

CHAPTER 8

The Masons' Marks

by Jonathan Bardill

INTRODUCTION

The only previous study of the masons' marks inscribed on the Byzantine aqueducts in Thrace is that of P. N. Oreshkov, published in 1915.¹ He studied five bridges (which he numbered I–V) and found marks at four. His aqueducts I and II are the smaller and larger bridge at Keçigerme (no marks being recorded from the former); III is Büyükgerme; IV is Kumarlıdere; and V is Kurşunlugerme. This new catalogue and analysis presents marks from the same four bridges, with marks from Ballıgerme, Kalederesi, the Bozdoğan Kemerı, and the Anastasian Long Wall in addition.

It is significant that Oreshkov recorded no marks from the minor bridge at Keçigerme (his Aqueduct I). The present study confirmed that there are no marks there or at other small bridges that are in close proximity to larger ones (e.g. Kumarlıdere, Talas).² The generally more ruinous state of the minor bridges could not on its own account for the inability to observe any masons' marks, and the negative evidence should probably be taken as further support for the suggestion that the smaller, more ruinous bridges were in each case the earlier of the pair.³ I wonder whether, during the time that had passed between the construction of the minor bridges and the building of the larger adjacent bridges, the quarrying or stone-cutting industry had undergone some kind of reorganization for the purpose of improving efficiency, and whether this had involved the

introduction of the systematic use of masons' marks. It may also be noted that one of the major bridges in such pairs — Talas — seemed to bear no marks. This is unusual by comparison with the major bridges at Keçigerme, Kumarlıdere, and Kurşunlugerme. Talas, however, had been subjected to a substantial refacing, so that the phase of construction contemporary with the other major bridges was largely hidden within the core of the structure. The fact that this refacing carried no marks seems to suggest that a further change had occurred in the building industry between the construction of the original bridge and the time of its refacing.⁴

The marks catalogued below generally consist of one, two, three, or four letters of the Greek alphabet. Some of the one- or two-letter marks may be numerals, and some of them are demonstrably so, occurring in numerical sequence on successive courses of stonework (see below on the Kumarlıdere aqueduct bridge). However, larger numbers of letters are apparently the first few letters of a name. This conclusion finds some support from the rare occurrence of longer inscriptions such as MAPK(O)Y, AΛEΞANΔ(POY) or ΔOKIMOY. Other marks are monograms (to be resolved as names) or symbols (some of which incorporate letters but cannot be described as monograms). There are also occasional small crosses inscribed on the stones. The significance of the monograms and abbreviated names can

¹ Oreshkov (1915), 71–118, especially 75, 104–18. In his study of the Thracian aqueduct bridges, Dirimtekin (1959) makes only passing references to masons' marks, and the few he notes at Kumarlıdere (p. 222) and Kurşunlugerme (p. 233) are unreliably recorded.

² The claim of Dirimtekin (1959), 230, that the minor bridge at Talas bore masons' marks proved to be inaccurate. Neither the major nor the minor bridge carry marks. Unlike Oreshkov, Dirimtekin saw only the major bridge at Kumarlıdere.

³ Dirimtekin (1959), 230 first suggested that the minor bridges had been built earlier than the nearby major bridges. However, we need not accept his inference that the minor bridges relate to a system built with too shallow a gradient that had to be replaced.

⁴ Again, Dirimtekin (1959), 230 observed that there were no masons' marks on the major bridge at Talas, noted that its general appearance (especially as regards the mouldings) was quite different from that of the other major bridges, and suggested that it was later in date than the other bridges.

only be determined from a study of the use of the marks, but we may make some tentative suggestions. They might be the marks of individual masons, or of a group of masons. The members of a group may

have applied either a common symbol or, perhaps, the name of the master mason in charge of their group. Another possibility is that the name is that of the owner of the quarry from which the stone came.

MASONS' MARKS IN CONSTANTINOPLE

The study of masons' marks in Constantinople may provide insights into some of the issues that are raised by the marks on the aqueduct bridges. Most of the marks in the city are on architectural elements (cornices, column bases, column shafts, capitals, and so on) that are made of Proconnesian marble, which was quarried on the island of Marmara.

We are not concerned here with marks on uncut stone in the quarry, marks on roughed-out blocks in the quarry, delivery marks, or positioning marks.⁵ Delivery marks are illustrated by the inscription ANTIOXOY ΠΡΕΠ on the underside of finished capitals destined for the palace of the *praepositus sacri cubiculi* Antiochus,⁶ and by the inscription ΤΟΥ ΑΓΙΟΥ ΠΑΥΛΟΥ in a similar position on capitals from a church of St Paul reused at Kalenderhane Camii. The latter capitals carried in addition a numerical letter (Γ, Δ, Ε), which is clearly a numerical positioning mark.⁷ Choisy was the first to note the occurrence of numerical markings on the paving slabs in the gallery of Haghia Sophia. In the north gallery, he observed slabs numbered from Α to Λζ, and in the south gallery a similar sequence from Α to ΛΔ. In the narthex gallery, he recorded numerals from Α to ΜΒ, with the absence of slabs numbered ΙΘ to ΚΗ.⁸ Such positioning marks are known in Byzantine monuments elsewhere,⁹ and some are noted below at the Kumarlidere aqueduct

bridge; however, they are not our main concern here either.

The marks of relevance to us are similar to those on the aqueduct bridges, usually consisting of between one and four letters of the alphabet, or sometimes a monogram. They are found on finished or semi-finished pieces, and appear to have been applied by the masons assigned to complete the carving of the roughed-out pieces. The marks seem to be explained as abbreviated names. The cornice blocks at Haghia Sophia carry numerous examples of such marks, such as ΠΑΡ, ΠΑ, ΖΩ, ΑΥ, ΙΦ, ΓΕ, ΘΕ, ΕΠ, ΕΦΘ, ΦΘ, CTE, ΙΩ, ΒΟ, ΠΙ, ΓΑ.¹⁰ Exceptionally, there are in addition two invocations: +Κ(ΥΡ)ΙΕ ΒΟΗΘ(Ε)Ι ΘΕΩΔΩΡΟΥ Ι+¹¹ and +Κ(ΥΡ)ΙΕ ΒΟΗΘ(Ε)Ι ΑΝΔΡΕΑ.¹² These may support the conclusion that the other marks (or at least most of them) are abbreviated names.¹³ In fact, there is a possibility that the Theodoros named in the first of the invocations is the same as the individual usually represented by the mark ΘΕ.¹⁴ However, there are some combinations of letters that cannot readily be explained as abbreviated names unless one assumes the omission of letters. Examples from the marks on the cornices at Haghia Sophia are ΚΖ, ΘΜ, ΘΠ, ΜΚ, ΦΜ, ΒΘ.¹⁵

The marks usually occur on the exposed faces of a piece of sculpture and were presumably applied by

⁵ For an incised cross and the inscription ΘΕΒΟΗΘΙ at a quarry (not an antique altar or chapel of the Theotokos, as claimed by the author) 3 km west of the village of Subaşı, see Dirimtekin (1969), 54 with figs 5 and 7. The few marks on roughed-out blocks in the Proconnesian quarries have been dated to the Roman Imperial period, since they appear to contain the Latin letter 'R'. See Asgari (1988), 119 with figs 8, 13, 14.

⁶ Duyuran (1953), 75; Sideropoulos (1891), 24–5.

⁷ Striker and Kuban (1997), 15–16, 105, pl. 96.

⁸ Choisy (1876), 247 n. 1. These marks are illustrated in Antoniadis (1907), 103 fig. 152. See also van Nice (1965–1986), pls 17–19.

⁹ For the capitals at St Demetrius in Thessalonike, which are numbered from 2 to 20, see Papageorgiou (1908), 339. For St John at Ephesus, see Soteriou (1921–22), 107 and fig. 20; Deichmann (1976), 215. For blocks in Basilica A at Philippi, numbered from 1 to 7, see Lemerle (1945), 396 and pl. 33. For Dereagzi, see Morganstern (1983), 131–2.

¹⁰ From Butler (1989), 166.

¹¹ Butler (1989), 140, 165, 166, fig. 49, 392 (U26).

¹² Butler (1989), 140, 165, 166, fig. 50, 479 (U111).

¹³ A similar inscription (ΚΥ(Ρ)ΙΕ ΒΟ(ΗΘΕ)Ι)Α has been noted on a capital. See Sodini (1987), 503–4, who likewise sees the presence of the letter Α as confirmation that the mason was adding his own signature or that of his workshop.

¹⁴ Butler (1989), 165.

¹⁵ From Butler (1989), 166.

the individual responsible for carving the architectural element concerned. But their significance can only be deduced from the way in which they are used. Choisy assumed that these marks were the signatures of individual masons. He was struck by the fact that in both the Binbirdirek cistern and Haghia Sophia, the same signature occurred on various architectural elements, and concluded that there was no division of labour amongst masons as there had been in the Roman period.¹⁶ Wulzinger, who later undertook a more detailed study of the marks in the Binbirdirek cistern, preferred a different interpretation. In his view, the fact that the same mark occurred on different architectural elements in the cistern (column shafts, column bases, capitals, collars) indicated that a mark was not the name of an individual mason, but rather the name of a foreman (*protomaistor*) of a group of masons, and that each member of the group applied the foreman's (or master mason's) name.¹⁷

Although the two solutions are not necessarily mutually exclusive (both systems of marking may have been in operation), evidence from the Binbirdirek (and elsewhere) that favours the latter interpretation is the fact that marks clearly having the same meaning are often inscribed in slightly different ways. Most telling amongst the variations are different ligatures.¹⁸ Although more minor differences (such as inversions and reversals of letters) may reflect nothing more than inconsistency on the part of a single mason, the differences in ligatures seem more personal and may suggest that each variant form of a particular mark was carved by a different mason.¹⁹ If so, the mark itself presumably refers to a foreman (or master mason).

Further evidence that would appear to support this conclusion comes from marks in the cistern on Divâni Ali Sokağı. Here the mark KY (K and Y in ligature) either stands alone or is accompanied by the letter A, E, or Δ .²⁰ If, as we have suggested, the monogram of K and Y refers to a foreman, then the letters A, E, or Δ may reasonably be explained as referring to individual masons working under that master mason's supervision, although, in this particular case, they might also be construed as numbers. Similar evidence susceptible of the same interpretation occurs elsewhere. Deichmann observed that at Sant' Apollinare Nuovo in Ravenna a sign consisting of a T and P in ligature might stand alone or be followed by either a Z or Y. Clearly the Y cannot have a numerical significance. Similarly, at Basilica B in Philippi, the signature AN could stand alone or be followed by Γ , E, or +.²¹

It is not uncommon to find two or more different signatures on the same structural element. In the Binbirdirek, two of the column shafts each carry two signatures;²² a capital from the Marzamemi wreck carries two different marks (ΠO and BO),²³ as do a capital in the Istanbul Archaeological Museum (KY and ΘE), and a base in the same museum (EYC and ABI).²⁴ A capital from St Polyuktos carries a different mark on each of three faces,²⁵ and the cornice blocks in Haghia Sophia carry up to five marks, but only rarely is the same mark repeated on the same block.²⁶ Curiously, in the case of the Haghia Sophia cornices, it has been observed that the two most common marks (ΠAP and ZO) tend to occur together on the same piece.²⁷ If the interpretation presented above is correct (i.e. that the marks refer to

¹⁶ Choisy (1876).

¹⁷ Wulzinger (1913b), 459–73.

¹⁸ A good example is Wulzinger (1913b), 461 no. 1a, b, c.

¹⁹ For examples at Haghia Sophia, see Butler (1989), 166, who adds the subscript a, b, c, d, e to marks that he considers to have the same meaning but which appear in variant forms (see m_1 , m_3 , m_5 , m_6 , m_{10} , m_{13} , m_{15}). Amongst them is the mark ΠAP , which sometimes appears with the alpha within the pi, and at other times with both the alpha within the pi and the rho attached to the upright of the pi. These differences may indicate that the mark was carved by different sculptors. See also Butler (1989), 140, 171 (although at 146–7, he considers the pi and alpha as the mark of a group of masons and the rho as indicative of a single sculptor).

²⁰ Mamboury (1936), 167–80. The cistern is F7/I in the Concordance in chapter 6. For further observations on this cistern, see Bardill (2004), 128–30.

²¹ Deichmann (1976), 223. One might compare similar accessory letters on brickstamps, where they are likely to designate a group of workmen rather than an individual: see Bardill (2004), 20–1.

²² Wulzinger (1913b), 472 (mark nos 30 and 59 on column VI 6 R; mark nos 42 and 90 on column VII 11 R).

²³ Kapitän (1980), figs 6 and 8; Deichmann (1976), 219.

²⁴ Sodini (1987), 504, nos 6–7.

²⁵ Harrison (1986), 126 (3 a i) where reference to a third mark is omitted: see the base of the right-hand palmette on pl. 128 showing the mark AV. Also on these examples from St Polyuktos, see Deichmann (1976), 217, 221.

²⁶ See Butler (1989), 144 (giving upper cornice statistics only). Blocks with five marks are G64, U23, U27, U113. Butler (1989), 170 believed that the marks referred to master masons.

²⁷ Butler (1989), 171–2. A further mark in common is given by Deichmann (1976), 216–17 with figs 50–1, Tables 4–4a.

master masons), then these examples of multiple marks would seem to indicate that a mason from one team had started the work, and a mason or masons from another team had later taken over. I have to express a reservation about this interpretation, however, since one might rather have expected a number of sculptors under the same master mason to have been responsible for a single architectural element, in which case the signatures would have to be interpreted as the names of individual masons. Perhaps we should consider the possibility that the marks are not all to be interpreted in the same way, and that some may refer to master masons and some to masons. Or perhaps the explanation is that there was a very close relationship between the various groups of masons under each master mason, and that together they formed a larger company.

Research on the island of Marmara has revealed that in the period of Theodosius I some decorative carving was undertaken at the quarry, since an aborted column, whose size and decoration leave no doubt that it was intended for the arch in the Forum Tauri, has been discovered there.²⁸ Sixteen finished capitals were also found: five were Corinthian capitals of the soft acanthus type, and nine were Ionic. All probably date to the first half of the fifth century. It seems that they were commissioned and prepared for specific projects, and therefore they do not indicate that there was mass production of these types of capital in the quarries; rather, it is thought that the Proconnesian quarries concentrated on producing roughed-out Corinthian capitals and basket capitals for shipment to Constantinople. Indeed, in 1997, a seventh-century wreck was discovered to the north of the island of Ekinlik, about three miles from the island of Marmara, which had been carrying to Constantinople a cargo of columns and unfinished capitals.²⁹ If desired, masons working in the city would decorate the capitals,³⁰ but it is clear that in the city's cisterns (where the capitals would not be seen) many were used in the roughed-out form in which they had arrived from the quarry.³¹

Asgari has concluded that other types of capital were carved in the city itself, since not a trace of them has been found in the quarries. These were composite capitals, Ionic impost capitals, Corinthian capitals with mask acanthus, impost blocks, and all the sixth-century types of capital, such as the fold capital or double-zone capital. But if unworked marble blocks were being shipped to the city, one wonders why there is no indication in the quarries of any stockpiling of such blocks.

Certainly, there is evidence for carving having been undertaken on building-sites in Constantinople in the sixth century, although we cannot be certain whether work started from scratch or with a roughed-out block. The excavations at St Polyuktos revealed large amounts of marble waste on the site, pieces of abandoned carving, and a capital that had clearly been carved *in situ*, the edge nearest the wall having been left undecorated.³² Similar examples of architectural elements having been carved *in situ* can be observed in Hagia Sophia.³³

Architectural elements made from Proconnesian marble are widespread. Betsch has concluded that the late antique capitals found in the Mediterranean coastlands and the Black Sea are all so similar in design and execution to examples known from Constantinople that the same masons must have been involved in the manufacture of all of them.³⁴ In some cases, the carving would have been completed in Constantinople, and the finished capital shipped out from there. Our best evidence for this comes from the wreck of a ship, probably destined for North Africa, discovered off Marzamemi on the coast of Sicily. It probably dates to the second quarter of the sixth century.³⁵ On board were twenty-eight column-bases, twenty-eight column fragments, twenty-eight Corinthian capitals (some with the masons' marks ΠΟ, ΠΤΟ, ΒΟ),³⁶ four or five screens, and (of different marble) an ambo and altar table. The wreck clearly demonstrates that completed sculpture was exported, either from marble workshops in Constantinople or from the quarries. The evidence of the Marzamemi

²⁸ Asgari (1995), 267, fig. 22.

²⁹ Günsenin (1998) and reported in Günsenin (1999), 109 n. 1.

³⁰ Decoration involved two stages: lightly incising the pattern, then cutting and drilling it more deeply. See Betsch (1977), 127–33.

³¹ Betsch (1977), 122.

³² Harrison (1986), 414 with n. 32; Betsch (1977), 121.

³³ Sodini (1989), 164 with n. 5. Betsch (1977), 127–33 infers that the capitals arrived in roughed-out form at the building site, where decoration was applied.

³⁴ Betsch (1977), 139–42, 364–93.

³⁵ Kapitän (1969); Kapitän (1980); Betsch (1977), 142–5.

³⁶ Kapitän (1980), 83–4 with figs 6–8.

wreck therefore provides one possible explanation for the appearance of Constantinopolitan masons' marks on the Proconnesian elements at Ephesus, Ravenna, Poreč, Philippi, and elsewhere.³⁷

The early Christian basilica at Lechaion provides evidence that roughed-out Corinthian capitals of Proconnesian marble were shipped abroad.³⁸ The completion of such roughed-out pieces might in some cases have been undertaken by local masons, but it is also likely that Constantinopolitan masons were itinerant, and that the occurrence of their marks outside Constantinople is not simply due to the fact that their finished work was shipped elsewhere.³⁹ Thus, Harrison explained the similarities between the carving at St Polyeuktos and both San Vitale in Ravenna and Euphrasius' Basilica in Poreč by suggesting that the masons employed at St Polyeuktos had later been commissioned to work abroad.⁴⁰ Likewise, Betsch and Sodini argued that the masons who had worked on Haghia Sophia moved to Philippi, where they executed certain Constantinopolitan prototypes (particularly the basket capital) in local marble. Also, at the basilicas of St John in Ephesus and St Thecla at Meriamlik, architectural elements cut in local stone were clearly carved by masons entirely familiar with the sculptural forms of

the capital.⁴¹ The issue of the mobility of Constantinopolitan masons is important for the study of the marks on the Thracian aqueducts, for only if the masons were itinerant are we likely to find coincidences between the marks on the aqueducts and the marks in the city.

If it is indeed the case that the masons' marks on Proconnesian marble name a master mason in charge of a group of masons or apprentice masons, then any mark will only have been applied during the life of the master mason — perhaps for a period of no more than thirty years. In fact the same would be true even if some of the marks refer to individual masons. Therefore, masons' marks can be used as an indicator of relative date. The more marks found in common at two different monuments, the more likely it is that the two monuments were built at the same time. Choisy was the first to pursue this line of enquiry, observing that the mark **ZΩ** was to be found both at Haghia Sophia and at Sts Sergius and Bacchus, confirming the general contemporaneity of the two structures.⁴² Also, the mark **AV** has been noted at both Haghia Sophia and St Polyeuktos, which is again unsurprising given that the two were built within a decade of each other.⁴³

CATALOGUE, ANALYSIS AND INTERPRETATION OF THE MARKS ON THE THRACIAN AQUEDUCTS

The catalogue

Any interpretation of the significance of the marks on the aqueduct bridges depends on an analysis of the numbers of different marks, the distribution of marks on each bridge, and the location of the marks on the blocks. A bridge-by-bridge analysis helps to illustrate how the marks are distributed through each structure.

The catalogue of marks from the aqueduct bridges that is presented here is not exhaustive, since many parts of the larger bridges (particularly in the upper

tiers) could not be reached safely nor be observed adequately through binoculars, and since other parts were obscured by vegetation. Furthermore, the sunlight on the bridges was not always ideal for spotting the marks, which are often shallow and at their clearest only in raking light.

In the catalogue, marks are presented as far as possible systematically from one end of the bridge to the other. Generally, course numbers have been given for the marks. Sometimes the courses are counted above or below the chamfered course running near

³⁷ The occurrences have been catalogued by Deichmann (1976), 206–30.

³⁸ Asgari (1995), 281; Sodini (1989), 163–4.

³⁹ Sodini (1989), 163 notes that to work on the Proconnesian marble supplied for the imperial project at Lepcis Magna, masons were brought from Nicomedia, Aphrodisias, and Attica.

⁴⁰ Harrison (1986), 415. St Polyeuktos was completed around 522, so the masons could not have moved immediately to work at San Vitale.

⁴¹ Betsch (1977), 145–7; Sodini (1989), 165–6.

⁴² Choisy (1876), 248.

⁴³ Butler (1989), 149, 172; Harrison (1986), 164 (22 c i) and also 126 (3 a i, where reference to a third mark is omitted: see the base of the right-hand palmette on pl. 128). On these examples from St Polyeuktos, see Deichmann (1976), 217, 221. If Deichmann (1976), 218 is correct in suggesting that some marks recorded by Schneider (1941), 20 no. 3 from excavations at the Theodosian Haghia Sophia should in fact be associated with the Justinianic church, then the ligature of **K** and **Y** is another mark in common with St Polyeuktos (Harrison (1986), 151 (14 c i)).

the foot of an arch, at other times above or below the cornice at the springing of a vault, and at still other times above or below the cornices (string-courses) running along the façades of the bridges between tiers of arches. The blocks in the bridges are generally bossed with dressed margins, but the vaulting voussoirs are dressed smooth. Most marks occur on bosses or on dressed surfaces (the surfaces of voussoirs or the margins of bossed blocks). Other marks have been noted on faces of blocks that would have been hidden from view within the core of the structure. These marks have been revealed on blocks *in situ* (as a result of facing having fallen away) or on blocks that have fallen from the structure. The marks in the catalogue generally appear on bosses, but otherwise the following coding has been used to indicate the position of marks on blocks:

- b = mark on boss (used only if necessary for clarity)
- m = mark in margin
- l = mark to left of boss or in left-hand margin
- r = mark to right of boss or in right-hand margin
- c = mark in centre of boss or towards centre of upper or lower margin
- h (followed by numeral) = height
- h = mark on face of block that would have been hidden from view in the finished structure.

Marks are recorded from left to right along courses, and marks on different blocks in the same course are divided by commas. It should be noted that occasionally the same mark was found to be repeated on a block, or different marks were recorded on the same block, in which cases no comma divides them. Marks represented in dotted line were faintly preserved. Dashed lines indicate that the mark had been truncated, either by the cutting of the margins (if the mark was on the boss) or by the squaring of the block itself (if the mark was in the margin), or very occasionally by damage to the block. The truncation of the marks in this way clearly indicates that a mark was chiselled on the boss before the margins were cut back, and that a mark was cut in the margin before the faces of the block itself were finally cut to fit. It might be suggested that marks on bosses were applied at the quarry, but of that we cannot be certain. Nor can we be certain that the dressing of margins occurred on the building site, although the final cutting of the blocks to size surely did.

For the numbering of the arches of the aqueduct bridges, see Figs 4.2, 4.7, 4.12 and 7.36.

Balligerme (Fig. 4.2)

On the west façade of the bridge, south of Arch 1, many examples of bosses bearing the mark CTEP were noted, some appearing at high levels below Arch 4, and others in the upper tier to the south of Arch 4. There were also examples on the dressed voussoirs in Arch 1 itself, and on fallen blocks. The same mark has also been noted at Büyükgerme and Kurşunlugerme.

Other marks were noted. In particular, $\Lambda\Delta$ was found on the voussoir blocks on the north side of Arch 1; KY was noted on the east façade of the bridge to the north of Arch 1; and a box monogram, \boxtimes , incorporating the letters YAY, was noted in Arch 4, in the voussoirs on the south side of the arch.

The relatively small number of marks recorded makes it difficult to determine definite distribution patterns of different marks through the structure, such as are found at Büyükgerme. Clearly, however, the bridge is contemporary with those at Büyükgerme and Kurşunlugerme, given that all three have the mark CTEP in common. Another striking correspondence is the highly distinctive KOCTA monogram, $\text{K}\text{O}\text{C}\text{T}\text{A}$, which was noted at Büyükgerme in conjunction with the ΠΟΛΙ mark (Arch 1, vault, east side, courses 3 and 7), and which was found at Balligerme on the upper surface of a large foundation block at the south-east corner of Arch 1, where it was some 35 cm high. The block was used to support the Phase 2 buttress in this location.

As at Büyükgerme, collapses of masonry revealed marks on faces of blocks that would otherwise have been hidden. One block carried EY and KY together on both a visible and a hidden face. The phenomenon of two different marks on the same block is also recorded at Büyükgerme, and recalls evidence from architectural elements of Proconnesian marble. One possibility is that both EY and KY are individual masons. However, we have already argued that it is perhaps more likely that most marks refer to master masons. If so, another possibility is that EY is the master mason and KY is one of the masons working under him. Alternatively, two master masons are referred to here, in which case the mason who started this block did not work for the same master as the mason who finished it. If this explanation were correct, it would indicate that the groups of masons in fact worked very closely together, even though they were answerable to different master masons.

Balligerme

West facade, north of Arch 1
(courses below cornice running above arch)

- 14 I 3 D
- 13 C T E P
- 8 d 3 L
- 7 d 3 D

West facade, south of Arch 1
(courses below cornice running above arch)

- 16 CT
- 15 D , 3 D
- 14 CTCP , d 3 D , L 3
- 13 d L
- 12 I 3 , 3 D
- 9 d 3 D
- 8 E T , d 3 D
- 7 D , d 3 D
- 6 d 3 D
- 5 C T E P , C T E P
- 4 d 3 D
- 2 3 D

West facade, below Arch 4
(courses above cornice running above Arch 1)

- 1 d 3 D
- 2 d 3 D , C T E

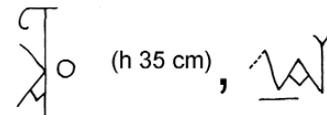
West facade, south of Arch 4
(courses below cornice at spring of arches)

- 2 0 E
- 6 + 6
- 9 I E 6 *
- 10 d 3 D 3 L
- 20 cornice running above Arch 1

East facade, north of Arch 1
(courses above cornice running above Arch 1)

- 1  (rm)
- 6 I A X

East facade, south-east of Arch 1
(on upper face of footing blocks of phase 2
buttress; possibly reused)



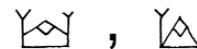
Arch 1, vault, north side
(Courses of dressed blocks above cornice at spring)

- 5 A Δ
- 6 A Δ
- 8 Δ A H

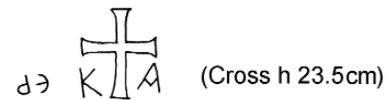
Arch 1, vault, south side
(Courses of dressed blocks above cornice at spring)

- 5 D
- 6 C T E P
- 12 Δ

Arch 4, vault, south side
(Dressed blocks of vault)



Fallen blocks near Arch 1



ρ ε τ]

- Α Δ (h 12 cm)
- Α Δ (h 14 cm)
- Δ λ (h 15 cm)
- δ ε λ (h 10 cm)
- Β Β (same block, each on a different hidden face)

Kurşunlugerme

Very top of bridge, south end

 (h)

Arch 11, vault
(Dressed courses to south of keystone)

0 (keystone) Α Γ Α Ρ

5 < K

9 K λ

(Dressed courses to north of keystone)

1 

Arch 10, vault
(Dressed courses to north of keystone)

7 λ (l)

8 K Y , λ X

9 X X

(Dressed courses to south of keystone)

10 K Y

11 

12 K Y

West facade, level 2, top of stairs near Arch 10
(Courses below cornice)

- 2 δ ε λ
- 4 λ ε Ρ
- 8 ε λ λ
- 10 δ ε λ λ
- 11 δ ε λ λ
- 13 ε Ρ
- 14 Cornice running at foot of stair
- Fallen ε τ ε Ρ (h)

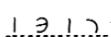
West facade, level 2, bottom of stairs below Arch 10
(Courses below cornice at foot of stair)

- 2 δ ε λ , ε
- 3  (h 10 cm)
- 5 δ ε λ λ , ρ ε Ρ
- 7 ε λ ε λ , λ λ
- 9 λ

West facade, level 2, buttress VIII
(Courses below cornice at foot of stair)

- 9 ε τ ε Ρ
- 10 ε λ λ
- 12 ε λ λ (north face of buttress)

West facade, level 2, between buttress VIII
and Arch 17 (courses below cornice at
foot of stair)

12 

Arch 17, south wall
(Courses below cornice at spring)

- 8  (h 24 cm) (h) (at south facade) ,
- ε λ λ ε τ ε Ρ
- 11 ε λ λ
- 14 δ ε λ λ
- Fallen  (h 22.5 cm) (h)

Arch 17, vault, south side
(courses south of keystone)

1 d 3 1 3

Arch 17, vault, north side
(courses above cornice at spring)

2 d 3 1 3

Arch 17, north wall
(courses below cornice at spring)

8 1 3 1

9 d 3 1 3

12 3 1 3

13 1 3 1

16 1 3 1 3

West facade below Arch 17
(courses below cornice at foot of tier 2)

2 3 (lm) 1 3 (rm)

5 d 3 (lm)

West facade, buttress VII, south face
(courses below cornice at foot of tier 2)

6 d 3 (lm)

8 1 3 1

10 1 3 (lm)

West facade, buttress VII, west face
(courses below cornice at foot of tier 2)

4 d 3 1 3

6 d 3 1 3

8 d 3 1 3

11 1 3 1 3

12 1 3 1 3 , 1 3 1 3

14 (cornice at spring of tier 1 arches)

18 d 3 (lm) 1 3 (b)

19 1 3 1 3

East facade, below Arch 17
(courses below cornice at foot of tier 1)

4 1 3 1 3

East facade, buttress VII, north face
(courses below cornice at lower tier vault spring)

7 d 1 3

East facade, buttress VII, east face
(courses above cornice at lower tier vault spring)

1 B

2 d 1 3 , d 1 3

4 1 3 1 3 (l) (boss cut back)

East facade, north of buttress VII
(courses below cornice at lower tier vault spring)

2 1 3 1 3 (lm) 1 3 1 3 (b)

3 1 3 1 3 (rm)

5 d 1 3 (b) 1 3 1 3 (rm)

7 1 3 1 3 (lm) 1 3 1 3 1 3 1 3 (b)

9 1 3 1 3

West facade, north of buttress VII
(courses below cornice of lower tier vaults)

7 1 3 1 3

8 d 3 (lm)

Arch 20, south wall
(courses below cornice at vault spring)

2 1 3 1 3

3 1 3 1 3 , d 3 (lm)

4 d (lm) , 1 3 (lm)

5 1 3 1 3 , 1 3 1 3 (lm)

6 1 3 1 3 (rm) , d 3 (lm)

Arch 20, north wall
(courses below string at vault spring)

- 7 ⊔ (rm) , TPO
- 8 ∃⊔⊔ , o d ⊔
- 10 d∃ (lm) ⊔ (rm)
- 12 d∃⊔⊔ (lm)
- ? T P (h)

East facade, buttress VI

N
 Γ Ε α
 MAP

East facade, south of arch 19
(courses below cornice at arch spring)

- 16 ρ
 k

East facade, south of arch 15
(courses below string course at spring of arch)

- 13 θ
- 14 ∃
- 15 Wγ

Arch 19, south wall
(courses below cornice at spring of vault)

- 11 ∅Z
- 12 ⊔

Arch 19, vault, north side
(Dressed courses above cornice at spring)

- 2 λV
- 3 B
- 4 B
- 8 ρ

West facade, buttress V, tier 1.

H (h)

East facade, buttress V
(courses below cornice at spring of tier 2 arches)

- 10 ✕ ∃ε
- 13 ⑆ ∂ ∂ ς

East facade, buttress V
(courses below cornice at spring of tier 1 arches)

- 17 MAP

East facade, north of buttress V
(courses below cornice at spring of tier 1 arches)

- 1 db

Arch 18, south wall
(courses below cornice at spring of vault)

- 23 chamfered course
- 25 ΔΥ , λb
- 26 ϣ (lm), ∨ (rm), λ (rm)
- 28 λ (lm)
- 29 Δ (cm)

Arch 18, north wall
(courses below chamfer at foot of arch)

- 2 ϩ (b) ϣ (rm)
 λ (lm) AV (b) ∨ (rm) , †
- 3 Bϩ , ^ , ∨
- 4 λϣ AY λV ,
- ρ , ∨M
- 5 λV , ^ A^r , λA λM ,
 ^MΔ , λV

Arch 18, vault, north side
(courses above cornice at spring of vault)

- 3 ϩ , λ^B ∨
- 7 W[∞]
- 12 ? ϩ

West facade, buttress IV, north face
(courses above chamfered course at foot of Arch 18)

- 8 WZ
- 9 WZ

West facade, south of buttress IV
(courses above cornice at lower tier vault spring)

- 3 W + W
- 2 €€
- 3 ^V (lm) Δ (rm), B (lm)
- 4 8
^ (rm)
v
- 5 B (lm) v (b)
- 6 8

West facade, buttress IV, west face
(courses above chamfered course at foot of Arch 18)

- 9 "AY"
- 12 IK (lb) κ (rm)
- 14 8v
- 15 + Δd

East facade, buttress III, east face

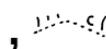
MA, W

East facade, buttress III, north face

M

Arch 12, south wall
(courses below cornice at spring of vault)

- 3 W, €Y
- 4 M, 1
- 5 M, v, W, W
- 6 u, W, W
- 8 W, h, W, B, W
- 9 K, Mⁿ, W
- 10 K, W

- 12 W
- 13 W, 
- 14 P
- 15 W

Arch 12, north wall
(courses below cornice at spring of vault)

- 13 + (h 13 cm)
- 12 ca, W, H
- 11 I, H, v, Y, Y
- 10 W, d, , H
- 9 B, , W, W, W, W
- 8 W, W, W
- 6 8
- 5 W, W
- 4 B

Arch 12, vault, north side
(courses above cornice at vault spring)

- 2 W
- 3 I, I, M
- 4 W
- 5 W

East facade, north of Arch 12
(courses below cornice at spring of tier 2 vaults)

- 5 T (just below cornice)
- 7 K (lm, h 10 cm)

West facade, north of Arch 12

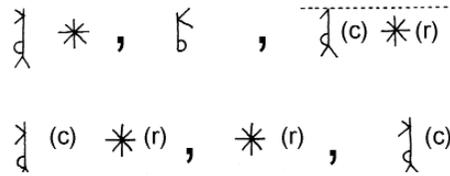
Δ x

East facade, buttress II, east side
(courses below cornice at spring of tier 2 vaults)

- 8  (exposed by robber pit)
- 9  (exposed by robber pit)

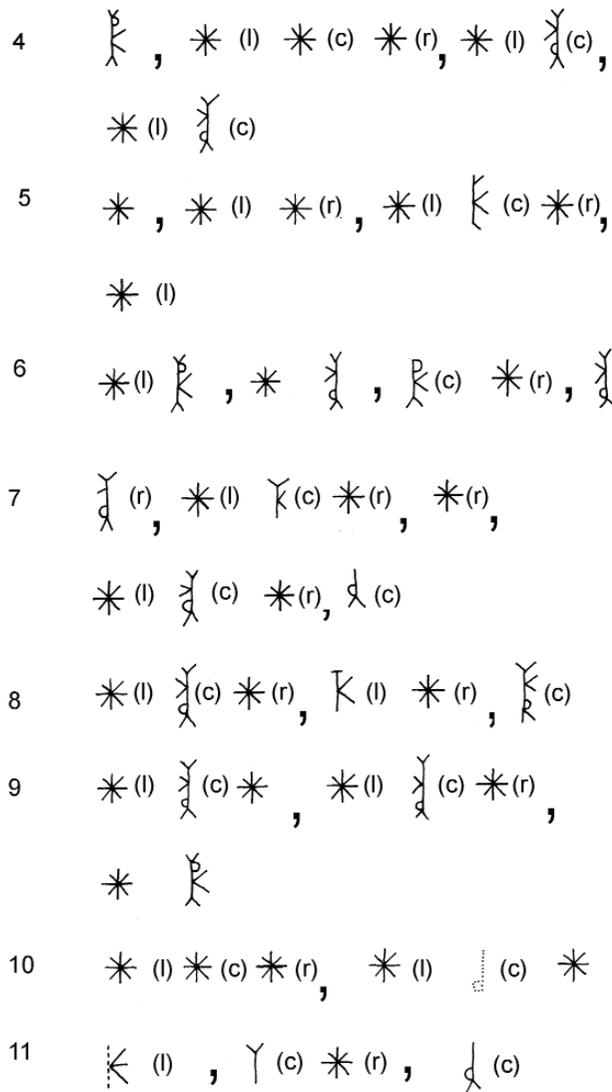
Büyükgerme

South facade, pier west of Arch 1



Arch 1, vault, west side

Dressed courses above cornice towards keystone

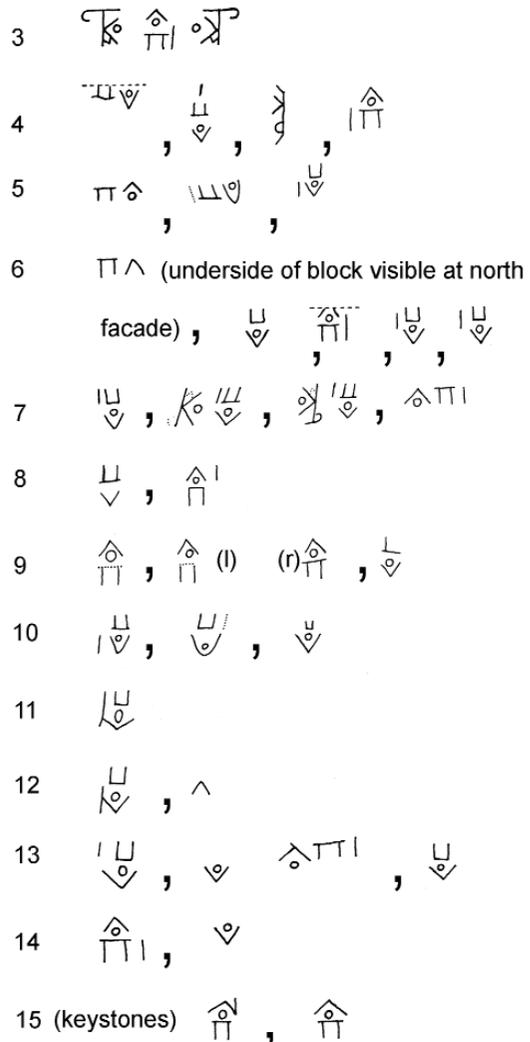


South facade, Arch 1 keystone

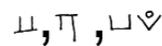


Arch 1, vault, east side

Dressed courses above cornice towards keystone



Arch 1, east wall, traces of marks on bossed blocks below cornice



South facade, west of Arch 2



Arch 2, west wall

Bossed blocks below cornice



Arch 2, east wall



South facade below Arch 7

MA , I K P K Y , MA P A M , P A M

South facade, cornice below Arches 7 and 8

Δ ο ρ κ ι μ ο γ

Arch 8, west wall

5 K P A M

8 P A M

14 Δ ο ε θ

South facade, between Arches 8 and 9

W W

South facade, east of Arch 9

Z W (underside of core block) (h)

Arch 10, west wall (course 6 is chamfered)

1 P A M , C T E 22 , P A M

2 P A M , C T E P

8 C T E P

16 C T E A

33 cornice at vault springing

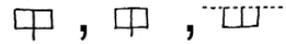
Arch 10, vault, west side (dressed blocks)

7 C T E P

North facade, west of Arch 10

C T E P

North facade (substantially rebuilt)



(all on bossed blocks)

Loose blocks beside river

M P K (h 22 cm) (h)

H (h 33 cm) (h)

I T A (h 19 cm) (h)

o P (h 35 cm) (h)

E P (h 16 cm) (h)

H (h 18 cm) (h)

P A T

C T E P (on same block) (h)
C T E P

C T E

K P (h 19 cm)

H

Keçigerme

South facade, east of Arch 2
(courses above chamfer at foot of Arch 2)

6 > √ ∫ W

7 $\begin{matrix} + \\ \text{W} \end{matrix}$ ∅

12 E Y

13 X°

16 E Y R

20 (cornice at arch spring)

Arch 2, east wall
(courses above chamfer at foot of Arch 2)

4 $\begin{matrix} \text{---} \\ \text{O} \end{matrix}$ $\begin{matrix} \text{---} \\ \text{W} \end{matrix}$

5 E

Arch 2, fallen block

$\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \\ \text{---} \end{matrix}$ Y

North facade, east of Arch 3
(courses below chamfer at foot of Arch 2)

4 Y ∫ M

9 > E

11 >

South facade, east of Arch 4
(courses below cornice at arch spring)

5 *

North facade, east of Arch 1
(courses below cornice at arch spring)

11 $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$

Arch 1, east wall

(courses below chamfer at foot of arch)

2 E R (same block has cross in roundel and empty roundel)

3 C , $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$

Arch 1, west wall

(courses below cornice at spring of arch)

11 $\text{---} \text{---} \text{---} \text{---}$

13 $\begin{matrix} \text{---} \\ \text{---} \end{matrix}$ ∅

16 > ∅ (h)

17 E Y (h) , E K (h)

Arch 5, east wall

(courses above chamfer at foot of arch)

4 $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$ (lm)

5 $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$

Arch 5, west wall

(courses above chamfer at foot of arch)

5 $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$

9 $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$ ∫ , $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$

South facade, west of Arch 5

(courses above chamfer at foot of Arch 6)

3 $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$

-8 $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$

-9 = level with chamfer at foot of Arch 5

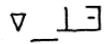
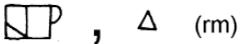
Arch 6, east wall

(courses above chamfer at foot of arch)

-2 $\begin{matrix} \text{---} \\ \text{---} \\ \text{---} \end{matrix}$

3 C V₁

Arch 6, west wall
(courses above chamfer at foot of arch)

- 1 
- 9  (rm)
- 10 
- 15 (cornice at arch spring)

North facade, west of Arch 6
(courses below cornice at Arch 6 springing)

- 2 

South facade, west of Arch 6
(courses above cornice at Arch 6 springing)

- 3 
- 2 

Kumarlidere

East facade, south of Arch 1
(courses above chamfered course at arch foot)

- 2 B (rm) (north corner block)
- 3 Γ (rm) (north corner block)
- 4 K C V
- 5 V C K
- 6 V C K
- 9 V C K , Θ (rm) (north corner block)
- 11 IA (rm) (north corner block)
- 12 IB (rm) (north corner block)

13 IΓ (rm) (north corner block)

15 E (rm) (north corner block)

West facade, south of Arch 1



Arch 1, south wall
(courses above chamfered course at arch foot)

- 3 
- 2 
- 1 V C K
- 2 Δ C K , V C , V C K , K C V
- 3 C , C V
- 4 K C V
- 5 K C V (lb) K C V (rb) , K C V
- 9 V C K , ω
- 13 K C V
- 14 K C
- 22 (cornice at arch spring)

Arch 1, north wall
(courses above chamfered course at arch foot)

- 1 * II V *
- 2 
- 4 V * E
- 5 
- 8 * Z *
- 11 * Λ
- 13 *
- 14 *
- 15 *
- 18 + II E

Arch 1, vault

* (many)

West facade, between Arches 1 and 2
(courses above chamfer at arch foot)

-1 (core of breakwater)

/ 2 1 * (h)

2 *

6 *

West facade, between Arches 1 and 2
(courses above cornice of lower tier arch spring)

0 ☐ ☐ (vertical edge of cornice)

3 * *

4 * , *

5 * , * , *

6 * , *

7 B δ

8 ⌋

9 * , *

11 *

12 δ (rm) , B

1 ⌘ ' ,

2 B B , ⌘⌘ ,
B , δ

3 δ

4 δ (m)

5 ⌘

6 ⌘

7 ⌘

8 B δ

9 ⌘ , ⌘

10 ⌘ , ⌘

11 ⌘ , ⌘

12 ⌘ , ⌘

Arch 2 vault, south side

* EΛΠ *

* IΠVΘ

ΠVΘ * , *

Arch 2 vault, north side

Θ , Θ , Θ ACK

Θ

B (several)

⌘⌘ (several)

Arch 2, south wall
(courses above chamfered course at arch foot)

-4 € (east corner block) (lm) ,

B (lm) ⌘ (b) B (rm)

-3 ⌘ (east corner block) (lm) ,

⌘ , ⌘ , ⌘

-2 ⌘ , ⌘

-1 ⌘ ⌘

Arch 2, north wall
(courses above chamfered course at arch foot)

-6 ΑΛΕΞΑΝΔ (b) Γ (rm)
(east corner block)

-5  , Δ (rm) (east corner block) (fig. 46)

-4  ,  ,

€ (rm) (east corner block)

-3  ,  ,

Ⲛ (rm) (east corner block)

-2  +

-1  ,  ,

Ⲛ (rm) (east corner block)

1 

2  , 

3 

8 

10 

11  , 

12  ,  (lb)  (rb)

13 

14 

16 

17  

18 

23 (cornice at arch spring)

East facade, north of Arch 2
(courses below chamfered course at arch foot)

5  (corner block to south)

6 +ΑΛΕΞΑΚ
(corner block to south)

East facade, between Arches 2 and 3
(courses above cornice at spring of lower tier arches)

4 

9 

10 

11  , 

12  , Ⲛ (rm)

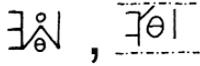
Arch 3, vault, south side

Ⲛⲟⲩⲉ
Ⲛⲟⲩⲉ

Arch 3, vault, north side

Ⲛⲟⲩⲉ , Ⲛⲟⲩⲉ

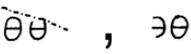
East facade, between Arches 2 and 3
(courses below string course running below tier 2)

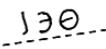
4  , 

6 

7 

Arch 3, north wall
(courses below cornice at arch springing)

3  , 

4 

5 

6 

8 

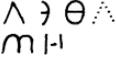
West facade between Arches 3 and 4
(courses below cornice at spring of vault)

2 

Arch 4, south wall
(courses below cornice at vault springing)

3 

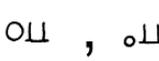
6 

7 

8 

1 

Arch 4, north wall
(courses below cornice at vault springing)

7  , 

8   , 

9 

Arch 4, vault, north side



Arch 8, north wall
(courses below cornice at vault spring)

2 

Arch 8, vault
(courses above cornice at vault spring, north side)

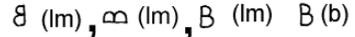
6 

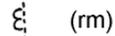
West facade, between Arches 10 and 11
(lowest of three courses constituting cornice running between tiers)

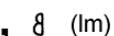
 (on vertical edge of chamfered block)

(courses above cornice at foot of Arches 10 and 11)

1 

2  (lm),  (lm),  (lm)  (b)

3  (rm)

4   ,  (lm)

6 

7  (rm)

8 

Arch 5, north wall

 , 

 ,  , 

Kalederesi

West façade, south abutment, bottom

10

Bozdoğan Kemerli

South façade, between Arches 19 and 20

v

North façade, east of Arch 28

△

Anastasian Long Wall

(on dressed blocks unless indicated)

œ

8

8

K V

p

+

+

B (m)

Kurşunlugerme (Fig. 4.7)

At Kurşunlugerme, the mark KY, standing on its own, clusters in the vault of Arch 10, with a further example in Arch 11. However, in this southern half of the bridge, the mark CTEP was that most commonly noted. It occurred on the west façade (on blocks reaching from the top of the staircase near Arch 10 to Buttress VIII, and on Buttress VII), in Arches 17 and 19, and on the east façade at Buttress VI. Some of these marks had been truncated when the drafting had been cut around the boss (a phenomenon noted elsewhere). The same mark was sometimes noted in the drafted margin itself: on the west façade (below Arch 17, on Buttress VII, north of Buttress VII) and in the north and south walls of Arch 20. Sometimes CT was in the margin at one end of the block, and EP in the margin at the other.

In Buttress VII (west face, course 18 below cornice at foot of tier 2), EP was noted in the drafting at one end of a block (and presumably CT had been lost from the other end), whereas traces of what was clearly quite a different mark (indecipherable, but not CTEP) were visible on the boss. If the marks refer to gangs of masons, it appears that sometimes the task of drafting passed into the hands of a different gang.

The mark OII was noted in the west façade at, and to the north of, Buttress VII and in the south wall of Arch 20.

TPO was seen in the drafted margins of blocks on the east façade of the bridge north of Buttress VII, and the marks P, O, and PO, which I recorded in the drafted margins of blocks in the south wall of Arch 20, may have been fragments of TP and TPO. TP or TPO was also noted on bossed blocks used in Buttress VII (north and east faces), in the east façade of the bridge to the north of that buttress, and in the north wall of Arch 20. Amongst these blocks, some carried letters in addition to TP or TPO. Thus I noted: ZH TPO (on the boss) and TP (in the drafting); O TPO; TPO N; and TPO NT (the boss having been cut away to make way for the mark). The significance of the additional letters is uncertain. Assuming that in general names such as TPO indicate gangs of workmen operating under a master mason, then either a different gang took over the work at some stage (so that we have in each case the names of two master masons) or in each case the mason has applied not only the name of his master (TPO) but also his own name.

The mark AY was noted in Arch 18 on its south and north walls. It occurred three times on the boss of one particular block in the north wall (course 4). Whether the same mason applied the mark three times, or whether three masons each applied the mark of their common master is uncertain. On another block (course 2) AY occurred on the boss, and the letters A and Y appeared in the drafted margin at either end of the block. This suggests, if

the proposed interpretation of such marks is correct, that a member or members of the same gang worked on both the bossing and drafting of the block. A block from the west façade, Buttress IV, west face, was similarly marked with **IK** both on the boss and in the margin.

On the west façade, Buttress IV, and the façade to the south of it also showed **AY**. In the latter location **AY** was accompanied by the additional letters **A** and **B**. This recalls the blocks carrying the inscriptions **ZH TPO** or **Ω TPO** or **TPO N** or **TPO NT**, and we may again pose the possibility that the letters **A** and **B** designate individual workmen belonging to a single gang. **AY B** was noted in a vaulting block on the north side of Arch 18 and on the west façade, south of Buttress IV.

The mark **MA** was noted in Arch 18 and in Buttress III. It is perhaps to be associated with **MAP** in Buttresses VI and V, but whether we should connect it with the numerous **Ms** that occur north of Buttress III or with the two monograms of **M** and **A** in ligature in the east façade north of Arch 12 is uncertain.

In Arch 18, I noted two monograms on the same block: **Ν** (a box monogram of **ANY** on the boss) and **Υ** (a bar monogram of **IOY** in the margin). As suggested above, this may indicate that sometimes the bossed blocks that had been prepared by one gang passed into the hands of another gang for the addition of the drafted margins. The bar monogram was noted on just two other blocks in this area, and, on both, it appeared in the margin (Arch 18, south wall, course 26).

The large number of **Ms** concentrated in the northern section of the bridge from Buttress III are (like the **CTEP** and **KY** marks at the south end of the bridge) indicative of the way in which blocks carrying the same mark tended to be used in the same section of a structure. This conclusion is also demonstrated by the fact that Arches 1 and 2 on Level 3 contained a number of blocks with the mark **HC**, and the same mark was noted on the east façade between Arches 2 and 3.

Büyükgerme (Fig. 4.12)

Arch 1

The marks on the flat-dressed blocks in the west side of the vault of Arch 1 largely consisted of bar monograms, **Κ**, composed of the letters **KYPIY**. Sometimes the monogram was alone on a block, at other times it occurred with an eight-pointed star at one or

other or both ends of the block. At yet other times a star appeared in place of the monogram, again either alone or with an eight-pointed star at one or other or both ends of the block. Similar stars and monograms occurred on the south façade of the bridge on the bossed blocks west of Arch 1.

The marks on the flat-dressed blocks in the east side of the vault of Arch 1 consisted, in the vast majority, of the sign **Π**, apparently a curious configuration of the letters **ΠΟΛΙ**. These marks were sometimes seen in conjunction with the monogram **Κ** (**ΚΟCΤΑ**) on the same block. This recalls the use of two different marks on pieces of Proconnesian marble. In both cases it seems possible that two different masons worked on the stone. Just one occurrence of a bar monogram of the letters **KYPIY** was noted (course 4), the majority of such marks being concentrated in the west side of the vault of Arch 1. On the bossed blocks of the east wall of Arch 1, some faint traces of the same **ΠΟΛΙ** mark were noted, and further examples were noted on the south façade west of Arch 2, where one example of the mark **CTE** was also noted.

On the vault blocks, some of the marks had clearly been truncated when the block had been cut to its final shape; and on the bossed blocks, some of the marks on the boss had been truncated when the margins had been dressed.

Arches 7 and 8

On the south façade, just below Arch 7, were seen marks **MA**, **MAP**, and **MAPKY**, some examples of which were also noted on the west side of Arch 8 together with one example of **ΘΕΟΔ**. The variation between **MA**, **MAP**, and **MAPKY** may well indicate that these marks, although apparently referring to the same individual, were applied by different masons. We may therefore have evidence that the marks on the aqueduct bridges, like those on Proconnesian marble, refer to master masons in charge of groups of junior masons. Also on the south façade, between Arches 7 and 8, in the string-course running below the upper tier of arches, was the complete name **ΔΟΚΙΜΟΥ**.

Arch 10

On several bossed blocks on the west wall, and in one case on a vaulting block of Arch 10, the mark **CTE** was noted. Often **CTEP** was found, on three occasions followed by **⊕**. The preservation and the difficulty of reading the marks make it impossible to be certain whether we could also discern **CTEA** and **CTEB** (both of which may perhaps have been

CTEP). However, the occurrence of the sign \oplus suggests the possibility that, as in the case of certain Proconnesian marks, CTE or CTEP refers to the master mason, and that \oplus refers to the mason himself.

Elsewhere

Amongst the reinforcement on the north façade of the bridge there were bossed blocks marked \mathfrak{M} , unattested elsewhere. Some marks on fallen blocks, on faces that would have been hidden from view, were the same as those on visible faces (such as ΠΟΛΙ or CTEP); sometimes, however, they were carved on a much larger scale than the usual marks. Other hidden marks had not been noted on the visible surfaces of the structure (such as ΖΩ (south façade, east of Arch 9) or \mathfrak{P} (that is, ΤΡΟΦ in monogrammatic form)), and may indicate what would be found on blocks in parts of the bridge that it was not possible for us to explore.

Observations

The evidence, especially from Arch 1, demonstrates that particular marks occur in clusters in certain parts of the bridge. What we deduce from this observation depends on the interpretation we place on the marks themselves, and the assumptions we make about who applied them, and where.

The occurrence of variant forms of the name Μάρκου and the appearance of the sign \oplus after CTEP recall some instances of the marking of Proconnesian marble, and may suggest that most of the marks refer to a master mason and were applied by the members of a group of masons under his control. These masons might occasionally apply their own mark (such as \oplus). CTEP occurs not only at Büyükgerme but also at Ballıgerme and Kurşunlugerme, and I doubt whether a single mason was responsible for the preparation of so very many blocks on at least three different projects. For this reason, the proposal that any single mark was applied by the members of a group of masons appears to make good sense.

Clearly, whether the marks were applied at the quarry, at workshops elsewhere, or at the building site, the blocks signed by a single group of masons tended to be used together in the construction.

Keçigerme (Fig 7.36)

The marks noted on this aqueduct bridge largely occur individually in scattered locations, so that little can be inferred from their distribution. Here, however, we see not only marks consisting of letters (as

on other bridges), but also symbols, which may, perhaps, suggest illiteracy on the part of the masons. Arches 2, 5 and 6 all contain a block bearing a pi with an omicron within it, and an adjacent circle surrounded by a concentric semicircle. There appear to be very few correspondences with marks at other bridges, but the asterisk (south façade, east of Arch 4) and the letters ΕΩ (south façade, east of Arch 2, course 7) also occur at Kumarlıdere.

Kumarlıdere (Fig. 7.36)

As at other bridges, there were clear clusters of marks in certain parts of the structure. On the south wall of Arch 1, and on the east façade of the bridge to the south of the same arch, large numbers of ACK were noted. In the vault of Arch 1 were a number of asterisks, and similar signs were noted on the west façade of the bridge between Arches 1 and 2. In Arch 1, some of the asterisks occurred in conjunction with letters such as ΛΠ, ΛΠΠ, ΕΛ, and ΕΠ — perhaps confused renderings of ΕΛΠ or ΕΛΠΠ, which was found inscribed clearly, and again in conjunction with asterisks, on the south side of the vault of Arch 2.

On the south wall of Arch 2 were noted the letters A and B in ligature and also the letter B alone. The latter is seen again in Arch 8, and in the upper tier on the west façade between Arches 1 and 2, and between Arches 10 and 11. It finds parallels at both Ballıgerme (on a fallen block) and Kurşunlugerme (east façade, Buttress VII; Arch 19, vault, north side; west façade, south of Buttress IV; Arch 12, north wall).

On the north wall of Arch 2, by contrast with the south wall, there were many box monograms in the form \mathfrak{MET} , consisting of the letters M, E, Θ, O, T and possibly Δ (= Μεθοδότου?). Such marks were also noted on the east façade of the bridge between Arches 2 and 3, and there may be one example in Arch 5. A single example of this mark was noted at the south end of the top tier at Kurşunlugerme.

The vault and north wall of Arch 3 display examples of ΘΕΥ, as does the south wall of Arch 4.

The north wall of Arch 4 and the west façade between Arches 3 and 4 displayed examples of ΠΟ, which has already been noted at Kurşunlugerme.

Of particular interest are the numerical markings, since these have not been noted at other bridges. The corner blocks at the east end of the north wall of Arch 2 were numbered for several courses above the ground level on both their northern and eastern faces. One of the lower courses on the north wall of Arch 2 carried the name ΑΛΕΞΑΝΔ on the boss

with the numeral Γ in the margin (the other face of this block, on the east façade of the bridge, bore the inscription + ΑΛΕΞΑ). The courses above carried the subsequent numbers Δ, Ε, ζ, Ζ (lost), and Η in their right-hand margins. In the corresponding courses on the south wall of Arch 2, the numerals Ε and ζ were recorded. Similar numbered courses were noted on the east façade of the bridge, at the south-east corner of Arch 1. It should be noted, however, that the level of these courses did not correspond with those numbered at the eastern corners of Arch 2. At Arch 1, the courses above the chamfered course at the foot of the arch were seen to carry numbers between Α and ΕΙ (the surviving numbers being Β, Γ, Θ, ΙΑ, ΙΒ, ΙΓ, ΙΕ). Why these numbers were applied is not entirely clear. Possibly they were inscribed before the blocks were set in place, although why it should have been necessary to lay these corner blocks in an exact sequence is unclear. Perhaps the letters were found helpful for levelling purposes, making it easier to ensure that the courses of stone in the opposite pier were laid at exactly the same height.

The monogram, , possibly to be resolved Μεθοδότης, and the mark ΠΟ have also been noted at Kurşunlugerme, and the many asterisks recall those at Büyükgerme (although there they often occurred in conjunction with the bar monogram ). The correspondences suggest that the Kumarlıdere

bridge should probably be considered contemporary with Kurşunlugerme. As to the name Alexander, it is tempting to imagine a connection with the individual of the same name mentioned in an inscription beneath a staurogram on the Kurşunlugerme aqueduct bridge (S2), but that can only be speculative.

Kalederesi

At the foot of the south abutment on its west façade a bossed block carried the mark CI.

Bozdoğan Kemerli

The surfaces of the stone in this aqueduct bridge are badly eroded, and very few marks are visible. I noted just two.

South façade, between Arches 19 and 20:⁴⁴ an inverted Α with a v-shaped cross-bar.

North façade, east of Arch 28: Δ.

Anastasian Long Wall

This material has been included in the catalogue in order to present a complete record of those marks recorded in Turkish Thrace.

DATING THE AQUEDUCT BRIDGES

Relative dating

The masons' marks on the Thracian aqueduct bridges provide not only tantalizing insights into the organization of the quarrying or stone-cutting business, but are potentially valuable for establishing the relative dates of the bridges.

It is evident even from the material in Oreshkov's catalogue that some marks occurred at more than one aqueduct bridge. Oreshkov's catalogue is not presented bridge-by-bridge; rather, it gathers all the marks from four bridges and presents them in five tables. His first table shows marks he considered to be symbols, and the remaining four present the marks consisting of one, two, and three or more letters of the alphabet. His tables I–V are reproduced

here for convenience (Tables 1–5), and I list the marks that Oreshkov reported having seen at each bridge in Table 6. It should be noted that Oreshkov gives locations for the marks on each bridge, but I have chosen not to repeat that information here.

It is clear that Oreshkov recorded marks that were not spotted during my fieldwork, and that, conversely, I observed marks unreported by Oreshkov. Some of the marks seen by Oreshkov are no doubt no longer visible today because the bridges and the surfaces of the stones themselves were better preserved when Oreshkov visited them; others were probably simply missed during recording for reasons already explained; yet others may have been badly recorded by Oreshkov (or those working with him) and may in fact correspond with marks catalogued here. For

⁴⁴ The numbering of the arches is that of Dalman (1933), pl. 20. Atatürk Bulvarı today passes through Arches 38–43; see Müller-Wiener (1977), 274, fig. 308.

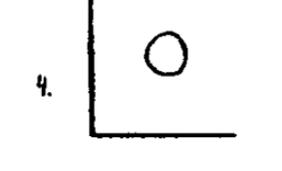
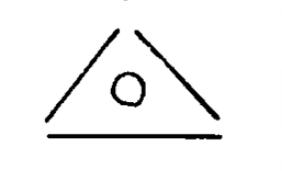
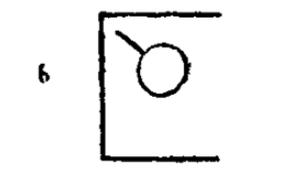
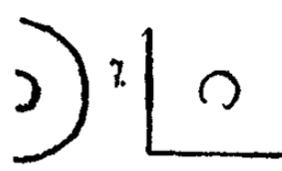
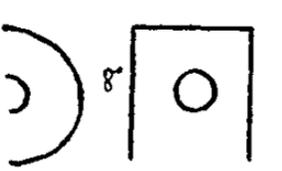
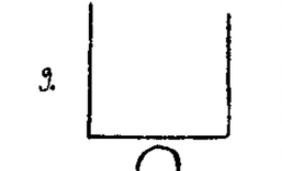
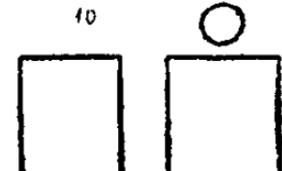
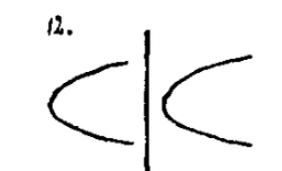
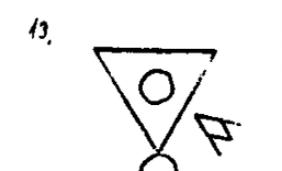
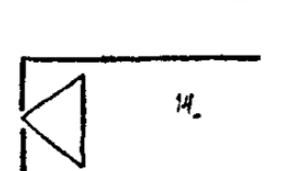
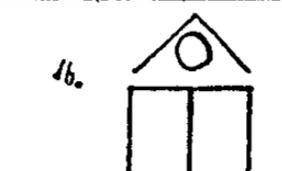
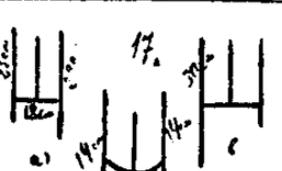
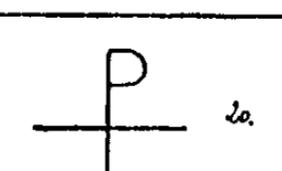
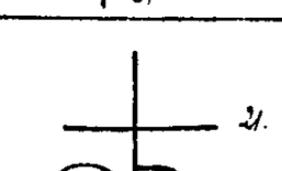
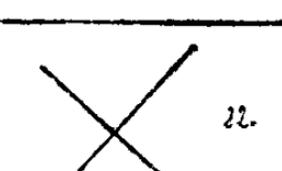
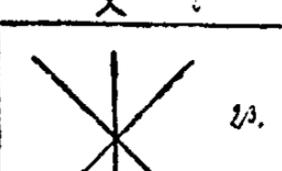
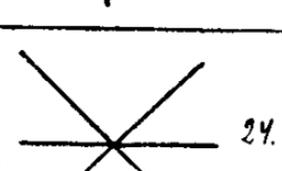
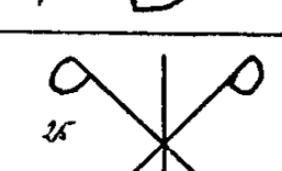
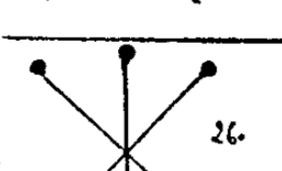
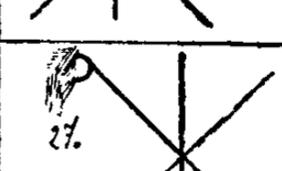
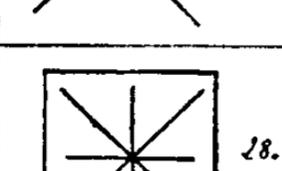
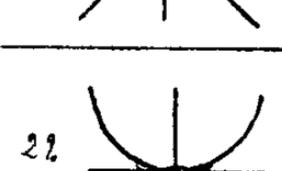
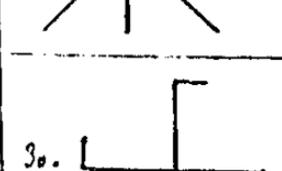
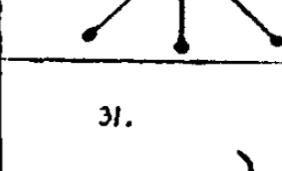
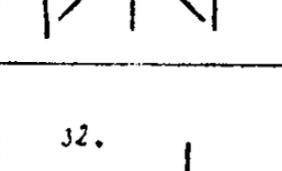
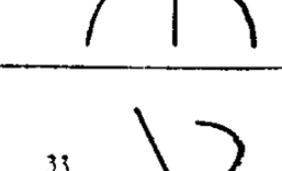
1. 	3. 	4. 	5. 
6. 	7. 	8. 	9. 
10. 	11. 	12. 	13. 
14. 	15. 	16. 	17. 
18. 	19. 	20. 	21. 
22. 	23. 	24. 	25. 
26. 	27. 	28. 	29. 
30. 	31. 	32. 	33. 

TABLE I Masons' marks recorded by Oreshkov (1915, 104).

1. A	2. V	3. α	4. (A)	5. B	6. Γ	7. Δ	8. ∇	9. δ	10. 6	11. E	
12. 3	13. ψ	14. U	15. S	16. Z	17. θ	18. I	19. K	20. K	21. π	22. M	23. W

TABLE 2. Masons' marks recorded by Oreshkov (1915, 107).

1. AB	2. 8Y	3. W8	4. AV	5. AM
6. λV	7. WЖ	8. [W]	9. [W]	10. [A]
11. BI	12. ΔE	13. E°	14. EY	15. YE
16. λ3	17. K3	18. 3	18. EK	20. E7
21. W7	21. Ж3	23. 3θ	24. 3H	25. K°
26. λK	27. λA	28. MA	29. MB	30. M^y
31. [E]	32. ΠO	35. [Tree]	36. [Stick]	37. [X]
33. 8λ	34. ZЖ			

TABLE 3. Masons' marks recorded by Oreskkov (1915, 108).

1. ACK	2. BETH	3. EKY	4. EKY
5. ELA	6. KE	7. EKN	8. ECH
9. EY	10. ETH	11. EY	12. EY
13. IEY	14. KI	15. LEA	16. LEA
17. TAB	18. TER	19. HO	20. YEK
21. YK	22. YAO	23. TER	

TABLE 4. Masons' marks recorded by Oreshkov (1915, 110).

1. BVAK	2. ELKA	3. LEKA	4. EKA
5. AK	6. HO	7. YAY	8. KE
9. AK	10. KIP	11. TP	12. TP
13. MANK	14. NE	15. EY	16. K
			17. KE

TABLE 5. Masons' marks recorded by Oreshkov (1915, 112).

TABLE 6. The occurrence of marks recorded by Oreshkov at each aqueduct bridge.

	Table 1	Table 2	Table 3	Table 4	Table 5
Kurşunlugerme (Oreshkov's bridge V):	12, 13, 32	2, 5, 17, 23	4-6, 11, 15, 19, 23, 27, 29, 32-34, 37	2, 16, 18, 19	10-12
Büyükgerme (Oreshkov's bridge III):	5, 9, 15-19, 21, 29, 33	6, 19	13, 14, 25, 28, 31, 35, 36	23	9, 13
Keçigerme (Oreshkov's bridge II):	2-4, 8, 11, 14, 20, 22, 23, 28, 30, 31	1, 3, 4, 7-9, 12-16, 18, 20	12, 16-18, 20, 21, 30	3-6, 13, 14, 20	1-5, 7
Kumarlıdere (Oreshkov's bridge IV):	1, 6, 7(?), 10, 24-27	5, 9, 10, 22	1-3, 7-10, 22, 24, 26	1, 7-12, 15, 17, 21, 22	6, 8, 14

these reasons, I have decided not to merge his catalogue with my own, but to let each catalogue stand independently. In Oreshkov's catalogue, the following marks are said to have occurred at more than one bridge:

In Table 1, mark nos 22-27 are all various forms of asterisk, and all should probably be considered to have had the same significance. They were spotted at Keçigerme and Kumarlıdere (Bridges II and IV). Nos 32 and 33 in the same table appear to be poorly recorded forms of the same mark (CTEP), which also appears in Table 4 as no. 23. The mark occurred at Büyükgerme and Kurşunlugerme (Bridges III and V).

The examples of single letters (as presented in Table 2) that occur at more than one bridge are far less convincing as evidence of contemporaneity, since such single letters may be the initial letter of the names of quite different individuals or have been numerals in some cases. Oreshkov noted the letter B (Table 2 no. 5) at Kumarlıdere and Kurşunlugerme, and the letter Δ (Table 2 no. 9) at Keçigerme and Kumarlıdere.

In Oreshkov's Table 3, mark nos 15 and 16 clearly had the same significance, and were noted at Keçigerme and Kurşunlugerme; likewise, nos 5 and 28 are equivalent marks, and were recorded at Kurşunlugerme and Büyükgerme.

In Table 4, mark nos 5 and 11 are clearly equivalent and occurred at Keçigerme and Kumarlıdere.

In Table 5, nos 10, 11 and 12, all from Kurşunlugerme, appear to give the name TPO with an additional letter or letters (K, N or TN). Perhaps the monograms of ΤΡΟΦΙΜΟΥ from Büyükgerme are equivalent (Table 1 no. 19, and Table 3 nos 35-36).

The catalogue presented here indicates a few more correspondences, which are presented in Table 7. The most striking correspondence is in the occurrence of CTEP in large numbers at Ballıgerme, Kurşunlugerme, and Büyükgerme. Other correspondences which cannot be discounted as coincidences are of three complex monograms, , , , each of which has been observed at two bridges. The evidence strongly suggests that Ballıgerme, Kurşunlugerme, Büyükgerme, and Kumarlıdere are roughly contemporary structures. Keçigerme may be of the same date, but the marks corresponding with other bridges are few in number. It should be noted that the occurrence of stars with six or eight arms at several bridges may not be a significant chronological indicator, since these marks often occur in conjunction with abbreviated names and the stars themselves may have no specific meaning.

Independent dating

Unfortunately, the masons' marks are of less help as regards the precise dating of the bridges. As I have already indicated, although a few masons' marks are monograms or symbols, the majority are letters, usually the first two or three letters of an abbreviated name. Even if such abbreviated names could be completed with certainty, the individual (presumably a master mason) is most unlikely to have rated a mention in our historical sources, being of insufficient status. Consequently, the marks are not easy to date. It may be significant that, although some of the masons' marks are monogrammatic, none are of the cruciform type of monogram. This fact might be

	Balligerme	Kurşunlugerme	Büyükerme	Keçigerme	Kumaridere
CTEP	•	•	•		
	•		•		
 (= TPO?)		•	•		
		•			•
M		•			•
ΠΟ/ΟΠ		•			•
B	•	•			•
ΘΕ	•	•			
 / κλ	•	•			
ΕΥ	•	•		•	
* / *	•		•	•	•

TABLE 7. Correspondences of masons' marks.

taken to indicate that these structures are to be dated before 532, when such monograms became popular on architectural sculpture (for instance, the capitals of Haghia Eirene and Haghia Sophia).⁴⁵ However, this deduction is not reliable since it is not clear that cruciform monograms ever became popular among masons: it may be significant that there are no cruciform masons' marks published as yet from Haghia Sophia, whereas imperial cruciform monograms occur on the capitals in the same church.

The best hope for dating the marks on the Thracian aqueducts comes from drawing comparisons between them and those on dated monuments. Oreshkov believed that some correspondences could be identified between the marks on the aqueducts, those in the cisterns of Istanbul (as recorded by Wulzinger and by Forchheimer and Strzygowski⁴⁶),

and those at Aboba Pliska in Bulgaria (as published by the Russian Archaeological Institute of Constantinople⁴⁷). Those for which Oreshkov claimed to have found parallels at Aboba Pliska are: Table 1 nos 9, 15, 17, 18, 20, 22, 23, 30; Table 2 no. 7; Table 3 nos 20, 21, 36. The parallels found in Wulzinger were with: Table 1 no. 30; Table 2 nos 5, 6, 12, 14, 17, 22; Table 3 nos 11, 13, 19, 20, 21, 28, 31. Oreshkov found parallels in Forchheimer and Strzygowski for: Table 2 no. 7; Table 3 no. 18.

The fact that the single letters illustrated in Table 2 occurred at more than one bridge can hardly be used as evidence in assessing the dates of the bridges, since such letters may have completely different meanings in different contexts. In some cases such single letters may be numerals, in others they may be an initial, and the same initial may have been used by many workmen operating in quite different periods. Parallels for marks in Tables 1 and 3 would be somewhat more indicative, but in these cases, the correspondences with marks from both Aboba Pliska and the cisterns are only partial. The only exact parallels are in fact: Table 1 no. 32 = Uspenskii (1905), pl. 49 no. 37, pl. 50 no. 20; Table 1 nos 23–24 = Uspenskii (1905), pl. 49 no. 41, pl. 50 no. 21; Table 1 no. 30 = Uspenskii (1905), pl. 50 no. 27; Table 3 no. 19 = Wulzinger (1913b), 465 no. 20; Table 3 no. 28 = Wulzinger (1913b), 467 no. 53. Clearly, these correspondences are likely to be coincidences, and the other similarities observed by Oreshkov are not close enough to draw any chronological conclusions.

Although more marks from the city have been recorded since Oreshkov wrote, it is still the case that there are few significant correspondences between the marks on the Thracian aqueducts and marks on architectural elements from firmly dated urban monuments.⁴⁸ The Bozdoğan Kemer (which was certainly built after 330 and was probably, in its original form, the work of Valens) is now so badly eroded that few marks are visible on its stones. The next dated monuments in the city are the Golden Gate, which is somewhat more likely to have been the

⁴⁵ See the comments of Bardill (2004), 48–9.

⁴⁶ Wulzinger (1913b), 459–73; Forchheimer and Strzygowski (1893), 245–58.

⁴⁷ Uspenskii (1905), 250–6, pls 49–50.

⁴⁸ Dirimtekin (1959), 242 notes that his attempts to compare masons' marks on the aqueducts with those from Haghia Sophia were unsuccessful. We need not give any weight to comparisons he draws between two aqueduct masons' marks and marks on the coins of Arcadius, Anastasius I, and Justinian.

A survey of many marks in the city has been made by Deichmann, for the purpose of drawing comparisons with marks found at Ravenna; see Deichmann (1976), 206–30, especially 216–19 on Istanbul. For additional marks from Istanbul, see Sodini (1987), 503–10.

work of Theodosius I than of Theodosius II,⁴⁹ and the arch in the forum of the same emperor,⁵⁰ both of which again only carry a very few marks. Only a small number of marks have been reported from the Haghia Sophia of Theodosius II,⁵¹ and none are recorded from the same emperor's Land Walls or from Stoudios' basilica of St John⁵² (all belonging to the first half of the fifth century). Of about the same period (judging by the construction style and the brickstamps) is the rotunda at the Myrelaion (Bodrum Camii), where a very few masons' marks were once visible on the blocks in the walls.⁵³ We also have masons' marks from a number of cisterns (including the Binbirdirek and Yerebatan Sarayı), but both the cisterns themselves and the architectural elements in them (which may often have been old stock or reused) are often difficult to date.⁵⁴ Our next evidence from dated monuments relates to the sixth century and comes from St Polyeuktos,⁵⁵ Sts Sergius and Bacchus,⁵⁶ and Justinian's Haghia Sophia. From the last there is a large haul of marks.⁵⁷

Ignoring single letters, the correspondences with the marks from the aqueduct bridges are few. The fourth- and fifth-century parallels are: TP and TPO from the arch in the Forum Tauri, which also occur at Kurşunlugerme; CI from the same arch, which also occurs at Kumarlıdere; EY from the same arch

and from the Myrelaion rotunda, which was also noted at Ballıgerme, Kurşunlugerme, and Keçiğerme. The other parallels are from sixth-century monuments, and it is difficult to imagine that they are true correspondences, given that the bridges with which we are dealing presumably date to the period after Valens (when the system was begun) and before Justinian (when it was apparently repaired). Nevertheless, for the sake of completeness, we may note the following coincidences: ΠO, noted at Kurşunlugerme and Kumarlıdere, was also noted on the Marzamemi wreck; ΘE and KY, both noted at Ballıgerme and Kurşunlugerme, also occur at St Polyeuktos and Haghia Sophia, and the former has also been noted on the Anastasian Long Wall; MA, noted at Büyükgerme, has been recorded in the Binbirdirek cistern; ΖΩ, noted at Büyükgerme, has been recorded also at Sts Sergius and Bacchus and Haghia Sophia; a swastika, as found at Kumarlıdere, also occurs in the Binbirdirek and at Haghia Sophia.

The very small number of correspondences between the marks on the aqueducts and the marks in the city is hardly surprising, given the small numbers known from the earlier monuments with which the bridges are perhaps more likely to be contemporary. But even if we had more from the earlier

⁴⁹ Meyer-Plath and Schneider (1943), 125 no. 8c (also 45, 52, 53 fig. 16) record the single letters Θ, A, Π, M. I have noted H in addition. The finely balanced evidence regarding the date of the gate is discussed by Bardill (1999), 671–96. It seems to me now that the cracking of marble blocks in the gate may not necessarily be damage inflicted when the fortification was attached, but may result from differential movement of the tower and wall, in which case it tells us nothing about their relative dates of construction. Also, the use of L-shaped blocks could perhaps result from an attempt to bond two contemporary, but badly aligned structures, as much as from an attempt to bond a later structure into an earlier one. Indeed, the partial completion of the moulding across an L-shaped block might be more easily explained thus. But it still seems unlikely that the independent references of Theophanes and Cedrenus to a statue of Theodosius I on the gate could be erroneous. If they could be shown to be so, it might be argued that Theodosius II, after the defeat of the tyrant John, decorated (*decorat*) the gate (*portam*) he had earlier built (*construit*). However, the inscription speaks of the emperor decorating the region (*haec loca*), not the gate, and seems to refer to the building of the monument itself; furthermore Theodosius II is not known to have celebrated a triumphal entrance with elephants whereas the elephants of Theodosius I are referred to by Pacatus. A firm solution must await excavation.

⁵⁰ On the arch, see Bardill (2004), 130. On the northern base of the arch I have noted the marks TP (east face, south face) and CI (twice on west face). The mark EY is noted on a sima profile by Naumann (1976), 140, fig. 13. I have seen this mark on an unfinished column-base close to the arch; the block also carries two further marks: EYΓ and EY (with a reversed E). On the north face of the south base of the arch, I have noted E. On a capital from the arch I have noted ΠΑΛ-, and on another block ΚΟCΜΑC̄ is to be found with TΓ (possibly TP?). The mark TPO appears on a cornice block in a photograph in the Deutsches Archäologisches Institut, Istanbul (neg. R2588).

⁵¹ Schneider (1941), 8 no. 2, pl. 12.2 (also Deichmann (1976), 217. Those recorded at 20 no. 3 are believed by Deichmann (1976), 218 to belong to the Justinianic church). For the date, see Bardill (2004), 54–6, 107.

⁵² Choisy (1883), 172 mentions marks in St John of Stoudios, but these are otherwise unrecorded. For the date, see Bardill (2004), 60–1, 109.

⁵³ The marks are visible in two photographs by W. Schiele in the Deutsches Archäologisches Institut, Istanbul: EΓ (neg. R84), EY, EI, EI with T on the same block (two occurrences), TAA (neg. 66/86).

⁵⁴ See Forchheimer and Strzygowski (1893), 245–58 and Mamboury and Wiegand (1934), 48, 65. The former is superseded by Wulzinger (1913b) as regards the Binbirdirek and by Wulzinger (1913a). Deichmann (1976), 218–19 (largely relying on Forchheimer and Strzygowski and Mamboury and Wiegand regarding the cisterns) curiously overlooks Wulzinger on the Binbirdirek. See also Mamboury (1936), 167–80.

⁵⁵ Harrison (1986), 126 (3 a i, as noted by Deichmann (1976), 217), 151 with fig. H (14 c i), 164 (22 c i, as noted by Deichmann (1976), 221). For the date, see Bardill (2004), 62–4, 111–16.

⁵⁶ Deichmann (1976), 217 with table 4 and fig. 50. For the date, see Bardill (2000), 1–11.

⁵⁷ The records of R. van Nice housed in Dumbarton Oaks remain unpublished, but the marks on the nave cornices are catalogued and discussed by Butler (1989), 136–75, and the marks on other elements by Paribeni (2004). See also Antoniadis (1907), 97–103, figs 26–151 (some of which are reproduced in Deichmann (1976), 217–18 with the addition of fig. 51).

buildings in the city, it is not certain that they would correspond with those on the Thracian bridges, for several reasons.

In the first place, most of the recorded masons' marks from the city are on structural elements (cornices, capitals, columns, column-bases) made of Proconnesian marble, which was not the material used for the Thracian aqueducts. If, therefore, the master masons to whom the masons' marks seem to refer were connected with particular quarries, then we would not expect any actual correspondences between the marks in the city and those in Thrace (any correspondences that do occur being only apparent). If, however, the master masons and the masons working for them were itinerant, they may have worked with many kinds of stone. Certainly the style of carving at Ephesus, Philippi, Ravenna, and Poreč would appear to suggest that workers in Proconnesian marble who were familiar with the styles of the capital had been transported there. Is it possible that they also worked in Thrace? It is perhaps unlikely that the most accomplished masons and their masters (by which I mean those who were assigned to the carving of highly decorated capitals, rather than column shafts or bases) would have worked on the less demanding task of producing the bossed blocks for aqueduct bridges.

We should also bear in mind the possibility that the marks in the catalogue are not all to be explained in the same way. Some may have been applied at the quarry, and some on the building site. Thus some might refer to quarry owners, others might designate masons or a master mason who only worked at the quarry, and others might denote masons or a master mason who worked only on the building site. Blocks that have fallen from the Thracian aqueduct bridges

or whose hidden faces have been exposed by partial collapses often display marks that were not intended to be seen in the finished building. Perhaps these were applied at the quarry. Unfortunately, it has not been possible to locate examples of blocks that carry marks on both their exposed and hidden faces, and therefore a study cannot be made. It can, however, be stated that some of the hidden marks correspond with exposed marks, which suggests that, in at least some cases, the significance of the two does not differ. Most of the marks recorded on Proconnesian elements from the city are to be associated with the finishing of the architectural pieces, a process which probably took place on the building site.

When drawing comparisons between marks in the city and in the hinterland, we must bear in mind that we may not be comparing like with like. Indeed, it is probable that there were some differences in the organization of quarrying and carving between hinterland and city, and that these differences would have affected the nature and use of masons' marks. When we bear in mind the large number of marks attested in Justinian's Hagia Sophia, it is surprising that relatively few marks have come to light along the Anastasian Long Wall (built or substantially repaired only about thirty years earlier), and that the bridges with 'inverted' cornices (such as Elkaf Dere and Talas) that were restored — apparently in the Justinianic period — do not display any masons' marks at all. This may perhaps be an indication that the organization of stone-cutting in Thrace in the sixth century (and perhaps in earlier centuries, too) was quite different from that in the city and on the island of Proconnesus. In short, we await the discovery of more dated parallels for the masons' marks on the Thracian aqueduct bridges.