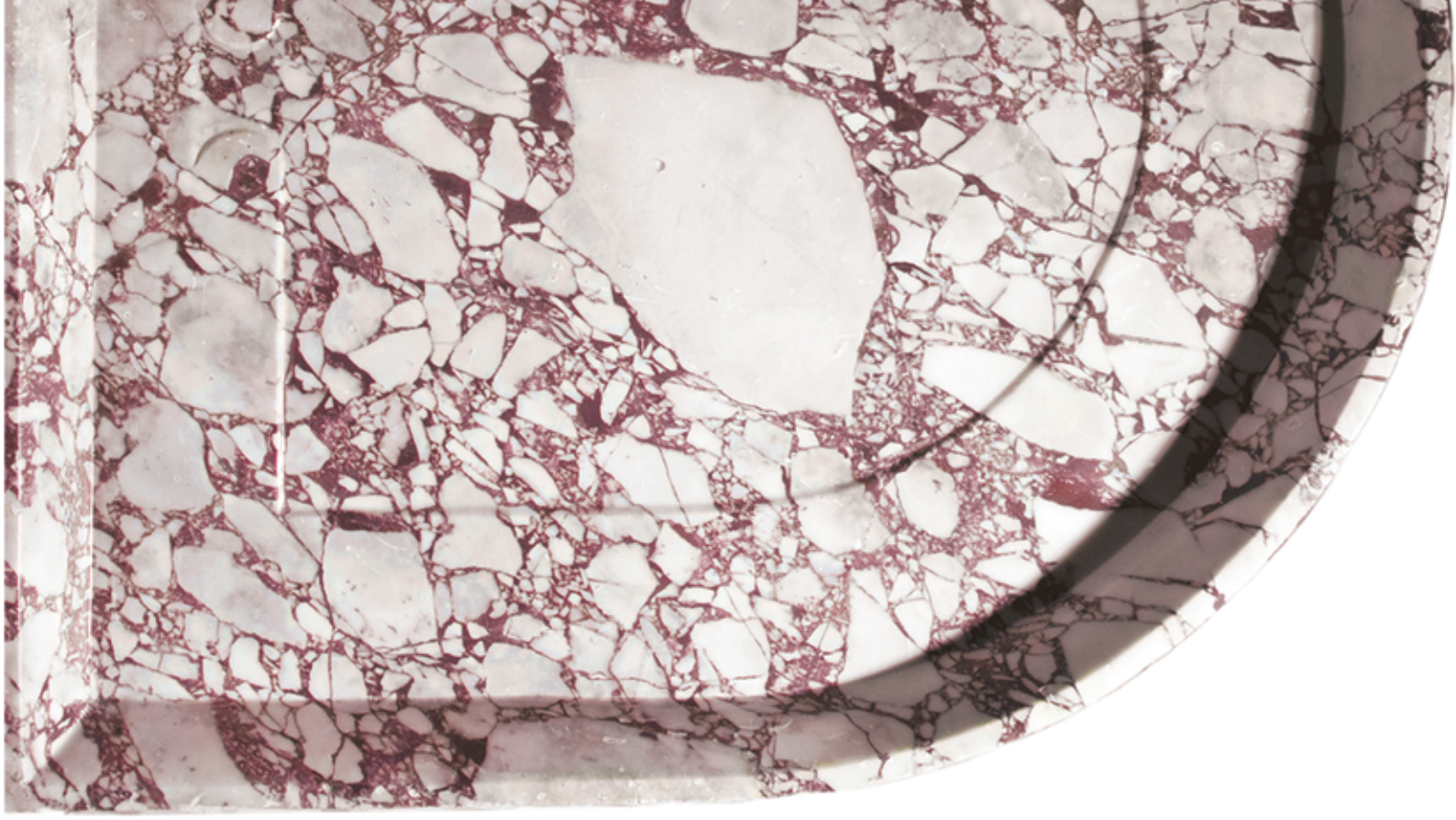
Iasos and Iasian Marble between the Late Antique and Early Byzantine Eras

Peirano, Diego



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

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CONTENT

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IASOS AND IASIAN MARBLE BETWEEN THE LATE ANTIQUE AND EARLY BYZANTINE ERAS

Diego Peirano
Association Iasos of Caria, Ferrara, Italy (diego.peirano@polito.it)

Abstract

Iasian marble seemed to reach the highest point of its reputation in the 6th century when it appeared in three of the most important edifices built by Justinian: in the Constantinopolitan churches of Hagia Sofia and of the Holy Apostles and in the church of San Vitale in Ravenna. At the time, evidence of this material also became more frequent in Iasos. Firstly, the raw blocks found at Balık Pazarı[1], some ready to be sawn into slabs, then the columns and colonnettes discovered in the neighbouring quarries and in two of the Iasian churches. Here the marble also appears as mosaic tesserae in the acropolis basilica and as tiles in the agora basilica. Similarly, furniture such as tables made with *marmor iassense*, both rectangular and sigma-shaped, were found in secondary places everywhere throughout Iasos. A study of these elements, concerning their shapes, processing techniques and functions, is in progress. The preliminary results will be presented.

Keywords
use of marble, Iasos, furniture

Iasian marble was already known and was used for small objects from the Middle-Late Bronze Age[2] and for architectural elements between the Classical-Hellenistic[3] and the Roman ages. At this time the systematic exploitation of the quarries as a planned intervention and investment by the polis seemed to have begun. In any case, examples of this marble only became more frequent in late antiquity in Iasos[4] and in the regions outside the Caria, while in the latter area there is little evidence of marble[5].

In Iasos many tables found in secondary places pertain to this time; they assume different shapes, mainly circular, but sigmoid or rectangular ones have also been found. Between the last two types the *trait d'union* is the highly pointed edging that encloses the central surface. These kinds of tables were classified by Roux[6] in the form of *clôturées*. They were extensively employed from late antiquity, in both domestic and ecclesiastical contexts[7]. In home furniture, circular and sigma shaped tables were used at the centre of half-moon dining couches named *stibadia*[8] while rectangular was the usual shape of a central table for the *triclinia*[9]. In ecclesiastical settings, while circular and sigma shaped tables were used to collect offerings, more generally as secondary furniture, the rectangular form was preferred for altars[10]. However, the erratic discoveries of the Iasian series hinder any precise assumptions about their origin. The only indicative character of the potential uses is the smooth or rough under side. The former was designed to remain visible on metallic or wooden bases and was thus removable, the second requiring a masonry base. While the smooth underside is common to both types of tables,

1 About the monument: PARAPETTI 2013, 161–172.

2 At the time the inhabitants obtained from this stone small artefacts such as spindles and vessels. See: BERTI, PEIRANO 2014, 25 note 2 and related bibliography.

3 Different constructions such as watchtowers and terracing are located near the marble outcrops; here are also evident architectural elements including a small Doric capital: BERTI, PEIRANO 2014, 25 note 3.

4 Around the Common Era evidence of the material also became more frequent in Iasos: within the *bouleuterion* and south *stoa* of agora, always in portals or within *opus sectile* flooring. BERTI 1999, 336; PARAPETTI 1985, 105–136.

5 Few remains are conserved in Labraunda, Cnidos, Sinuri (sanctuary of high antiquity also next to outcrops where, as in the *chora* of Iasos, marble was used for construction and as a support for inscriptions), Xanthos, Ephesus. For Labraunda see BLID 2012, 58, fig. 45; for Cnidos YALCIN 1996, 122, fig. 20; for Sinuri ROBERT 1945, 14, tav. VIII; for Xanthos FROIDEVAUX, RAYNAUD 2005, 145; for Ephesus DEICHMANN 1976, 216, MANGARTZ *et al.* 2010, tav. 19.1; BRUNO 2012, 706.

6 ROUX 1973, 136.

7 TOCCI 2012, 115–116.

8 These appear at the end of the 3rd century. ELLIS 2000, 67.

9 DUNBABIN 1991, 123.

10 CHALKIA 1991, 54, note 117.

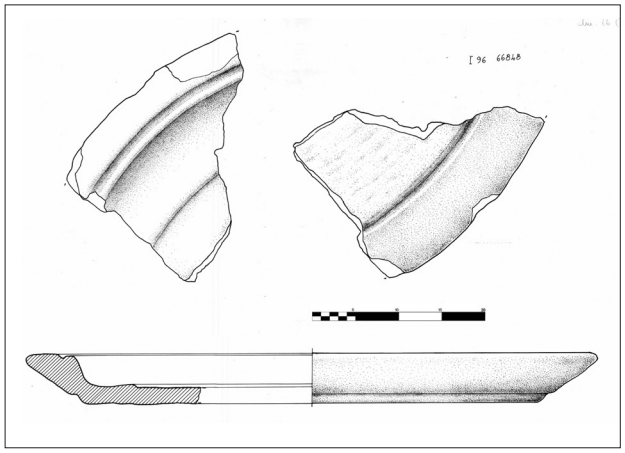

Fig. 1. Fragment of a circular table
(drawing: L. Ruffoni)

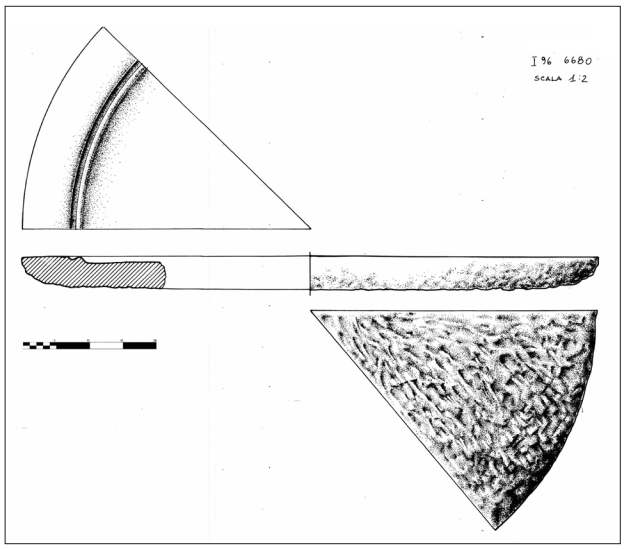

Fig. 2. Fragment of a circular table
(drawing: L. Ruffoni)

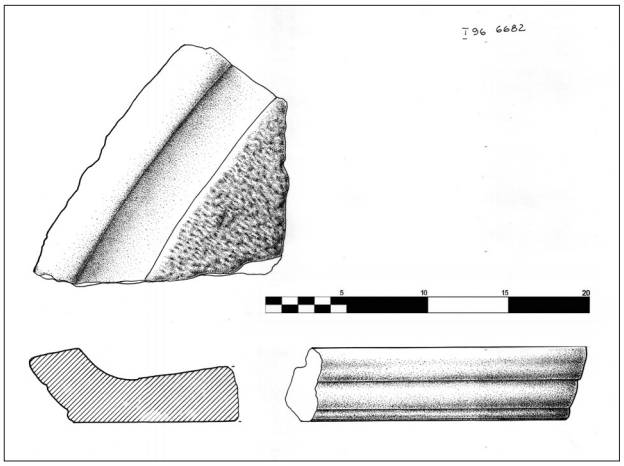

Fig. 3. Fragment of a circular table
(drawing: L. Ruffoni)

domestic or Christian, the masonry bases were habitual in *stibadia* but extremely rare in religious buildings[11].

It should also be noted how the high border is rare in sigma shaped tables[12] which, as stated, were mainly used for domestic purposes; due to this, the presence of the channel, originally sloped to rid the table centre of food residue, was rendered useless.

Let us now examine the most significant examples of these tables[13], describing their processing and seeking to make a number of assumptions about their original settings.

Circular tables

As attested by the Pompeii findings, in addition to a number of fresco representations from the same city[14], in secular buildings circular precede sigmoid tables. In late antiquity these continued to be used in *stibadia* as an alternative to sigma-shaped tables and were largely used in Christian buildings[15].

A fragment made of red breccia (inv. no. 6684b) originated from a circular table with a deducible diameter of 66 cm. Its central area is smooth, both above and below, and is enclosed by means of a simple molded profile consisting of a fascia, a groove and a *cyma reversa*. Smoothing on both sides suggests that it may have rested on a base, perhaps wooden, allowing visibility while the reduced diameter hints that it may have been movable.

Instead, the fragment of table inv. no. 6680 has sides with only the base that is roughened, perhaps because they were intended for a masonry base; on top, a wide fascia was separated by a *scotia* from an astragal that leads to the central area, without the interposition of a frame (deducible diameter of 83 cm).

Fragment inv. no. 6682 (deducible diameter of 88 cm) has a similar profile with a smooth base and edges moulded by two fillets that frame a smoothed ovolo section. A feature of this piece is the channel following the borders and enclosing the central area, worked by a toothed chisel and with increasing thickness toward the centre. It seems unlikely that this is an unfinished conventional table; before sanding of the edges the artisan would have had to have lowered the central area; as such, the idea of a table intended for particular uses must be considered.

11 See the examples of Kos, Aliki and Kourion. On these, respectively: ORLANDOS 1966, 32–34, figs. 32–34; SODINI KOLOKOTSAS 1984; 462 and 466, fig. 15; LOVERANCE 2007, 322.

12 CHALKIA 1991, 45.

13 For the full records see: BERTI, PEIRANO 2014, 31–34.

14 VROOM 2007, 320.

15 CHALKIA1991, 46 ff., 73 ff.

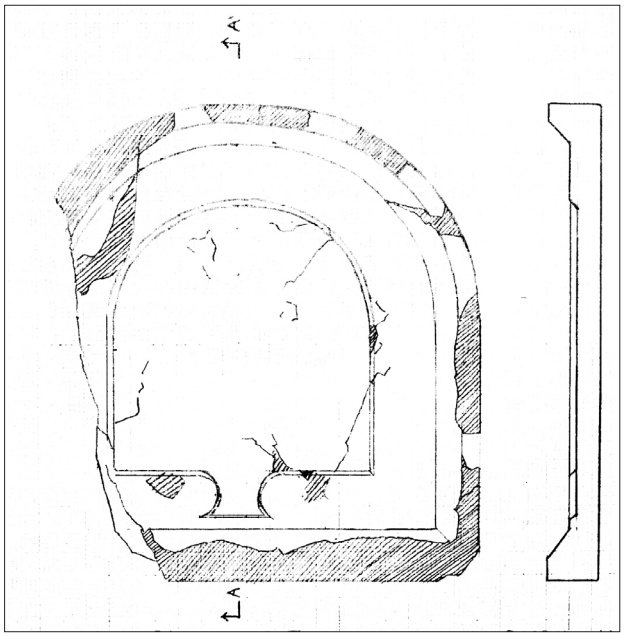

Fig. 4. A sigma shaped *clôturée* table
(drawing: D. Peirano)

Fig. 5. Fragmentary rectangular *clôturée* table
(photo: D. Baldoni)

Fig. 6. Fragment of a red breccia table
(photo: M. Molinari)

Sigma shaped table

Sigma shaped tables appear in the banquet halls at the end of the fourth century[16] and within Christian buildings from the following century[17].

A sigma shaped *clôturée* table (inv. no. 2050) was found in front of an apsed room containing mosaics, within the so-called east basilica complex[18]. As usual the table has square proportions, 1.03 x 1.02 meters. It is 11 cm high at the border, 6 cm at the internal cornice and 5 cm at the centre. The table was made of veined marble and shows the typical central surface enclosed by a large cornice interrupted by a channel with rounded edges. The rough underside and edges, created using a point chisel, show how this table should rest on a masonry base; however, the absence of *stibadia* in the parts of this building that have been explored means that the true origin of the table remains unclear[19].

Rectangular tables

The fragmentary *clôturée* table inv. no. 6663, made of brecciated marble, is 89 cm wide, 10.8 cm high at the edge, 4 cm at the inner frame and 2.8 cm in the central part; the length, however, cannot be determined. The rectangular shape associated with the *clôturée* border and the apparent absence of the channel on the short side, usual in this kind of table, are characteristic of this piece[20]. The smooth base indicates that this was visible.

Another fragment of red breccia table, *clôturée* and belonging to a corner of a table, was found in the recent excavations of the castle of the Acropolis[21]: it is likely that the table was part of the furnishings of the nearby

16 DUNBABIN 2003, 191.

17 The first to suppose a derivation of the Christian sigma shaped tables from those of banquet halls was LASSUS 1940, 348–349; LASSUS 1947, 199–201, following the discovery of two of these pieces of furniture in private buildings of Antioch.

18 *Contra* SERIN 2004, 137 that relates this table to the acropolis basilica.

19 This unless one would interpret the masonry wall that closes the apse devoid of a floor mosaic as the front part of one *stibadium*. However, this hypothesis collides with the thickness of the apse's wall (74 cm) which seems to suggest a high wall, incompatible with the access to the rear structure, already limited by the reduced chord of the apse. On *stibadia* see MORVILLEZ 1996; DUNBABIN 1991; DUVAL 1997.

20 CHALKIA 1991, 42.

21 PEIRANO 2012, 28. On this excavation: BERTI, MENGOLI, MOLINARI 2011, 386–396.

Fig. 7. San Vitale in Ravenna, wall cladding made of Iasian cipollino (photo: D. Peirano)

Christian basilica where, in fact, a rectangular altar base (133 x 88 cm) was found[22].

Among the production of Iasian tables, all forms and profiles known exist with the exception of polylobed ones. Common traits are linear forms, devoid of figurative representations, symbols or inscriptions. These choices were made by workshops that only attended to local needs. In fact, with the exception of a round table stored at the Museum of Milas[23], there are no current findings of this type evident outside the city. It seems, then that the frequent occurrence of high borders can be attributed to local custom.

Iasian marble was also used for pavement *sectilia* as in the east church or cathedral of Xanthos (late 5th century – beginning 6th century), in church D of Knidos (late 5th century – beginning 6th century)[24] or in the basilica of Mitropolis in Gortyna, where it appears in the floor of the lane crossing the solea from north to south (second half of the 6th century)[25].

The stone seemed to reach the highest point of its reputation in the 6th century when it appeared alternating with other precious polychrome marble in some of

Fig. 8. Basilica of St. John in Ephesus, the column bases that enclosed the presbyterium (photo: M. Molinari)

the most important edifices of the time. Firstly in Bosra, in the wall revetments of the Church of SS. Sergius, Bacchus and Leontius, dated to the years 512–513[26]. The octagonal church in Gadara, Jordan, from the early 6th century, also conserves traces of Iasian marble[27] but in an unknown position.

The first occurrence in Constantinople is related to the church of Saint Polyeuktos, built under the patronage of Anicia Giuliana in the years 524–527; here the marble appeared in slab lining and *sectilia*[28].

At the time the marble seemed to become one of the most appreciated revetments in the buildings built by Justinian and his entourage: the Constantinopolitan churches of Hagia Sofia (562[29]) and of the Holy Apostles (after 565[30]) and in the San Vitale church in Ravenna (548[31]). From the description of St. Sofia written by Paul the Silentiary, we know that the atrium *phiale* was made of red cipollino, similar to the wall claddings[32], where the stone took the form of open book slabs. In Holy Apostles and in San Vitale also, the same marble appeared on wall claddings[33]. Another church in Ravenna, the Sant'Andrea Maggiore (546–556), had columns made from Iasian marble[34]. Two of these are now conserved in

22 SERIN 2004, 136.

23 BERTI, PEIRANO 2014, 52.

24 YALCIN 1996, 110.

25 FARIOLI CAMPANATI, BORBOUDAKIS 2005, 167.

26 MASTURZO 1995, 378.

27 AL-BASHAIREH 2011, 317 and 320.

28 HARRISON 1993, 42.

29 RUSSO 2011.

30 THEOPHANES, Chronographia, A.M. 6058/A.D. 565.

31 RUSSO 1996, 710.

32 SILENZIARIUS, Description S. Sophiae, 595, 630.

33 SODINI 2002, 131.

34 The insertion of these columns, whose original position is unknown, may be related to the works promoted by

Fig. 9. Above the monumental tomb where marble slabs were sawn; below the nearby aqueduct (photo: M. Molinari)

the local cathedral. Choricius of Gaza tells us that Iasian marble was also present in the church of St. Sergius in Gaza (before 536[35]) although in an unknown location[36]. In the basilica of St. John in Ephesus (c. 560) the column bases that enclosed the presbyterium and certain portal elements[37] are made of red cipollino.

The description of Hagia Sophia written by Paul the Silentiary cites Iasian marble together with others produced by well-known imperial quarries; it thus seems probable that at this time the extraction of our marble was also an imperial privilege.

At the same time the stone also became part of local churches, initially as mosaic *tesserae* in the acropolis basilica (late fifth-early sixth century[38]); these reappear in the agora basilica (Justinianic age[39]) where Iasian marble was also found in square, rectangular and triangular tiles of the *sectilia*. In the basilicas small columns of unknown origin were also found[40].

Fig. 10. A block conserving traces of cutting (photo: Levi's excavations, Archive SAIA)

This limited use in local construction, together with the presence of imported marble, also fine, suggests that the value assigned to this marble made it more profitable to export, with a tendency to purchase other types of marble rather than using this particular one.

As is known[41], slabs of cipollino marble[42] were cut into the quadriporticus of a 2nd century tomb located near the east port and the aqueduct which supplied water power[43]. That particular transformation of the tomb resembles one represented on a sarcophagus in Hierapolis[44] and those discovered in Ephesus and Gerasa[45]. These examples date from the late 3rd to the 6th–7th century. These data, together with the systematic evidence of slabs in buildings of the 6th century, suggest the Late Antique – Early Byzantine eras for the insertion of the workshop. The excavations of two galleries of the quadriporticus unearthed, on an emery thick layer, 114 discarded blocks

the bishop Maximianus. The prelate, according to Agnellus of Ravenna, replaced the original wooden supports of the aisles with others made from Proconnesian marble. Liber pontificalis ecclesiae ravennatis, ed. Holder Hegger 329; DEICHMANN 1972, 61–64.

35 MANGO 1986, 60 note 25.

36 CORICIUS, Laudatio Marciani, I, 17 ss.

37 SODINI, BARSANTI, GUIGLIA GUIDOBALDI 1998, 315; SODINI 2002, 133.

38 SERIN 2004, 188.

39 PEIRANO 2011, 15 note 1.

40 SERIN 2004, 82.

41 BRUNO 2012, 706–714.

42 In fact, no traces of breccia were found in the workshop. BRUNO 2012, 708.

43 The quadriporticus pavements were located at least 4 m. below the water level. BRUNO 2012, 711 note 21. Compare these data with KESSENER 2010, 286–287.

44 RITTI, GREWE, KESSENER 2007, 138–163.

45 See respectively: MANGARTZ 2010; SEIGNE 2006, 371– 378.

with traces of multiple saw blades. Excavations also extracted a flat chisel, one of which was used to regularise the corners[46]. Instead, columns roughened with point chisels left at quarries testify to the processing of these pieces in these areas.

Extraction could take place in the quarry closest to the city but located in a gorge (which increased the cost and time due to transportation by animals) or in the wider quarry front on Karaoğlan Deresi. In the latter case, the stone-boating road identified during the surveys in Chora[47] allowed the the material to be taken down as far as the "small sea", until boarding and transportation; from the port of the peninsula it would then be shipped, worked or not.

If the extraction of marble was related to initial transportation by sea[48], the sea was the main route for shipping of *marmor iassense*, which, as mentioned, is rarely evident in Caria and in the surrounding areas. The map of the findings, drawing two roughly concentric circles (the first corresponding to the Aegean Sea, the second to the central and eastern Mediterranean) shows that they are almost exclusively found along the coasts[49].

A small port such as Iasos probably depended on the most important *emporion* of Ephesus; from here the marble, sorted and then combined with others from different areas, ultimately reached the final destination.

The many wrecks with worked and semi-worked marble shed light on the means of transportation (the "lapidary vessels"). Particularly strong evidence in this regard is provided by the wrecks of La Mirande, Torre Sgarlata, of Porto Nuovo and of Punta Scifo D[50].

To this primary production must be added mortars of different capacity and with a different degree of precision, some with grips decorated with geometrical patterns and/or representations such as diagonal patterns, segments, oblique crosses or other simple geometries, but also the figure of the dove. The extensive documentation, collected along the entire Mediterranean[51], helps to date these finds, made in Iasos mainly from brecciated marble, to the seventh century.

The excavations also evidence the production of basins and trays, generally small and difficult to distinguish due to the fragmentary condition, with the remains mainly from the edges. Some of these maintain, on the underside, traces of an umbo that testify as to how they should stand on a base. The pieces made of cipollino, regardless of their size, are shallow, depending on the need to use the veins during manufacturing.

Other examples originating from the Mediterranean basin suggest how this lower level of output might be related to the inactive periods of quarries[52]. Numerous constructions are evident close to the quarries where many fragments and artefacts, some related to Byzantine times, offer clues as to the local marble processing method.

Some provisional conclusions

In Iasos, before the 6th century, the production and export of architectural artefacts seems limited to columns while items such as tiles might be derived from sawing of the former. Tables were instead confined to the city and surrounding areas, as well as to certain by-products such as mosaic tiles.

At the beginning of the 6th century and even more during the Justinian era, marble quarrying became more intensive, almost reaching "industrial" levels. It should be remembered that 114 blocks with saw traces were found in the Balık Pazarıand were the waste products of a much wider manufacturing process. The sources, in addition to the excavation data, suggest the use of marble as a lavish material in construction promoted by the most eminent patrons of the time, juxtaposed with other exotic coloured marble extracted from imperial quarries. Even in the absence of any direct evidence of imperial ownership of the Iasian quarries, the contemporary appearance of a workshop capable of slab sawing, an operation that used a public resource such as the aqueduct, seems to suggest a fiscal property for the entire production chain.

The city of Iasos undoubtedly drew important economic benefit, as testified by the excavations. The circulation of coins increased for another century, evidence of which is confirmed by the ceramics and amphorae, some of Constantinopolitan origin. These data depict a wealthy city where marble would also get into everyday life in the form of basins, trays and mortars.

46 MENICHINI 2011, 335.

47 PIEROBON BENOIT 2011, 411 ff.

48 MARANO 2014, 415.

49 LAZZARINI, CANCELLIERE, PIEROBON BENOIT 2005, 322, fig. 2.

50 RUSSELL 2011, 139–155; in the sixth century onwards the marble intended to be sawn could travel in the form of blocks (requiring, once it arrived, equipment and labor to be worked), but wrecks with marble slabs are also known. Wrecks with marble slabs, from the sixth century onwards, are recorded in CASTAGNINO BERLINGHIERI, PARIBENI 2011, 64–75. On *naves lapidariae* MEDAGLIA, BELTRAME, LAZZARINI 2013, 137–165 and the related bibliography.

51 BERTI, PEIRANO 2014, 46 and related bibliography.

52 MARANO 2014, 421.

BIBLIOGRAPHY

AL-BASHAIREH K. 2011: "Provenance of marbles from the octagonal building at Gadara "Umm-Qais", Northern Jordan", Journal of Cultural Heritage 12, 317–322.

BERTI F. 1999: "Precisazioni su uno scutulatum iasio", Gli scavi italiani a Iasos in Caria, La Parola del Passato 54, 333–342.

BERTI F., MENGOLI D., MOLINARI M. 2011: "Iasos (Turchia). Relazione preliminare sulle ricerche archeologiche compiute nel castello dell'acropoli", Archeologia Medievale 37, 386–396.

BERTI F., PEIRANO D. 2014: "Il marmo iasio e alcuni dei manufatti a esso collegati", Marmora 10, 25–37.

BERTI F., PEIRANO D. 2016: "Iasos di Caria e il rilancio del suo porto in età bizantina: il ruolo del marmo", Hortus Artium Medievalium 22, 178–190.

BLID J. 2012: Felicium Temporum Reparatio. Labraunda in Late Antiquity (c. ad 300–600), Stockholm.

BRUNO M. 2012: "Quarry Blocks in Marmor Iassense from the Balık Pazarı at Iasos (Turkey)", in ASMOSIA IX, 706–714.

CASTAGNINO BERLINGHIERIE. F., PARIBENI A. 2011: "Byzantine Merchant Ships and Marble Trade", Skyllis 11, 64–75.

CHALKIA E. 1991: Le mense paleocristiane. Tipologia e funzioni delle mense secondarie nel culto paleocristiano, Città del Vaticano.

DEICHMANN F. W. 1972: "Studi sulla Ravenna scomparsa", Felix Ravenna, 103–104, 61–112.

DEICHMANN F. W. 1976: Ravenna. Hauptstadt des spätantiken Abendlandes, II.2, Wiesbaden.

DUNBABIN K. M. D. 1991: "Triclinium and stibadium", in W. J. SLATER (ed.): Dining in a Classical Context, Ann Arbor, 121–148.

DUNBABIN K. M. D. 2003: The Roman Banquet. Images of Convivality, Cambridge.

DUVAL N. 1997: "Le lit semi-circulaire de repas: une invention d'Hélagabale? (Hel.25, 1.2–3)", in G. BONAMENTE, K. ROSEN (eds.): Historiae Augustae Colloquium Bonnense, Bari, 129–152.

ELLIS S. P. 2000: Roman Housing, London.

FARIOLI CAMPANATI R., BORBOUDAKIS M. 2005: "La decorazione pavimentale e parietale della Cattedrale di Gortyna. Nuovi elementi di datazione del pavimento musivo della navata", in H. MORLIER (ed.): La mosaïque Gréco-romaine IX. Actes du IX Colloque international pour l'étude de la mosaïque antique et médiévale, 165–171.

FROIDEVAUX M. G., RAYNAUD M. P. 2005: "Les sols en opus sectile et leur contexte architectural dans la Basilique épiscopale de Xanthos", in F. BARATTE (ed.): Mélanges Jean-Pierre Sodini, Paris, 277–298.

HARRISON R. M. 1993: "Monumenti e urbanistica nella città", in A. GUILLOU (ed.): La Civiltà bizantina, oggetti e messaggio: architettura e ambiente di vita, Roma, 27–74.

KESSENER P. 2010: "Stone Sawing Machines of Roman and Early Byzantine Times in the Anatolian Mediterranean", Adalya 13, 283–303.

LASSUS J. 1940: "Remarques sur l'adoption en Syrie de la forme basilicale pour les églises chrétiennes", Atti del IV Congresso Internazionale di Archeologia Cristiana, Città del Vaticano, 335–353.

LASSUS J. 1947: Sanctuaires chrétiens de Syrie. Essai sur la genèse, la forme et l'usage liturgique des édifices du culte chrétien, en Syrie, du III^{e} siècle à la conquête musulmane, Paris.

LAZZARINI L., CANCELLIERE S., PIEROBON BENOIT R. 2005: "Il marmo di Iasos: cave, uso, caratterizzazione e indagini archeometriche", La Parola del Passato, 341–345, 320–330.

MANGARTZ F. *et al.* 2010: Die byzantinische Steinsäge von Ephesos, Regensburg.

MANGO C. 1986: The Art of the Byzantine Empire 312–1453, Toronto.

MARANOY. A. 2014: "Le cave di marmo nella tarda Antitichià: aspetti organizzativi e produttivi", in Arqueología de la Produccion – Le cave nel mondo antico: sistemi di sfruttamento e processi produttivi, Proceedings of International Conference, 413–427.

MASTURZO N. 1995: "Architettura siriana pre-giustinianea: la chiesa dei SS. Sergio, Bacco e Leonzio. Problemi interpretativi e di conservazione", Corsi di Cultura e Arte Bizantina 41, Ravenna, 369–386.

MEDAGLIA S., BELTRAME C., LAZZARINI L. 2013: "La navis marmorum di età romana 'Punta scifo D' (Crotone). Risultati preliminari della prima campagna di indagini subacquee", Rivista di Archeologia 37, 137–165.

MENICHINI M. 2011: "Su un gruppo di attrezzi da lavoro risalenti probabilmente a età tardo antica da Iasos", Atti dell'Accademia delle Scienze di Ferrara, 88, 329–338.

MORVILLEZ E. 1996: "Sur les installations de lits de repas en sigma dans l'architecture du Haut et du Bas-Empire", Pallas 44, 119–158.

ORLANDOS A. K. 1966: "Δύο παλαιοχριστιανικαι βασιλικαι τηςΚω", "Archaiologiki Ephemeris", 1–98.

PARAPETTI R. 1985: "Il Bouleuterion: aspetti architettonici e decorativi" in Studi su Iasos di Caria. Venticinque anni di scavi della Missione Archeologica Italiana, Bollettino d'Arte, suppl. 31–32, 105–136.

PARAPETTI R. 2013: "Anastilosi grafica del monumento funerario nel Balik Pazari di Iasos", in D. BALDONI, F. BERTI, M. GIUMAN (eds.): Iasos e il suo territorio, Roma, 161–172.

PEIRANO D. 2011: "Ricerche su *assetti*, *arredi*, *percezione* nella basilica dell'agorà di Iasos", Bollettino dell'associazione Iasos di Caria 17, 10–16.

PEIRANO D. 2012: "Il ciborio della basilica dell'acropoli", Bollettino dell'associazione Iasos di Caria 18, 25–30.

PIEROBON BENOIT R. 2011: "Il territorio di Iasos: nuove ricerche (2006–2008)", in L. KARLSSON, S. CARLSSON (eds.): Labraunda and Karia. Proceedings of the International Symposium Commemorating Sixty Years of Swedish Archaeological Work in Labraunda, Boreas 32, 389–423.

RITTI T., GREWE K., KESSENER P. 2007: "A relief of a water-powered stone saw mill on a sarcophagus at Hierapolis and its implications", Journal of Roman Archaeology 20, 139–163.

ROBERT L. 1945: Le sanctuaire de Sinuri près de Mylasa, I, Paris.

ROUX G. 1973: "Tables chrétiennes en marbre découvertes à Salamine de Chypre", in Salamine de Chypre 4. Anthologie salaminienne, Paris, 133–196

RUSSELL B. 2011: "*Lapis transmarinus*: stone-carrying ships and the maritime distribution of stone in the Roman empire", in D. ROBINSON, A. WILSON (eds.): Maritime Archaeology and Ancient Trade in the Mediterranean, Oxford, 139–155.

RUSSO E. 1996: s. v. Ravenna, in Enciclopedia dell'arte antica classica e orientale, II suppl., IV, Roma, 703–718.

RUSSO E. 2011: Le decorazioni di Isidoro il Giovane per S. Sofia di Costantinopoli, Roma.

SEIGNE J. 2006: "Water-powered Stone Saws in Late Antiquity. First Step on the Way to Industrialization?", in G. WIPLINGER (ed.): Cura Aquarum in Ephesus. Proceedings of the Twelfth International Congress on the History of Water Management and Hydraulic Engineering in the Mediterranean Region, Dudley-Leuven, 371–378.

SERIN U. 2004: Early Christian and Byzantine Churches at Iasos in Caria. An Architectural Survey, Città del Vaticano.

SILVESTRINI M. 2006: "Una dedica al *Sole nella cattedrale* di Bari", in Studi in onore di Francesco Grelle, Bari, 369–379.

SODINI J. P., KOLOKOTSAS K. 1984: Aliki II: la basilique double, Paris.

SODINI J. P., BARSANTI C., GUIGLIA GUIDOBALDI A. 1998: "La sculpture architecturale en marbre au VI^{e} siècle à Constantinople et dans les régions sous influence constantinopolitaine", in Acta XIII Congressus internationalis archaeologiae christianae, Città del Vaticano, 301–376.

SODINI J. P. 2002: "Marble and stoneworking in Byzantium, seventh-fifteenth centuries", in A. LAIOU (ed.): The economic history of Byzantium: from the seventh through the fifteenth century, Washington, 129–146.

TOCCI 2012: "Le tavole "sigma": alcuni frammenti da Bakchias", in P. BUZI, S. PERNIGOTTI (ed.): Lo scriba e il suo re: dal documento al monumento, Imola, 115–137.

VROOM I. 2007: "The Archaeology of the Late Antique Dining Habits", in L. LAVAN, E. SWIFT, T. PUTZEYS (ed.): Objects in Context, Objects in Use: Material Spatiality in Late Antiquity, Leiden-Boston, 313–361.

YALCIN A. B. 1996: "Alcune osservazioni sul decoro scultoreo e musivo delle chiese protobizantine di *Cnido* in Caria" in Bisanzio e l'Occidente: arte, archeologia, storia. Studi in onore di Fernanda de' Maffei. Roma, 105–123.