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OF THE UNIVERSITY OF WARSAW

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ANNA URSZULA KLIMEK

## A SYSTEM OF STONEMASON MARKS APPLIED IN COLUMNS OF THE TETRASTYLE COURTYARD IN THE HOUSE OF LEUKAKTIOS IN PTOLEMAIS, CYRENAICA\*

Between 2002 and 2010<sup>1</sup> the excavations in insula E XXI carried out by the Polish Archeological Mission to Ptolemais revealed the central part of the House of Leukaktios, the tetrastyle courtyard (Fig. 1, Room R 5a) surrounded by the two-level peristyle (Room R 19) which had been constructed in the second phase of use of the House, in the second half of the 2<sup>nd</sup> c. AD or the early years of the 3<sup>rd</sup> century.<sup>2</sup> On the ground floor four bases and four drums of two columns preserved *in situ* whereas seven drums and one capital collapsed during a severe earthquake in the 3<sup>rd</sup> c. AD,<sup>3</sup> after which the House of Leukaktios was abandoned by its inhabitants and adapted for workshops at previous residential quarters.<sup>4</sup>

On upper surfaces of thirteen of the sixteen preserved elements of the ground floor columns letters of the Greek alphabet are carved, although upper surfaces of two elements remain unknown because of their *in situ* location and incorporation into the construction. The column that preserved in the best state, though still incomplete, was that in the southeastern corner of the peristyle. Its seven drums were found lying near each other on the ground of the court-

yard (Figs. 2, 3). After the earthquake, the courtyard was covered with debris from the upper floor up to 1 metre of its height so that the bases of all four columns, their lower drums and seven drums of the one that collapsed could preserve. Therefore, we can assume that in spite of the earthquake other columns remained *in situ* in an upright position and the drums which protruded above the debris were dismantled and reused in another construction.<sup>5</sup>

The diameter of the bases is 0.575–0.58 m (Fig. 4) and that of the most highly placed drum amounts at 0.495 m. The diameter of the only Doric capital preserved is 0.49 m (Fig. 5). Letters carved on the outer edge of drums are 0.02–0.085 m high. As for the forms of letters, the following observations can be made: *alpha* – with a bar broken in the middle (Fr. *à barre brisée*), *delta* – with the right arm prolonged towards the top and the base prolonged to both sides, *beta* – with triangular or round loops, and the square forms of *epsilon* and *stigma*. Top surfaces of two bases bear only single letters which most probably refer to the order of columns in the peristyle:<sup>6</sup> *beta* on the northwestern column, *gamma* on the northeastern, the southeastern base does not

\* This article was prepared on the basis of my own observations during my stay in Ptolemais as a member of the Polish Archaeological Mission of the Institute of Archaeology, University of Warsaw, in September 2010. I would like to thank Monika Rekowski, Adam Łajtar, and Faraj Tahir for their help and valuable comments.

<sup>1</sup> J. ŻELAZOWSKI ET AL., *Polish Archaeological Research in Ptolemais (Libya) in 2007–2009. Preliminary Report*, “Światowit” VIII (XLIX)/A (2009–2010), 2011, 9–30, pls. 1–33; Z. KOWARSKA ET AL., *Ptolemais, Libya, 2010*, “Światowit” VIII (XLIX)/A (2009–2010), 2011, 195–198, pls. 202, 203; J. ŻELAZOWSKI ET AL., *Polish Archeological Research in Ptolemais (Libya) in 2010. Preliminary Report*, “Światowit” IX (L)/A (2011), 2012, 9–33; J. ŻELAZOWSKI (ed.), *Ptolemais in Cyrenaica. Studies in Memory of Tomasz Mikocki*, Ptolemais 1, Warsaw 2012.

<sup>2</sup> M. REKOWSKA, *Architectural Decoration of the House of Leukaktios, Preliminary Remarks*, (in:) J. Żelazowski (ed.), *Ptolemais in Cyrenaica...*, 180. Architectural decoration as well as the chronology of construction of the building will be further discussed in this article.

<sup>3</sup> On the question of the number of earthquakes that affected Cyrenaica in the middle of the 3<sup>rd</sup> c. AD see: A.S. SULEIMAN, P. ALBINI, P. MIGLIAVACCA, *A Short Introduction to Historical Earthquakes in Libya*, “Annals of Geophysics” 47/2–3, 2004,

545–554. According to the *Life of Gallienus* in the *Historia Augusta* (V, 26), a number of great disasters occurred in Libya during the consulship of Galienus and Faustianianus in AD 262. On the other hand, the coin-hoard found recently in one of the rooms of the house neighbouring the House of Leukaktios on the south is a strong argument in favour of the latter possibility. The hoard contains ca. 600 coins of which the most recent ones were struck during the reign of Trebonianus Gallus (AD 251–253). For the description of the hoard and its historical implications see: P. JAWORSKI, *Skarb z Ptolemais*, (in:) P. Jaworski (ed.), *Skarb z Ptolemais. Katalog wystawy, Zamek Królewski w Warszawie, 15 grudnia 2008 – 15 stycznia 2009*, Warszawa 2008, 39–50; idem, *A Hoard of Roman Coins from Ptolemais*, (in:) E. Jastrzębowska, M. Niewójt (eds.), *Archeologia a Tolemaide. Giornate di studio in occasione del primo anniversario della morte di Tomasz Mikocki, 27–29 maggio 2008*, Roma 2009, 146–156.

<sup>4</sup> M. REKOWSKA, *Architectural Decoration...*, 160.

<sup>5</sup> Loc. cit.

<sup>6</sup> Similar marks relating to the placement of columns in the construction were used on the drums of the Portico of Philip on Delos (R. VALLOIS, *Exploration archéologique de Délos faite par l'École Française d'Athènes. Les portiques au Sud du Hiéron I. Portique de Philippe*, Paris 1923, 34–37).

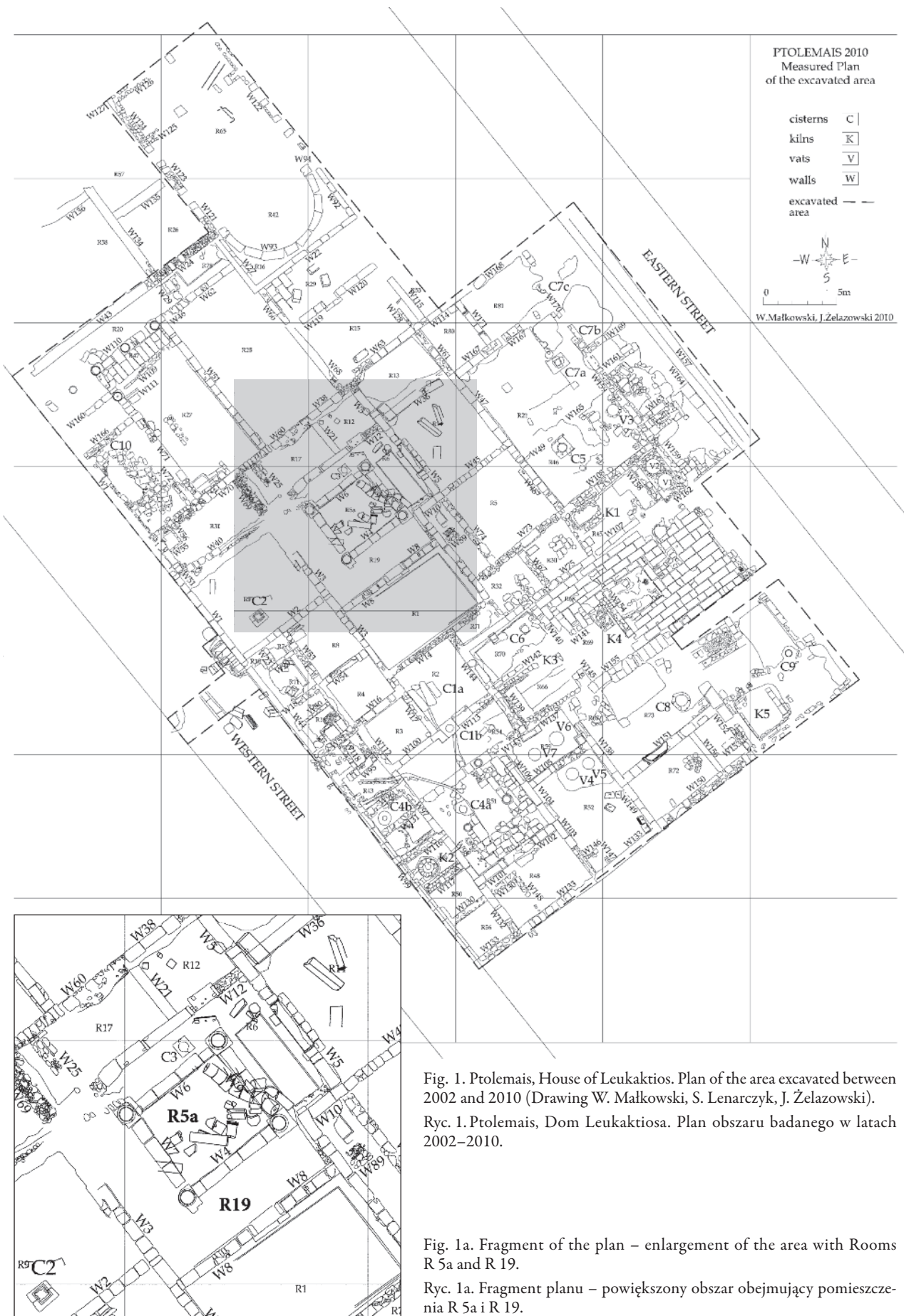


Fig. 1. Ptolemais, House of Leukaktios. Plan of the area excavated between 2002 and 2010 (Drawing W. Małkowski, S. Lenarczyk, J. Żelazowski).

Ryc. 1. Ptolemais, Dom Leukaktiosa. Plan obszaru badanego w latach 2002–2010.

Fig. 1a. Fragment of the plan – enlargement of the area with Rooms R 5a and R 19.

Ryc. 1a. Fragment planu – powiększony obszar obejmujący pomieszczenia R 5a i R 19.

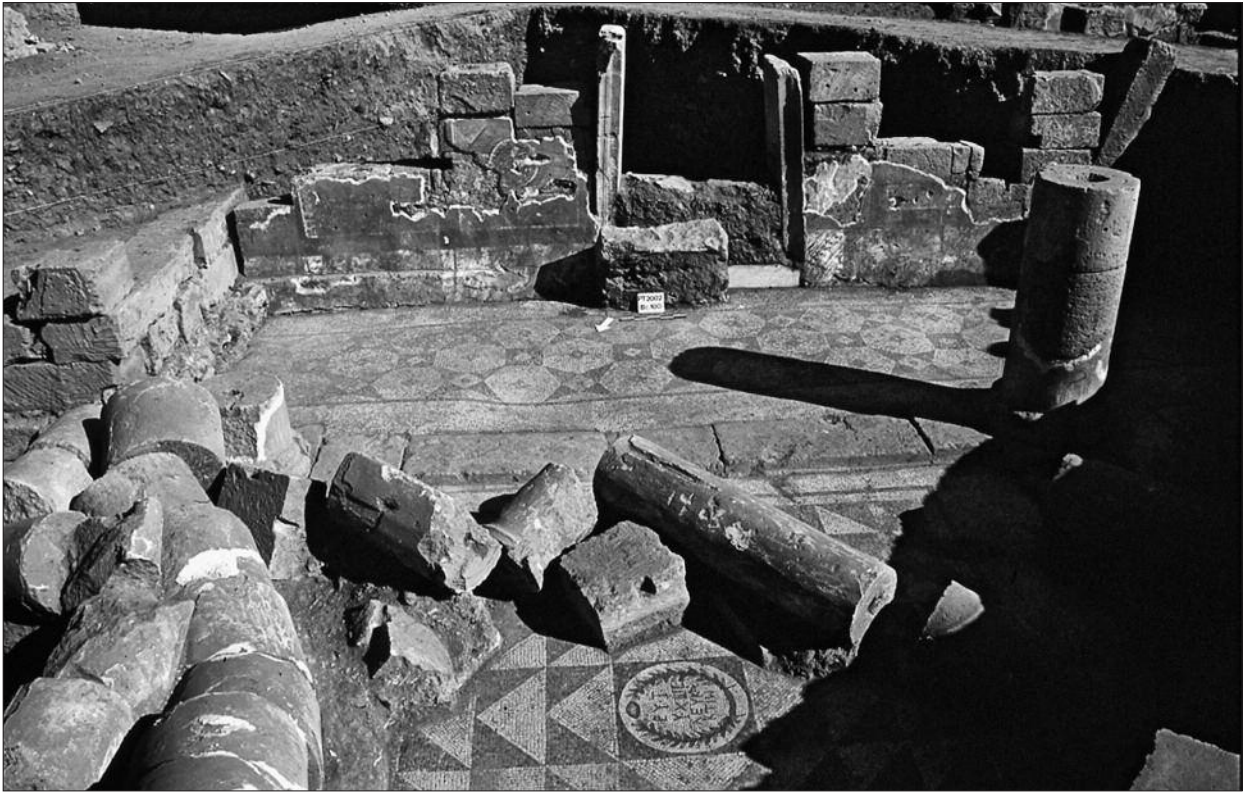


Fig. 2. The tetrastyle courtyard in the House of Leukaktios with the collapsed southeastern column in the foreground (Photo Polish Archaeological Mission to Ptolemais).

Ryc. 2. Tetrastyłowy dziedziniec Domu Leukaktiosa z widoczną na pierwszym planie przewróconą południowo-wschodnią kolumną.

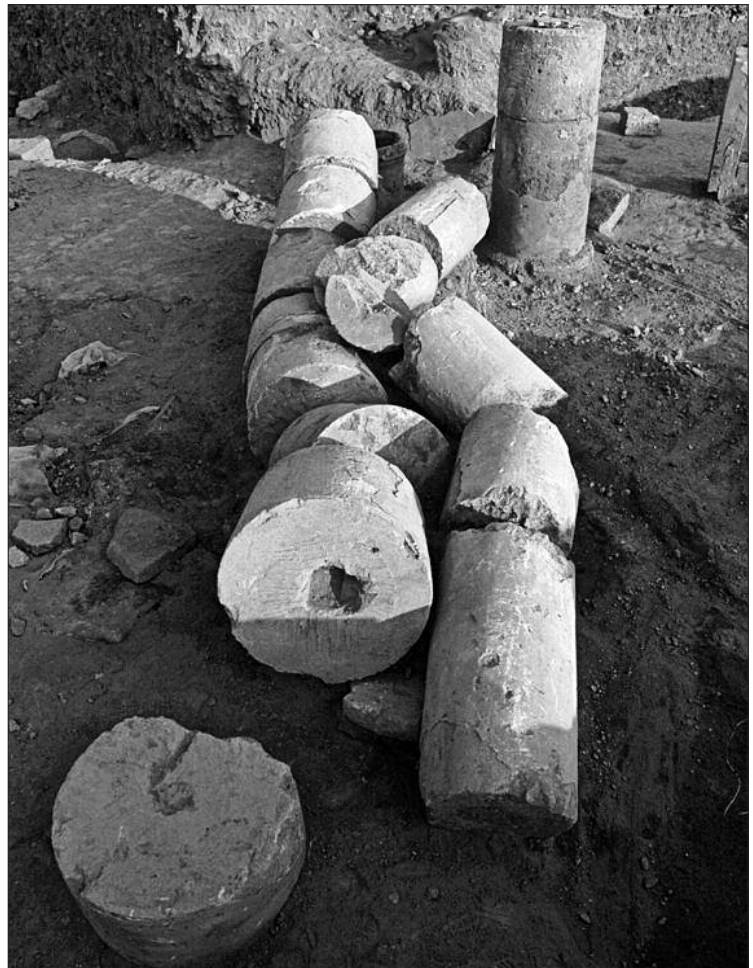


Fig. 3. The collapsed southeastern column on the tetrastyle courtyard (Photo Polish Archaeological Mission to Ptolemais).

Ryc. 3. Przewrócona południowo-wschodnia kolumna spoczywająca na posadzce tetrastyłowego dziedzińca.



Fig. 4. Column base from the tetrastyle courtyard of the House of Leukaktios (Photo Polish Archaeological Mission to Ptolemais).

Ryc. 4. Baza kolumny pochodząca z tetrastylowego dziedzińca Domu Leukaktiosa.



Fig. 5. The only Doric capital preserved from the tetrastyle courtyard of the House of Leukaktios (Photo M. Rekowski).

Ryc. 5. Jedyny zachowany dorycki kapitel pochodzący z tetrastylowego dziedzińca Domu Leukaktiosa.

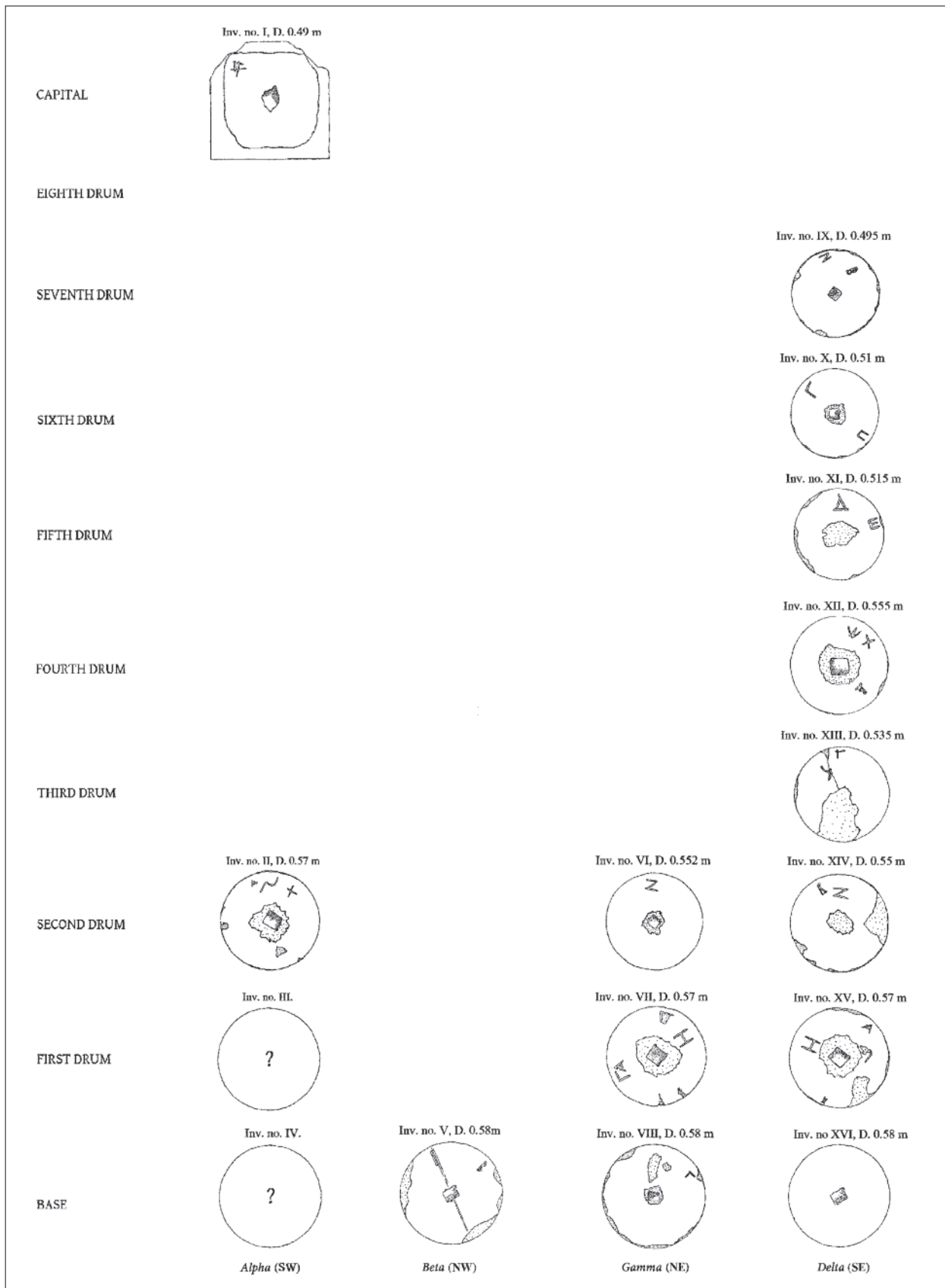


Fig. 6. Upper surfaces of column components with the stonemason marks (Drawing A.U. Klimek).

Ryc. 6. Górne powierzchnie elementów kolumn wraz ze znakami kamieniarskimi.



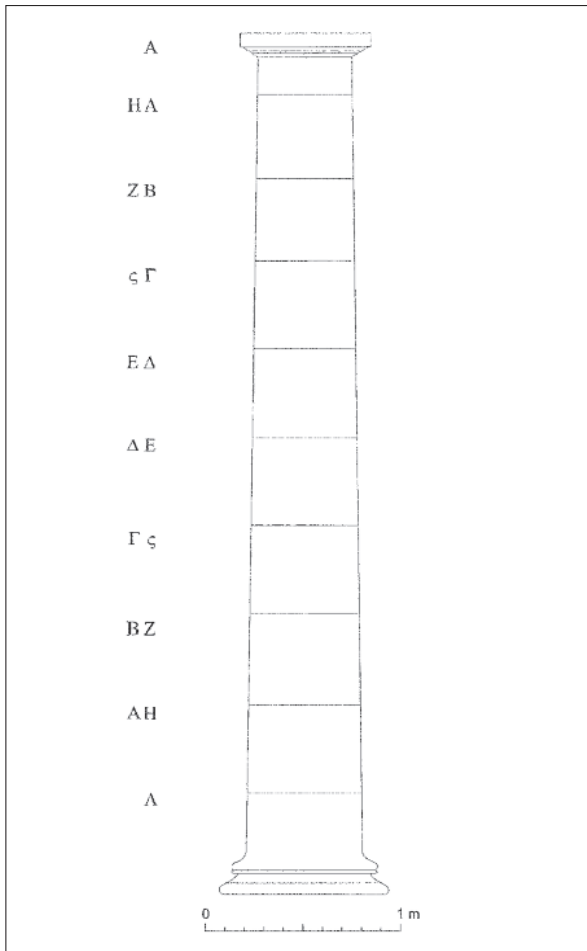


Fig. 7. Reconstruction of the system of stonemason marks applied in the columns of the tetrastyle courtyard in the House of Leukaktios, an example on the base of the southwestern column *Alpha* (Drawing A.U. Klimek).

Ryc. 7. Rekonstrukcja systemu znaków kamieniarskich użytego na kolumnach tetrastylowego dziedzińca w Domu Leukaktiosa, przykład na podstawie południowo-zachodniej kolumny *Alpha*.

bear any letters, the top of the southwestern base is unknown, but presumably it was marked with the letter *alpha*. The lower surface of the one preserved capital bears the letter *alpha* and it presumably belonged to the southwestern column (called *Alpha*). The letters on the bases

and the capital had been carved carefully with the use of a drove and were most probably engraved at the quarry.<sup>7</sup>

On seven drums of the best-preserved southeastern column two groups of letters are visible: letters carved skilfully and with the use of a drove and letters engraved shallowly and unskilfully with a sharp tool other than a drove (Fig. 6, the third and fourth drums from the base). On the basis of all letters from the preserved drums on the ground floor and their diameters we can reconstruct the following system of stonemason marks on the drums: A H on the lowest drum, B Z on the second drum from the base, Γ ζ (?) on the third drum, (Δ) E on the fourth drum, E Δ on the fifth drum, ζ Γ on the sixth drum, and Z B on the seventh drum (Fig. 7). Undoubtedly the letters represent the Greek numbers and they mean the following sequence of number pairs: 1:8, 2:7, 3:6, 4:5, 5:4, 6:3, 7:2, which suggests that there had to be another, an uppermost drum marked with the letters H and A (8:1). Earlier it was taken for granted that the southeastern column consisted of seven drums found during excavations (although its capital was not found). On the basis of this assumption the previous reconstruction of the total height of the column with seven drums was 4.42 m and the ratio of the height to the diameter of the lowest drum was 1:7.5 (Fig. 8).<sup>8</sup> In the light of the new hypothesis including the eighth drum, the total height of the column would amount 4.6 m. Therefore, the ratio of the height to the diameter of the lowest drum would change to 1:8. Consequently the columns would be more slender than it was previously estimated.<sup>9</sup>

The above system of stonemason marks is disturbed by a few letters which indicate that drums incorporated in the columns had been previously used in another construction and then re-used in the peristyle of the House of Leukaktios.<sup>10</sup> This hypothesis confirms the presence of two groups of marks: well-cut marks, presumably engraved by a stonemason at the quarry right after quarrying and marks engraved unskilfully with a sharp tool. Significant evidence for the re-use of the drums in the House of Leukaktios is provided by marks on the third and fourth drums from the base of the southeastern corner, which are clearly different from other marks on that column. They were engraved with a sharp tool (excluding the letter B that is visibly well-cut)

<sup>7</sup> The problem was studied by John Ward Perkins. However, he argued that most of the inscriptions cut on the columns in Lepcis Magna belonged to the category of stonemason marks, not the quarry marks (J. WARD PERKINS, *Tripolitania and the Marble Trade*, "Journal of Roman Studies" 41, 1951, 103–124, postscript).

<sup>8</sup> M. REKOWSKA, *Architectural Decoration...*, 161.

<sup>9</sup> Delian houses with Doric columns reached the height of eight lower diameters (G.R.H. WRIGHT, *Construction and Architectural*

*Ornament in the Villa*, (in:) C. Kraeling, *Ptolemais. City of the Libyan Pentapolis*, Chicago 1962, 218).

<sup>10</sup> Durability of stone elements from the House of Leukaktios strengthened other re-used architectural elements like stone lintels, jambs and decorative elements of windows created in the Hellenistic style. Most of them were produced at the end of the Hellenistic or at the beginning of the Roman Period (M. REKOWSKA, *Architectural Decoration...*, 180).

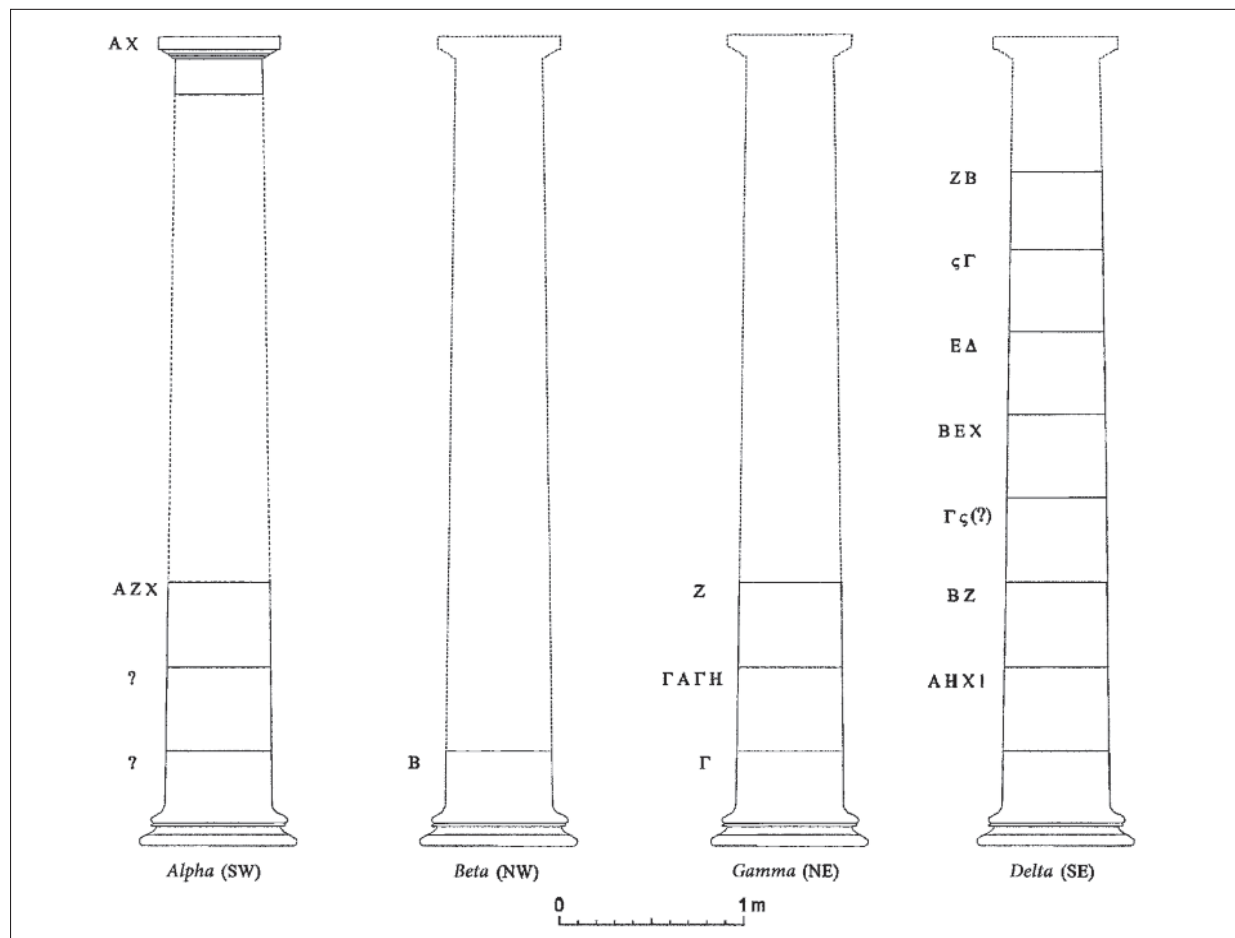


Fig. 8. New reconstruction of the columns of the tetrastyle courtyard (Drawing A.U. Klimek on the base of documentation of the Polish Archaeological Mission to Ptolemais).

Ryc. 8. Nowa rekonstrukcja kolumn tetrastylowego dziedzińca.

and belong to the second group of marks. Furthermore, marks on the fourth drum are incompatible with the system of stonemason marks presented above, although a sign resembling the letter E visible on the drum could match with the system if counted from the top but in this arrangement the diameter of the drum is slightly bigger than of the drum below. However, on surfaces of all the external columns there still remained plaster painted red and white, which was probably used for levelling of the columns and covering of slight differences between diameters of the reused drums (Fig. 9). Also, the single letter Z on the second drum of the northeastern column belongs to the second group of marks, as well as the single letter Z on the second drum of the southwestern column apparently added to the marks existing before. The most probable explanation is that the original columns were damaged during an earth-

quake and therefore re-used in the peristyle. In the places where columns needed the complement of missing drums, the drums were replaced by elements coming from another construction (because of that the well-cut B of the fourth drum of the southeastern column and A of the second drum of the southwestern column are incompatible with any system of stonemason marks) and then were probably marked by craftsmen, who had composed the older elements and made final adjustments of the columns before their erection at the building site. The significant fact is that the added marks were numbered only from the top.

Also, four marks resembling the letter X are visible on some elements of the columns. However, the marks neither express the order of the drums, nor have numerical value. Hypothetically they were carved to indicate benchmarks on the surface of the stone.<sup>11</sup>

<sup>11</sup> E. PONTREMOLI ET AL., *Didymes. Fouilles de 1895 et 1896*, Paris 1904, 73.

A fundamental question that arises when discussing the system of stonemason marks used on drums of columns of the lower peristyle of the House of Leukaktios in Ptolemais is why the drums were double-numbered. The sign engraved on a drum composed of two letters is justifiable in this case as one letter refers to the order of a column in the construction and the second letter refers to the sequence of a drum in a column. An example of the same system was found on the drums of the Portico of Philippe on Delos<sup>12</sup> with ten preserved capitals of columns bearing the following marks: ΒΔ, ΓΔ, ΔΓ, ΕΓ, ΖΓ, ΗΓ, ΘΓ, ΙΓ, ΜΓ, ΟΒ which means that the second and the third column (Β and Γ) were composed of four elements (Δ) – one capital and three drums, while the fourth column (Δ) was composed of three elements (Γ) – one capital and two drums and so on. However, on the first drum of the north-eastern column of the House of Leukaktios a similar numeration is found: the drum is exceptionally marked with four marks, two of which (Α Η) belong to the double stonemason marks system and the other two (Γ Ι) seem to correspond with the letter on the base of the column and consequently refer to the order of the column in the peristyle. It can be therefore assumed that the remaining drums of the courtyard that did not preserve were also marked with similar marks assigning them to particular columns. For example, on all stone blocks of the Athenian Treasury in Delphi<sup>13</sup> marked with stonemason marks, in order to avoid confusion of the blocks assigned to clear-cut

place of the building, for each side of the building a different system of marks was employed. For instance, west-side blocks were marked with letters of the alphabet and a square (□Β, □Γ, □Ε).<sup>14</sup> Another system of stonemason marks created to avoid confusion of the blocks was used on Doric drums of columns from the unfinished Classical stoa in Thorikos<sup>15</sup> where surfaces of all drum joints were marked with letters. For example, the bottom surface of the capital of the first column is marked with the letter Α, the top surface of the uppermost drum bears the letter Β, the bottom surface of the same drum bears the letter Γ and so on. However, the scheme of numeration of drums is double on the second column (ΑΑ, ΒΒ, ΓΓ...), triple on the third column (ΑΑΑ, ΒΒΒ, ΓΓΓ...) and quadruple on the fourth column (ΑΑΑΑ, ΒΒΒΒ, ΓΓΓΓ...). Drums in the Temple of Athena in Sounion<sup>16</sup> provide a different example of stonemason marks, where all drums of one column bear the same mark, what makes it impossible to distinguish the numbers of drums in a sequence within particular columns. In addition to that, the stonemason marks engraved on the drums could also designate their diameters as observed on drums in the Temple of Apollo in Didyma<sup>17</sup> or be numbered in a simple, unilateral manner as seen on the drums in the Temple of Apollo in Claros (drums of one column were marked with signs from Α to ΙΒ),<sup>18</sup> though any known system of stonemason marks has ever numbered drums of columns bilaterally as on the bottom-floor drums of the House of Leukaktios.<sup>19</sup>

<sup>12</sup> R. VALLOIS, *Exploration archéologique...*, 34–37.

<sup>13</sup> J. AUDIAT, *Fouilles de Delphes. Tome II. Topographie et architecture. Le Trésor des Athéniens*, Paris 1933, 35. A similar system of marks distinguishing building sides was used on drums of columns of Propyleae in Athens – on all drums on the northern side straight lines were carved next to marks designating the order of the drums within one column (A.K. ORLANDOS, *Les matériaux de construction et la technique architecturale des anciens Grecs*, Paris 1966, 85–86).

<sup>14</sup> An exceptional system of marking architectural elements is found in the Ionian Temple of the theatre terrace in Pergamon, where all stone blocks were marked by two letters – one referring to the number of a row, another referring to the number of a column in the checker-board arrangement of the stone blocks (R. BOHN, *Altortümer von Pergamon. Band IV. Die Theater-Terrasse*, Berlin 1896, 58–62, figs. 58, 61). Also all stone blocks forming the layer crowning the Pergamon Altar, decorated with a frieze of the Gigantomachy were marked by two signs – the first was composed of Greek letters continuing in alphabetical order; the other one was composed of the letters indicating a series (γ, δ, ε) and it happens that the series repeated in that layer (J. SCHRAMMEN, *Altortümer von Pergamon. Band III. Der grosse Altar – der obere Markt*, Berlin 1906, 23–30).

<sup>15</sup> Afterwards they were moved and re-used in two temples of the Athenian Agora (W.B. DINSMOOR, *Anchoring Two Floating Temples*, "Hesperia" 51, 1982, 410–452).

<sup>16</sup> W.B. DINSMOOR, *Anchoring Two...*, 415, 429–431, figs. 7, 24, 25.

<sup>17</sup> E. PONTREMOLI ET AL., *Didymes...*, 71–77. Moreover, ancient records referring to dimensions of stone blocks found on architrave blocks of Corinthian colonnade in Beirut (H. SEYRIG, *Note sur les marques d'assemblage d'une colonnade de Béryste*, "Bulletin du Musée de Beyrouth" VIII, 1948, 155–158).

<sup>18</sup> R. MARTIN, *Manuel d'architecture grecque I, Matériaux et techniques*, Paris 1965, 225. Another example of one-side numeration was used on the southern-side stone blocks of the Athenian Treasury in Delphi marked with straight lines, the number of which referred to the sequence of the blocks (J. AUDIAT, *Fouilles...*, 35).

<sup>19</sup> Most texts devoted to stonemason masonry coming from Cyrenaica and Tripolitania are very simple and consist of one or two Greek letters cut under surfaces of columns or on the apophyge (J. WARD PERKINS, *Tripolitania...*, 90). For examples see: J.M. REYNOLDS ET AL., *The Inscriptions of Roman Tripolitania*, London 1952, 192, nos. 804–807; L. BACCHIELLI, *L'Agora di Cirene II, 1. L'area settentrionale del lato ovest della platea inferiore*, Roma 1981, 95, 152.

Fig. 9. Reconstruction of the tetrastyle courtyard and entrances to adjacent rooms assuming the hypothesis of seven drum columns (J. Kaniszewski).

Ryc. 9. Rekonstrukcja tetrastylowego dziedzińca oraz portali przyległych pomieszczeń wg hipotezy o siedmiobębnowych kolumnach.



It is noticeable that each drum in the courtyard of the House of Leukaktios bearing stonemason marks of the bilateral numeration system provides information not only about the sequence of drums counting from the top and from the bottom of a column, but also about the total num-

ber of drums within a column<sup>20</sup> through a fixed set of the following numbers: 1:8, 2:7, 3:6, 4:5, which could be used only for a column composed of eight drums. As a result of analysis of the system of stonemason marks used in the House of Leukaktios it becomes clear that the bilateral marks

<sup>20</sup> We have already had a chance to observe that the columns of the Portico of Philip in Delos (R. VALLOIS, *Exploration archéologique...*, 34–37) consisted of different numbers of drums (there were col-

umns composed of three drums, two drums and monolithic drums), hence information about the total number of drums in a column was significant for the workers who constructed the building.

were engraved by stonemasons at the quarry<sup>21</sup> and not by workers who erected the columns at the site. In addition to that, works at the quarry were executed on the request and according to the *syngraphe* of the architect<sup>22</sup> and the system of stonemason marks is too complex to be invented by anyone but an architect. The double numeration system reflects the way of thinking and recording of information. Two marks provide three different types of information: numeration of a drum from the bottom, from the top and the total number of drums with-in one column. Double

numeration of drums in a column is justifiable as it helped to avoid confusion among the drums extracted at the quarry, and constituted a helpful tool in the organisation of the masons' work.<sup>23</sup> Because of their size and weight drums of stone columns were formed at the quarry in order to avoid transport of excess material. Moreover, diameters of columns of the House of Leukaktios decreasing toward the top and the unique shape of each drum enforced implementation of a system of signs that would be clear for the workers at the quarry and then at the building site.

## Catalogue of limestone components of the Doric columns on the ground floor of the tetrastyle courtyard in the House of Leukaktios in Ptolemais\*\*

### Column *Alpha* (The southwestern) (Figs. 6, 7, 8)

1. Doric capital, inv. no. I (prev. inv. No. A/54? or A/18?).  
H. 0.32 m, lower diam. 0.49 m.

The monolithic capital consists of a narrow *abacus* (0.68×0.68 m) resting on a moderately convex *echinus* (total height: 0.33 m), separated from the shaft by three *annuli*.<sup>24</sup> Two corners of the *abacus* and the surface of the shaft are chipped. Mason's marks: little well-cut *alpha* with a bar broken in the middle, H. 0.02 m, W. 0.03 m, carved on a corner of upper surface of the capital and placed radially on the column axis. There is also a mark resembling the letter X, H. 0.046 m, W. 0.057 m, which overlaps *alpha*.

2. Second drum from the base, inv. No. II (no prev. inv. No.?).

H. 0.53 m, upper diam. 0.57 m. Dowel hole: 0.086×0.094 m.

Complete and preserved *in situ*. The shaft partially covered by plaster painted red. Mason's marks: little well-

-cut *alpha* with a bar broken in the middle, H. 0.03 m, W. 0.035 m, carved on the outer edge of the drum radially on its axis. There is also a mark resembling the letter X, H. 0.068 m, H. 0.063 m and the letter *zeta* horizontally stretched out, H. 0.067 m, W. 0.067 m, which are engraved shallowly and unskillfully.

3. First drum from the base, inv. No. III (no prev. inv. No.?).

Complete and preserved *in situ*. Its upper surface and an existence of mason's marks on it remain unknown because of its incorporation into the construction. The shaft partially covered by plaster painted red.

4. Base, inv. No. IV (prev. inv. No. A/1020).

H. 0.55 m.

The monolithic base with the lower part of the shaft. It has no plinths and rests directly on the pavement – the base displays a typical Attic profile: a large *torus* at the bottom and a *trochilus scotia* separated by a fillet from

<sup>21</sup> Existence of large quarries in the coastal plain outside and even inside perimeter walls of Ptolemais is common. Limestone of the coastal plain was certainly more accessible, in terms of both transport and the opportunity for continuous vertical cutting to that of the adjacent spurs of the Jebel Akhdar. In Ptolemais there were four main areas supplied with building stone in ancient times: the easternmost is atop the ridge on the farther side of the Wadi Zawana; the second area is the one that today cuts through the western city wall just south of the Quarry Gate – this is probably the oldest and the most recent of the ancient sources of supply; the third quarry area lies a good kilometre west of the city, across the channel carved by the waters from the Wadi Hambish. It includes one large quarry and several smaller cuttings; the fourth of the quarries of Ptolemais lies a good kilometre farther west, beyond the spring associated with the tomb of Sidi Abdullah (C.H. KRAELING, *Ptolemais...*, 107–109).

<sup>22</sup> For the project of building with detail marks on all architectural elements see: R. MARTIN, *Manuel d'architecture...*, 146–151, 255. However, it is acknowledged that the shape of stone blocks of Sanctuary in Didyma, their size and location in the sanctuary were fixed by masons at the quarry which is attested by inscriptions containing construction accounts (TH. WIEGAND, *Didyma. Zweiter Teil. Die Inschriften*, Berlin 1958, 18, no. 25B, l. 15; 22, no. 26B, l. 59; 32, no. 29, l. 19; 35, no. 32, l. 2; 50, no. 40, l. 18, 21).

<sup>23</sup> R. MARTIN, *Manuel d'architecture...*, 146–151.

\*\*Because of incomplete documentation which does not include diameters of the drums, the assignment of inventory numbers to the stone components of the columns of the tetrastyle courtyard is hypothetical. Therefore I decided to give them new inventory numbers and in order to avoid future mistakes I marked them with Latin numerals.

<sup>24</sup> M. REKOWSKA, *Architectural Decoration...*, 161.

a smaller *torus* at the top.<sup>25</sup> The upper surface of the base and an existence of mason's marks on it remain unknown because of its *in situ* location and incorporation into the construction. The shaft partially covered by plaster painted red.

**Column Beta (The northwestern) (Figs. 6, 8).**

5. Base, inv. No. V (prev. inv. No. A/1022).

H. 0.46 m, upper diam. 0.58 m. Dowel hole: 0.055×0.078 m.

Preserved *in situ*. The same type of a monolithic base as the inv. No. III. The shaft partially covered by plaster painted red. Surface of the shaft is chipped on both sides. Mason's marks: well-cut *beta* with triangular loops, H. 0.072 m, W. 0.024 m.

**Column Gamma (The northeastern) (Figs. 6, 8).**

6. Second drum from the base, inv. No. VI (prev. inv. No. A/163?).

H. 0.46 m, upper diam. 0.552 m. Dowel hole: 0.059×0.061 m.

Preserved *in situ* (nowadays dismantled by the excavators for research purposes). The edges of the drum are slightly chipped. Mason's marks: *zeta* engraved shallowly and unskilfully, H. 0.058 m, W. 0.076 m, carved on the outer edge of the drum radially on its axis.

7. First drum from the base, inv. No. VII (no prev. inv. No.?).

H. 0.47 m, upper diam. 0.57 m. Dowel hole: 0.08×0.083 m.

Complete and preserved *in situ* (nowadays dismantled by the excavators for research purposes). Mason's marks: the broken-bar *alpha*: H. 0.058 m, W. 0.053 m; *eta*, H. 0.083 m, W. 0.062 m; and two *gammas*, H. 0.063 m, W. 0.055 m; H. 0.06 m, W. 0.074 m; the last one is partially damaged. All letters are carved precisely and placed on the outer edge of the drum radially on their axis.

8. Base, inv. No. VIII (prev. inv. No. A/1021).

H. 0.53 m, upper diam. 0.58 m. Dowel hole: 0.05×0.06 m.

Preserved *in situ*. The same type of a monolithic base as the inv. No. III. The edges of the shaft are slightly chipped. Mason's marks: well-cut *gamma*, H. 0.04 m, W. 0.045 m, carved on the outer edge of the shaft radially on its axis.

**Column Delta (The southeastern) (Figs. 6, 8).**

9. Seventh drum from the base, inv. No. IX (prev. inv. No. A/162?).

H. 0.425 m, upper diam. 0.495 m. Dowel hole: 0.06×0.062 m.

The edges of the drum are slightly chipped. Mason's marks: *beta* with round loops, H. 0.065 m, W. 0.02 m; and *zeta* horizontally stretched out, H. 0.025 m, H. 0.055 m. The letters are engraved shallowly and unskilfully.

10. Sixth drum from the base, inv. No. X (prev. inv. No. A/161?).

H. 0.45 m, upper diam. 0.51 m. Dowel hole: 0.053×0.056 m.

Complete. The shaft covered by plaster painted white. Mason's marks: *gamma*, H. 0.076 m, W. 0.062 m, carved on the outer edge of the drum radially on its axis; the square form *stigma*, H. 0.04 m, H. 0.045 m, carved on the outer edge of the drum, but with horizontal strokes turned towards the edge of the drum. The letters are engraved precisely.

11. Fifth drum from the base, inv. No. XI (prev. inv. No. A/160?).

H. 0.45 m, upper diam. 0.515 m. Dowel hole is chipped.

Complete. The shaft partially covered by plaster painted white. Mason's marks: *delta* with the right arm prolonged towards the top and the base prolonged to both sides, H. 0.082 m, W. 0.077 m, carved on the outer edge of the drum radially on its axis; the square form *epsilon* carved on the outer edge of the drum, but with horizontal strokes turned towards the edge of the drum. The letters are engraved carefully.

12. Fourth drum from the base, inv. No. XII (prev. inv. No. A/159?).

H. 0.46 m, upper diam. 0.555 m. Dowel hole: 0.091×0.103 m.

Complete. Mason's marks: well-cut *beta* with round loops, H. 0.042 m, W. 0.023 m, carved on the outer edge of the drum radially on its axis; and roughly cut the round form *epsilon*, H. 0.07 m, carved on the outer edge of the drum, but horizontal strokes turned towards the edge of the drum; a mark resembling the letter X, H. 0.06 m, W. 0.07 m.

13. Third drum from the base, inv. No. XIII (prev. inv. No. A/158?).

Upper diam. 0.535 m. Dowel hole is chipped.

The drum is broken in the middle. Mason's marks: *gamma*, H. 0.045 m, W. 0.045 m, carved on the outer edge of the drum radially on its axis; a sign resembling the

<sup>25</sup> Loc. cit.

letter *stigma*, difficult to define its orientation, H. 0.085 m, W. 0.008 m. The letters are engraved shallowly and unskilfully.

14. Second drum from the base, inv. No. XIV (prev. inv. No. A/157?).

Upper diam. 0.552 m. Dowel hole is chipped.

The edges of the drum are slightly chipped. Mason's marks: *beta* with triangular loops, H. 0.065 m, W. 0.03 m; *zeta*, H. 0.055 m, W. 0.08 m, carved on the outer edge of the drum radially on its axis. The letters are engraved precisely.

15. First drum from the base, inv. No. XV. (prev. inv. No. A/156?).

H. 0.46 m, upper diam. 0.57 m. Dowel hole: 0.078×0.09 m.

Complete. The shaft covered by plaster painted red. Mason's marks: *alpha* with a bar broken in the middle, H. 0.05 m, W. 0.045 m; *eta* H. 0.085 m, W. 0.065 m, which are carved on the outer edge of the drum radially on their axis; a little mark resembling the letter X, H. 0.03 m, W. 0.017 and a stroke, H. 0.06 m, W. 0.005 m. All letters are engraved precisely.

16. Base, inv. No. XVI (prev. inv. No. A/1019).

H. 0.52 m, upper diam. 0.58 m.

Complete and preserved *in situ*. The same type of a monolithic base as the inv. No. III. The shaft partially covered by plaster painted red. The base does not bear any mason's mark.

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## SYSTEM ZNAKÓW KAMIENIARSKICH ZASTOSOWANY W KOLUMNACH DZIEDZIŃCA TETRASTYLOWEGO W DOMU LEUKAKTIOSA W PTOLEMAIS, CYRENAJKA

Badania wykopaliskowe prowadzone przez Polską Misję Archeologiczną w Ptolemais w latach 2002–2010 odsłoniły centralną część Domu Leukaktiosa – tetrastryłowy dziedziniec – otoczony przez dwupoziomowy perystyl, skonstruowany w drugiej fazie użytkowania willi, czyli na przełomie II i III w. n.e. (Ryc. 1, 2, 9). Trzynastcie z szesnastu górnych powierzchni zachowanych elementów kamiennych kolumn zawiera znaki kamieniarskie, reprezentujące litery alfabetu greckiego (Ryc. 6).

Oznaczenia zostały zakwalifikowane do dwóch kategorii: znaków wykutych wprawną ręką przy użyciu dłuta oraz znaków wrytych płytko i niestarannie przy użyciu zaledwie ostrego narzędzia. Na podstawie znaków pochodzących z najlepiej zachowanej kolumny zrekonstruowano następujący system znaków kamieniarskich (kolejno od pierwszego bębna kolumny): A H, B Z, Γ ζ (?), (Δ) E, E Δ, ζ Γ oraz Z B na siódmym bębnie. Bez wątplenia litery alfabetu reprezentują greckie cyfry: 1:8, 2:7, 3:6, 4:5, 5:4, 6:3, 7:2. Podana sekwencja znaków sugeruje, że musiał istnieć jeszcze jeden bęben, oznaczony literami H A, czyli cyframi 8:1. Tak więc wcześniejsze założenie, jakoby kolumny składały się z siedmiu bębnow, byłoby błędne. Konsekwencją nowej hipotezy jest większa szacowana wysokość kolumn: z 4.42 m zwiększyłaby się nawet do 4.6 m.

Znaki pochodzące z dwóch baz kolumn oraz z jedynego zachowanego kapiteła sugerują, że były one numerami oznaczającymi kolejność kolumn w ramach perystylu. Zapropozowany system znaków kamieniarskich jest zabu-

rzony przez kilka bębnow zawierających oznaczenia należące do drugiej kategorii znaków. Ich istnienie autorka tłumaczy zastąpieniem oryginalnych bębnow, uszkodzonych w wyniku trzęsienia ziemi, bębnow z innej budowli i ponumerowaniem ich na placu budowy; tym razem oznakowano je wyłącznie pojedynczymi cyframi, licząc od góry. W artykule zostały przytoczone liczne przykłady innych greckich systemów numerowania kolumn i bloków kamiennych w ramach budowli, jednak żaden ze znanych dotychczas systemów nie numerował bębnow kolumn podwójnie, zarówno od góry, jak i od dołu, jak to uczyniono na elementach perystylu z Domu Leukaktiosa w Ptolemais.

Dwucyfrowy system dostarcza jednocześnie trzech informacji: numeracji bębna od góry, od dołu, a także o tym, z ilu bębnow składała się cała kolumna, ze względu na unikalny zestaw cyfr właściwy wyłącznie dla ośmiobębnowej kolumny (Ryc. 7, 8). Taki pomysłowy system zapisu informacji nie mógł być zatem opracowany przez nikogo innego jak przez architekta. Z kolei przekazany w postaci *syngraphe* do kamieniołomu musiał być zrozumiały i służyć zarówno kamieniarzom obrabiającym kolumny w kamieniołomie, jak i robotnikom umieszczającym bębny na placu budowy. Podwójne numerowanie kolumn pomagało uniknąć pomylenia precyzyjnie skrojonych elementów kolumn zarówno w miejscu ich wydobywania, jak i na budowie. Numerowanie od góry i od dołu mogło także stanowić przydatne narzędzie w organizacji pracy murarzy ustawiających kolumny.