIOLI CAMPANATI 1997; BARRY 2007; ID. 2011; PAIER 2012.

² VIO 2010, VIO 2012.

³ LAZZARINI 1997; MANGANO et al., 1999; LAZZARINI 2002a.

⁴ VIO 2012.

⁵ LAZZARINI 2012.

⁶ Autopsy identification of these materials should be considered as *probable*; to be certain appropriate sampling and execution of thin-section petrographic examinations would be required, combined with analysis of the ratio of stable isotopes of carbon and oxygen, on which see for polychrome lithotypes of Greek origin, LAZZARINI 2003, pp. 1-13; ID. 2007. For white lithotypes see ANTONELLI, LAZZARINI 2015.

⁷ LAZZARINI 1974; ID. 1993; ID. 1995; LAZZARINI, PIANA 1988; LAZZARINI 1997; ID. 2013; ID. 2020; GEYMONAT, LAZZARINI 2020; LAZZARINI, TESSER 2020; LAZZARINI 2023.

⁸ In order for the present study to be complete and useful also in function of future restorations, it should be accompanied by a slab-by-slab, tondo-by-tondo, tile-by-tile mapping of the Basilica floor, what has been done, as mentioned in the text, at an experimental level (see MANGANO et al. 1997), but which would now need adequate time and funding for the extensive completion of the entire floor.

⁹ Over the past three decades, archaeological and archaeometrical studies have made a significant contribution to the discovery of the ancient quarries of the vast majority of the most important white and polychrome marbles, as well as to their optimal characterization. For a discussion of the study methodologies employed and a summary of the results, see LAZZARINI

2002. In addition, numerous other contributions in the catalog below provide further insight into the subject, accompanied by extensive bibliographies.

¹⁰ Once the area of a stone's primary prevalence is known, it becomes easier to propose provenance hypotheses for secondary reuse.

¹¹ Research on the usage intervals of a large number of stone materials based on the existence of well-dated artefacts of these materials is now quite advanced. This enables the establishment of *ante quem* and *post quem* dates, which are sometimes sufficiently precise and reliable.

¹² Even if now, and rightly so, reduced to a minimum, and therefore favoring the preservation of the original marbles and stones as much as possible, I concur with A.P. Zorzi that in the event of a replacement, the original marbles should be used whenever available, rather than other stones that may be similar chromatically or by design, modern or even ancient (ZORZI 1877). It is of course essential to document the replacement graphically and photographically.

¹³ That plan, published in VIO 2010, fig. 23, p. 99, is based on an unpublished study by G. Biscontin and others now preserved in the Historical Archives of the Procuratoria of St. Mark's.

¹⁴ By direct testimony, it should be borne in mind that until the 1970s, it was common practice to turn deteriorated marble tiles upside down and re-polish their new surface whenever possible. This resulted in a wider mortar joint between the marble elements, which may have been barely visible originally. This may help in mapping the most reworked parts.

¹⁵ FARIOLI CAMPANATI 1997.

¹⁶ GUIDOBALDI, GUIGLIA GUIDOBALDI 1983.

¹⁷ LAZZARINI 2010.

¹⁸ The coating of the cover of the so-called “*Capitello*” leaning against the left side of the nave of the Basilica is also of this same rare variety, which suggests the availability and use of this beautiful material even in the 14th century.

¹⁹ To the best of the writer’s knowledge, these are the only examples *in opera* of this beautiful stone. Its quarrying site (which is likely to be found in the same area of origin as the green variety, the Wadi Hammamat in the Egyptian Eastern Desert) has not yet been identified.

²⁰ On this *phiale*, as it was called by the Byzantines, see LAZZARINI 2023.

²¹ MANGANO et al. 1999.

²² BARRAL I ALTET 1997.

²³ DE VECCHI, LAZZARINI 1994; LAZZARINI 2004; LAZZARINI, VAN MOLLE 2015.

²⁴ In this regard, the Constantinopolitan influence, also found in other large Basilicas of the 5th and 6th centuries at Thessaloniki and Corinth, has also been

pointed out by Guidobaldi and Guiglia Guidobaldi (GUIDOBALDI, GUIGLIA GUIDOBALDI 1983, p. 520).

²⁵ VIO 2010 and 2012.

²⁶ MAISCHBERGER 1997.

²⁷ Already by the author in some past research, and most recently by Minguzzi (MINGUZZI 2000b, p. 55), who unfortunately runs into other misidentifications of marbles from the Basilica, e.g., that of the columns of the ciborium in *docimeno* marble (see LAZZARINI, TESSER 2020), defined as of alabaster (p. 75) and of the rare columns of *lapis hieracites* (*porfido verde egiziano*) in the southwestern corner of the Basilica indicated as *granito verde egiziano* (p. 104).

²⁸ RIZZI 2007.

²⁹ Not to be overlooked is Alexandria, a long-standing destination of the Venetian galleys, and a city extremely rich in ancient marble, which supplied almost all of the Cairo mosques with columns and slabs, on which see HARRELL et al. 2002.

³⁰ STERN 2011.



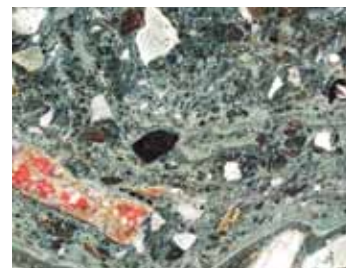
Catalog 1.

Catalog of Antique Marbles and Stones Mentioned in the Text

The following pages list in alphabetical order all the types of ancient stone and marble identified by the author in the pavement of the Basilica of St. Mark. Each lithotype is presented with its name in Latin or transliterated ancient Greek, as well as its Italian name and any associated nicknames. Please note that not all varieties of white and black stones and marbles are illustrated, as petrographic analysis is required in most cases for their precise identification.

For further information on the subject of *ancient* stones and marbles – a term used in the traditional classification of materials used in the Greco-Roman and Byzantine periods – the reader is directed to GNOLI 1988; BORGHINI 1989, and the related review by LAZZARINI 1990; LAZZARINI 2004 and PENSABENE 2013. For polychrome stones of Greek origin, see LAZZARINI 2007a. For stones of Egyptian origin: HARRELL 2024. For the geographical distribution of the main antique lithotypes, see LAZZARINI 2009, pp. 459-484.

Africano: This appellation is modern and has its origin in a mistranslation of ancient literary sources. In contrast, the Latin name, *marmor lucullaeum*, is related to that of the consul *L. Licinius Lucullus* (GNOLI 1988), who first introduced it to Rome in the first half of the 1st century BCE. The *africano* is among the earliest colored marbles imported to Rome, already in the form of columns. The holotype (typical variety) is a polygenic calcareous *metabreccia* with clasts that are generally whitish and characteristically pink-stained, but also grayish, black, pinkish, and blood-red (sometimes dolomitic and showing highly reworked Rudist shells). The clasts are immersed in a black or brownish cement, or occasionally a green cement of varying intensity, which is due to the presence of the mineral chlorite (BELTRAME, LAZZARINI 2020). The quarries of this breccia were exploited to exhaustion due to the beauty and preciousness of the material, which is among the most expensive in the Diocletian's price edict (GNOLI 1988). These quarries are located near the ancient city of Teos, in the territory of the present-day village of Sigacik, Izmir district (Turkey) (BALLANCE 1966; GNOLI 1988; TURK et al., 1988; PENSABENE, LAZZARINI 1998; ADAK, KADIOĞLU 2017). In the 2nd century CE, they also provided a variety of ancient bigio (see below), the use of which is probably related to the depletion of the deposit of the finest *brecciata* variety at the end of the same century. *Lucullaeum* marble was employed primarily for columns and facings, with less frequent applications to basins. Its distribution is particularly concentrated in the central Mediterranean region (LAZZARINI 2010c). In the floor of the Basilica of St. Mark (hereafter called the Basilica) it is particularly prevalent, occurring in a variety of forms, including small and large, round tiles, in both the baptistery and the narthex (northern and western arms). Additionally, it is found in a multitude of square and triangular tiles throughout the oldest sections of the floor.



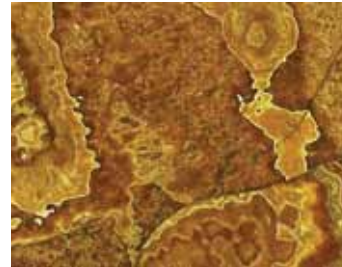
Alabastro cotognino: Also known as *alabastro egiziano* and *alabastro melleo* due to its honey-like color, this material was designated *lapis alabastrites* by the Romans, who held it in high esteem (it was more expensive than the white marbles mentioned in the Diocletian's price edict, as cited in GNOLI 1988). It is a calcite alabaster characterized by bands, eyes, flecks, etc., of colors ranging from milky white to honey-yellow to orange, in a quince-yellow matrix. This material was mined as early as the late Neolithic period in Middle Egypt (in Hatnub, Zawiet Sultan, etc., Beni Suef and Asyut provinces; KLEMM, KLEMM 2008; SHAW 2010; HARRELL 2024) and was used for jars (*alàbakra* in Greek) and other small objects of sumptuary use. In the era of the Pharaohs, it was also employed for architectural and statuary purposes. The Romans utilized it in the form of slabs and tiles for cladding, with the occasional use of the material for columns. It is still slightly exploited, and utilized for the production of vases and tourist souvenirs. Its macroscopic identification is generally straightforward for specialists in ancient marbles, but in some cases (e.g., for a safe distinction from the Tyathira alabaster), archaeometric analyses, particularly the determination of the isotopic ratio of strontium, are necessary (BARKER et al. 2015), as is the case for almost all other alabasters (see below). In the Basilica floor, it is barely present and if so, scattered in the form of various sized tiles.



Alabastro di Castelnuovo dell'Abate: This calcite alabaster was formerly known as *Palombara alabaster* due to its discovery in the Roman excavations of Villa Palombara, situated in Rome on the Esquiline (DE MICHELE, ZEZZA 1979; PRICE 2007, 53). This provides irrefutable evidence of its use in Roman times. It is an alabaster that was typically cut *al contro* (e.g. perpendicularly to the strata), thus exhibiting a milky white or yellowish background on which brown, brick-red, and occasionally grayish bands or thin layers were paralleled. The two quarries of this lithotype, which closely resembles *alabastro fiorito*, are situated approximately 2 km south of the village of the same name, in the municipality of Montalcino, in the Val d'Orcia province of Siena (LAZZARINI et al. 2012). The larger quarry is approximately 60 m wide, with a face of 10-15 m in height, and is situated in close proximity to the smaller quarry, to which is connected by a dirt road. Both quarries were operational until the second half of the 20th century, providing stone for the columns of the so-called "Transatlantico" of Montecitorio Palace in Rome. This alabaster was re-discovered during the Renaissance and was primarily utilized for columns, wall and floor coverings during the Baroque period. Examples from the latter period can be observed in Siena Cathedral, in various Florentine churches (of Ognissanti, St. Croce, etc.) and in the decorative stone used for all the altars in the Church of St. Geremia in Venice where it was installed using the veneer technique. In the Basilica of St. Mark, the material is represented by small tiles, with the most notable example being the one situated on the floor beside the *Madonna Nicopeia* altar (see Fig. 15).



Alabastro di Iano di Montaione: this is also a calcite alabaster that exhibits the typical layered texture and a variety of color facies on the homogeneous tones of dark brown and light brown. In some instances, it displays spots or veins of a beautiful brown color with 'turtle shell' tones, which is a highly sought-after variety known as *alabastro a tartaruga*. Additionally, a whitish variety with light gray veins and areas designated as *alabastro cinerino* (LAZZARINI et al. 2006; 2012) exists. This alabaster was utilized in Roman times and, undoubtedly, in greater quantities for columns, cladding, and statuary (the *tartarugata* variety) during the Renaissance and Baroque periods. The quarries, located in the locality with the same name southwest of Florence, were owned by the Medici and quarried until shortly after the middle of the 20th century. The first brown variety described is abundantly represented in the floor of the Basilica of St. Mark, for example, in some of the fills of the geometric designs in the floor of the narthex near the Porta dei Fiori.



Alabastro dorato and alabastro fiorito: the term is typically used to describe two bright yellow or beige travertine and calcite alabaster, respectively, of Microasiatic (Hierapolitan) origin. In general, they include types that exhibit zonations and patches of red, brown and yellowish coloration. These often assume the appearance of dense zigzag-like stratifications (*alabastro fiorito*) when the alabaster has been cut *al contro*. The safe identification of these species on an autopsy basis is challenging. It is not yet certain whether the geographical origin of these alabasters is unique or multiple as is likely. However, it is certain that *alabastro dorato* (of which there are fine slabs in the outer south-west wall of the *Tesoro Marciano*) and varieties of *alabastro fiorito* come from ancient *Hierapolis*, *Phrygia* (now Pamukkale, Turkey). Furthermore, the latter were imported to Rome as

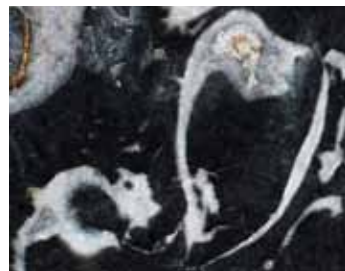


early as the late Republican period. Its use, primarily for floor and wall slabs, persisted until the 4th century CE. A detailed study of the quarries of the ‘flowering’ alabaster from *Hierapolis* (*marmor hierapolitanum*), located a few kilometers from the village of Gölemezli, has been conducted recently (BRUNO 2002; SCARDOZZI 2016). A number of Basilica floor tiles can be identified as belonging to these two alabaster types. Examples of these include triangular tiles in the north arm of the transept. As for the former alabasters, a safe identification of these lithotypes is based only on archaeometric analysis (see above for the *alabaastro cotognino*).

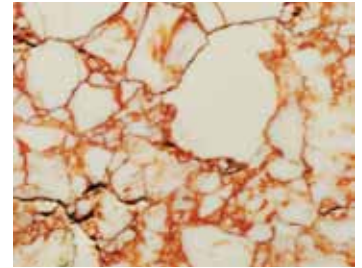
***Alabaastro marino*:** This calc-sinter takes its name from the peculiar appearance of its typical variety (holotype) when cut *al contro*: in fact, the wavy yellow-brown stripes on a livid white background recall the waves of the sea, perhaps identifiable with the *lygdos* of the ancient Greeks while we do not know the Latin name for it. It is a rare stone in Rome, where very few examples of it are known, as a beautiful column fragment cited and illustrated by Gnoli (1988, fig. 234). Additionally, it is known to have been sometimes used by the Opificio delle pietre dure for *commesso* tabletops in Florence. Its origin is unknown, but it is most likely Microasiatic. Indeed, this stone can be traced to the current yellowish and greenish onyxes of Turkish (but now also Iranian and Pakistani) origin that have invaded the world market for more common and ordinary objects such as ashtrays, flowerpots, ornaments, etc. However, it could also originate from the Arabian Peninsula, more specifically from Marib and Sirwah in present-day Yemen (HARRELL 2008). A single, rectangular tile of considerable beauty and value is situated in the floor facing the right ambo (LAZZARINI 1997, fig. 15). This tile is likely associated with the dado of the cusp of the roof of the so-called “*Capitello*” (LAZZARINI 2019b).



***Bigio Antico, Marmor Lesbium*:** The first term is used to describe a category of crystalline marbles (*bigi antichi*) that exhibit a more or less uniform dark gray carbonaceous or graphitic pigmentation. Of these, the most significant was undoubtedly *marmor lesbium*. In its typical variety, it is dark gray in color, with lighter and, often, reddish or yellowish flecks and veins. It is sometimes accompanied by large whitish fossils of megalodonts and corals, which gives it the name *bigio lumachellato*. The marble was quarried near Moria, not far from the town of Mytilene, on the island of the same name (Lesvos), probably as early as the end of the 5th century BCE for local use. It was exported in the Hellenistic age (e.g. at Delos, in the altar of Philetaerus) and, especially from the early imperial age (it has been identified in the baths of Pompeii in the form of unfinished columns), to the entire central and eastern Mediterranean. It was among the least expensive marbles, as evidenced by the price edict issued by Diocletian in 301 CE. Consequently, its abundant quarrying and subsequent distribution throughout numerous provinces of the empire can be observed. It is a Triassic marble of low metamorphic grade (LAZZARINI et al. 1999) that often preserves identifiable fossils, though they are often deformed by high-pressure metamorphism. These fossils were originally present in the limestone protolith. Six dodecahedral columns are in place in the western façade of the Basilica. The material is present in our floor in small tiles, which are more or less ubiquitous, including in the variety of *bigio lumachellato*, and in squares and tondos (e.g., in the narthex).



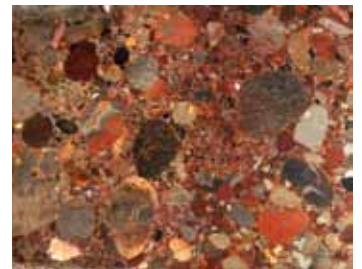
Breccia corallina: It owes its name to its brecciated appearance, which is characterized by whitish or pinkish clasts, mostly centimetric in size, and the typical pinkish-coral color of the cement (more rarely brick-red). This stone was quarried from the earliest imperial age in *Bithynia*, in the present Turkish province of Bilecik (GNOLI 1988: 238-240). The most significant quarries were discovered in the vicinity of the village of Vezirhan, in close proximity to a tributary of the *Sagarius* (Sakarya), the river that bestowed this stone with its ancient appellation, *marmor sagarium* (LAZZARINI 2002c). Additionally, some quarries were recently identified in various locations on the peninsula designated as Karaburun, situated within the province of Izmir (BRUNO et al. 2012). *Sagarium marble* was utilized extensively throughout the Mediterranean, particularly in the central Mediterranean, for cladding and columns until the late Antique period. Its variable and not always excellent color quality likely contributed to its affordability or moderate cost. From a petrographic perspective, it is an oligomictic slope breccia of Cretaceous age that exhibits a multitude of chromatic and textural variations, including *broccatellone* and *breccia nuvolata*. In the Basilica floor, it is quite common in tile form, but rarer in tondos as, for example, in the two in the central hall in the panels under the *piedi croce* (see LAZZARINI 1997, fig. 13). An untrained eye may find it challenging to distinguish this variety from the *pallida* varieties of the *Arbe Breccia*.



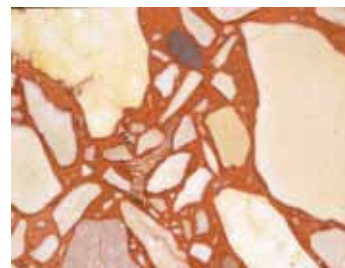
Breccia dorata: This beautiful *breccia* is a rare find outside of Rome and central Italy. For its golden-yellow colour it was used sparingly in the Roman period, primarily as a substitute for *giallo antico*, see below. Its use increased during the Baroque period, and it was commonly used in slabs for cladding. Its appearance varies, ranging from a holotype with yellow and whitish clasts in a distinctly yellow cement to an allotype with brownish-purple clasts in a brownish cement. Ancient quarries have been identified in the Montarrenti area of the Montagnola Senese (LAZZARINI 1998a), where this fine-grain marble *metabreccia* is present in weakly powerful layers within the *giallo di Siena* formation (below). In the Basilica floor, it is present only in a couple of tiles in the floor of the north side of the western arm of the narthex.



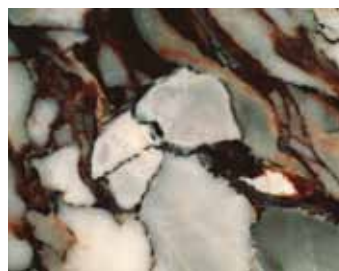
Breccia (and Puddinga) di Hereke: These two *facies*, which are probably geologically related, constitute a polymictic conglomeratic formation with polychrome calcareous clasts in a pinkish-brownish cement that outcrops near Hereke, a locality in ancient Bithynia, present-day northwestern Turkey. This formation is situated in close proximity to the important overland route that connected *Nicomedia* (Izmit) to Constantinople (Istanbul). The angular clasts of the *breccia* contrast with the rounded clasts of the *puddinga*, while both varieties exhibit a range of colors, from pinkish to brick red to brown and dark gray. The *puddinga* appears to correspond to the same breccia sediments that has undergone morphological modification and dimensional selection due to prolonged transport over time, resulting in the formation of centimeter-sized pebbles. Both materials were utilized from the late Roman-early Byzantine period to the Ottoman era for the construction of small columns, basins (the *puddinga* basin in Hagia Sophia is renowned, as is the similarly exquisite one in the St. Mark's baptistery, LAZZARINI 2023), episcopal chairs, sarcophagi, and, most notably, wall and floor coverings (DUCROT 1998). Both materials are present in the Basilica of St. Mark. The *puddinga* is represented by slabs above the main portal and in the aforementioned large baptismal font. The *breccia* is represented by columns in the left ambo. The floor is similarly decorated with numerous, scattered tiles of various shapes and sizes, displaying both lithotypes.



Breccia rossa e gialla: This is also a slope *breccia* (*di versante*), which is generally very rare outside of Egypt, where it is found. Indeed, the quarries have been identified in the vicinity of Wadi Abu Gelbana in Sohag province (KLEMM, KLEMM 2008; HARRELL 2024). This stone was utilized in the late Neolithic period for the production of vases, animal figurines, and other small objects mostly destined for funerary purposes. It was not commonly used in the Pharaonic period, but was subsequently rediscovered by the Romans, who employed it for basins, sarcophagi, and linings. The stone displays subangular clasts of a yellowish, rarer grayish limestone in a brick-red cement. It is present in very rare tiles in the 12th-century floors of St. Zaccaria (MANGANO et al. 1998) and the Basilica of St. Mark (LAZZARINI 2002a). It is therefore evident that this stone was reused from Roman *spolia*, as it was not used after the 3rd century CE (see below PT2.3).



Breccia di Settebasi, Semesanto: This is a polymictic calcareous *breccia*, formed of angular, sometimes decimetric, predominantly white calcitic (more rarely yellowish dolomitic) clasts, of various colors, prevailing pinkish-white, but also reddish. The clasts are often ‘stretched’ and arranged isoparallel along one direction due to the strong dynamo-metamorphism undergone. The matrices cement varies in color from dark brown-red to pinkish, and is often pervasively stained yellow. It is also furrowed with red, brown, and gray veins. It is likely that the stone was quarried from the Augustan age onwards in various localities on the island of Skyros (Aghios Panteleimon, Treis Boukes, Kouprisiés) (LAZZARINI 2007a, pp. 161-181), as well as in some nearby islets like Valaxa, Renia, Koulouris (KARAMBINIS, LAZZARINI 2015). The stone was utilized for columns and facing slabs, with less frequent applications in basins and vessels. Its distribution was extensive throughout the Mediterranean, with a particularly notable presence in North Africa (*Leptis Magna*, Cyrene). From a petrographic perspective, it can be classified as a metabreccia generated at low metamorphic grade under strong oriented pressure. It is often confused with the Apuan Medicean *breccia*, from which it can be distinguished by the presence of the chloritoid mineral in the latter, and sometimes with *pavonazetto*. A minute-grained variety of it with millimeter clasts called “*Semesanto*” (see the photo on the right) has always been considered rare and valuable. Additionally, an intermediate *brecciola* with centimeter-sized clasts exists between the ordinary and *semesanto* varieties, designated as *Semesantone*.



Breccia verde d’Egitto: In ancient times, this stone was known as *hekatontalithon* (hundred stones), and it is now referred to as *centopietre* (its other name in Italian). It is sometimes also identified with *execontalithon* (sixty stones). It is one of the most exquisite marbles utilized in Antiquity, exhibiting pebbles of diverse colours and hues, with a preponderance of greenish tones within a grayish-green cement matrix. A rare variety of the stone exhibits a red cement due to the presence of dispersed hematite. It is known to have been used sporadically in Egypt during the Protodynastic period for the production of vases and basins. It was also employed on occasion during the New Kingdom and Saitic periods for the creation of statuary and sarcophagi. Following the Roman conquest of Egypt, the marble was extensively quarried and utilized for the production of columns and floor slabs. It was exported to various provinces of the Roman Empire. After Antiquity, the material was reused in the East, for instance in

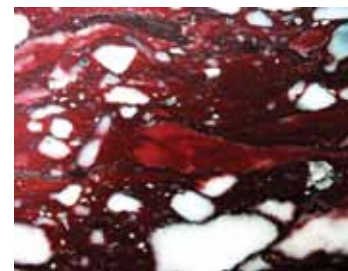
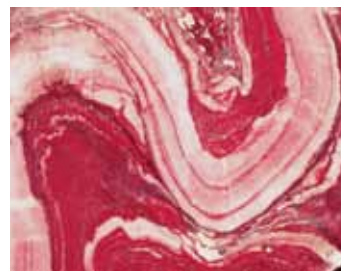


mosques in Constantinople and Cairo, and in the West, where it was mined again after World War II for the Italian market. Ancient quarries are located along the Wadi Hammamat (HARRELL et al. 2002; HARRELL 2024), some of which have been identified as containing pharaonic graffiti. Petrographically, the material is a puddingoid metaconglomerate composed of approximately thirty different sedimentary, magmatic, and metamorphic lithotypes in a compact, predominantly siliceous cement. This beautiful stone is well present in Venice, e.g. on the facade of *palazzo* Corner Spinelli. In the Basilica floor, the material is present in both the northern arm of the narthex, in proximity to the entrance to the Porta dei Fiori, and in the left part of the transept, in front of the *Madonna Nicopeia* altar. Here, it takes the form of a few squares (LAZZARINI 1997) (Fig. 13), also in the red cement variety mentioned previously.

Broccatello di Spagna: The ancient name of the stone is unknown. However, it is known that it was used locally as early as the beginning of the 1st century CE and exported to Rome and western provinces of the empire a couple of centuries later. It constituted the only colored stone of Iberian origin of a certain importance. The rock is a Cretaceous fossiliferous limestone, red and gold in color (resembling *broccato* fabric) or distinctly yellow, with abundant fragments of small Rudists, which are generally much reworked. The stone was quarried in two localities not far from Tortosa: at the *Cinta*, which gave rise to the Spanish name *jaspí de la cinta*, and at Els Valencians. Both sites are part of the Raval de la Llet (ALVAREZ PEREZ et al. 2009). Additionally, the stone was utilized more extensively during the Baroque period, when it became one of the most sought-after materials for small columns and altar mirrors not only in Spain but also in Italy (FALCONE, LAZZARINI 1998). In Venice, examples of the latter can be observed, such as in altars at St. Zaccaria. In contrast, the Basilica floor contains rare tiles from 18th- and 19th-century additions.



Cipollino rosso: The ancient names for this stone were *marmor iassense*, or *marmor carium*, both connected to its geographic origin. The modern Italian name, coined by Roman marble workers, derives from its resemblance to a red onion cut crosswise. Another name used by them is *africanone*. There are three varieties of this marble: one red veined with white and/or white-gray (Fig. 16) and greenish (by far the most common); and two rare ones, the *brecciata*, with centimeter-white and gray clasts, and one of uniform color that may be confused with *rosso antico*. The marble originated from the vicinity of the ancient Carian city of Iasos, which is now known as Kiykislacik in Mylas province (Turkey) (ANDREOLI et al. 2002). It was used sparingly and only locally during the Hellenistic period. However, from the Severan age onward, the first two varieties were used rather abundantly, particularly for columns and facing slabs. They were also used extensively in Byzantine monuments, especially those of Justinian age. Statues were also crafted from this marble, but only from the uniform-colored variety. This is a marble in the strict sense of the word of Cretaceous origin and has been colored red by the presence of hematite. The rare green patches are due to the presence of chlorite, while the gray ones are the result of graphite. In the northern narthex and in front of the *Madonna Nicopeia* altar, the marble is present in the form of a few fine squares of the veined variety. In the western arm, it is found in tiles and in small roundels (fig. 16). A modern variety of the material, designated *rosso laguna*, is still in commerce and has been utilized in restoration to replace the uniform-colored ancient one and the *rosso antico*.



Cipollino verde: In Antiquity, this stone was known in Roman times as *marmor carystium* or *marmor styrium*, respectively, deriving its name from the two principal quarrying locations on the island of Euboea in Greece: Karystos and Styra. As with its red counterpart, it is called *cipollino* due to its white-



green zoned appearance, which resembles a cut onion (*cipolla* in Italian). It was by far the most widely used colored marble by the Romans, particularly for columns, floor and wall coverings. These were used extensively throughout the provinces of the empire. Even during the Byzantine era, it was widely quarried and is still in commerce today. It is an impure chlorite-muscovite marble from the Permo-Trias period with a distinctive macroscopic appearance that can be easily identified with the naked eye, although similar lithotypes exist in the southern Peloponnese, Spain, and the Apuan Alps. A rarer gray variety, known as **Cipollino Bigio**, which appears to have been mined solely at Karystos in the Mili area, was also used by the Romans. In the Basilica of St. Mark, the green variety is represented by columns in the crypt and western facade, while on the floor, it is found in tiles of various shapes and sizes (and rare small roundels in the narthex).

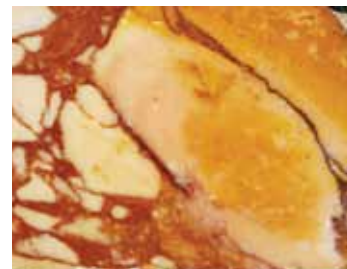
Diorite egiziana: Its ancient name is unknown; it is referred to as black granite by Egyptologists. It is a stone that has the same origin (the city of Aswān) and history of use as *sienite* (below), although it seems to have been more valued than the latter for official portraits of pharaohs, especially in the ancient and middle kingdoms. It was also known to the Romans, who used it mainly for columns and pillars. It is still quarried, especially in its finest variety, which is characterized by centimeter-sized rectangular crystals of pinkish plagioclase on a black background. It is classified petrographically as a granodiorite (LAZZARINI 1987; BROWN, HARRELL 1995; KLEMM, KLEMM 2008; HARRELL 2024). A single rare tile is present in the floor of the Basilica of St. Mark.



Fior di pesco: The *marmor chalcidicum*, as it was known to the Romans, derived its name from the jurisdiction of Chalkida, a principal city of Euboea, over the quarries. It was mined and had spread, particularly in the Central Mediterranean region, with uses including the *settebasi breccia* (see before). Ancient quarries, which have been largely destroyed by persistent present-day exploitation, are located just northwest of the city of Eretria. Petrographically, the rock is classified as a cataclastic limestone/impure marble of low metamorphic grade and Triassic age. Its pinkish (peach blossom shade) or purplish-red color is attributed to the presence of hematite, which is sometimes Mn-rich. This stone is uncommon in ancient Roman buildings, both in Rome and in other ancient cities. This is partly because of the heavy spoliation and reuse that occurred because of the considerable appreciation of it in the Baroque age (it is a stone often much veined with white secondary calcite). In the Basilica floor, the holotype variety is scarcely abundant. Noteworthy features of this variety include the presence of beautiful tondos (in front of the Mascoli Chapel) and an octagonal tile in the narthex (Fig. 13). The latter is particularly noteworthy for its two elements (side 17 cm) of the rare violet minute-grained alotype, which is well represented also in the covering of the so-called “Capitello” (LAZZARINI 2019b).



Giallo antico: The Roman name for this stone is *marmor numidicum*. It is a compact micro-crystalline limestone that can occur in various forms, including a uniformly colored background of deep yellow, light yellow, or occasionally crossed by red or brown veins. It can also be *brecciato*, with white or yellow clasts immersed in a background of varying shades from yellow to pinkish/red. It was among the earliest colored stones introduced in Rome, perhaps as early as the late second century BCE and, thereafter, massively used from the Augustan period onward. It is among the most expensive stones mentioned in Diocletian's edict, as it cost 200 *denarii* per cubic foot. Nevertheless, it is widespread especially in the ancient Roman cities of the central Mediterranean, where it appears to have been used for columns (this was rare outside Rome), for wall and floor coverings, and for small statuary with mainly exotic and symbolic subjects (such as Dionysian hermes, 'barbarians' and African beasts like lions). The quarries were opened in the hills near the ancient Numidian town of *Simitthus* (now Chemtou, West Tunisia), which were under imperial control (RAKOB 1993; BECK 2024; 2019; LAZZARINI in press). Petrographically, the stone is a compact, well-diagenized/very low-metamorphic limestone, which can be difficult to distinguish from other similar stones, such as *giallo di Siena* and related stones. One distinctive feature is the frequent presence of geminate plagioclase crystals. This exquisite stone is most prevalent in the quincunx of the left side of the Basilica transept, though it is also observed in other locations, such as the entrance to the Porta Dei Fiori, where it forms a harmonious geometric pattern with *rosso antico*.



Granitello antico: This is one of the names by which granite from Elba is referred to. It is probable that this granite was the first to be used in Italy by the Romans, who employed it as early as the 1st century BCE for sculpted columns in a building in the Foro Boario in Rome. It is a fine-grained, light-gray granite/granodiorite belonging to the Tuscan plutonic complex, which includes the island of Giglio (LAZZARINI 1987). Ancient quarries were opened on the southern slopes of Monte Capanne (areas of Seccheto, Cavoli, Fetovaia, etc.), and provided mainly columns and pillars. These were also exported to Provence in France and North Africa, not only until late Antiquity, but also at the end of the Middle Ages, when it was quarried mainly for monuments in Pisa and Florence. It is often difficult to distinguish this rock type autoptically from the Mysian granite, so petrographic and geochemical studies are often necessary (DE VECCHI et al. 2000). In the Basilica floor, there are a few small tiles of a minute, uniform-grained granite that could be *granitello*. However, further analytical confirmation is required.



Granito del foro: This term was coined by Renaissance Roman marble workers, as the majority of the columns of Trajan's forum in Rome were crafted from this material. In Latin, it was referred to as *marmor claudianum*, derived from its exploitation on the low slopes of *Mons Claudianus* (present-day Gebel Fatira) of the Egyptian Eastern Desert. It is one of the principal granitoid rocks utilized for columns in Antiquity, exhibiting a wide distribution in the central and eastern Mediterranean (LAZZARINI 2009). Additionally, it was used for large basins, with notable examples in Piazza Farnese and behind the apse of the Basilica of St. Peter in Rome, as well as the one in the Boboli Gardens in Florence. It is classified petrographically as a *tonalite-gneiss* (BROWN, HARRELL 1995; KLEMM, KLEMM, 2008; HARRELL 2024). In the Basilica floor, the stone is present in two tondos and several square tiles on the south side of the transept. It is also found elsewhere, though less consistently, in the form of tiles.



Granito della sedia: The two varieties, named after the slabs and roundel lining the thrones of St. Peter (see photo at left, and Fig. 14) and St. Lorenzo (see photo at right), respectively, in the eponymous Basilicas in Rome, are distinguished by their respective grain sizes. The former is a heterogeneous coarse-grained variety, while the latter is a homogeneous fine-grained variety. The two varieties were known as *lapis ophytes* to the Romans due to their resemblance to snakeskin. They were quarried at Wadi Umm Wikala, a small tributary of the larger Wadi Semna in the Egyptian Eastern Desert (LAZZARINI 1987; BROWN, HARRELL 1995; KLEMM, KLEMM 2008; HARRELL 2024). The *metagabbro* is a dark green rock, speckled with white, which was used by the early Egyptians for funerary vessels and by the Romans for small columns, basins, and coverings. In addition to the rare, scattered tiles of both varieties, the floor of the Basilica of St. Mark contains four beautiful squares, likely from the 20th-century restoration. These squares are of the *della sedia di San Pietro* variety and are located on the north side of the transept, in front of the left ambo.



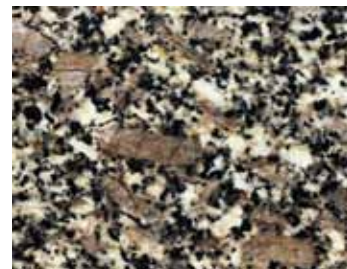
Granito misio (Mysian granite): The designation *granito misio* has been applied to this stone by the present author due to its geographical origin. Indeed, it originates from the vicinity of the Kozak village, that corresponds to the *polis* of *Perperene* in ancient *Mysia*, an Anatolian region of which Pergamum was the capital. Its appearance is similar to that of *granitello antico*, for which it shared similar uses, but only from the Hadrianic age, when its importation into the West began. Nevertheless, it was quarried in much larger quantities than *granitello antico*, even during the Byzantine period, and was widely distributed throughout the Mediterranean, particularly on its central and eastern shores (LAZZARINI 1998b; LAZZARINI 2004b). Additionally, it is classified petrographically in a manner similar to the *granitello antico*, from which can be macroscopically differentiated in sufficiently large artifacts by the presence of small idiomorphic (square and rectangular) black hornblende crystals. Mysian granite has been observed in two hexagonal shapes in the northern arm of the narthex, in two large circular shapes (60 cm in diameter) in the southern part of the transept (in front of the altar of the Sacrament), and in scattered tiles from other sectors of the Basilica floor.



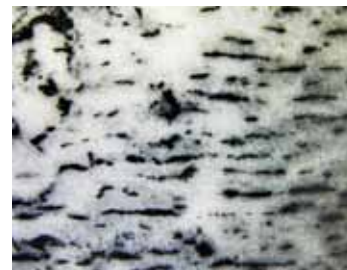
Granito verde fiorito di bigio: This is a fine-grained, uniform, greenish-gray stone that can only be distinguished by a trained eye from the *granito della sedia di San Lorenzo*, a minute-grained variety of ophyte. It is a quartz-diorite (LAZZARINI 1987; BROWN, HARRELL 1995; HARRELL 2024) that exhibits a greenish mass color due to the alteration of biotite to chlorite. It was mined in small quantities as early as the Protodynastic period for the manufacture of funerary vessels, and then in Roman times for columns, slabs, and small artifacts (bases and basins), in the Wadi Umm Balad of the Egyptian Eastern Desert. There is a small, fine stoup made of this rare stone in the Basilica of St. Mark (see LAZZARINI 1997, fig. 12). Additionally, there are fine square and scattered small tiles in the northern part of the transept floor (Fig. 15), where they are concentrated in the beautiful but modern rose window. This window features a red porphyry tondo in the center, located at the right intercolumn of the northern part of the transept.



Granito violetto: This corresponds to the very important *marmor troadense*, which the Romans spread throughout their empire, including Iberia and Syria, in greater quantities than any other granitoid rock (LAZZARINI 2004a; GASPARINI et al. 2023). This practice commenced during the Hadrianic era, and the diffusion began with columns and, more rarely, pillars and facing slabs. It is a quartz monzonite (LAZZARINI 1987; BIRKLE, SATIR 1994) that was also quarried in the early Byzantine period in various localities, including Yedi Tashlar, Kestambol, etc., on the slopes of Çigri Dâğ in the Ezine province in north-west Turkey (PONTI 1995). The column holding the bronze lion on the St. Mark's Piazzetta, as well as approximately twenty other columns scattered throughout Venice, are composed of this stone. While it is present in various columns inside and outside the Basilica, it is only found in a few tiles distributed randomly on the floor.



Greco scritto: This is a marble in the strict sense of the word, white in color with gray speckles, reminiscent of a page written in black on white. It was thus named by Roman marble workers in the Baroque age. Its ancient name (*marmor ephesium?*) is unknown. A number of quarries that supplied blocks of it for columns, basins, and facing slabs have been identified in various locations: *Asia Minor* (at Hasançavuslar near *Ephesus*, which is probably the largest and most important site, see ATTANASIO et al. 2012, and in Prokonnesos, in varieties of the local marble cut *al contro*, see LAZZARINI 1990); Greece (at Chalkerò, near ancient *Neapolis*, present-day Kavala; see ANDRIANOU, LAZZARINI 2020), and Africa (Cap de Garde, situated in close proximity to the ancient city of *Hippo Regius*, present-day Annaba in Algeria; see ANTONELLI et al. 2009). In order to ascertain the precise provenance of an artefact of this marble, it is imperative to conduct laboratory investigations (it should be noted however that the existing database on *Greco scritto* is still insufficient in size). Only slabs (even for epigraphic support), basins, columns, rare capitals, and other architectural elements carved from this marble are known. It seems probable that two of the four large columns situated in front of the *Madonna Nicopeia* altar and the numerous scattered Basilica floor tiles are derived from the aforementioned Microasiatic quarries of Hasançavuslar.



Lumachella a Megalodon: This is the name given by the author (LAZZARINI 1986) since no ancient or modern name is known of it, nor its provenance, which is probably to be sought in Asia Minor. This is because it is a stone used only in the Byzantine era and is present not only in Venice, but also in Bari in the Basilica of St. Nicola, both towns much connected with the *Levante*. It is probable that the stone arrived in the lagoon following the Fourth Crusade, as it is entirely absent in Roman-era buildings. The stone is a fossiliferous limestone (occasionally pinkish-gray) with large (sometimes decimetric) shells of the typically Triassic bivalve *Megalodon sp.* of pure white calcite in a red/beige cement. In Venice, it is present further to St. Mark, in the small chapel of Palazzo Grimani. The material is particularly abundant in the wall coverings of the naves of the Basilica (LAZZARINI 1997), but also in tondos, large lozenges (Fig. 8), and squares in the floor of the nave, and in occasional tiles in that of the northern narthex.



Marmo di Aquitania: the *marmo di Aquitania* also known as *bianco e nero antico*, was quarried at Aubert in the French Pyrenees. It was referred to by the Romans as *marmor celticum* due to its origin. It is a fine black-clasts tectonic *breccia* cemented by white sparitic calcite from the Urganian age (LAZZARINI 2005) that was exported to the East from the late 3rd to the early 6th century CE. It was widely used in the early-Byzantine age for columns and slabs. These can be found in the Justinian Basilicas of Constantinople and *Ephesus*, and later in the Basilica of St. Mark (LAZZARINI 2019). For its use as covering slabs, some examples can be found e.g. on the walls of St. Sophia in Constantinople, in many altars of Venetian churches and in the floor of St. Vitale in Ravenna. The quarrying was revived significantly in the mid-19th century (for example, see the twelve beautiful columns in the Kunsthistorisches Museum in Vienna). This continued, with intermittent interruptions during the two world wars, until the 1960s. In the Basilica floor, this marble is present in scattered tiles in the interior, as well as in fine octagons (Fig. 5) and small tondos in the northern and western arms, respectively, of the narthex.



Marmo Lunense and Bardiglio: The term *marmor lunense* was employed by the Romans to describe a series of marbles in the petrographic sense of the word, characterized by their very fine-grained texture (with an average grain size of less than 1 mm). These marbles exhibited a wide range of colours from absolute white to dark grey, and often displayed staining and veining. They exhibited a uniform or varied texture and were often associated with a brecciated fabric (*calacatta*). The quarries were first exploited since the Etruscan period (from the 5th century BCE), with production much increasing during the Roman Empire up to the 2nd century CE, and resumed from the late Middle Ages. They are still in use today. The quarries are situated in the three Apuan valleys of Torano, Miseglia, and Colonnata (BRADLEY 1991), which extend from the present-day town of Carrara. The most renowned and highly prized variety was and is *statuario*, which is perfectly white and isotropic, exhibiting excellent sculptability. However, it is not as abundant in the Apuan deposits as other varieties, where white-grayish (ordinary) types prevail for uses ranging from statuary to architecture. Additionally, the Bardiglio variety, which is characterized by a gray hue and uniformity, was also a common material. It was quarried primarily along the Colonnata valley (DOLCI 1980), sharing the same geological age (Hettangian) and petrographic characteristics (pure marble) as white Carrara marble. However, it differs in pigmentation due to the presence of finely dispersed carbonaceous impurities. This variety was widely used, particularly in slab form for *opera sectilia*, in contrast to the light-colored qualities preferred for statuary and architectural elements. It is probable that this marble is also present as a perusal marble in the Basilica floor, where a significant portion of the variety shown here, as well as its white and *brecciata* varieties, has been subjected to restoration.



Marmo nassio (Naxian marble): It is readily distinguishable macroscopically among all the important white marbles used in Antiquity being the sole very large-grained (up to 2-3 cm) variety that was quarried in the north-central part of the island of Naxos (LAZZARINI 2007b). It is among the earliest marbles to be used for idols and vases, as early as the late Neolithic period in the Cycladic area. Consequently, it is among the most widely used in the Archaic period (for *kouroi* and *korai*). However, in the Classical and Hellenistic periods it was neglected and also rarely used in the Roman period and later. A few slabs of this material are present in the Basilica floor in the western narthex, at the main entrance. These may be original pieces or have been reused as a result of the accumulation of ancient *spolia* in the Basilica storerooms over the centuries, as the island of Naxos was a Venetian *ducato* of the Sanudo family.

Marmo pario (Parian marble): The most famous crystalline white marbles of classical Antiquity were quarried on the island of Paros in the Cyclades, and have been the subject of six international conferences since the year 2000 (SCHILARDI, KATSONOPOULOU 2000). The marble was quarried in three different localities; the first is Marathi, whose tunnel quarries supplied the *lychnites*, which was among the brightest and most sculptable, fine-grained, subtransparent marbles. This was used from the third millennium BCE more or less continuously until the entire Roman period; it was never available in large blocks, and so was used only for the most valuable statuary. The second locality is Lakkoi, which yielded large blocks of a white, coarser marble, sometimes with gray flecks. This marble was used in statuary and architectural elements and was widely used in both Greek and Roman times. The third is Karavós, where an ancient small quarry provided a milky-white marble with very fine grain and alabastrine appearance, slightly dolomitic, which is particularly suited to small statuary (LAZZARINI 2007b). The Parian marbles are Triassic-Cretaceous in origin and exhibit remarkable purity. *Lychnites* can be identified through isotopic analysis, which determines the ratios of stable isotopes of carbon and oxygen. However, for a positive identification of all the three varieties, petrographic analysis is also necessary (GORGONI et al. 2002; ANTONELLI, LAZZARINI 2015). In the Basilica floor, it is possible that some slabs in the western narthex may be of Parian marble from Lakkoi.

Marmo pentelico (Pentelic marble): This is the renowned marble of the Parthenon and other monuments of the Acropolis of Athens (KORRES 1995), and one of the most significant and pervasive in Antiquity. The marble was quarried intermittently from the 6th century BCE until the fall of the Roman Empire. It was used extensively for architectural elements, statuary, and sarcophagi. Following the Byzantine period, there was a decline in quarrying, but it was again utilized extensively during the Neoclassical period. It is still quarried today. The best quality is fine-grained and uniform in color, with rare silvery-greenish micaceous levels. It was obtained on the southern slopes of Mount Penteli in Attica, with the most important ancient quarries located in and around Spilià, a few kilometers north of Athens. The poorer quality marble shows a foliation evidenced by abundant greenish chloritic-micaceous beds, as well as a gray variety quarried in the Kokkinaràs area. This marble was widely disseminated throughout the Mediterranean by the Romans, and then reused as *spolia*. It is present in the Basilica floor, though not in great abundance, in the form of tiles of various shapes and sizes, as well as listels.

Marmo proconnesio (Proconnesian Marble): This very important marble was known with the Latin term *marmor proconnesium*, but it has numerous other ancient and modern synonyms. These include *marmor cizycenum*, which refers to the quarries under the jurisdiction of the great Mysian city of Cyzicus; *greco fetido* and *marmo cipolla*, which refer to the sulfur gases that develop with the working of the marble; and *marmo greco*, which is used in Venice and neighboring cities. It is a medium-grained crystalline marble, rarely uniformly white. In fact, it almost always shows patches and/or veins/straight lines mostly parallel to each other, and/or streaks, all of which are gray in color. This allows an experienced eye to identify it with good certainty. It was first utilized in the Archaic period for the carving of *kouroi* (LAZZARINI 2007b), and subsequently, in the Classical and Hellenistic periods, for architectural elements. The mausoleum at Halicarnassus and the altar at Per-



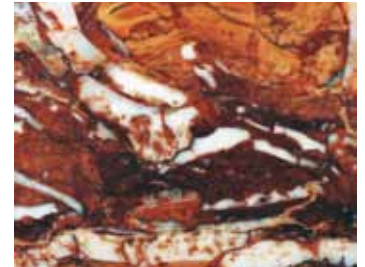
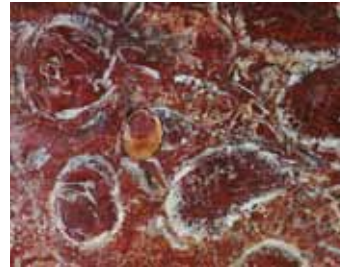
gamum are two examples of the use of this marble in the Greco-Roman period. However, it was in the Middle Roman Empire, in the Byzantine and Ottoman periods, that this marble was employed extensively for facings, sarcophagi, capitals and columns, etc. This was in contrast to the use of the marble for statuary, which was much less common. The marble spread throughout the Mediterranean area, partly because of its low price. (GNOLI 1988; MONNA, PENSABENE 1977, and LAZZARINI in this same volume PT 1.3). Of Paleozoic age, it is, as previously stated, in se very distinctive macroscopically. Nevertheless, it can sometimes be confused with the Alikí's *marmr thasium*, and its confident identification often requires petrographic and isotopic analysis. It was the most abundant marble in Venice until the end of the 14th century, both in public and private construction. It can be said that the marble of the Basilica is this same marble, as it covers it both externally and internally (LAZZARINI 1997; LAZZARINI 2015, and in this volume PT 1.3). It is also massively used in the floor, as evidenced by the large and magnificent slabs of the so-called 'sea'. Indeed, this whitish/gray stone is ubiquitous in the flooring parts of all periods. It has been obtained from both Roman and Byzantine *spolia*, and a 13th century exploitation; it is still quarried and used for replacement restoration.

***Marmi tasii* (Thasian Marbles):** These are both calcitic and dolomitic marbles that have been quarried since the Archaic period in multiple localities on the island of Thasos in the northern Aegean. The calcitic varieties were quarried on the acropolis of the ancient *polis* and on the Alikí peninsula in the south of the island. The marble in both cases is coarse-grained (with average grain values around 5 mm), white or grayish, often with dark-gray spots and veins (LAZZARINI 2007b). The Alikí quarries were exploited prevalingly during the late Roman and Byzantine periods for the production of architectural elements, particularly columns. A notable example of this is the marble used in the *Fabri Navales* complex in Ostia, which has been identified archaeometrically. In contrast, the Thasian dolomitic was obtained near Cape Vathy and at Murghena: this is a very homogeneous medium-grained white marble (average values of about 3 mm) with a characteristic very shiny appearance, harder and therefore more difficult to carve than its predecessor. Indeed, it is also called "*grechetto duro*" by Roman stonemasons. Nevertheless, it was widely used for statuary, especially for portraits. The *marmi tasii* are both Mesozoic and of Alpine metamorphism, and geologically belong to the Rhodope Massif. In the Basilica floor, the marble may be either calcitic (as previously mentioned, difficult to distinguish from Proconnesian) or dolomitic (as suggested by the particular brilliance of some of the tiles in the central hall).

***Nero assoluto* (Absolute Black):** This term is a generic designation for carbonate limestones (referred to as *bigi morati* by modern Roman marble workers) and other rocks (e.g., slates) of a uniform black color. Macroscopic identification of these is virtually impossible, with the exception of slates when they are deteriorated, as they exhibit their characteristic plane-parallel schistosity. The microscopic and isotopic analysis is similarly challenging due to the incomplete nature of the reference database for both minero-petrographic and isotopic/geochemical data (see FORNASERI et al. 1995; BRILLI et al. 2010; RANERI et al. 2021). A significant proportion of the *bigi morati* are *nero assoluto*, with the Ain el Ksir (Chemtou, Tunisia), the Ligurian slate (*Lavagna*) and the *nero del Belgio* being notable examples. These, along with *bigi antichi*, that are marbles in the strict petrographic sense of the word, belong to the class of *neri antichi*. In the Basilica floor, the presence of *nero assoluto* is conspicuous, especially concentrated in some areas (e.g., in the western narthex and in the

southern transept). It is postulated that they may be composed predominantly of *lavagna* (the oldest components) and *paragone di Fiandra* or *nero del Belgio* (the elements of Baroque restoration), two stones that are frequently utilized in Venice even in late Renaissance monuments.

Occhio di pavone: This most likely corresponds to the *marmor triponticum* of the Romans (LAZZARINI 2002c) due to the geographical location of its quarries in Bithynia, situated between three seas (the *Pontus Euxinus*, the Propontid, and Lake Sophon, present-day Sapanca Gölü, which was so extensively developed during Roman times as to look like a sea). The quarries were situated in close proximity to the major thoroughfare that connected *Nicomedia* (now Izmit) with Constantinople (Istanbul). This road run close to the present-day village of Kutluca, located within the Izmit province in Turkey. This *lumachella* is of Cretaceous age and contains Rudist's shells, measuring approximately from a few centimeters to one decimeter in size. It is colored in shades of red, pink, beige, yellow, or brown by hematitic and/or limonitic iron oxides. This stone was utilized for columns and revetments, as well as for the manufacture of small sarcophagi and basins, beginning in the late 3rd century CE, being particularly common during the early Christian and Byzantine periods due to its symbolic association. In fact, the resemblance of the circular cross-sectioned of these shells to a peacock's tail, evoked the immortality of the soul in Christian thought. Consequently, this material was often used with clear symbolic meanings. This fossiliferous limestone was extensively used in the Basilica of St. Mark, both in columns (six are situated within niches on the northern facade), wall coverings (especially in large rectangles framing backgrounds of other marbles, such as *lumachella a Megalodon*) and floor tiles and roundels. Among the latter, those notable for their considerable size (49 cm in diameter) are visible in the southern side of the western narthex.



Pavonazzetto: the ancient *pavonazzetto*, was the *marmor phrygium* of the Latins; as is the case with other important marbles, it had numerous synonyms, including *marmor docimium* and *marmor synnadicum*. Its very first name, given to it by proto-Renaissance stonemasons due to its distinctive purplish stains, is derived from the Italian word *pavonazzo*, meaning purplish. The other names are of geographical origin, according to Roman custom. Indeed, the marble was quarried from the early imperial period at the ancient city of *Docimium* (now Iscehisar in the Afyon province of Turkey) and in Altintas, the ancient Synnada district of *Phrygia*. The quarries, which were maintained throughout the Byzantine period, remain operational to this day and continue to provide both a white, fine-grained marble, which was particularly suitable for statuary, at least until the 10th century (PENSABENE 2013), and marbles of varying degrees of the *brecciata* yellowish and *pavonazza* shades. Widely used by the Romans, including for prestigious sarcophagi, but also (especially the *brecciata violacea* quality, believed to be the most valuable) for architectural elements and cladding, it is mentioned in Diocletian's edict as among the most expensive (it cost two hundred *denarii* per cubic foot) (MONNA, PENSABENE 1977; PENSABENE 2010). This marble is plentiful in the Basilica, where it is used for a number of columns, both inside and outside. Additionally, it is employed for wall cladding slabs. On the floor, we observe mainly elongated rectangular slabs framing geometric motifs, abundant tiles of various shapes, and a few beautiful slabs, such as the one immediately at the main western entrance to the Basilica.



Pomarolo: *Pomarolo* is the stone so called by stonemasons of the Basilica of St. Mark because of its *pomato* (of the color of an apple) appearance. It is also known as *mandolato* or *Arbe Breccia* because it also looks like an almond cake, and it was quarried on the island of *Arbe* (now Rab, Croatia) as early as Roman times. It was probably quarried as a substitute for *breccia coralina* (LAZZARINI 2000b). However, it was particularly common in the Romanesque period when it was disseminated in Venice and along both sides of the Adriatic as ornamental stone in the form of small columns and facing slabs, as well as of small sculptures. The variety with tiny clasts is designated as *semesanto di Arbe*. An additional allotype of this material, of a vaguely purplish color, lacks a specific designation, however, it may be referred to as *semesanto pallido di Arbe*. Examples of this material can be observed in the restored foot of the Tetrarchs and the external ferrule of the upper arch of the western portal of the Basilica of St. Mark. The *pomarolo* stone is a polymictic slope-breccia of Eocene age that was quarried not only in the Grič area (on Rab), but also on the island of Goli Otok and along the Dalmatian coast (near Jablanac). It is probable that this stone arrived in Venice in the 13th century, following the conquest of Zadar in 1202. It remained a highly sought-after decorative stone for centuries, at least until the 19th century. It was used extensively in Venetian Renaissance floors, such as those in St. Zaccaria and St. Zulian, as well as in small columns, such as those in the Cloister of St. Zaccaria, and the portal of St. Servolo on the island of the same name. It was also used in altar mirrors of churches of various periods. In the Basilica of St. Mark, *pomarolo* is a prominent feature, serving as a primary quarry material. It is evident in the floor of the narthex, where it is represented by large, beautiful slabs at the main entrance. Additionally, it is present in other areas within the Basilica, where the *semesanto* variety is also abundant. This can be observed in the Renaissance panels of the transept. In contrast, the *pallido* allotype is less prevalent, with only a rectangular slab after the main west door and rare scattered tiles. The considerable quantity of *pomarolo* present in the unquestionably thirteenth-century parts of the Basilica (such as for the bases of some of the columns of the main portal, the paneling of the *pancali*, the columns of the *semesanto* variety in the right ambo, the baptistery stoup, etc.) and the rarity of its use in Roman times lead to the conclusion that it was imported for the 13th-century floor completions and/or renovation.



Porfido rosso antico (Red Porphyry): The term *lapis porphyrites* was used by the Romans, while the Byzantines referred to it as *lithos romaïos* (LUCCI 1964). It is an andesite-trachyandesite/dacite (LAZZARINI 2021; HARRELL 2024), which has undergone a low metamorphism. The stone is red-purple in color, with a Paleozoic age and a history of quarrying in the area of *Mons Porphyrites*, present-day Gebel Dokhan in the Egyptian Eastern Desert, from the Ptolemaic age until the 5th century CE (MAXFIELD, PEACOCK 2001). It is the most significant and costly stone of Antiquity, with a price of 250 *denarii* per cubic foot as set forth in the Diocletian's edict. This stone was utilized by emperors, kings, and other notable figures throughout history, both for official statuary and for columns, sarcophagi, and facings. The numerous purplish columns on



the Basilica facades are made of this porphyry, thus emphasizing the highlights of the building. They also add emphasis to the well-known Tetrarchs and the beautiful ancient basin-stoup on the right inside the Basilica of St. Mark. There are further examples in various sizes of this basin-stoup in Venice (in St. Giorgio Maggiore) and in other churches in the Veneto region (as the very big one in St. Zeno in Verona, on which GIULIARI 1884). This Egyptian stone is available in several color varieties, including green (see e.g. the two columns in the right corner of the Basilica, above the *pietra del bando*), purple, and black. The latter was particularly rare and highly sought after in Antiquity. Almost all of them are present in the Basilica floor, at least among the triangular tiles (in the band surrounding the “sea”). The main facies, sometimes *brecciata*, is also found in large slabs, e.g., in the two at the entrance to the main nave, or in that of the chancel, immediately after the iconostasis, and tondos, e.g., in the apse. These large slabs serve to indicate to the faithful that they are about to enter the place sacred to the “king of Christians”. In the typical *opus alexandrinum*, Egyptian red porphyry is often paired with Greek green porphyry. This is exemplified in the transept, where small square or triangular tiles create geometric designs with a precious and pleasant color effect.

Portasanta: The stone is so called because of its peculiar use in the jambs of Roman (jubilant) holy doors in the Basilicas of St. Peter and St. Giovanni in Laterano. However, it is the famous *marmor chium* of the Romans, one of the most important colored stones of Antiquity. Local use of this stone can be traced back to the Classical and Hellenistic periods, with extensive quarrying and export beginning in the 1st century BCE at Latomi, on the northern periphery of Chios City on the island of the same name. During the imperial and early-Byzantine ages, it became one of the most widely used stones for columns, walls, and floors, as well as for basins, altars, bases, and busts of statues. It consists of a tectonic limestone *breccia* from the Trias, with centimetric to metric clasts of red, pinkish and/or gray in a cement colored red or brown by hematite/limonite, or gray by dispersions of very fine carbonaceous particles. There are in fact very different textural and chromatic varieties of this stone, which can sometimes be identified autopsically only by experienced eyes. In the Basilica of St. Mark, these varieties are all represented, particularly in cladding slabs (and transennae in the so-called “*septo*” and “*Capitello*”), even large ones, which are numerous both outside and inside. Of note in the floor are the beautiful rectangular slabs of the nave, which are likely obtained by cutting longitudinally from ancient columns, and the almost ubiquitous lozenges, square and triangular tiles of the older parts of the same nave.

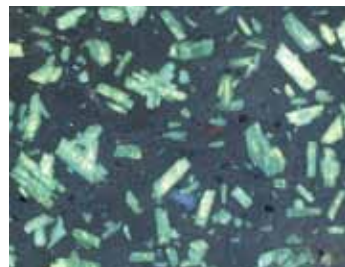


Rosso antico: *Marmor taenarium rubrum* may exhibit a uniform background of bright, dark, or purplish red color, but it may also be crossed by a network of thin blackish veins or by white and grey striations/bands in an isoparallel pattern or, more rarely, wavy. Its use for *rhythà* is attested as early as the Minoan period, while in the Mycenaean period it was worked as a decorative stone in slabs carved in rosettes and spirals, which were placed to embellish the entrance to the Treasury of Atreus at Mycenae. This may be the earliest example of monumental decoration with colored stones. Nevertheless, it was in Rome that the fortunes of *rosso antico* reached

their zenith, becoming one of the most precious and sought-after stones due to its color being similar to that of purple. This occurred between the end of the Republican and the beginning of the Imperial period. The analogy between the stone's beautiful red color and the color of wine encouraged its use in the production of statuary with Dionysian subjects starting from the Hadrianic age. Additionally, it is common to find this stone used for small capitals, pilasters, and, most notably, for cornices and moldings of various craftsmanship throughout the Mediterranean region. The stone was quarried in the vicinity of Cape Tainaron (present-day Matapan) and in other localities on the Mani Peninsula such as Paganea, Profitis Elias, Laghia, Mianes, and Kokkinoghia. Petrographically, the material is an impure (hematite) marble of Eocene age. The uniformly dark red background variety can be easily confused with the similar variety of *iasse* marble, from which it can be distinguished on a textural (in some cases even macroscopically) or, preferably, geochemical basis. This marble is an especially uncommon occurrence in Venice, particularly when one considers the Venetian possession of the Morea region, which would have suggested an increased presence of it. In the Basilica floor, it is found in a few scattered tiles, concentrated in a fine pattern at the entrance to the Porta dei Fiori, where, as previously mentioned, it is associated with *giallo antico*.



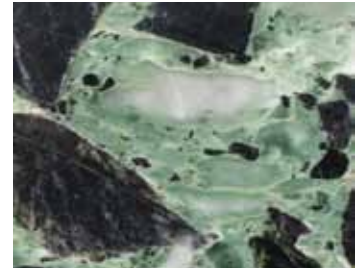
Serpentino (Porfido verde antico): Named during the Renaissance after its resemblance to snakeskin, the stone was previously known as *krokeatis lithos*, *lapis lacedaemonius*, or *verde di Laconia*. It is now universally known by its modern name, *porfido verde antico*. The stone's dark green background is punctuated by centimeter-sized crystals of plagioclase, which have a rectangular habit and vary in color from white to light and dark green. These crystals are sometimes found in association, giving rise to characteristic glomeroporphyric fabric. Like Tainarian marble, *serpentino* was already used in the Minoan (in the early 2nd millennium BCE) and later Mycenaean ages for the production of vases and seals. Rediscovered by the Romans in the late Republican age, it soon became the most sought-after and expensive stone, along with Egyptian *porfido rosso*, for which it was similarly priced, and with which it was very often associated. Ubiquitously present in all provinces of the empire, it continued to be highly popular throughout the Middle Ages and the Renaissance. Due to the unavailability of large and medium-sized blocks, it was employed primarily for *crustae* and *opera sectilia*, with only occasional use for small columns. As the earliest names indicate, this magmatic rock corresponds in fact to a narrow, long, strongly tectonized body; it is classifiable as a diabasic meta-andesite. It was exploited in Laconia, a short distance from *Lakedaïmon* (*Sparta*), the region's capital, more specifically around the hill of Psefi, between the villages of Stefanià and Krokea. *Serpentino* is a particularly abundant constituent of the Basilica floor, occurring in association with red porphyry. It is also present in the form of rounded and square tiles of considerable dimensions, although these have been subject to restoration. They are distributed throughout the transept, particularly in the quincunx.



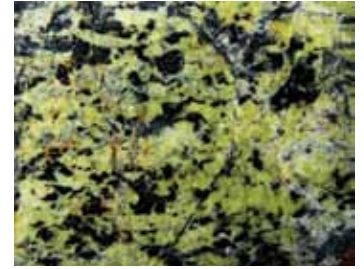
Sienite: *Lapis pyrrhopoecilos*, also known as *lapis thebaicus* and Aswan *granito rosso*, is a true coarse-grained (centimetric) alkaline granite, a granite in the strict sense of the word. There is a minute-grained (millimetric) variety also, though it is less common and less used in the ancient world. It is typically composed of pinkish or dark red potassic feldspar, white plagioclase, and colorless quartz, all punctuated by black mica crystals (KLEMM, KLEMM 2008; ASTON et al. 2000; HARRELL 2024). The Egyptians employed this stone as early as the 2nd Dynasty, and then on a larger scale from the 3rd Dynasty onwards, for interior and exterior facings (including some pyramids), obelisks, columns, and statuary. Following the conquest of Egypt, the Romans particularly valued this granite and introduced it to the capital and numerous other significant centers in North Africa (e.g. at *Leptis Magna*), in *Asia Minor*, in *Dalmatia* (e.g. in the Diocletian Palace in Split) and, of course, in Italy, where it was mainly used in the form of large monolithic columns and basins, and to a lesser extent, slabs for cladding and blocks for statuary. In the Diocletian price edict, it is reported at a price of 100 *denarii* per cubic foot. The most significant quarrying sites are situated in close proximity to the modern city of Aswan, ancient Syene, located to the south of the city, and around Shellal (RÖDER 1965, KLEMM, KLEMM 2008; KELANY et al., 2009). In addition to the large *Todaro* column, it is worth noting the two smaller ones on either side of the *Porta da mar* of the Basilica and numerous single ones found in the upper loggia of the Ca' D'Oro, in the internal facade of Palazzo Bon at the end of Calle del Volto in St. Maria Formosa, inside the Church of St. Alvisè, and elsewhere. In the Basilica floor, there are fine square tiles of the red variety on the north side of the transept, and similar octagon on the equivalent arm of the narthex.



Verde antico: The stone was quarried beginning in the Hadrianic age near Chasabali (northeast of Larissa) in Thessaly. This is the origin of the Roman name *marmor thessalicum*. It is also known as *lapis atracius*, which is derived from the polis of Atrax, which likely controlled its quarrying. The stone was primarily utilized for the fabrication of columns and facing slabs. However, it was also employed in the production of sarcophagi, including those of emperors, when red porphyry ceased to be quarried. Additionally, it was utilized for basins. In Diocletian's edict, it is enumerated among the most expensive stones, costing 150 *denarii* per cubic foot. Roman quarrying, which as said commenced under Hadrian, was already a significant industry at that time and underwent marked expansion during the Justinian period, as evidenced by the numerous column drums, also large ones, *in opera* at *Hagia Sophia* in Constantinople/Istanbul. Quarrying continued throughout the Byzantine Empire, where this marble was also utilized for altar tables, ambos and baptismal fonts. The stone is petrographically classified as an ophi-carbonatic *metabreccia*, comprising dark-green serpentine and white marble elements within a light-green matrix. It is among the most abundant colored stones in the Basilica of St. Mark, both outside and inside. It is present in the form of numerous columns, slabs (e.g. in the *transennae* of the *septo*), and very abundant floor tiles.



Verde ranocchia: The stone displays a light green background, with darker green patches that appear almost black, as in the skin of several species of frogs (hence its name from the Italian word *rana*). The stone is a serpentinite from the eastern Egyptian desert, specifically from the Wadi Umm Esh (BROWN, HARRELL 1995; HARRELL 2024). It has been documented as a material used in pre-dynastic times for the production of vases and small objects for funerary purposes. It was then almost forgotten in the Pharaonic period and rediscovered by the Romans, who utilized it to create covering slabs and small statuary, including animal figurines such as the frog in the Vatican Museums and the dog in the Capitoline Museums. A single tile of this stone is present on the Basilica floor, which is likely an ancient Roman *spolium*, as this stone does not appear to have been quarried during the Byzantine period (MANGANO et al. 1998).



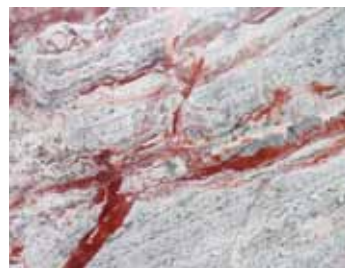
Catalog 2.

Catalog of Local and Post-antique Marbles and Stones

The following pages present a brief, alphabetical overview of the local and post-antique marbles and stones identified by the author in the pavement of the Basilica of St. Mark. Each lithotype is listed with its Italian name and any associated nicknames. The selection primarily features Italian lithotypes, with an emphasis on those originating from the Triveneto region. Although some of these materials were used as early as Roman times (or before), they are generally not classified as antique marbles.

Where available, relevant literature for each lithotype is cited within the corresponding descriptions. Please note that not all varieties of white and black stones and marbles are illustrated; as already specified before, archaeometric analyses are required for precise identification.

Arabescato orobico: The stone is a fine-grained limestone, sometimes *brecciata*, with a hazelnut or gray background color. It is variegated or mottled with brick-red, which may be very bright, interspersed with lighter or distinctly pink or gray streaks. It was quarried from the 16th century in the Camerata Cornello area of Val Brembana (Bergamo) and was used mainly for cladding. It is a micritic, sometimes dolomitic, and/or slightly marly limestone of the Lower Carnian Upper Anisian (BUGINI, FOLLI 2023, pp. 28-29). In Venice, it is a relatively uncommon occurrence, with examples observed in altar mirrors of Baroque churches, such as those in the churches of St. Maria dei Penitenti, and St. Maria di Nazareth, also known as *degli Scalzi*, and in older churches with Baroque remakes, including those in the churches of St. Zaccaria and St. Pietro di Castello. In the Basilica floor the material is present in tiles, which may be a replacement for the veined *iassense* marble (*cipollino rosso*) and the *portasanta*.



Breccia di Brentonico: The stone is named after the village near which the quarries are located. It is also known as *Mischio di Val Caregna*, from the valley of the same name in the province of Rovereto. It is an intraformational limestone breccia ('host' is *giallo Mori*, see below) of a beautiful yellow color, sometimes intense, and often with white clasts/veins and pink and/or purplish flamed *macchie*. In addition to Trentino, this stone has been used in Venice: for example, there are four columns in the second altar on the right of St. Pietro di Castello, two are in the St. Anna altar of the Church of St. Pantalon, and several tondos are in the pillars of the church of St. Felice. Additionally, it was utilized in the *Triveneto* region, with incursions into Lombardy and Emilia-Romagna, for columns dating from the 16th century onwards. However, it was particularly prevalent in Baroque altars for decorative plates (LAZZARINI 1986). In the Basilica floor, it is present but not abundant.



Breccia medicea: Comprising white and rose clasts and purple and brown clasts within a milky to purplish cement, this varicolored *breccia* was not commonly utilized in Roman times. It is likely that it was used as a substitute for *Breccia di Settebasi*, which may explain its other designation as *Skyros d'Italia* (PIERI 1964; BARTELLETTI, AMORFINI 2003). Seldom used in Roman times, this stone was subsequently rediscovered in the second half of the 16th century under the Medici, who used it extensively in their Opificio Delle Pietre Dure and commercialized it throughout Italy. It was widely utilized during the Baroque period, particularly in the form of columns, including veneered ones, and altar plates. The most significant quarries are situated in Seravezza, where a purplish *breccia* was extracted (the *Breccia di Seravezza*), and in Stazzema near Lucca (ZANGHERI 1993). From a petrographic perspective, it is classified as part of the Apuan anagenites, which are of the Hettangian-Upper Norian age. It is distinguished from the *Breccia di Settebasi* by the presence of the chloritoid mineral and is therefore classified as a *metabreccia* (LAZZARINI et al. 1999). The floor of the basilica is replete with tiles of this material, including those of the *Breccia di Seravezza* variety.



Cogolo: This is the name given in Venetian dialect to discarded river pebbles, not fully calcined or overcooked, from lime kilns. Following firing various limestones of *Triveneto* belonging to various formations such as *biancone*, which are generally already white, bleach further, taking on a uniform milky color in the *cogoli*. If the *cogolo* remains compact it is called *cogolo maschio*; if it becomes porous,

cogolo femmina. It is a fundamental constituent of Venetian *terrazzo* floors (LAZZARINI 2008a). In the Basilica floor, it is abundantly used in small tile form, for instance, in the Renaissance portion floors in front of the right ambo, and in restoration areas from various periods. It is easily recognized by the purity and uniformity of its color.

Diaspro di Barga: The stone is a *true* jasper, which is dark red, sometime brownish-red in colour and thickly intersected by milky-white veins. It was first quarried in the late 15th century near Barga in Garfagnana (province of Lucca) by the Medici (PAMPALONI MARTELLI 1988), who used it extensively, particularly in the 16th and 17th centuries, in the *a commesso* artworks produced in the grand ducal workshop. The reddish-brown portion of the stone is composed of silica, which has been colored by the presence of dispersed hematite. The veined, white-mottled, and other similar portions of the stone are composed of chalcedony. In the Basilica floor, there are some squares of modern integration in the northern transept.



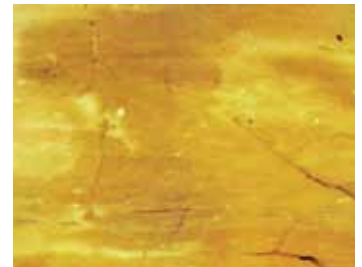
Diaspro rosso di Giuliana: This is a light-to dark red jasper in the strict sense of the word, which is characterized by the presence of gray, more rarely white, chalcedony veins. This type of jasper has been sought as erratic blocks in the limestone outcrops of the Giuliana and Bisacquino area near Sciacca in Sicily. This material has been known since Roman times, but it was especially used during the Renaissance and Baroque periods, when it was also exported to the rest of Italy. It was used for altar plates and for the manufacture of small objects such as vases. Some examples can be seen in the Gallery of Candelabra in the Vatican Museums (LAZZARINI 2018). In Venice, examples of this material can be found in the main external portal of the Scuola of St. Rocco. In the floor of the Basilica, there is a fine square of it in the northern transept, included in a frame orthogonal to the right transenna of the *Madonna Nicopeia* altar.



Fior di pesco carnico: This is a cataclastic limestone that exhibits characteristics similar to classic *for di pesco* (see above) due to its ivory-pink background, which is occasionally punctuated by yellow-purple or grayish areas. It is distinguished by the presence of numerous veins of white calcite, as observed by Pieri (1964). This limestone formation is of Permian age and was quarried until a few decades ago near Forni Avoltri, in the province of Udine. It is a stone that, like *grigio carnico*, was introduced to Venice relatively late, being used little there in the 17th or 18th century; for example, see the two small columns on the first altar to the left of the Church of Ognissanti. In the Basilica floor, for instance, in the western arm of the narthex, there are a few small restoration tondos in the large semicircle that begins at the inner wall of the Basilica and extends outward, as well as small tiles in the fills of the same semicircle.

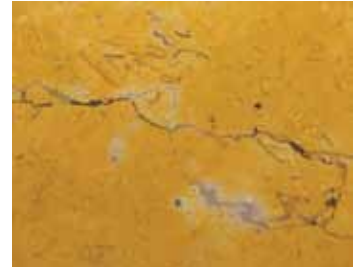


Giallo di Siena: This is a fine-grained stone with a coloration of various shades of yellow, ranging from intense to pale. It is rarely uniform, and is often found with whitish spots or blackish veins. These elements are sometimes more or less densely intertwined with each other, which gives rise to a variety called *broccatello di Siena*. It is a marble in the strict sense of the word of low metamorphic grade, calcitic, with traces of quartz k-mica and dispersed limonite, which is responsible for its coloration. It is datable to the Lower Lias (MICHELUCCINI et al. 1981). Ancient quarries, some of which remain operational now, are located in various localities within the Montagnola Senese region, including Bosco di Lupo, Poggio a Seta, Varco a Pelli, and others. It was rarely employed in Roman times, e.g. at Ostia, as a substitute for *giallo antico*, while it became widely utilized in the Renaissance and



Baroque art in Tuscany then, in the Baroque, in the rest of Italy, particularly for wall and floor coverings and typically for altar plates. In Venice, it is not particularly common. In the Basilica of St. Mark, it was used in a manner similar to that observed at Ostia: numerous fine square tiles of it, hollowed out by consumption, are visible in the floor at the entrance to the door leading from the narthex directly to the *Madonna Nicopeia* altar, in conjunction with a few others of *giallo antico*.

Giallo Mori: This is a limestone of Liassic origin, quarried since the second half of the 15th century in the vicinity of the village of the same name in the province of Trento (PIERI 1964), particularly in the vicinity of the village of Castion. The stone has a beautiful warm yellow coloration, and it was primarily used for cladding, fireplaces, tubs, and other similar applications. It was also used for columns, including the intricate twisted ones in the church of St. Pietro di Murano and of St. Marziale. Additionally, it was employed for thresholds, steps, and other architectural elements. This stone was imported to Venice during the 16th century, making it highly probable that on the Basilica floor it was also introduced at that time and repeatedly installed during subsequent restoration work.



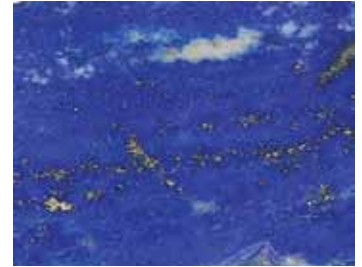
Grigio Carnico: This is a limestone with a light gray to dark gray background, interrupted by abundant white or yellowish veins of several generations. These intertwine with each other to form a complex texture. It is a Devonian cataclastic reef limestone, sometimes dolomitic (PIERI 1964; CASTELLI, PODDA 2010) and is often furrowed by a network of stilolites and black carbonaceous and white calcitic veins. It is evident that this material was employed with great regularity in Venice from the mid-sixteenth century onwards, mostly in interior architectural elements, particularly in slabs for altars and fireplaces. However, it was also utilized as columns, most of which were small or medium-sized. The largest and most relevant columns are those on the high altar of the Church of St. Stefano and the two at the entrance to the Scala d'Oro of the Doge's Palace. The most numerous are the fourteen in place in the funeral monument of Lorenzo and Gerolamo Priuli, a C. Franco work of the late 16th century, in the Church of St. Salvador. The stone is still quarried in the vicinity of Mount Croce, in the province of Udine, in the villages of Timau and Forni Avoltri. In the Basilica floor, small roundels can be seen in the large semicircle of the western narthex, and various square and triangular tiles are present in the restoration/renovation corresponding to the rosette fills.



Grigio / Nero di Roverè: This is a marly limestone of a uniform dark gray color, sometimes almost black, and characterized by the presence of rare tubules. This stone is of Lyssic age (ALBERTINI 1991) and was quarried from the late Middle Ages on Mount Maore near Roverè di Velo in the Lessini Mountains (Verona). In the locality of Canale, on the right bank of the Adige River, a variety of it was extracted that could be considered a *nero assoluto*. This material was widely used in Verona for portals, columns, cladding, and other architectural elements. It arrived in Venice in the mid-15th century and was used for both exterior and interior applications until the first decades of the following century. After that, it disappeared, possibly due to its unfavorable composition, which included clay minerals with expandable lattice (LAZZARINI 2010b). These minerals may have contributed to the material's poor durability when exposed to the elements. This stone is the material from which the frame of the *septo* of the Basilica of St. Mark is constructed. It is also a common feature of the floor in the narthex and in the southern transept of the Basilica (in some Renaissance squares). One of the stones that comprise the famous icositetrahedron visible by the gate of St. Peter's is also composed of this stone.



Lapislazuli: As is well known, this rock is composed primarily of the blue mineral lazurite, a sulfurous aluminosilicate of sodium and calcium. It is typically associated with varying amounts of calcite (white), pyrite (yellow), and other rare accessory minerals (PARODI 2015). In ancient times, it was exclusively sourced from the Sar-e-Sang quarries in the Koksha Valley, Badakshan region of Afghanistan, situated in close proximity to the Silk Road, as described by Marco Polo in his *Il Milione*. Since the late Middle Ages, Venice imported Afghan lapislazuli for use in jewelry and to obtain the precious blue ultramarine pigment, which was exported to the rest of Europe along with other exotic colors (LAZZARINI 1983). In the sixteenth century, the Jesuits were responsible for the trade of this stone. It is noteworthy that in their Venetian Church of St. Maria del Rosario, known as *dei Gesuati*, there is lapislazuli in the tabernacle of the high altar, as in that of the Church of the Pietà. Recently, other deposits of this beautiful semi-precious stone have been discovered in Pakistan, Mexico, and Chile. In the Basilica of St. Mark, small squares are present in the floor areas of the late 19th-century restoration. Additionally, small tondos have been inserted in the mosaic of the left aisle, where they represent the eyes of the peacock's tail, as well as in two circles at the entrance to the chancel.



Lavagna / Ardesia Nera: This stone was widely used by the Romans for *sectilia* work, where it was known as *lapis niger*, a term used for stones of *nero assoluto* (uniform black colour). It was also later used in slabs for cladding and for the blackboards produced in Lavagna, the province of La Spezia which took the Italian name from it. It was quarried until a few decades ago in the Ligurian locality of the same name. It is a slate in the petrographic sense of the word with dense plane-parallel foliation that ensures perfect divisibility parallel to it; colored black by carbon/graphite particles (SAVIOLI 1988). In Venice, it has been used extensively in Renaissance floors (LAZZARINI 2010b), where it can be identified autoptically when it exhibits typical decay morphologies (exfoliations). Otherwise, it is indistinguishable from other *neri assoluti*, both from Italy, such as *nero di Varenna*, *nero di Canale*, etc., and abroad, such as *nero antico* from *Tunisia*, *nero del Belgio*, etc. A reliable distinction can only be obtained through archaeometric analysis (FORNASERI et al. 1995; RANERI et al. 2021). In the floor of the Basilica, such morphologies have rarely been observed, but this does not preclude the possibility that *lavagna* was widely used, particularly in restoration projects.

Libeccio antico: Also known as *diaspro tenero di Sicilia*, this stone is one of the most important in Italian Baroque architecture. It is a polychromatic and polygenic limestone, often dolomitic. The background is beige or red, and the stone is furrowed by veins, bands, and spots of various colors from red to brown, yellow, green, etc. This stone geologically dates to the Upper Trias. The stone is quarried from veins and large pockets of infill included in the ivory-white limestones in the Muciara, Baglio Messina, and Monte Cocuccio localities of the municipality of Custonaci, province of Trapani (Associazione Lapidei Siciliani 2009). It was used throughout Italy from the late 16th century onward (ANTISTA 2009) for a variety of purposes, including altar plates, wall and floor coverings, column veneers, stoups, and other applications. In Venice, it can be observed in the form of non- and veneered columns, as exemplified by the four columns on the right side of the fourth altar in the church of St. Stefano. In general, it was predominantly utilized in Baroque altars. In the Basilica floor, tiles of this material are visible from the restoration work conducted in both the narthex and the right aisle.



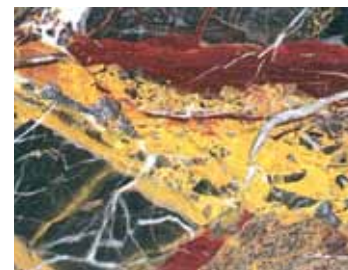
Lumachella di San Vitale: It is also called *lumachella di Verona*. This is a fossiliferous limestone of the Lower-Middle Lias that exhibits a remarkable chromatic variety of cements, from the most common gray to yellow-brown and even rare brick-red and black. In this limestone, numerous white or grayish fossil shells of varying centimeter to decimeter sizes of the lamellibranch *Lithotis Problematica* can be found. These shells like those of flat oysters resemble flames parallel to each other. The *lumachella di Verona* is found in various locations within the Lessini Mountains, including Val San Vitale near Roverè di Velo, the primary area of interest, as well as Valpantena, Val Squaranto, Val d'Illasi, Badia di Calavena, Monte Pastello, and Castion di Brentonico. In the latter, the ancient quarry still contains numerous squared blocks. It appears to have been widely used in the Veneto, but also in other regions of northern Italy, and along the coasts of the northern Adriatic as decorative and columnar stone, starting in the 16th century, but especially in the Baroque age (LAZZARINI 2014). It is abundant in Venice, both in the form of columns, including large ones of 4-5 m in height, such as in the facade of the Moro Lin palace in St. Polo, or inside the Basilica of Sts. Giovanni e Paolo, and in the early 17th-century funeral monument dedicated to the Dolfin family by Giulio del Moro in the church of St. Salvador, and in the form of both slabs, such as in the *aula magna* of the Ateneo Veneto, or large tondos in the floor of St. Salvador. The Basilica floor also contains numerous smaller tondos, for instance in the narthex. Additionally, there are rectangles/lozenges, particularly in the nave, which were created during the post-16th century restoration. These are of various types, with gray-black grounds and minute fossils, and brownish grounds with large white shells.



Lumachella occhio di pernice: This is a small-shelled brachiopod (*Terebratula* sp.) *lumachella* that is yellowish-brown/grey in a cement of the same color but somewhat darker, often distinctly yellowish. The age is the same as that of the *lumachella di San Vitale*, both of which belong to the geological formation known as *calcarei grigi di Noriglio* from the village of the same name in the area of Rovereto. The provenance of this stone is from small quarries and outcrops in the Lessini Mountains (near Verona). The typical locality is Val Pernise, at Lugo di Valpantena, where ancient cuts still exist, possibly dating back to the 15th century when this stone began to be quarried and used in Verona (e.g., in the church of St. Anastasia). Other quarries are on Monte Novelè (Stallavena) and in Val del Paradiso (Grezzana). In Venice, this stone arrived in the early 16th century, along with the *lumachella of San Vitale*, and was used for columns, facade tondos, and floor tiles (LAZZARINI 2014). Hexagonal tiles at the entrance to the Porta dei Fiori in the Basilica of St. Mark date from post-16th-century restoration.



Macchiavvecchia di Arzo: This is a fine polychrome *breccia* from the Lower Jurassic period. It is composed of decimetric clasts in yellow and gray tones within a dark red cement. The *breccia* originates from the Lombard locality of the same name in the province of Lugano, now Switzerland. The stone is essentially calcareous, but occasionally contains dolomitic clasts. It has been utilized since the late 16th century for facings and columns, including within the Church of St. Maria delle Grazie and the tomb of Giovanni Jacopo Medici in Milan Cathedral. Its use has been documented in numerous localities across Lombardy and Piedmont (BUGINI, FOLLI 2013). However, its use was less prevalent in Veneto, where it is thought to have arrived in the 17th century. In Venice, it was employed in wall frames, such as those of Titian's altarpiece in the altar of St. Giacomo in



the Church of St. Lio, for the outlines of tomb slabs, including the large slate slab of the tomb in the center of the nave of the Church of Ognissanti, and for altar balusters. In the Basilica floor, a fine tondo of this material is located to the left aisle, and a few other rare tiles are scattered in the fills of rosettes and ounces.

Macchiavecchia di Verona: This is a fine limestone of varying color, with areas of pinkish-yellow or vermillion-purple, even in thick veins, that stand out against a red-brownish background. It is somewhat similar to the better-known and more widespread *macchiavecchia di Arzo* (see before), particularly in the background. The stone was quarried in small pieces and in limited quantities on the slopes of Vergnana on the Lessini Mountains, near Verona. It was used throughout the Veneto region in the late Renaissance-Baroque period for cladding (like in the Ateneo Veneto main room), stoups, fireplaces, and small objects of value. In the floor of the Basilica, it is present in small tiles as replacement stones for the *portasanta*, which it may closely resemble.



Nero di Canale: This stone is placed among the *nero assoluto* limestones, and was quarried in the locality of the same name on the right bank of the Adige River near Verona: it is devoid of white or other colored spots or veins. It belongs to the Lyassic formation of the *grigi di Noriglio*, as noted by Ferrari and Gottoli (2023, unpublished note) and was likely that this stone was used in the Renaissance as the geologically coeval *nero/grigio di Roverè*. Since it cannot be identified with certainty by the naked eye, and no exhaustive archaeometric database exists to date on black limestones used in Roman and later ages, until now it has never been identified with certainty in Venetian monuments.

Nero del Belgio: Also known as *marmo nero di Mazy*, this fine-grained, *nero assoluto*, Frasnian carbonaceous limestone from the tunnel quarries of Golzinne, near Gembloux in Belgium (GROESSENS 2004), was also referred to as the *paragone di Fiandra* in Venice. The material has been utilized since the late 14th century in northern Europe and since the late 16th century in Italy, particularly in funerary monuments. In Venice, it was possibly used in the tomb of Doge Giovanni Pesaro in the Basilica dei Frari. It is not possible to identify the material with certainty through autopsy, as it is confused with *lavagna* and other *neri assoluti* from Italy and abroad (like *Nero di Imagna* and *Nero di Canale*, or Tunisian blacks). However, it was certainly used for twentieth-century restoration in the Basilica floor, as reported to the writer by stonemasons active in the *fabbriceria* of the Basilica of St. Mark.

Nero di Imagna: This is a beautiful, typical example of *nero assoluto* (black limestone), renowned for its exceptional quality. Its name is derived from the locality of the same name in the province of Bergamo, where it is believed to have originated. According to Bugini and Folli (BUGINI, FOLLI 2023, p. 58), it spread extensively throughout the territory under the rule of the Republic of Venice. It is possible that this stone may be present among the uniform black tiles found in the Basilica floor. However, as for its positive identification the same can be said for this stone as for *nero di Canale* (see before) and other *neri assoluti*.

Nero di Varenna: Also known as *grande antico d'Italia*, this black carbonaceous limestone (mudstone-to-wackestone) is found in various grades, from *assoluto* to veined. Veins in this limestone are often broad and fringed white and composed of secondary spatic calcite. The stone is of Ladinic age (BUGINI, FOLLI 2023, pp. 57-58) and its quarries are located near the locality of the same name on the Lecco branch of the Lake Como. The stone was used for columns and facing slabs from the Renaissance onwards, and was supplied throughout northern Italy, particularly in Lombardy and Piedmont. It is likely that there are also several examples in Venice, particularly in Baroque churches. However, a secure identification based on archaeometric investigations is lacking. Only tiles of this probable provenance are found in the Basilica floor, but these are occasional and restoration tiles that differ from *nero assoluto* (*lavagna*, *nero del Belgio*, etc.) owing to the presence of white veins.



Nero nube: Also known as *chiocciolato del Carso*, this limestone *lumachella* is characterized by its abundance of fossils (*chioccioline*). It is a bituminous-carbonaceous limestone *lumachella* in the strict sense of the word with Rudistes, which are generally well-preserved and exhibits a whitish or brownish coloration that contrasts with the black matrix of the stone. When the fossil sections are cross-sectioned, the stone takes on the appearance and name of *occhio di pavone bianco* and *occhio di pavone bigio*. These names, which hint at a nonexistent black cement and white or gray fossil variety of the *occhio di pavone* (see above), only serve to create confusion, even among some specialists who believe it originated from *Asia Minor* (SIRONI 1989). Since the Second World War, it has been used exclusively for facings and has long since disappeared from the market. At that time, quarries were opened in the Karst at various locations between Monfalcone and Gorizia (CARULLI, ONOFRI 1969). In the Basilica floor, several restoration tiles of this type can be seen both in the northern arm of the narthex and in the right aisle.



Pavonazzetto Toscano: Its name comes from its resemblance to the ancient marble known as *pavonazzetto* (see above). Instead, this is a distinct variety of white Carrara marble, which may exhibit yellow straw coloration, black spots and veins of magnetite, often with purplish haloes. Quarrying of the stone began in the mid-15th century, particularly at the Mandria locality in the Torano Valley in Tuscany. This was due to the fact that the authentic *pavonazzetto* was no longer available even in ancient monuments, as it had been spoliated and reused on a systematic basis. It was around 1460 that this stone was first employed in Venice, where it would be frequently used in buildings, especially Lombardesque, until the mid-sixteenth century (LAZZARINI 1999). In the floor of the Basilica of St. Mark, the pattern is frequently found in the form of small tondos (in the western arm of the narthex), small tiles, or rectangular laths framing squares and other geometric elements. These elements are of varying periods of ancient restoration, with examples observed in the northern arm of the narthex.



Pietra di Aurisina (Aurisina Stone): It is a fossiliferous limestone from the Turonian-Senonian period of the Karst around Trieste (CARULLI, ONOFRI 1969), with a whitish background color on which millimeter-sized gray bioclasts (very small fragments) of Rudists or more or less intact whole sections (but centimetres) of the same fossils, always gray, stand out. In the first case these are the more common varieties called *granitello* and ‘roman stone’, in the second case it is a rarer variety called *aurisina fiorita*. It is the stone of *Aquileia* and of many other Roman towns of the Veneto and Adriatic coast, widely reused, but also quarried and used *ex novo* in Venice in the late Middle Ages for fountains, cornices, sarcophagi and other architectural elements. It preceded the Istrian stone (see below), which replaced it from the late 13th century. It was rediscovered in the 19th century by the Austrians, under whom it reached Vienna and Budapest, and even places far from quarries such as Cairo (see, for example, the portal of the old National Archaeological Museum). It is still exploited and used today. In the Basilica of St. Mark, it is present in all the older parts, both structural and decorative, the best example being the cycle of sculptures representing the Nativity of Christ, dismantled around 1390 and dispersed in various places (GEYMONAT, LAZZARINI 2020). Several tiles can be seen in the oldest parts of the floor.



Pietra d'Istria (Istria Stone): When of good quality, it is a lithographic ivory/beige reef limestone (pure Tortonian micrite) that was little used in Roman times and only locally in Istria and Aquileia, but rediscovered from the late Middle Ages then becoming the stone of Venice. It was quarried in many places in the central-western part of the Istrian peninsula, including along the Lim Canal, although the largest quarries are located along the coast, in Orsera (Vrsar) and at Capo Montauro, just south of Rovigno (Rovinj) (LAZZARINI 2008b). It arrived in Venice at the end of the 13th century, where for the next five centuries it was in great demand because of its excellent properties of compactness and durability, being used both as a structural material (for plinths, columns, pillars, capitals, window surrounds, lintels, etc.) and as cladding in wall and floor slabs and for statues. In the second half of the 20th century, some quarries in Istria (e.g. in Chirmignacco, today's Kirminjack) were reopened to provide material for restoration. In the Basilica of St. Mark, its presence indicates contexts dated after the third quarter of the 13th century: it is therefore missing from the original floor of the Basilica, while it is present in later completions and/or renovation.



Pietra del Cattaro: It is a compact micritic limestone, varying in color from uniform reddish-brown (the finest and most valuable variety) to light beige or grayish, sometimes with brownish stains of ferric oxide/hydrated oxide, named after the place, now Kotor in Montenegro, where it originated (LAZZARINI 1986). It is a stone used from the 16th century in Venice and in some other Venetian and Adriatic cities under Venetian rule, almost exclusively for public and private factory floors: important examples are the floors of the portico of the Procuratie Nuove, the platform at the entrance of the Scuola Grande of St. Mark and in the floor of the sacristy of the Church of St. Raffaele Arcangelo. It belongs to a formation of Cretaceous age, corresponding to the *scaglia rossa veneta*. In the Basilica floor is scattered almost everywhere, but especially in the northern arm of the narthex.



Portoro: This is a black carbonaceous limestone dating to the Lias, sometimes brecciated, which owes its black background color to small amounts of finely dispersed organic carbonaceous substances in the matrix, on which yellow-gold or brown or white (in the *Portargento* variety) veins stand out, the former filled with ochre/limonitic iron oxides/calcite (FRATINI et al., 2015). It was used sporadically as a building stone in Roman times, but from the second half of the 16th century it was used more frequently as a decorative stone for columns and facades. The quarries on Monte Castellana near Portovenere (La Spezia) and on the nearby islands of Palmària and Tino were exploited intensively until the 1980s and are now almost exhausted. In Venice, the columns of the south-facing portals of the Sala delle Quattro Porte in the Doge's Palace and the six large eighteenth-century columns in the high altar of the church of St. Lorenzo, which are the best examples of their use, are remarkable for their beauty. In the floor of the western arm of the Basilica narthex, there are some fine *portoro* tiles, both square and triangular.



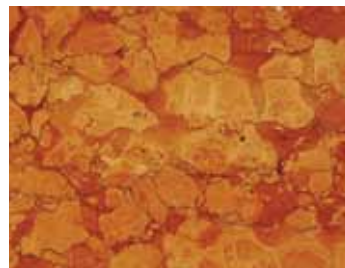
Rosso di Francia: It is a beautiful, deep red stone, interrupted by more or less large white and gray spots, also known as *rosso Linguadoca*, since it comes from southwestern France. Its quarries are located in the Roussillon region, more precisely in the Black Mountains near Caunes-Minervois (BOURROUILH, BOURQUE 1999). It is a Devonian *Stromatactis* limestone that was used locally as early as the Roman and early medieval periods, and then widely exported throughout Europe from the 17th to the 18th centuries, both in the form of semi-worked columns and blocks of slabs. Indeed, it is ubiquitous stone both in the form of columns (often veneered) and mirrors of altars in Italian Baroque churches. In Venice it is most common: the most beautiful columns are the twisted ones of the high altar of the Church of Santa Maria di Nazareth (so-called “degli Scalzi”) and the four of the first altar on the right of the Church of St. Stefano. Recognizable by its characteristic color and texture, tiles of this stone are scattered everywhere in the floor of the Basilica of St. Mark.



Rosso di Levanto: The finest *brecciata* variety, corresponding to the columns of the north doors of the *Sala delle Quattro Porte* of the Doge's Palace, is also called *rosso antico d'Italia*. It is a fine ophi-calcitic metabreccia of Pliocene age that is still quarried (albeit in small quantities) in various localities in the province of La Spezia (more precisely on Monte Verge in Levanto, in Bonassola, Deiva) and in Genoa at Chiavari (PIERI 1964). It has been used since the middle of the 16th century for columns and coverings, like its green counterpart (*verde di Levanto*) of which the best example in Venice is given by the 12 big columns of the funerary monument to Alvise Mocenigo inside the church of St. Lazzaro dei Mendicanti. As with the *portoro*, some square and triangular tiles are visible in the restored floor of the western arm of the Basilica narthex.



Rosso di Verona: This is a nodular ammonitic fossiliferous limestone (*a filamenti* biomicrite, sometimes marly and dolomitic) of reddish-brown color, belonging to the *Rosso Ammonitico Veronese* formation, geologically dated to the Dogger P.P.-Malm (ALBERTINI 1991). It was widely used in Verona and throughout northern central and eastern Italy in Roman times for columns, facings, slabs, etc., and continued to be used in all its chromatic varieties in the Middle Ages and later for sarcophagi and architectural elements. In addition to red, its varieties ranged from pink to white, yellow and greenish. It was and still is quarried, albeit sporadically, in various localities of the Lessini Mountains (at St. Ambrogio di Valpolicella, Domegliara, St. Giorgio ‘Ingannapoltron’, Caprino Veronese, etc.) and on the Asiago plateau. It arrived in Venice in the early Middle Ages as *spolia*



material from the Roman cities on the mainland and, probably from the first decades of the 15th century, as a freshly quarried material used for columns and, above all, for floor coverings. In the Basilica floor it is very abundant, both in large slabs, often a replacement for the *portasanta*, and in tiles of various shapes and sizes. There are also rare elements of the variety called *giallo reale* and of that known as *rosa corallo*.

Verde Alpi: This is a generic name for the green ophicalcites that have been quarried (albeit in limited quantities and as a substitute for *verde antico*, see above) since the late Roman period in various localities in Piedmont (e.g. near Susa) and the Aosta Alps (PIERI 1964). This stone, which is still quarried, was very popular from the middle of the 16th century and throughout the Baroque period for columns, facing slabs, basins, etc. In Venice it is common in many churches in the form of columns, such as the two, probably from the second half of the 16th century, that are in the high altar of the Church of Ognissanti, in addition to altar mirrors and inlays, as in the replacements for the *verde antico* found in the Church of the Gesuiti. In the floor of the Basilica of St. Mark, *verde Alpi* always dates back to restoration: see, for example, the rectangular slabs framing the two porphyritic slabs at the main interior entrance of the Basilica, and the tondo in the center of the left aisle.





PT 2 - Chapter 3

On Some Rare Stones in the Basilica of St. Mark

LORENZO LAZZARINI

This is what I currently know about the provenance of some of the marbles that adorn our Basilica. While it would be easy to repeat the conjectures of others or propose new ones for many additional pieces, some remain unidentified in terms of their origins. However, I remain hopeful that further study, particularly through my travels in the East, will allow me to determine their provenance. As such, I may acquire information about their original use in the future, knowledge that is currently beyond my grasp.¹

The Basilica of St. Mark in Venice serves as an invaluable repository of knowledge across various fields, including religion, politics, art, the humanities, and the natural sciences. Equally compelling is the Basilica's material history, especially regarding the types of stone used in its construction. This history provides deep insights into Venice's architectural heritage and the city itself, a topic that has captivated the interest of numerous distinguished scholars through the centuries.²

In a relatively recent essay on the stones and marbles of the Basilica, I noted that after many years of study and research on this topic, as well as on the building and decorative materials used during Classical Antiquity and the Renaissance, I had reached an impasse in identifying approximately ten lithotypes utilized in the Basilica. These materials had consistently eluded my un-

Fig. 1 - The left transenna of puddingstone of Gebze in front of the *Nicopeia* altar in the Basilica of St. Mark, detail showing the dark gray subrounded clasts in a light brown cement.

derstanding, and I felt there was little hope of determining their origin.³ I must now challenge that statement, which was evidently overly pessimistic. Fortunately, thanks to serendipity, I was able to determine the origin of one of these unknown stones, and it happens to be one of the most beautiful: the rare conglomerate, a puddingstone that, in four large, thick slabs, form the screens in the monumental entrance to the altars of the *Nicopeia* and the *Santissimo Sacramento*.

Furthermore, in my essay, I neglected to highlight that the Basilica has concealed, and continues to conceal, unexpected discoveries that are revealed gradually. This is largely due to the significant, clear, and objective challenges involved in carrying out a continuous, comprehensive, and systematic investigation of each stone element within the building. These challenges are associated with the Basilica's large surfaces, the practice of worship, the presence of the controversial plastic carpets on the floors, ongoing restorations, the small size of many marble elements and/or their poor condition, the difficulty – in many cases – of sampling materials for laboratory analysis, as well as with several other factors. Nevertheless, I was,

and continue to be, mindful that future studies could lead to the identification of stones previously known but not yet observed or scientifically recognized, as well as lithotypes of uncertain origin whose provenance has been, or may be, confirmed through laboratory investigation. This applies to two other stone materials: a rare *breccia* that I identified in the floor based on a recent monographic study,⁴ and a marble used in the two *cipollino* columns below the Basilica's right ambo, whose origin I recently determined. In this paper, I will examine these three stones, not only in the context of their use in the Basilica, but also by situating their use across different historical periods, while providing petrographic and, for the latter only, geochemical analysis.⁵

1. *The puddingstone from Gebze*

The two altars of the *Nicopeia* and of the *Santissimo Sacramento* are separated from the rest of the transept area by low stone screens (*transennae*). On one side, these are supported by the masonry of the Basilica's transept pillars, while on the other side, they are supported by columns. The *transennae* are composed



Fig. 2 - The left transenna of puddingstone of Gebze in front of the *Nicopeia* altar in the Basilica of St. Mark.

of large rectangular slabs of a pudding-colored stone,⁶ a warm grayish-brown hue, framed by Thessalian marble (*verde antico*).⁷ They feature a long, molded base of *pomarolo* (*Arbe breccia*),⁸ which rests on steps made of *nembro rosato* from Verona.⁹

The puddingstone slabs are polished on the side facing the observers and are supported by a dark variety of *verde antico* frames. They are fully or partially covered on the inner side (facing the altar) by a wooden panel, which obstructs a clear view of either of the large

faces of the slabs and makes it difficult to accurately determine their thickness, although it can be estimated to be around 6-10 cm.

The *transennae* of the *Nicopeia* altar have the following measurements: left slab = 214.3 × 47.8 cm; right slab = 214 × 45.5 cm (see Figs. 1-2). The right-hand *transenna* is supported by a column made of either *greco scritto* marble (?) or, more likely, a variety of *proconnesian* marble. In contrast, the left-hand transenna is supported by a column made of gray Carystian marble (*cipollino bigio*).¹⁰ The latter column is

truncated at the base and lacks the lower scape. The marble used is a chromatic variety that I have observed in a large quarry located in Mili, near the present-day town of Karystos on the island of Euboea, Greece. The right-hand *transenna* is supported by one of the two columns of *proconnesian* marble situated behind the small altar of St. Paul. The bases of the two columns that provide access to the *Nicopeia* altar are typical of 13th-century production and are made of *pomarolo*. These columns are set on a plinth, which is possibly covered with *marmor iassense* (*cipollino rosso* marble).¹¹

The puddingstone slabs exhibit incipient, though localized, signs of deterioration, such as slight powdering of its cement, salt-induced bleaching, or chromatic alteration of the protecting wax. The dimensions of the altar's *transennae* of the *Santissimo Sacramento* are as follows: the left slab measures 223.5 × 40.5 cm, while the right slab is in two pieces, with the left piece measuring 110 cm in length and the right piece 102 cm. Both pieces share a common width of 43 cm. On the latter slabs, it is noticeable that the surface not covered by the wooden mantle inside the altar is not polished and shows evidence of a frame-saw cut. The left

transenna is adjacent to two paired *proconnesian* marble columns behind the St. James altar. The puddingstone slab is embedded between two small pillars made from fragments of a *verde antico* column and stands on an elaborately molded base of *pomarolo*, which is thicker than the others, likely to compensate for the difference in level caused by the lowering of the pavement at the St. James pillar. Conversely, the right-hand *transenna* stands on its right side against the masonry of the Basilica's south wall. Both *transennae* are centrally supported by two *proconnesian* columns, which are mounted on *pomarolo* bases identical to those at the *Nicopeia* altar. These bases align perfectly with the *pomarolo* bases supporting the *transennae*. The 13th-century column bases here are made of *marmor triponticum* (a *lumachella* marble also referred to as *occhio di pavone*, see below).

The stone found in the four screens is an oligomictic puddingstone, e.g. a conglomerate (rubble stone) composed of a single lithotype pebbles with a medium-low sphericity. These are of a very compact limestone with a uniform blackish-gray color, occasionally tending toward brownish hues, and rarely veined with white secondary calcite. They are poorly graded

and range from centimetric to decimetric sizes, with the largest clast measuring nearly 30 cm across. The smaller clasts (matrix) are sparse compared to the calcitic-cement, which is also compact and predominantly yellow-brown, sometimes showing reddish tones. In the slabs of the altar of the *Santissimo Sacramento*, the stone exhibits also elements with a concretionary texture and a bluish-gray color, resembling chalcedony. The right slab of the *Nicopeia* altar features a long white vein of secondary calcite running longitudinally, affecting all the components of the rock: clasts, matrix and cement.

In my previous essay,¹² I tentatively identified the puddingstone of the *transennae* as Rhodian marble, based on Corsi's description of a stone from the Greek island of Rhodes.¹³ During a recent search for quarries of what Gnoli wrongly refers to as *marmor sagarium* (according to him equivalent to *occhio di pavone*, instead a Rudist *lumachella* which I now believe should be more precisely named *marmor triponticum*),¹⁴ I followed Gnoli's directions¹⁵ and explored the area around Gebze, situated on the route between Istanbul (Constantinople) and Izmit (Nicomedia). Although I did not find the quarries of *occhio di pavone* in this area (they are actually located

northeast of Gebze, approximately an hour's drive away, near the village of Kutluca), I did visit a local marble worker's laboratory where I observed some unsold slabs of a dark grey puddingstone: these slabs immediately reminded me of the *transennae* of the Basilica. This material is known in Turkish as "Gebze puddingstone" and was quarried until a few decades ago in small quarries located east of the city – quarries which I have been unable to locate.¹⁶ This puddingstone is no longer quarried, partly because the currently available stone is deemed too brittle, requiring it to be cut into 4 cm thick slabs for processing and transportation. After obtaining a sample and returning to Venice, I compared the Gebze puddingstone with that of the *transennae*, noting both chromatic similarities (excluding the matrix, which is sometimes reddish-brown in the Basilica slabs) as well as textural and compositional similarities. The darker color variation in the matrix of the recently cut puddingstone can be attributed to the natural heterogeneity of the stone, and the fact that modern quarry faces are usually different from the ancient ones, which may have resulted in variations in stone quality.

A macroscopic and microscopic analysis of a thin section of the quarry sample revealed

that the ‘new’ rock can be classified as a poorly graded oligomictic puddingstone. This rock is composed of rounded elements with medium-low sphericity, similar in size to those found in the Basilica slabs, and consist of a micritic-microcrystalline limestone with abundant veins and nodules filled with sparry calcite, along with various bioclasts, notably calcareous radiolarians and “filaments” (pelagic lamellibranchs). Small quantities of detrital quartz are present, occurring as small angular grains with occasional wavy extinction, along with rarer small phosphatic nodules. The gray-black coloration may be attributed to carbonaceous matter dispersed in micrite as very small, irregular particles. The matrix, which has a composition similar to the rock’s pebbles, is scarce. The cement, present in moderate quantities, consists of microcrystalline calcite with sparitic areas and rare bioclasts, including numerous echinoid plates, bivalve fragments, and various peloids. It also contains further to detrital quartz, chalcedony (both angular and subangular fibrous clasts), opaque minerals (such as hematite), and carbonaceous matter in dispersed or stylocumulated very fine particles found in styloliths that occasionally surround matrix clasts, along with a few illite needles larger than 4 micrometers.

It is unclear whether the puddingstone of Gebze was employed in the ancient Roman period. Indeed, it has never been observed at any other of the numerous ancient Mediterranean sites that have been visited by the present writer. It is therefore reasonable to conclude that the Gebze *puddinga* should be regarded as one of the few stones that the Byzantines added to those of ancient Roman tradition. However, despite this, it remained of limited use due to its limited availability. It is likely that its use was also confined to the Constantinopolitan area, given its origin. The Basilica slabs are the sole surviving examples in Venice, where they likely arrived as *spolia* from the sack of Constantinople of 1204. It is challenging to determine with precision the timing of their installation. However, it seems probable that this occurred shortly after their arrival in Venice, particularly given the shape of the bases of the columns in *pomarolo*, which align perfectly with the long ‘bases’ supporting the *transennae* carved in the same stone. Indeed, it seems implausible that slabs of such aesthetic and rare material could have remained unused for centuries until 1617, when they could finally be installed in their current location following the rearrangement of the two altars, as designed by Tommaso Contin.¹⁷



Fig. 3 - The typical macroscopic aspects of the *breccia rossa e gialla egiziana* with abundant beige subangular clasts and a few ones of dark grey and pinkish color in a brick-red cement

2. *The breccia rossa e gialla egiziana*

As previously stated, an in-depth examination of the most well-preserved sections of the 12th-century Basilica floor¹⁸ unveiled the existence of a multitude of uncommon stones, including the *breccia rossa e gialla egiziana*: in the absence of more precise or secure ancient or appropriate traditional marble names,¹⁹ I propose this designation for the first time. Indeed, Gnoli mentions the occurrence of a *breccia rossa e gialla* once in

place in the floor of the atrium of the Basilica of St. Peter in the Vatican, of which he claims to be unaware of the provenance.²⁰ However, the present writer has observed this same *breccia* in some *opus sectile* floors in Ephesus, and thus believes it to be of probable Microasiatic origin.

In contrast, the polymictic *breccia rossa e gialla* of unquestionably Egyptian provenance (Fig. 3) is moderately graded, comprising predominantly pluricentimetric clasts and a matrix of varying abundance, ranging from mil-

limeters to centimeters in size. The former and latter exhibit predominantly subangular and subrounded boundaries, respectively. They are beige-yellowish in color, with occasional instances of flesh-colored hues. Rarely, brownish and dark-gray clasts are also present. The cement is abundant and displays an orange-to red-brown hue, often exhibiting some macroscopic porosity. It is rarely included in catalogues and handbooks on ancient marbles, with the notable exception of a mention by Francesco Belli – a prominent 19th-century collector of ancient marbles – under the designation of *breccia ombrata*.²¹ In one of his pamphlets, Belli states that this type of *breccia* is present in the collection of Count Stephen Karolyi²² and that he himself possess a column fragment of it.

Indeed, this *breccia* is absent from the illustrated catalogues pertaining to the renowned historical collections Pescetto and De Santis, Podesti and Grassi at Rome, and Corsi at Oxford. Additionally, it is erroneously identified as *breccia corallina ombrata* in another significant 19th-century collection, the Feliciani, which was also formed in Rome but is currently located in Berlin.²³ The latter name has recently been adopted in part as *breccia rossa e gialla (ombrata)*

egiziana by Crocenzi and Del Bufalo.²⁴ The first to suggest a provenance for the material, that is the Wadi Abu Gelbana in Middle Egypt, were Mrs. and Mr. Klemm.²⁵ They reported the existence of a modern quarry in the area, which they believed was probably set on an ancient one. This conclusion was based on the observation of surviving traces of quarrying activity from the Pharaonic period, although the evidence was deemed uncertain. Harrell did not observe any traces of the ancient quarry,²⁶ and he identified the locality as Wadi Abu Gilbana, situated in the vicinity of the village of El Isawiya Sharq in the Akhmin district. He considered this to be the primary quarrying site. He refers to the *breccia* as “red and white”, without providing further details regarding the size and color variations of the clasts. He states that it was utilized for the production of vases and animal figurines dating from the pre-Dynastic period to the Fourth Dynasty, as well as for the creation of small sculptures spanning from the Proto-Dynastic to the ancient Roman period. The discovery by Harrell in the vicinity of the quarry of ceramic fragments dated to the Twelfth Dynasty provides compelling evidence that the site has been exploited since a remote



Fig. 4 - A small tile of *breccia rossa e gialla egiziana* in the center of the photo showing a detail of the 12th-century floor of St. Zaccaria.

past. Nevertheless, the potential for additional exploitation sites cannot be ruled out, given the pervasiveness of outcrops of this *breccia* belonging to the Pliocene Issawija Formation across a vast region of the Sohag province.

The history of use of this lithotype, as outlined by the scholars mentioned above, is incomplete and in need of further investigation. This is especially important in order to better specify its art-historical importance. The present writer observed this lithotype's use in the form of basins and sarcophagi, such as those preserved in the open-air lapidaries of Kom el Chofaga in Alexandria and of the National Archaeological Museum in Istanbul (inv. 314 and 512): both represents a significant point of

departure in this regard. The provenance of the Alexandrian tub (lacking an inventory number) is unknown, except that it was recovered from a local site. In contrast, that of the sarcophagi, which are very poorly preserved, was determined to have originated from Sidon and were published by Mendel.²⁷ These two occurrences, which are geographically distant from one another, are significant in demonstrating the export in Antiquity of this *breccia* from Egypt to Phoenicia and Thrace. It is of considerable importance to note the use of the *breccia rossa e gialla egiziana* slabs for composing *opera sectilia* in Central Mediterranean localities. This can be indirectly deduced from the presence of tiles of this breccia in several Late-Medieval Venetian floors, which likely originated from the reuse of ancient Roman buildings from the *X Regio*. Indeed, some examples can be observed at the right end of the nave of the Basilica of St. Mark, where they measure approximately 4 × 4 cm and are situated within an area of the 12th-century *lithostroton*. Some similar tiles have been observed in the remains of the presbytery floor unearthed during the excavation of the Church of St. Lorenzo,²⁸ as well as in the so-called “Gothic hall” of St. Zac-

caria (Fig. 4). The stone is exceedingly rare, and the tiles found in these three floors exhibit remarkable macroscopic similarity. This suggests that the workers who installed them (who were contemporaneous and potentially the same individuals) had access to the same materials for reuse,²⁹ or that they exchanged the most valuable materials.

The petrographic study conducted by the Klemms suggests that the *breccia* is composed of calcareous clasts and matrix, including a peloid limestone that resembles that of the Eocene outcrops at el-Salamuni. Additionally, the red cement resulted to consist of clay minerals, sparitic-micritic calcite, and hematitic red ochre containing significant quartz granules. Accordingly, the genesis of the *breccia rossa e gialla egiziana* can be regarded as the product of a karst sedimentary process (specifically referenced by Harrell), which, based on subsequent observations made by the present writer, can be more precisely delineated below. Indeed, an initial fracturing process of several different limestones (at least one yellow-to beige, predominant; one flesh-colored, with red stylolites; and one dark-gray) occurred, followed by the formation of angular clasts and matrix. This was succeeded by a



Fig. 5 - One of the two small columns of *cipollino rosso e verde* in the right ambo of the Basilica of St. Mark.

brief transport phase that favoured the mixing of the clasts themselves: this process resulted



Fig. 6 - Detail of Fig. 5 showing the wawing schistosity of the *cipollino* with red and green bent layers.

in a weak grading (size separation) and a slight morphological modification (subangularity/

subrounding) of the clasts, with less matrix incorporation. It followed the sediment's deposition in an area that was undergoing strong karstification, with infiltration of *terra rossa* (residual sediment from the karst itself) and permeation of saturated calcium carbonate solutions. The latter produced the final diagenetic process resulting in the deposition of calcite, which cemented the sediments and led to the formation of a coherent, workable breccia.

3. *The cipollino rosso e verde tenario*

Two columns supporting the porphyritic pulpit to the right of the high altar of the Basilica feature a *cipollino* marble with greenish and reddish layers (Figs. 5-6). Boni designated these "Marmo Persichino",³⁰ and it has previously been proposed by the present writer that they represent a *cipollino marino* variety due to their dense schistose layering.³¹ Nevertheless, I myself remained unconvinced of this identification, particularly in light of new observations on the taenarian (*rosso antico* and associated *cipollino verde* from the Mani peninsula, Peloponnesus) and Euboian *cipollini*.³² To gain further insight, a small sample of the *cipollino*

from the rightmost column facing the ambo, and one from a slab of *cipollino marino* were subjected to carbon and oxygen isotopic analyses.³³ The results of the analysis are as follows:

- *cipollino* of the Basilica column: $\delta^{13}\text{C} = +2.10$ (PDB); $\delta^{18}\text{O} = -6.90$ (PDB)
- *cipollino marino* tile from a floor at St. Lorenzo di Ammiana (Venice): $\delta^{13}\text{C} = +4.30$ (PDB); $\delta^{18}\text{O} = -10.10$ (PDB)

These data were compared with previously published one and with data from new analyses of quarry samples of *marmor carystium* (*cipollino verde euboico*) and *cipollino verde tenario* (from the area of Cape Taenaros, now Matapan). Consequently, when these two data sets were incorporated into the most recent isotopic reference diagram for *cipollini* extracted in southern Euboea (particularly in quarries in the districts of Karystos and Styra, as illustrated in Fig. 7, by far the most used in Antiquity),³⁴ it became evident that none of the two analyzed *cipollini* fall in the cloud of the *cipollini* from the Tainarian area, and that the $\delta^{18}\text{O}$ value of -10 for *cipollino marino* does not even fall within the range of Euboian *cipollini* (which includes values around

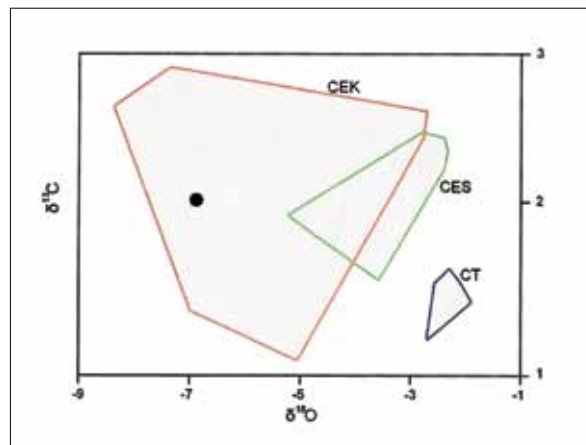


Fig. 7 - The plot of the isotopic ratio of the *cipollino rosso e verde* of the column in the right ambo of the Basilica of St. Mark in the reference isotopic diagram of Greek *cipollini* (CEK, field of the Euboian *cipollino* from Karystos; CES, ditto from Styra; CT, ditto from Cape Taenaros, Peloponnesus).

-8 at most). In contrast, the isotopic ratios of the Basilica column *cipollino* fall within the latter (expected) range. It can thus be concluded that the *cipollino verde e rosso* of the two columns supporting the right ambo in the Basilica was most likely quarried in the quarries active during the Hellenistic-Roman period in the vicinity of Karystos. It is also noteworthy that a gray variety of *cipollino* was extracted from the same area, corresponding

to more 'reduced' levels and rich in carbonaceous substances. It is therefore plausible that more 'oxidized' horizons also existed, containing hematitic iron, which is present in the Basilica column and responsible for its reddish coloration.

The data also demonstrate that *cipollino marino* is isotopically distinct from the Greek *cipollini*, despite evident compositional similarities. It is, in fact, classifiable as a chlorite-rich impure marble, where calcite constitutes the main mineral (with maximum dimensions around 0.7-0.8 mm, and often strongly strained), accompanied by syncinematic quartz and plagioclase, chlorite, K-mica, and graphite. The latter accessory minerals are mostly concentrated along the strong (microboudinated) schistosity planes, even at centimetric scale. Hematite and opaque minerals, as well as rare epidote, are other accessory minerals. This lithotype, the first analysis of which is presented here, is a very rare stone, was so far known *in situ* from only two Italian locations: Rome and Piazza Armerina.³⁵ In addition to the new aforementioned findings in Venice and Concordia Sagittaria, *cipollino marino* has also been observed in *Cyrene*,³⁶ where

a large square slab measuring 36 cm on each side was observed *in situ* within the floor of the House of Jason Magnus. The sparse distribution complicates the identification of the primary origin of *cipollino marino*, which remains uncertain.

Endnotes

¹ BONI 1888, p. 401.

² Giacomo Boni was undoubtedly a pioneer in the study of the marbles of the Basilica of St. Mark. His contributions to Ferdinando Ongania's volume remain valuable for consultation, despite numerous inaccuracies regarding nomenclature, provenance, and a certain naiveté in his mineralogical and petrographic analysis (BONI 1888). SEIPP 1911 is also of interest, though it is even less accurate than Boni's in terms of terminology and the provenance of lithotypes, including some of the most significant and commonly used ones.

³ LAZZARINI 1997. Among the most significant and abundant stones in the Basilica of St. Mark, yet still relatively unknown, are the *lumachella a Megalodon* and a black *lumachella*. Notably, both types are also found in the floor of the transept in the Basilica of St. Nicholas in Bari.

⁴ See MANGANO 1996-1997 and the salient results of the study published in MANGANO, LAZZARINI, DORIGO 1998.

⁵ I am pleased to once again dedicate this work, now in memoriam, to Prof. Wladimiro Dorigo, one of the few scholars of Antiquity consistently attentive to

material evidence and the historical and archaeological messages, both direct and indirect, they convey. This dedication serves as a tribute to our past friendship and my continuous admiration.

⁶ I disagree with Boni's characterization of puddingstones, including our specimen, as "ungrateful to the eye, out of tune, and ugly". Furthermore, he fails to suggest any specific provenance for this rubble stone, mistakenly labeling it as "siliceous", despite acknowledging its typical calcareous reaction to hydrochloric acid. In fact, he notes that it is composed of "purely siliceous pebbles, referred to as Egyptian" (BONI 1888, p. 393): the pebbles closely resemble the siliceous ones transported by the Nile, which were collected and utilized in past centuries by the Opificio delle Pietre Dure in Florence, where a significant supply of them still exists. SEIPP 1911, likely referring to Boni, describes our stone as "*dunkle Breccie verwandt, nicht unaehnlich der Puddinga d'Egitto, nur farbenarmer, im wesentlichen braun getoent*" (dark breccia related, not unlike the *puddinga* of Egypt, only less colorful, essentially brown in tone). By "*Puddinga d'Egitto*", he may be referring to the *breccia verde*; see GNOLI 1988, pp. 117-121.

⁷ On Thessalian marble (*verde antico*) see GNOLI 1988, pp. 162-165, and the bibliography cited there; in addition, LAZZARINI 2007a, pp. 213-244. In the Basilica this stone is abundant, both outside and inside, where its finest example, the slabs of the left pulpit, have been incredibly confused with Egyptian *porfido verde*, the *lapis ieracites* of the Romans, by LORENZONI 1998, pp. 303, 308-315.

⁸ See LAZZARINI 2000b.

⁹ ALBERTINI 1991, pp. 35-37.

¹⁰ On *cipollini euboici*, see LAZZARINI 2007, pp. 183-203; on the related gray variety, *ibid.*, p. 189, fig. 21.

¹¹ MONNA, PENSABENE 1977, pp. 107-113; LAZZARINI 1990, pp. 237-252.

¹² LAZZARINI 1997, p. 324.

¹³ CORSI 1828, p. 65. I mistakenly assumed that Corsi was referring to a different type of stone from his collection. However, upon examining his collection of ancient stones, now housed in the Natural History Museum at Oxford, it is clear that Corsi's "Marmor Rhodium - Yellow and Black Marble" is, in fact, *portoro*, a type of limestone that was never used by the ancient Romans.

¹⁴ LAZZARINI 1998a.

¹⁵ GNOLI 1988, p. 207.

¹⁶ Gebze is a city experiencing significant industrial and residential growth. Currently, it is marked by substantial building and roadway congestion, which has rendered my persistent attempts to locate the puddingstone quarries on its immediate outskirts unsuccessful.

¹⁷ LORENZETTI 1974, pp. 189-191.

¹⁸ See PT 2, 2.2.

¹⁹ This *breccia*, characterized primarily by its yellowish hue, may potentially correspond to the *knekites lithos* mentioned on the now-famous inscribed stele discovered in the northwestern quarries of *Mons Porphyrites* (modern-day Gebel Dokhan in Egypt's Eastern Desert). The stele, which also references red and black porphyries, records the *libertus Gaius Cominius Leuga's* claim of having discovered the quarries in 18 CE, during the reign of the emperor Tiberius. On this stele see VAN RENGEL 1995, pp. 23-24; see also PEACOCK 2001, pp. 7-8. On Egyptian red porphyry see LAZZARINI 2021.

²⁰ GNOLI 1988, p. 253, fig. 261.

²¹ The name *ombrata* (shadowed) is derived from the frequent presence around the contours of the largest clasts of a thin red crown-like hematite deposit, which gives them the appearance of a thin shadow. Its Egyptian origin

was inferred by BELLI 1842, p. 65, since, during his time, fragments of the stone were imported to Rome from Egypt.

²² BELLI 1842, no. 343, p. 65 (I thank my friend Francesco Crocenzi for this important reference).

²³ MIELSCH 1985, pl. 8, no. 248

²⁴ CROCENZI 2015, fig. LIX, p. 78; DEL BUFALO 2010, p. 253.

²⁵ KLEMM, KLEMM 2008, p. 140.

²⁶ HARRELL 2024, vol. 2, pp. 543, 547-550, figs. 5a, 5b.

²⁷ MENDEL 1914, pp. 402, 407-408: the *brecchia* was not identified by the author except as a generic *brèche*.

²⁸ The tiles were identified by the writer in a *sec-tile* area bordered by mosaic fragments: on the archaeo-

logical excavations of St. Lorenzo's church and the floor findings see DE MIN 1998, pp. 39-47.

²⁹ MANGANO, LAZZARINI, DORIGO 1998.

³⁰ BONI 1888, p. 398.

³¹ LAZZARINI 1997.

³² On the *rosso antico* see LAZZARINI 1990 and 2007a, pp. 71-96.

³³ MCCREA 1950, pp. 849-857.

³⁴ For the history of use, quarries, and geology of Greek *cipollini*, see LAZZARINI 2007a. Isotopic data and archaeometric issues are discussed on pages 193 to 197, with the reference diagram used here located on page 195.

³⁵ GNOLI 1988, p. 183.

³⁶ LAZZARINI 2004a, pp. 132-133.

Closing remarks

This volume introduces a multidisciplinary approach to expanding knowledge about the reuse of ancient materials and sculptures in Venice, drawing on archaeology, art history, history of architecture, and applied petrography. The choice to adopt this approach, rather than a more traditional catalog-based method, was informed by the expectation that, in the 21st century, catalogs are likely to be definitively replaced by databases and other digital tools. While this transition presents new opportunities, it may also lead to inventories lacking the intellectual rigor traditionally fundamental to archaeology, art history, and history of architecture. In contrast, research employing a cultural-historical approach may lack a comprehensive understanding of material culture, including precise knowledge of archaeological materials, their chronology, distribution, and the specialized terminology often rooted in ancient languages such as ancient Greek and Latin.

The authors of this volume sought to address these various aspects. Rather than presenting an extensive catalog or a comprehensive account of building techniques across different periods, they concentrated on the cultural process of reuse in Venice, focusing on the materiality of ancient objects within this context.

This approach was necessary to address the investigation of architectural design in Venice from the city's founding to the Baroque period. This investigation involved specific characteristics that are not unique – despite the frequent claims about the *uniqueness* of Venice – but are cer-

tainly the result of a distinctive, centuries-long process of adaptation by the Venetians to the environment in which their settlement was located. This observation implies, for instance, that the process of reuse has been continuous up to the present day, as evidenced by the ongoing maintenance of the Basilica of St. Mark. In Venice, the phenomenon of reuse encompasses the entire city, which is its primary distinguishing feature and aligns it (among many others) with Rome and Constantinople-Istanbul. In contrast, comparisons with other locations are less straightforward, as they often involve grand architectural palimpsests characterized by the reuse of ancient materials, but these examples tend to be isolated and predominantly involve religious buildings, such as the exceptional *Mezquita*-Cathedral of Córdoba in Spain or the Great Mosque of Kairouan in Tunisia. Venice is also distinct from Rome and Constantinople-Istanbul because it does not sit on an ancient Greek or Roman settlement. Instead, it was founded by Venetians with a mindset that the art critic Sergio Bettini

has aptly described as “magpie-like” (BETTINI 1978, p. 8). Bettini uses the metaphor of the bird, which is notoriously attracted to shiny objects, to suggest that the Venetians, in turn, were drawn to valuable materials. This means that, for them, the sources of ancient materials for building and decorative purposes were potentially endless. These sources ranged from the ancient Roman and Byzantine settlements in the northern Adriatic region to all Mediterranean coastal areas, as well as inland locations involved in the Venetians’ long-standing trade networks across Europe and Asia.

Just as the sources available to Venetians were countless, so too are the sources available to researchers today. This is why collaboration between archaeologists and materials scientists is crucial within the broader context of European and global cultural history. Each stone reveals its own natural history, and the craftsmanship involved, and it is this combination that makes each story unique. Furthermore, due to the exceptional variety of lithotypes used in architectural decoration and composi-

tional solutions, Venice resists any attempt at synthesis that does not center on the reuse of ancient materials.

Ancient Rome, ancient Constantinople (as well as ancient Istanbul), and ancient Venice – each a capital of its respective empire (or republic, as in the case of Venice) – are symbols of bygone eras that remain, for Europeans and beyond, as objects of admired memory and a hint of nostalgic allure. Among these, Venice today continues to embody antiquity in many aspects of urban life: it is navigated slowly on foot and by boat; transportation, waste removal, and construction remain slow and laborious; and the environment still poses a threat due to climate change, with rising

sea levels and increasingly exceptional *acqua alta* ('high water').

Through this book, the authors aim to pay homage to this ancient city by interpreting a civilization that has thrived through the reuse of ancient materials sourced from abandoned sites, giving them new life: a 'magpie city' that transforms into a 'phoenix city', built upon *petra* (reused materials). Simultaneously, this book proposes research pathways that explore the myriad sources of these marbles and stones, with the belief that Venice, already one of the world's most beloved destinations, can also serve as a vibrant research hub characterized by an ever-expanding and diverse international community.

MYRIAM PILUTTI NAMER

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pp. 14-15, figs. 2-3 (Photo: Chiara Tomaini); p. 77, fig. 7 (Photo: Lorenzo Lazzarini); p. 90, fig. 1; p. 93, figs. 2-3; pp. 98-99, figs. 6-7; p. 101, fig. 8; pp. 111-128, figs. 2-17 (Photo: Lorenzo Lazzarini); pp. 166, 169, figs. 1-2 (Photo: Chiara Tomaini); pp. 176-177 figs. 5-6 (Photo: Lorenzo Lazzarini). All the images of both the catalog of antique and local and post-antique marbles and stones.

Fondo Fotografico Tomaso Filippi – IPAV

p. 58, fig. 16.

Archivio Fotografico – Fondazione Musei Civici Venezia

p. 2, fig. 1.

Other Sources

p. 17, fig. 4 (from DORIGO 2003, I, p. 250); p. 18, fig. 5 (from AGAZZI, GUIDARELLI, PILUTTI NAMER 2023, Appendix, fig. 2); p. 19, fig. 6 (from DORIGO 2003, I, p. 253); p. 21, fig. 7 (Photo: Myriam Pilutti Namer); p. 30, fig. 1 (from FORTINI

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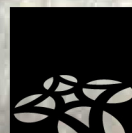


This book introduces an innovative methodological approach to interpreting Venice's cultural heritage through a detailed examination of material culture. It delves into the phenomenon of the reuse of ancient stone and marble in Venice and its surrounding areas, spanning from Antiquity to the Baroque period. The volume focuses on the identification and interpretation of lithic materials reused in both private and religious buildings, including the iconic Basilica of St. Mark, where they are applied as interior or exterior cladding or used as decorative sculpture.

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