ARCHITECTURAL STUDIES OF THE THREE GRAVE MONUMENTS IN THE GYMNASIUM COMPLEX AT ANCIENT MESSENE

Preliminary Report

ギリシア古代都市メッセネのギムナシオンにおける家型墓の建築的研究

中間報告

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Preface

This book is an architectural research report of three grave monuments excavated at ancient Messene in Peloponnesos, Greece. More time will be needed to prepare the final report of these three grave monuments; however, at the end of the grants, the author wishes to dedicate this preliminary report to the organizations which supported our works with deep thanks.

The architectural survey project in Messene by Ito Lab. of Kumamoto University started in 1997. At the beginning of the project, Prof. P. Themelis, the president of the Society of Messenian Archaeological Studies, requested that we start the survey with a grave monument named K3 in the Gymnasium complex adjacent to the southernmost city wall.

When we began our extensive survey of K3 in 1998, it was still under excavation with skeletons and grave goods still being unearthed. Dislocated blocks, which had first been piled up on the site, had been removed and arranged in rows beside the Stadium. Many of these blocks were circular and seemed to have formed rings with sloping exterior faces. The larger the diameters of the blocks were, the gentler the slopes of the exterior faces. It was difficult at the beginning to interpret the functions of these circular blocks, although we could easily identify other blocks as rectangular wall blocks and cornice blocks. In addition, two separate blocks of a Corinthian capital and a top column drum with flutes were also difficult to identify. Almost 2 months in the season of 1998 were taken to measure some 120 circular blocks. At the end of this season, we were able to form a general idea about the shape of the grave monument K3.

In the season of 1999, we finished all the measurements and drawings of the blocks, plan, elevations, and sections. Work was continued back in Japan to complete the zigsaw puzzle, which not only had pieces missing but final picture was unknown as well. The puzzle was very interesting, however, and we ended up with an almost perfect solution.

In the season of 2000, based on our reconstructed drawings, we tried to reconstruct K3 temporarily in an open area of the excavation site. It was truly exciting to see the blocks of K3 pieced together one by one by machine, and the whole building of K3 appeared as we expected. However, it was extremely difficult to identify the positions of all the roof blocks due to breakage, weathering, and innumerable possible combinations of the blocks. Additionally the vertical and horizontal joint faces of the blocks had to match both dowel and clamp holes at the same time. Finally, we were able to identify the positions of all the roof blocks, using reduced drawings of the blocks. In the season of 2001, based on these drawings, we successfully reconstructed K3 temporarily with all the remaining blocks, thus proving that most blocks of K3 had been preserved.

After the study of K3, we went on to survey K1 and K2, which were built in a row further down the street. K1 had a strong symmetrical plan with wings on either side and an impressive sculpture of a hunting lion on the roof, which was sure to attract passers-by. However, as only a few of the blocks remained, the reconstruction of K1 and K2 was limited to the extent of conjecture.

I will be pleased if this publication will cast even a small light upon the historical study of Greek funerary architecture.

Acknowledgements

No project of this kind is possible without the assistance of many people and organizations. I am indebted to the cooperation of many people for the results of our work. Here, I want to show my deepest thanks to each of them specifically.

The budget for our field research was provided by a Grant-in-aid for Scientific Research from the Japanese Ministry of Education, Culture, Sports, Science and Technology and from the Maeda Memorial Foundation for the Development of Technology. My great thanks go to the Ministry, the Japan Society of Academic Promotion, the grant office of Kumamoto University and their staff for their part in the processing of the grant. I also wish to express my great gratitude to some colleagues for their participation in the fieldwork. I am indebted to Prof. K. Hoshi of Maebashi Institute of Technology for his measurements, drawings, and onsite guidance for students, and to Prof. Y. Okada of Kokushikan University for his assistance with the fieldwork and research in Japan. Archeologist Prof. T. Katsumata of Joshi-Bijutsu Univesity took part in the fieldwork for analysis of sculptures and inscriptions. I am greatly indebted also to Prof. Y. Hayashida of Miyakonojo National College of Technology who was continually by my side as sub-director of the fieldwork during whole seasons and who prepared detailed drawings of the sculptures and capitals. Prof. Emeritus K. Horiuchi of Kumamoto University offered invaluable advice on the design of classical buildings. Additionally, twenty-one student participants provided reliable manpower in the field. Dr. A. Takeda of Muroran Institute of Technology, who was a doctoral student at that time, spared no efforts in the temporary reconstruction of K3, and its result formed a part of his dissertation. It is worthwhile to mention that all the students worked strikingly hard on measuring and drawing the blocks under the hot summer sun in Greece. Without their arduous endurance and efforts the project never could have been realized. My deepest thanks also go to Prof. M. Aoyagi of Tokyo University, Messrs. E. Mamoto, H. Shigemori and K. Inada of Asian Air Survey Co. Ltd, (the former two recently founded their own surveying company, M Cultural Property Enterprise, Co.), and Mr. T. Kudo, a quite skillful operator of model helicopters, for their cooperation in the aerial survey of the whole area of the Gymnasium.

The excavation at Messene is an international cooperative project. My gratitude should also go to some European university scholars. First of all, I am greatly indebted to Prof. P. Themelis of University of Crete, the Director of Society of Messenian Archaeological Studies, who kindly accepted us as collaborators in the project. Prof. G. Lavas of University of Athens always gave us kind and practical advice. I also owe much to Dr. J. J. Coulton of Oxford University and Prof. W. Hoepfner of Berlin Free University, two great scholars of classical architecture, for their frank criticism and academic suggestions for our studies. I also thank Prof. K. Tokmakidis of University of Thessaloniki for his assistance for our survey and Prof. J. Yoneoka of Kumamoto Gakuen University who edited the English in this manuscript. Finally, I also want to thank the workers who helped us on site and the villagers of Mavromati who were always friendly to us.

Juko Ito

March 2002

Outline of the Project

Field Works

August, 1997	Topographical Survey of the Gymnasium Complex
July – September, 1998	Survey of the Grave Monument K3
July – September, 1999	Survey of the Grave Monument K3
July – September, 2000	Survey of the Grave Monument K1, K2 and reconstruction of K3
July – September, 2001	Survey of the Asklepieion and reconstruction of the Grave monument K3

Grants

1998	¥1,850,000	Maeda Memorial Foundation for Technological Development
1999	¥8,700,000	Grant-in-aid for Scientific Research (A)(2), No.11691154, Japanese Ministry of Education
2000	¥7,100,000	Grant-in-aid for Scientific Research(A)(2), No.11691154, Japanese Ministry of Education
2001	¥7,100,000	Direct cost, Grant-in-aid for Scientific Research(A)(2), No.11691154, Japan Society for the Promotion of Science
	¥2,130,000	Indirect cost, (abovementioned)
Total	¥26,880,000	

Members

1997 J. Ito (Head, Assoc. Prof., Kumamoto Univ.)
K. Tokmakidis (Assoc. Prof., Univ. of Thessaloniki)
A. Nakagawa (Graduate Student, Kumamoto Univ.),
E. Mamoto, H. Shigemori, T. Kudo (Topographers, Asian Air Survey, Co.)

1998 J. Ito (aforementioned)
K. Tokmakidis (aforementioned)
A. Nakagawa, A. Takeda, T. Matsumoto, Y. Ichimaru, S. Shiota, M. Noda, (Graduate Students, Kumamoto Univ.)
T. Nakajo, D. Yamaguchi (Undergraduate Students, Kumamoto Univ.)

1999 J. Ito (aforementioned)
K. Horiuchi (Prof. Emeritus, Kumamoto Univ.)
Y. Okada (Prof., Kokushikan Univ.)
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2001 J. Ito (aforementioned)
Y. Hayashida (aforementioned)
T. Katsumata (Prof., Joshibi University of Art and Design)
K. Tokmakidis (aforementioned)
A. Takeda, A. Shimada, R. Yoshitake, Ogata, R. Tateishi, K. Yamada (Graduate Students, Kumamoto Univ.), D. Tomioka, S. Nakamura, T. Koga (Undergraduate Students, Kumamoto Univ.)
Y. Miyazuka, K. Uno (Topographers, Miyazuka Research Institute for Cultural Property)

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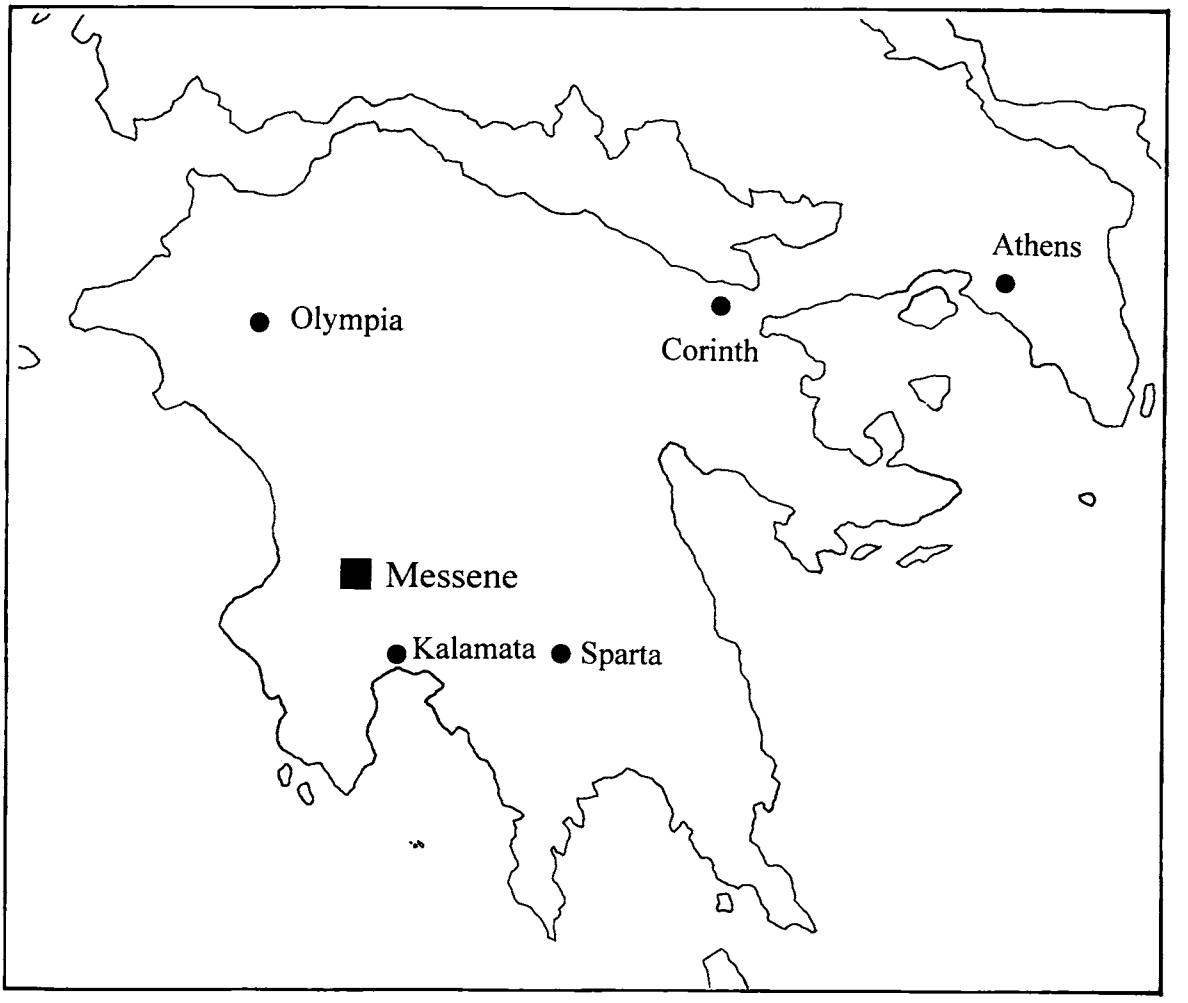
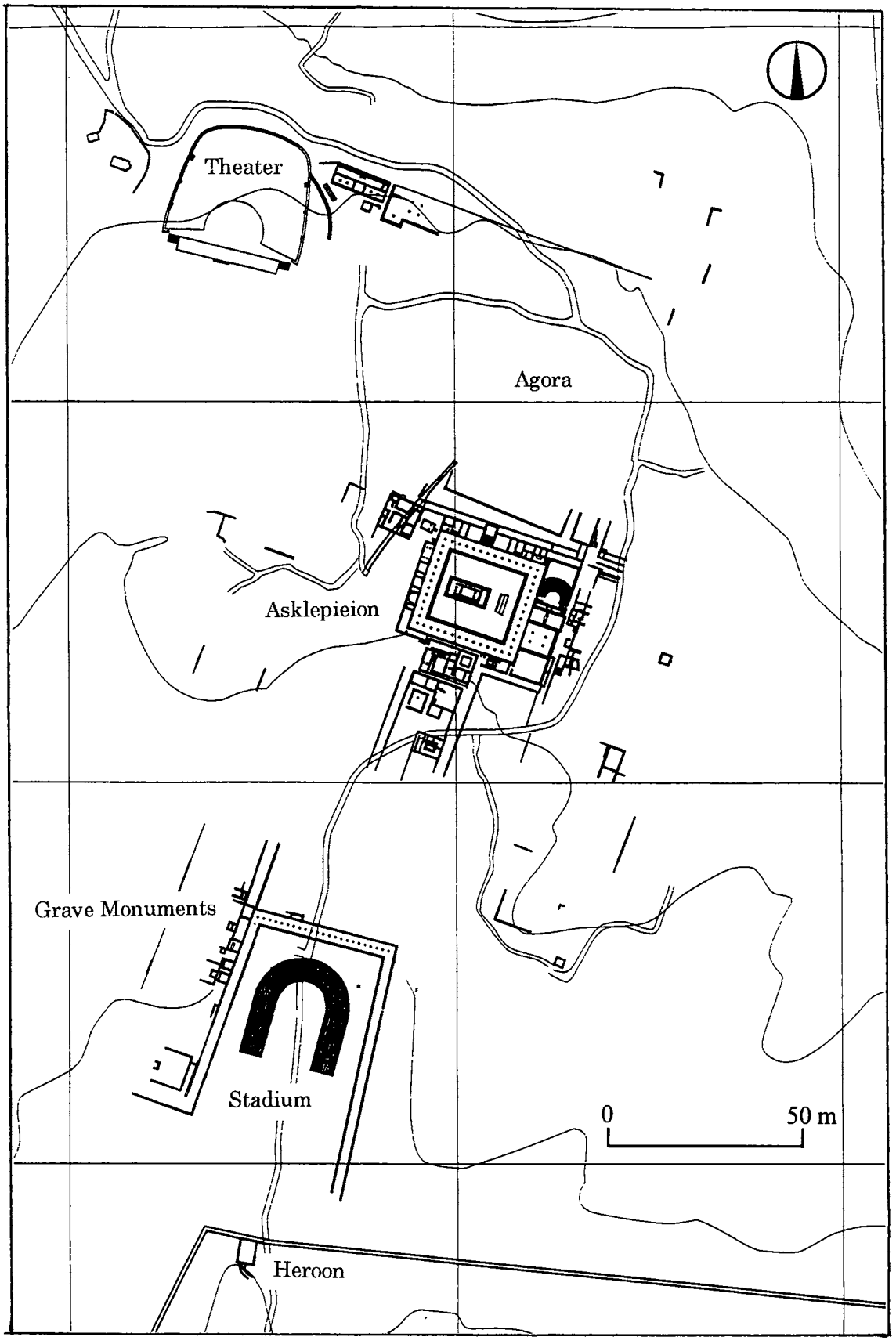
Chapter 4-1 ~ 3	J. Ito, Y. Okada, Y. Hayashida, A. Nakagawa
Chapter 4-4 ~ 5	J. Ito, A. Takeda
Chapter 5	J. Ito, A. Takeda
Chapter 6	J. Ito



Location of Messene



Central Part of Messene (after Th. Chatzitheodorou)

Chapter 1

Introduction

1-1 Outline of ancient Messene

The ancient city of Messene, located in a hilly area of the southern part of the Peloponnesos is well known from the description of the Greek traveler Pausanias in Roman time.[1] According to him, the city was founded by Epaminondas from Thebes in 369 B.C. and flourished during the Hellenistic and Roman times. It is aroached from Kalamata, passing through modern Messene ca. 18 km towards the north. The site occupies the foothills west of Mt Ithomi and Mt Eva, where we look down on the extensive plane of Messenia towards the east. The ancient city is now covered by trees of olive and fig, and aroximately one hundred fifty people live in a small village of Mavromati, also called Ithomi, around the ancient Spring of Clepsidra. We only notice that there was once a prosperous ancient city when we see the fortification walls of several hundred meters and the well-kept massive Arcadian Gate from those times.

After some visits and records of several European travelers in the previous centuries, the site was studied scientifically for the first time by a French archaeological mission in the 19th century, which surveyed the site and drew ulans of the city area.[2] An extensive scientific excavation, however, was undertaken by Prof. Orlandos of the University of Athens at the area of the Asklepieion in the city center from the 1950s to 70s.[3] Later, after a lapse of more than 10 years, Prof. Themelis of the University of Crete again began excavation, founding the Society of Messenian Archaeological Studies, and continues his studies today.[4] The excavation of ancient Messene is an international cooperative work with European and Japanese teams participating in the project.[5] The most extensive work is being done in contemporary Greece, including the reinvestigation of the Asklepieion, the excavations of the Theater, the Gymnasium, the Stadium and its surrounding Stoa, the grave monuments, the Heroon etc. These investigations are making remarkable progress and are casting a new light on the studies of the Hellenistic mainland.

1-2 Excavation and architectural survey of the grave monuments

The area of the stadium is located on a shallow valley which slopes towards the south. (Pl. 1) The grave monuments K1, K2 and K3 stand on the gentle west slope of this valley at an altitude of

aroximately 296 m above sea level. In front of the monuments, there was a street along the back wall of the West Stoa, and there was a main entrance to the West Stoa directly in front of K1. (Pl. 2, 3)) Of all the possible locations, this siting of the monuments must have been chosen to catch the eyes of the thousands of spectators to and from the Stadium.

The excavation work of K1 and K2 had already finished when we started our survey of K3, excavation of which was started in 1996 by the Messenian Archaeological Society. The field director was Dr. K. Sidiropoulos under the supervision of Prof. P. Themelis, the director of the Society. Before the excavation, many blocks had been piled up at the site. By the season of 1999, the excavation proceeded to the level of the tombs under the floor in K3 and all the findings were taken up. In 2000, other burial sites of babies and pet animals etc. were excavated in the south and north courts of the temenos of K3, and all the digging work was completed. The results of these excavations are reported by Themelis in the journals of Archaeological Society of Greece.[6)]

The architectural survey by Kumamoto University of ancient Messene started in 1997. In the first season, a general plan of the Gymnasium complex was made. Our mission stayed a week at the site and surveyed it with photogrammetry using aerial photographs. The architectural blocks were also cleared and sorted into categories in that year. Our architectural survey of K3 covered the seasons of 1998, 1999 and 2000. At the beginning of our survey, the monument itself had been already uncovered down to the uer crepis which is the uermost level of the architectural remains in situ. Our survey continued for two months in each season from July to September. In 1998, we concentrated mainly on the round roof blocks, which took some time to measure due to their form. Aroximately 120 roof blocks and several wall blocks were measured and drawn. With analysis based on drawings of that year, the first reconstruction was tried on paper. In the season of 2000, the excavation of K3 was completed, as was the survey of the rest of the blocks (crepis, toichobate, walls, cornice, ceiling, top five courses of the roof and the finial of the Corinthian capital at the top of the roof, etc.). With the drawings of that year, we made a second trial reconstruction. This reconstruction was almost complete except for the main part of the roof. Based on this reconstruction on paper, we tried to make a temporary reconstruction using the original blocks at an open place of the site in 2000. This temporary reconstruction at the site assured us that our second reconstruction was almost accurate except for a few blocks. As for the main part of the roof, its reconstruction was repeatedly attempted on the grounds, but in vain. It seemed almost impossible to reconstruct it due to its extremely complex and innumerable combinations of aroximately 120 blocks. Thus, we decided to try a three dimensional jigsaw puzzle with drawings of all the blocks in 1/20 scale. We tried many probable combinations with clues of holes of clamps and dowels, and finally reached a solution. In the summer of 2001, again at the site, another temporary reconstruction of the roof was tried and finished successfully.

Notes for Chapter 1

1) Pausanias, *Description of Greece*, 4.26, 3.4, 27.8, 4.31, 4.4, 33.2.
2) Abel Blouet, *Expédition Scientifique du Morée*, Paris, 1831-1838, .19-46. Pl. 18-47. The volume includes a plan of the town, drawings of the city walls, restored plan and elevations of stadium, etc.
3) The results of the excavation were annually reported on two periodicals Praktika and Ergon. A. K. Orlandos,

Prakt 1957, 121-125, Pls. 53-58; 1958, 177-183, Pls. 137-142; 1959, 162-173, Pls. 136-145; 1960, 220-227, Pls. 162-169; 1962, 99-112, Pls. 103-120; 1963, 122-129, Pls. 94-105; 1964, 96-101, Pls. 99-109; 1969, 98-120, Pls. 121-136; 1970, 125-141, Pls. 172-184; 1971, 157-171, Pls. 191-203; 1972, 127-138, Pls. 103-116; 1973, 108-111, Pls. ; 1974, 102-109, Pls. 83-87; 1975, 176-177, Pls. 154-161; Ibid. *Ergon* 1957, 75-80; 1958, .142-148; 1959, 110-117; 1960, 159-167; 1962, 119-132; 1963, 88-102; 1964, 90-101; 1969, 97-132; 1970, 100-131; 1971, 144-173; 1972, 67-83; 1973, 79-82; 1974, 62-73; 1975, 107-116.

4) P. Themelis, Prakt 1995, .55-86; 1991, .85-128; 1990, .56-103; 1989, .63-122; 1988, .43-79; 1987, .73-104; 1986, .75-82

5) Prof. P. Themelis is taking charge of the whole excavation work. Mrs. S. Mueth-Herda of Free University of Berlin is participating to study the street network of the town under the supervision of Prof. Hoepfner of the same university, collaborating with the team of Kiel University for electro-magnetic survey under the earth. Prof. F. Cooper of University of Minnesota is undertaking the survey and reconstruction of the Heroon at the end of the Stadium. Prof. F. Felten of Univesity of Zalzburg investigated the Arsinoeion. In addition, many archaeologists, art historians, architects, topographers, etc. from different countries are participating.

6) P. Themelis, Prakt 1995, 55-86; 1991, 85-128; 1990, 56-103; 1989, 63-122; 1988, 43-79; 1987, 73-104; 1986, 75-82

Chapter 2

Grave Monument K1

2-1 Architectural remains

2-1-1 Outline

K1 is the most striking of the three grave monuments. [1] It has been preserved much better than the other two with some wall blocks in situ on the front. The toichobate is 297.02 m above sea level. It is located 5 m southwest from the south doorway of the Propylon. Visitors to the stadium saw K1 on their right hand side immediately after they passed the Propylon, and on the left hand side they would see the three slender columns of the entrance to the West Stoa. The symmetrical plan of K1 was exaggerated by the wings on either end of its east façade (Pl. 4), and this suggests that its location was intentionally and carefully selected to show the visitors its architectural grandeur. K1 is rectangular in plan, 5.681 m long from south to north at toichobate level. There are seven cist tombs inside in a row under the floor of its tomb chamber. (Fig. 2, Pl. 6) In the 1st century A.D., a Roman wall of opus incertum was constructed just 2 m in front of its façade, and the view of K1 was blocked completely. According to the excavator, it dates back to the fourth century or early third century B.C., although further study will be needed for accurate dating.

2-1-2 Euthynteria

Only the eastern part of euthynteria was exposed, although all the blocks have been preserved. Its whole width is 6.158 m in front. The south wing is 1.105 m wide and the north wing 1.119 m, and both project 0.703 m.

2-1-3 Lower crepis

The blocks of the lower crepis were set 0.075-0.085 m back from the edge of the euthynteria. There still remain handling bosses on the exterior faces. The height is 0.221-0.234 m. The length is 6.001 m on the east, the depth, including wings, 4.097 m on the south and 4.093 m on the north. The wings project 0.728 m on the south and 0.734 m on the north. The height is 0.221-0.237 m with a single relieving margin

which is 0.035-0.038 m wide and 0.005-0.009 m deep. The vertical joints are emphasized with recessed bands along the joints, which are 0.008-0.010 m deep and 0.033-0.035 wide.

2-1-4 Upper crepis

All the upper crepis blocks have been preserved and those on the west part can be observed well. The width of the blocks was 0.055-0.060 m. The blocks were joined together by pi-shaped clamps at either end. No dowel holes are observed on the exposed top surfaces except for those for the threshold of the doorway. Overflows of lead from the pouring channels for dowels were observed on the northeast corner and south wing.

The upper crepis was 0.215-0.225 m height and was set 0.084-0.092 m back from the edge of the lower crepis. The total length on the east front is 5.825 m, with a central part of 4.281 m, south wing 0.774 m and north wing 0.770 m. The south wing projected 0.730 m, and the north wing 0.739 m. A double relieving margin was worked up to 0.030-0.033 m from the bottom of the block with a depth of 0.006-0.009 m. The vertical joints were also recessed at a depth of 0.006-0.008 m and width of 0.032 m. The handling bosses still remain on the surface.

Near the northeast corner of the upper crepis, there is a rectangular shallow cut for the doorway with a width of 0.98 m, horizontal depth of 0.19-0.20 m, and vertical depth of 0.03-0.04 m. On the southern end of this cut, there is a square deeper cut for a door socket. On both ends of the doorway block, there are two 0.035 m square and 0.04 m deep dowel holes with lead-pouring channel of lead to set the toichobate blocks.

2-1-5 Toichobate

The toichobate blocks on the western half of the monument have been lost (Pl. 5), but all the frontal blocks and one on the south side remain in situ. On the east front, the blocks measured 0.210-0.213 m in height and were set 0.071-0.124 m back from the edge of upper crepis. The total length of the east front was 5.681 m, with the south wing 0.625 m, the north wing 0.617 m, and the central part 4.439 m. The south wing projected 0.710 m and the north wing 0.722 m. Both the toichobate and upper crepis have double relieving margin at height 0.029-0.030 m and depth 0.006-0.008 m. The vertical joints were also recessed at a depth of 0.006-0.007 m and width of 0.028-0.029 m. The handling bosses are still remaining. Several dowel holes with pouring channel of lead are observed on the top surfaces of the exposed blocks.

2-1-6 Walls

There are five wall blocks in situ, which still stand on the east façade. (Pl. 5) Three of them are complete and two are damaged partially on the top. One of them was for the south wing wall. Their heights are 1.674-1.686 m, [2] lengths 0.900-0.990 m and widths uniformly 0.315 m. At their bottom is carved an Attic base molding with torus-scotia-torus, which was very well worked and preserved in very good condition. (Pl. 7) The outline of the wall blocks is articulated by being recessed along their vertical and horizontal joints. The depth of the recess is 0.060-0.070 m and the width 0.034-0.046 m along the sides and 0.063-0.070 m along the top. Thus, the wall blocks were outlined and articulated by recessed frames.

The tops of adjacent blocks were joined by clamps. Dowel holes for joints with architrave-cornice blocks above were also observed.

The interior surfaces of the wall blocks were roughened, probably for bedding of stucco. In fact, there remains a small fragment of stucco on a dislocated wall block K1.2. At the bottoms, there were inserted several thin iron plates, 5 mm thick and 5 cm wide, and lead plates to keep the wall blocks vertical and stable.

2-1-7 Tomb chamber and tombs

The interior of the tomb chamber is 4.535 m wide from north to south, and 1.933 m deep from east to west. There were built seven cist tombs in a row from north to south. They are 0.63 m deep, being equivalent to the two courses of euthynteria and foundation. (Fig. 5, 6, Pl. 5) The level of the tombs themselves is deeper than those of K1 and K2, whose tombs are at upper and lower crepis levels. The interior of each tomb is 1.933 m long and 0.494 m wide, being separated by cists or vertical slabs, which are ca. 0.18 m wide. Three of the six cists are in monolith but the other three are comprised of two slabs which were connected by clamps. Although there were clamp holes at the ends of the cist, these ends were set into shallow cuts of the blocks of euthynteria and foundation course. This means that the cist blocks had been used previously for other buildings. The bottom of the tombs was not floored and the cists themselves were supported by rough stones at the bottom.

The tombs were covered by stone lids, and several fragmentary blocks remain. One complete lid is 0.64 m long, 0.78 m wide and 0.11 m high. The axial width between cists is 0.64 m; thus, like those of K2, each tomb was covered by three lids. These lids also worked as the floor of the tomb chamber.

2-1-8 Clamps and dowels

Clamps were used to connect adjacent blocks as is usual with classical buildings. Judging from the clamp holes, all the clamps were pi-shaped. All the clamps on the visible joints have been removed, but one clamp on the south toichobate has been preserved intact. (Pl. 8) Lead was used to fill up the interstices around the clamp itself. The size of the clamps, judging from the clamp holes, were more or less uniform with length 0.200 m, width 0.030 m, depth 0.010 -0.020 m, and the depth of hooks 0.030 m. One clamp was used for one joint.

For the vertical joints of the more important blocks, dowels were used. As far as can be seen from the exposed surfaces, there were no dowel holes on the upper crepis except for the doorway part. Other dowel holes are observed on the top of the toichobate and wall blocks. It is apparent that the dowels were fixed by lead as clamps, and some remnants of lead are left. Judging from the square holes left on these remnants, the iron dowels were ca. 0.010 -0.015 m square in section. The dowel holes on the blocks are 0.03-0.04 m square and 0.03 - 0.04 m deep. Leading channels to pour lead were worked from the dowel holes to the exterior lines of the blocks above.

The process of setting dowels might have been as follows. An iron dowel was set with lead in the dowel hole on the bottom of a block above. This must have been done with the block upside down. This block was then placed on another block below it with the dowel inserted in the dowel hole, and lead was

poured into the dowel hole through the channel from its mouth.

2-1-9 Door socket and pivot case

On the upper crepis of K1, there remain an original door socket and a pivot case of the door. [3] (Fig. 10, Pl. 21) Both are of bronze and were found sticking together in-situ in a square shallow hole of the upper crepis of the doorway. After the excavation, they were taken to the museum and preserved in storage. (no. 9141) Evidently, they were used for smooth rotation of the door. The socket was fixed to the shallow square hole with lead which is 1.5 - 3.5 cm thick. Inside the pivot case remains a fragment of the bottom of the lime stone door post. It is recognizable that the interstice between the lime stone and the pivot case was also filled with lead. The exterior diameter of the cylindrical pivot case is 123.5 mm at the top, and 134.5 mm on the bottom. The interior diameter is 108 - 114 mm. The thickness of the case is 4 - 7 mm. As for the profile, the upper half is smooth and the lower half is of two courses of torus. There are two square notches on the top of the case to fix it to the limestone door post; one is 22 mm and the other 26 mm. The socket is 139 mm square and 14 mm thick. On the bottom, there is a round swell which is 5 mm thick and 136 mm in diameter.

2-2 Dislocated blocks

K1.1

Upper half of a wall block. Width 0.956 m, depth 0.309 m. Two dowel holes and a clamp holes are observed on the top. There is no doubt that this is a wall block due to the recessed band along its edges.

K1.2

Width 0.993 m, depth 0.305-0.330 m. Judging from the dimensions, this could be a part of a wall block. There are two remnants of stucco on the interior surface. The upper part is broken and the original height is unknown. There are no clamp or dowel holes.

K1.3

Height 0.636 m, length 1.035 m, width 0.325, 0.340 m. The top is partially broken. There is a square cut, 0.264 m wide and 0.278 m high, at an end of the top. There is a clamp hole on its top. There is no difference between the exterior and interior finish.

2-3 Sculpture

There are 28 sculptural finds from K1 in total. They are divided into five groups in accordance with their function: the 7416 group which comprises the whole sculptured work 7416 (7 pieces), the 2nd group (4 pieces), the 3rd group (1 piece), the miscellaneous group (6 pieces), and the 5th group (10 pieces)

featuring reliefs executed on K1.

2-3-1 Description

1) The 7416 Group (The first lion and deer group)

The 7416 group comprises pieces of a sculpture of a lion attacking a deer which is carved in limestone in the round on a single base. (Fig. 11, Pl. 9) [4] First, let us describe the deer, which is falling on its knees. Its left forelimb is deeply folded back at the knee, and its end is indicated by a pair of nails, a ring of hair and a hoof which is cut in the middle. The separation between the body and the left forelimb is simply formed by a fine incision. On the other hand, the right forelimb is broken off from the upper part of the joint and lost. Judging from the angle of the break of the limb, it is supposed that it was most likely raised in front of the thorax.

The right rear limb folds in two, and its hoof ends can be viewed from the front. The left rear limb is stretched backward and both the end of the limb and the back of the base are broken. Thus the hoof, ring of hair and nails are lost. It is remarkable the remaining upper part of the limb is still held in the right rear limb of the lion.

The neck and head are broken off at the base of the neck. The left ear is still attached to the lion's mane, however, though it is broken in the middle. The fact doubtless indicates that the deer's head was turned to the left together with the neck.

The lion is firmly seizing its prey in both forepaws. The claws of the right forepaw are fastened in the back of the deer and the left claws in its side. Its right rear limb is holding down the left rear limb of the deer. The left rear limb of the lion is free and hangs in midair, but it is broken at the joint. The tail is completely broken off from the body. The lion's head is turned toward the left, and its eyes are fixed in front with an expressionless face as it bites the back of the deer. (Pl. 10) Atop its head, a mane is carved in semicircles which are symmetrically arranged in order, eight on each side. Both ears are carved as holes in the semicircles. The semicircles become wavy at the shoulder, and cover the neck.

The whole body of the lion is carved in the round. Everything above the forepaw of the lion (i.e., the head, face and forelimb) is formed using the artistic method of foreshortening for a frontal or three quarters view. Therefore, its left forepaw, face and head with mane look queerly flat if viewed from the side. (Pl. 11)

The back of the deer and the lower jaw of the lion remain unfinished, as it was probably assumed that they would not be viewed from the back or side. Viewed from the front or three quarters, the face becomes shortened with the downcast eyes and shallow eye sockets, and the semicircles of the mane expand as clouds. These facts indicate that the 7416 group was created not merely on the assumption that it would be viewed from the front or three quarters, but also upwards from below.

Next, we consider a group of six fragments which are attributed to the 7416 group. [5] 804-2 is a fragment of the right ear of the deer. (Pl. 12) It is of the same size as the remaining left ear of the deer on the mane of the lion, and was thus identified as belonging to the deer of 7416. 808-1, which is broken at the tip, joins to 804-2 to complete the right ear of the deer. 804-3 is the right forelimb of the deer, which is

broken from the first joint. (Pl. 13) There remains a pair of claws; otherwise there is nothing of the hoof. The limb is identifiable as the right forelimb, because the form and size of the section of the broken joint correspond to that found on the deer. This means that the limb was probably raised in front of the thorax of the deer. The pieces 808-2 and 808-3 might have been parts of antlers, judging from their form and size. Finally, 804-9 could have been a part of the tail of the lion. (Pl. 14)

2) The 2nd Group (The second lion and deer group)

Four finds are classified as the 2nd group.[6] First, 808-4 represents a deer's limb, which tapers down to a pair of claws at the end. (Pl. 15) At the other end of the limb is carved a broad band of hair. A broken iron bar juts out from the end to join to the other part of the limb which is now lost. The fragment's position in the whole work to which it is attributed must be very similar to that of the 7416 group. It seems most likely, therefore, that the fragment represents the right forelimb of a deer facing left.

808-5 is a fragment representing a muscular limb of a lion facing left. In this case, it is not discernible whether the fragment represents the fore or rear limb.

808-7 represents parts of a rear limb carved with tendons and a joint. (Pl. 16) The other side of the limb remains rough without any trace of elaboration. Therefore, the fragment is believed to represent the right rear limb of a lion facing left. 808-8 is slightly curved as a whole and rhomb-shaped in section, tapering to the tip. Tendons are carved on the surface, indicating that the fragment represents the left rear limb of a lion. As to the position of the fragment in the lion sculpture, the answer is easily found in the 7416 group. There is a lion with a left rear limb suspended in midair. This limb most likely fits the form of the fragment; thus it is believed that 808-7 was similarly suspended.

In any case, the four fragments belonging to the 2nd Group all represent deer and lions facing left, and three of these fragments represent parts of lion forepaws or rear limbs. The question of whether the four fragments might have been supplementary pieces to the 7416 group may then be raised, but these pieces are smaller than the 7416 group in scale, and are more plainly carved in modeling. These facts indicate that the 2nd group is quite different from the 7416 group and form part of another new structure.

3) The 3rd Group

Only one fragment (7291) belongs to the 3rd group.[7] It represents a strained tendon, which is obviously part of a lion's front or rear limb, which tapers down. The side is stripped from the primary object, and it is thought to be the back side of the body of an animal most likely facing right. This indicates, therefore, that the fragment might have composed part of a right-facing lion attacking an animal, and might have been placed on the plinth together with the left-facing 7416 group and 2nd group in a line.

4) Miscellaneous

Here six fragments which are thought to have been parts of certain animal sculptures are discussed.[8] Two fragments (808-6, 808-7) represent a pair of a deer's antlers bent in opposite directions, and are assumed to belong to the same animal. A similar fragment (808-8) is also thought likely to be a deer's ear. Two other fragments (808-4, 808-5) represent parts of limbs of some kind of animal in different

scales.

The last big fragment (804-1) most likely represents the head of a calf with a left eye, a tuft of hair and an open mouth, although the left side of the head is cut out. It was reportedly found in the northwest area of the Propylon of the Gymnasium, so the fragment is supposed to be unrelated to K1.

5) The 'Frieze' Relief Group

The fragments 7417A and 7417B (K1, 4 and 5 in our drawings) together might have belonged to the K1 'frieze' which comprised a series of relief. (Fig. 12, Pl. 17)[9] On these are represented a dog and a deer respectively, both running towards the left. In 7417A, the dog is raising its forepaw and its long tail is curled, while in 7417B, the deer is in the same pose as the dog, but has a short tail.

The large frieze fragment 7360 carries the relief figure of a dog with a flying tail in a flying-gallop to the left. (Pl. 18)[10] Its left forelimb with its sharply pointed claws is noteworthy.

Fragment 7363 retains part of a relief of a powerful rear limb of a lion facing left.[11] Though the sex of the lion is unknown, judging from the fragmentary relief, it must be a male lion, taking into account that similar examples portray a male lion.

On the other large frieze piece 10.283 is represented part of a relief of the back half of a lion facing right. (Pl. 19) In the remaining representation, pointed claws on the right rear limb on the ground and a curled-up tail between the limbs are noticeable.[12]

The small frieze fragment 7361 shows part of a relief of a rear limb and a hanging-down tail of a lion or griffin facing right[13], and the very small fragment 7362 has part of a relief of a griffin facing the left, on which parts of a head, a neck and a wing are represented. (Pl. 19)[14]

The piece NN-3 represents part of a relief of a round body of some kind of animal.[15] Finally, the fragments NN-1 and NN-2, on which there are no sculptural remains, complete the Frieze group.[16]

Based on the above survey, we will now concentrate on two subjects of special importance: the motifs of the reliefs and the direction of the animals. The latter will be discussed below in the following section, because it is closely related to the sculptured work discussed in the first four groups above. Here, then, the motifs of the reliefs will be examined briefly.

The motifs of the relief on the frieze are deer, dogs, lions and griffins. Only the deer is a herbivore, and the dog (7417A, 7417B, 7360), lion (7363, 10.283, 7361) and the mythological griffin (7362) are all carnivorous. It is likely that herbivores were usually portrayed as being chased by carnivores, as seen in the 7416 group.

However, the griffin is a mythological, nonexistent animal, iconographically created by means of incorporating an eagle's head and wings onto a lion's body, and it is very difficult to discern the difference between lions and griffins. In fact, it becomes impossible when there merely remains a body part or limb from the lower part of the animal.

2-3-2 Direction of movement

In this section, the direction of movement of animals in the 7416 group, the 2nd group, the 3rd group and the Frieze group is discussed in detail.

It has been already mentioned that, while the lion (3rd group) is facing right, the lion attacking deer groups (7416 and 2nd group) are oriented to the left. In the Frieze group, the direction of the animals is divided into both right (10.283 and 7361) and the (7360, 7363, 7362). The fighting animal groups facing both left and right directions might have co-existed on the plinth of K1. Taking this into account, it might be supposed that the whole group of sculptures in K1 was organized in order to avoid the optical effect of simplicity which would have been caused by a single direction. The hypothetical inference of the organization is as follows; the animals in the Frieze group of the plinth were symmetrically placed either towards or away from the center of the frieze. The fighting animal groups (the 7416 group, the 2nd group and the 3rd group) were made and placed with due regard to the direction of the frieze group. At any rate, it is assumed that the placement on the plinth of the fighting animal groups would have been basically symmetrical with respect to the central axis.

The second subject to be discussed is the iconological meaning of a lion attacking a deer or a lion or griffin chasing a deer in monumental tombs of the Hellenistic age such as K1. The iconography of a lion or a griffin attacking a deer is well known in the Crete-Mycenaean art. [17] Though this motif died out temporarily in the Dark Age, it was reinstituted from the Orient during the Orientalizing period of Greece. [18]

Besides K1, there are no other known examples of monumental tombs with this iconography of a lion attacking a deer. However, some monumental tombs with a lion sitting on the top have been discovered: the Archaic round cenotaph of Menekrates in Corfu (ca. 600 B.C.) and the Early Hellenistic lion tombs in Knidos and Amphipolis (late 4th－early 3rd cent. B.C.), for example. [19] Other monumental tombs have statues or mural paintings of lions as guardians of the tombs, such as the Middle Hellenistic Mustafa Pasha Tomb I in Alexandria (2nd half of the 3rd cent. B.C.) and the Hyrkanos complex at Araq-el-Emir in Jordan (37-4 B.C.). [20]

The iconography of a lion attacking a bull is found on the low relief of the pediment of the Early Hellenistic rock-cut tomb No.90 in Myra. (the 4th cent.B.C.) [21] It shows a lion facing the right attacking a bull facing the left. In this case, similar to that seen in the 7416 group, a stronger animal such as a bull attacking a herbivore can be interpreted as symbolic of either the cycle of life and death, or of a strong warrior. Both interpretations are applicable to monumental tombs such as K1.

2-3-3 Artistic technique and chronology

Here we discuss the chronological dating of K1 on the basis of the 7416 group. The group emphasizes the lion, in which the sculpturing techniques of the Hellenistic age are obvious. The head is influenced and carved using the visual technique of foreshortening as typified by the extremely flat forming of the whole head and the existence of the incomplete lower jaw. These facts reveal that the fighting animal group was made to be viewed from the front or three quarters, as well as to be seen from below. These visual points are interpretable as real clues to date the 7416 group.

Hellenistic sculpture took over the ideas of forming from Lyssipos at the end of the 4th cent. B.C. and greatly developed them in the early Hellenistic period. [22] In his human statues, Lyssipos added a new dimension, i.e. depth, to the two existing dimensions of height and width, so that the viewer was not

able to appreciate the whole statue until he circled it. On the other hand, in the middle Hellenistic age, the older frontal viewing point of human statues reestablished itself, as seen in the statue of 'Gaul killing himself and his wife'. [23] In the following late Hellenistic period (150-30B.C.), this same viewing point became even more dominant, as exemplified by the 'Capitoline Venus or the Aphrodite' from Rhodes. [24] On both of these the female head and hair are carved so flat in accord with the pictorial way of foreshortening that here, in the late Hellenistic age, the meaning of space in a sculpture in the round, which had been pursued through the history of Greek sculpture, was lost.

Since the 7416 group used the same foreshortening technique, it is easy to assume that it could have been created in the late Hellenistic period. However, the dating of this group does not demonstrate either the foundation date of K1 or its abandonment, but only the time of its use. [25]

2-3-4 Catalogue of sculptured fragments from K1

(w. = width, d. = depth, h. = height, l. = length, th. = thickness)

1) The 7416 group

1. the 7416 group of a lion attacking a deer, measurement of the whole: w. 99 cm, d. 39.7 cm, h.? ; for base: d. 38.5 cm; for lion himself = d. 23.7 cm, hip = d. 32.5 cm, chest =d. 29.7 cm
2. a fragment of a deer's right ear (808-1) : l. 6.5 cm, h. 4.8 cm, d. 3.9 cm
3. a fragment of a deer's right ear (804-2) : l. 5.6 cm, w. 5.5 cm, d. 5.1 cm
4. a right standing limb of a deer (804-3) : l. 21 cm, w. 6.5 cm, d. 5.4 cm
5. a fragment of a lions tail (804-9) : l. 11.3 cm, d. 4.5 cm, h. 4.6 cm
6. a fragment of a deer's antler (808-2) : h. 4.7 cm, w. 3.5 cm, d. 2.3 cm
7. Ibidem (808-3) ; h. 3.3 cm, w. 2.7 cm, d. 2 cm

2) The second group

1. a fragment of a deer's limb facing left (808-4) : l. 12.2 cm, w. 7.7 cm
2. a fragment of a lions forepaw or rear limb facing left (808-5) : l. 11.5 cm, w. 6.8 cm
3. a fragment of a lion's right rear limb facing left (808-7) : l.18.4 cm, w. 10.2 cm
4. a fragment of a lion's left rear limb facing left (808-8) : l.15 cm, w. 6 cm

3) The third glyptic group

1. a fragment of a lions forepaw or rear limb facing right (804-6) : l. 12 cm, w. 7.3 cm

4) Miscellanea

1. a fragment of the head of a calf (804-1) : h. 15.2 cm, w. 9.9 cm, d. 10 cm
2. a fragment of the limb of an unidentified animal (808-4) : l. 3.7 cm, w. 4.1- 5.2 cm
3. ibidem (808-5=9807) : h. 6.2 cm, w. 4.6-5.6 cm
4. a fragment of a deer's antler (808-6) : l. 9.6 cm, w. 6.8 cm, th. 4.9-2.8 cm
5. ibidem (808-7) : l. 8.2 cm, w. 6.2 cm, th. 5.1-33.6 cm

6. unknown fragment (808-8) : l. 8 cm, w. 6 cm

5) The Frieze group

1. the plinth 7417A : w. 1.73 m, h. 6.8 cm, d. 21.8 cm : for the animal: l. 30 cm (from the tail)
2. the plinth 7417B : w. 1.73 m, h. 6.8 cm, d. 20.6 cm : for the animal: l. 22.5 cm (from the tail)
3. a fragment of a plinth with relief representation of a dog in flying-gallop (7360) : w. 29.8 cm, h. 13.5 cm, th. 4.5 cm
4. a fragment of a plinth with relief representation of a rear limb of a lion (7363) : h. 7.1 cm, w. 7 cm, th. 2.5 cm
5. a fragment of a plinth with relief representation of a rear half of a lion (10.283) : h. 17 cm, w. 19.8 cm, th. 21 cm
6. a fragment of a plinth with relief representation of a tail and a forepaw or a rear limb of a lion, or a griffin (7361) : w. 11.3 cm, h. 4 cm, th. 3.8 cm
7. a fragment of a plinth with relief representation of a griffin neck, head and wing (7362) : h. 9 cm, w. 8 cm, th. 10 cm
8. a fragment of a plinth with relief representation of a part of an identified animal body (NN-3) : h. 7.4 cm, w.3.5 cm, th. 3.3 cm
9. a fragment of a plinth with corner (NN-1) : h. 9.2 cm, w. 6 cm, th. 6.5 cm
10. a fragment of a plinth (NN-2) : h. 9.5 cm, w. 9.4 cm, th. 9.5 cm

2-4 Reconstruction

It is difficult to reconstruct the upper part of K1 accurately as only a few architectural blocks were found. For the roof in particular, there was no block which we could identify. However, it was probably not very different from K3 which was able to be reconstructed in almost complete form. Specifically, it must have been crowned with a cornice on the wall and then the roof. On the top of the roof, a group of sculptures was probably placed, judging from the fact that a sculpture of a lion attacking a deer was found in the tomb chamber. (Fig. 14, 15)[26]

2-4-1 Position of blocks K1.1, K1.2, K1.3

Block K1.1 with recess along the edge is evidently a wall block. Based on the fact that its one side was not finished, we can presume it was not for the projected east wing, the block of which must have been finished on both sides. As far as we can see from the preserved exterior faces of the graves, their sides and backs were not finished very smoothly. The exterior face of K1.1 was finished well, and this means that the block was put on the east front. In other words, the block was placed adjoined to the north of the preserved northernmost wall block on the east front. A dowel hole with its pouring channel shows that the block to be placed there was ca. 0.93 m long, and K1.1 is 0.956 m. Thus, in all probability K1.1 was placed at this position.

Blocks K1.2 and K1.3 were found near K1 and must also have belonged to the wall of the

monument, judging from their widths 0.330 m and 0.340 m. The upper part of K1.2 is broken and the height is unknown. The length is 0.993 m, almost identical to those of the frontal wall blocks. Thus, it was probably located at the back or side, but not on a corner, judging from the finishing of the ends and the lack of a dowel hole on the bottom. K1.3 is 0.636 m high and shorter than the other wall blocks which are 1.68 m high. It also has a square cut on one end, and there is a clamp hole and a dowel hole on its top. Although it is difficult to decide where the block was set, it is likely that the block was used for the doorway and the cut was to set its frame. If so, the wall on the west side could have been in three courses.

2-4-2 Tomb chamber

The tomb chamber was 'floored' with lids of the tombs and had stuccoed walls, like at K2 and K3. (Fig. 13) There must have been three lids on each tomb, the middle lid having a pull-up ring in the center as K2. Certainly, the chamber was not for everyday use, but only on the occasion of funerals. There was probably a horizontal ceiling because there was a room to set an end of a ceiling block on the cornice block (4205) as described below. At the doorway, there is a shallow cut near the northwest corner of the west upper crepis. It is 0.985 m long and 0.20 m wide. The diameter of the door socket found here was 0.124 m. With these dimensions, we know that the door was approximately 0.95 m wide, 0.12 m thick and 1.80 m high.

2-4-3 Cornice

Only one cornice block (4205) was found from K1, and its height is 0.210 m. The cornice blocks were probably on the wall blocks, considering that that the cornice of K3 was located directly on its wall blocks. But there is no clue to suggest where the block was set.

2-4-4 Relief

Four blocks with a relief of running dogs and deer were found inside the tomb chamber. In Ionic buildings, friezes were decorated with a series of reliefs. In K1, the frieze was omitted because the architrave and cornice were compounded as one block. It might be reasonable to think that the frieze course was placed not beneath the cornice but on it, (Fig. 14) because the width is 0.220 m and narrower than the wall which is ca. 0.30 m. For K1.4 and K1.5, which are adjoining, there is only one piece of evidence to suggest where they were placed: a joint face at the left end of the front, which shows that it was a reentrant corner of the relief course. There were two reentrant corners in K1, one at each wing. The blocks K1.4 and K1.5 are more likely to have been placed at the south end of the east front, i.e., at the southeast corner. If they had been placed at the northeast corner, they would have been located on the north wing itself. However, the relief portion is 0.939 m and the projecting wing is ca. 0. 68 m. Thus, the relief is too long to fit on the north wing. Additionally, the blocks are only 0.22 m thick and too thin for the wing as well. K1.5 has a dowel hole on its top, showing that there was another block at its back. The width of cornice block (4205) without the eave is ca.0.30 m. Thus, it is reasonable to think that the blocks K1.4 and K1.5 were most likely placed on the east front at the corner of the south wing, and the dowel hole on the top must have been used to join a ceiling block.

No roof block has been found and its form is nothing but conjecture. But judging from other Hellenistic grave monuments, the roof of K1 can be conjectured to have been in stepped pyramidal form.

No parallel can be found for monumental tombs with wings, and K1 is unique in that sense. From the 4th century on, however, there had been a tendency to exaggerate symmetrical and axial plans of buildings. This can be particularly observed in Ionia at the Altar of Asklepios at Kos (4th cent. B.C.) [27] The best examples for this are the Great Altar of Zeus at Pergamon (197-159 B.C.) [28] and the Altar of Artemis at Magnesia on the Maeander (ca. 130 B.C.) [29]. K1 could be dated to the 3rd century B.C. and might have played the role of predecessor of winged buildings. As for parallels for a lion sculpture on the top of the roof, there are some examples such as the Lion Tomb at Knidos [30] and the Lion Tomb at Amphipolis. [31] Both are dated to late fourth or early third century.

Notes for Chapter 2

1) K1 was reported for the first time by P. Themelis in Prakt 1995, p.77-79, Fig. 3, 6, Pls. 28-30. A photograph is also in Prakt 1996, Pls. 60a. P. *Themelis, Heroes and Hero Shrines in Messe*ne, Athens, 2000, pp.114-119.
2) There is a clear mistake in Fig. 6 in Prakt 1996. The height of the wall is drawn too low and our drawing is right.
3) For this pivot case, see Prakt 1995, p.77-79, Fig.6, Pls. 30a.
4) P. Themelis, *Ancient Messene; Site and Monuments*, the region of Peloponnese, s. l. 1998, p.50, Fig. 36, and, by the same author, *Ancient Messene*, Athens 1999, pp.109-110, Fig. 109.
5) All fragments are still unpublished and stored in the Museum of Messene.
6) Ibidem.
7) The fragment is still unpublished and stored in the Museum of Messene.
8) All fragments are still unpublished and stored in the Museum of Messene.
9) For the publication, see note 4)
10) The fragment is still unpublished and stored in the Museum of Messene.
11) ~16) Ibidem
17) For examples, see Sp. Marinatos, and M. Hirmer, *Kreta, Thera und Das Mykenische Hellas*, M・chen 1986, Taf. L (Oben) and 236.
18) For examples, see G. Richter, *A Handbook of Greek Art, London* 1959, Fig.412 (p.298)
19) For examples, see Alkisth S.-Choremi, *Ancient Kerkyra*, T.P.P.A. Athens 1997 (in Greek), Pls.3 and 12 (for Corcyra), and J. Fedak, *Monumental Tombs of the Hellenistic Age*, Figs. 85-88 (for Knidos) and 91 (for Amphipolis).
20) For examples, see op.cit. Fig.175 (for Alexandria) and 210 (for Jordan)
21) For the example, see op.cit. Fig.122 (for Myra)
22) See J.G. Pedley, Greek Art and Archaeology, New York, 1993, pp.300, 327, 329.
23) For example, see op.cit. Fig. 10-19 (p.331).
24) For examples, see op.cit. Fig.328 (for the Capitoline Venus) and A. Stewart, Greek Sculpture, An Exploration, New Haven-London 1990, vol.2, Pl. 808 (for the Rhodean Venus).
25) According to the excavator, the date of the finds from tombs of K1 is tentatively indicated as from the late 4th cent. B.C. to the early 3rd cent. B.C. All the materials from K1 are under study in the season 2001-2002. See Themelis 1999 (note 1), p.109.
26) Our study for reconstruction is still on the way. The pyramidal roof restored here is rather conjectural with the central human sculpture and the other lion group on the left. It would be also possible that the roof was flat, considering that another group of lion moving towards left, which was discussed in the previous section, requires larger space on the top.
27) R. Herzog / P. Schatzmann " *Kos, Bd I, Asklepieion*" 1932, pp.25-31.
28) J. Schrammen "*Der Grosse Altar der Obere Markt*" Berlin, 1906
29) C. Humann, "*Magnesia am Maeander*" Berlin, 1904, pp.91-99.

Chapter 3

Grave Monument K2

3-1 Architectural remains

3-1-1 Outline

K2 is located 12 m toward the south from K1. (Fig. 1, Pl. 3)[1] It is the smallest of the three grave monuments, consisting of a simple square tomb chamber with a doorway on the back. (Fig. 16) Most of the super structure is gone but it is preserved up to the lowest course of the wall with its three wall blocks still in situ. (Pl. 22- 24) The stereobate, which is higher than that of the other two monuments, was composed of euthynteria, lower and upper crepis, and toichobate. All of these courses have been preserved completely. (Fig.18) The tombs themselves were built inside of the stereobate. Four tombs were arrayed in a row from north to south and covered by square stone lids. (Fig. 19) The top of the toichobate was set 297.45 m above sea level and was ca. 0.40 m higher than K1. (Fig. 20) According to the excavator, it dates to the third century B.C., although further study will be needed for accurate dating.

3-1-2 Euthynteria

The course of the euthynteria is mostly covered by mud and exposed only on its east side. It was laid on a foundation of rough stones underneath. Its height was 0.207 m, slightly lower than the other courses. Its length on the east side was 3.812 m. Handling bosses were left on the exterior.

3-1-3 Lower crepis

The course of lower crepis was set 0.073 m back from the edge of the euthynteria on the east side and 0.097 m on the south side. It is 3.666 m long on its east side and 3.107 m on its north side. The height of the lower crepis was 0.308 m with a single relieving margin at its bottom. The vertical joint of the blocks were also recessed on their left side. Handling bosses still remain on the exterior face on the east side.

3-1-4 Upper crepis

The upper crepis is laid 0.071-0.079 m back from the edge of the lower crepis. It is 3.59 m long on its east side and 2.953 m on the north. Its height of 0.307 m is identical with that of the lower crepis. There is a double relieving margin along the bottom, and the vertical joint is recessed.

3-1-5 Toichobate

All the toichobate blocks remain in situ. They were worked in almost the same way as the upper crepis. The toichobate length is 3.358 m on the east side and 2.780 m on the north side. Its height is 0.274-0.279 m, approximately 0.003 m lower than the crepis height. The width is 0.375-0.390 m. Setting lines for wall blocks are still visible 0.078-0.090 m away from the edge. On the southeast corner, the setting lines show that the wall projected ca.0.01 m like corner pilaster with a width of 0.20 m. On the southeast and northeast corners, square dowel holes are observed, and lead to fill the gaps around the dowels was found on the other corners as well. The dowels were used only on the four corners of the monument, and no trace of dowels was observed on the general blocks. In the middle of the blocks, one or two pry holes to maneuver placing of the wall blocks can be observed. The ends of the blocks were tied by pi-shaped clamps. On the west side, there is a trace of a doorway with a circular door socket.

3-1-6 Wall

Four of the wall blocks remain on the toichobate. Two of these on the southwest corner and a fragmentary block on the northwest corner are in situ. Another block stands on the north side but is a little obliquely dislocated. Their heights are 0.630-636 m, and widths 0.230-0.258 m, and their interiors show rough finishing for stucco. The blocks are thinner compared with those of K1 and K3, indicating that the wall might not have been very high. Considering the height of the blocks, it is probable and appropriate that the wall was built in three courses. That is, the wall would have been ca. 1.9 m high, tall enough for people to stand in. The wall blocks were not recessed along the joints, and the exterior faces were finished well but not completely.

3-1-7 Tomb chamber

The interior of the tomb chamber is 2.550 m wide from north to south and 2.035 m deep from east to west at toichobate level. (Fig. 16, 17) The underground of this tomb chamber consists of four tombs in a row from north to south, being separated by three cists or vertical slabs. The interior of each tomb is 0.476 m wide, 1.901 m long and 0.626 m deep, being equal to the height of the upper and lower crepis. At the bottom were laid some rough stones on which the vertical slabs were rested. Corpses were seemingly laid directly on the earth. The separating vertical slabs are of monolithic lime stone; 1.90 m long, 0.16 m wide and 0.62 m high. They are set into the 0.02-0.03 m shallow cut of the crepis blocks.

The tombs were covered by twelve square lids, whose sizes are ca. 0.62 x 0.62 x 0.1 m. Two of them on the southernmost tomb were lost, and only a fragment remains on the corner. There remain iron lifting rings in the center of the middle lids of the three tombs. (Pl. 23) The section of these lifting rings is 0.015 m in diameter and their outer diameter is 0.095 m. They were attached to the lids by iron bars passed through the 0.035 x 0.035 m square holes and anchored with lead. The top of these bars was shaped into

a small circle to hold the lifting ring, and the bottom was bent at a right angle under the lid. The lids of the tombs also served as the floor of the room, although they are not stable as the floor pavement. This must not have been problem, though, because the chamber was not used often.

3-2 Building Technique

3-2-1 Relieving margins and recessed joints

The east side of the stereobate was worked with a relieving margin at the bottom of each course and a recess along the vertical joints. (Fig. 18, Pl. 22) On the bottom of the toichobate and upper crepis, the relieving margin is doubled and each recess has a width of 0.030 m, but the single relieving margin of the lower crepis has a width of 0.038 m. The width of the recess of the vertical joints is 0.030 m. All these recesses and margins aim for the visual effect of articulating each block of the east façade, which faces the street from the propylon. On the north and south sides, they were worked only on the east end, and the surfaces of the stereobate were left rough.

3-2-2 Clamps and dowels

To joint the neighboring blocks, pi-shaped clamps were used. They were made of thin iron plate, 0.015 m wide, 0.005 m thick and 0.20-22 m long with hooks of 0.02-0.03 m on both ends. Only one dowel is still visible on the northwest toichobate on the doorway, which certainly had to have been fixed with lead to the blocks. Dowels were used only on the corners. The dowel holes are 0.03 m square and ca.0.03 m deep. The dowels themselves were of iron, with a section of ca. 0.015 m square, judging from that of the fragmentary wall block on the northwest corner. Minimum use of dowels was made probably to save iron, and this might have caused structural weakness of the monument. The gap between the blocks and clamps or dowels was filled with lead. The dowels were at first set on the bottom of the blocks with lead and then the blocks were set at intended places with their dowel holes fitting into each other.

3-2-3 Finishing

Most of the surfaces of K2 except the toichobate and upper and lower crepis of the east façade were not finished finely, but left somewhat rough. Concerning finishing of surfaces, the architect of K2 probably concentrated only on the east façade because the east side of the monument faced the street where many spectators from the stadium would have passed by.

3-3 Dislocated cornice blocks

Three cornice blocks were found in front of K2. The blocks K2.1 and K2.2 are identical in dimensions, but K2.3 was a little larger. They are in simple Ionic style and have two fasciae but no dentils.

K2.1 (Fig.21)

Length (0.673 m), [2] width 0.385 m, height 0.253 m,

Cornice block. The left end was broken. The lower fascia is 0.068 m high and the upper 0.057 m. The geison projects 0.094 m from the lower fascia. On the left end of the top, there is a clamp hole. On the lower fascia, the name ΑΡΙΣΤΟΔΑΜΑ is inscribed, and is believed to be the name of a person who was buried in the tomb.

K2.2 (Fig. 22, Pl. 24)

Length (0.403 m), width (0.426 m), height 0.249 m.

Cornice block. Although the corners are broken, the original size is mostly maintained. On its top, a clamp hole and dowel hole are recognizable. There is also an inscription on the lower fascia which says ΦΙΛΟΣΤΡΑΤ [ΟΣ] .

K2.3 (4205)

Length (0.877 m), width 0.452 m, height 0.244 m.

The left end is broken. The size is a little larger than the other two blocks. There is a clamp hole on the right end. No inscription is written.

Dimensions

	Height of blocks	Average
Toichobate	0.274-0.279 m	0.277 m
upper crepis	0.307-0.308 m	0.308 m
lower crepis	0.307-0.310 m	0.309 m
euthynteria	0.207 m	

3-4 Reconstruction

The superstructure of K2 is missing except for two cornice blocks, in contrast to the platform which has been preserved completely. Thus, it is very difficult to reconstruct the superstructure, and the reconstruction remains a matter of conjecture, especially for the roof.

The height of the remaining wall blocks of the bottom course is 0.645 m. Considering that the wall of K1 is 1.65 m high in one course and that of K3 1.90 m in three courses, it might be reasonable to conjecture that the wall of K2 was 1.935 m high in three courses of blocks. On the corners of the east façade, there were two shallow pilasters, although there were none on the west side.

The shallow cut on a toichobate block on the northwest corner of K2 shows that the width of the door leaf was ca. 0.80 m, and judging from the diameter of the door socket, it was ca. 0.07 m thick. Its height might have been equivalent to that of the wall blocks of three courses, i.e. 1.80 m. The doorway was a simple opening without a frame and 0.81 m wide. (Fig. 17)

We have only two cornice blocks, and they both bear inscriptions: ΑΡΙΣΤΟΔΑΜΑ (K2.1) and

ΦΙΛΟΣΤΡΑΤ [ΟΣ](K2.2).[3] These blocks with inscriptions must have been on the east façade which faced to the street. The height is 0.228 m.

The form of the roof is an open question as no roof blocks were found. In the season of 2001, two blocks of small pediments were found behind K2 leaning to its west side, but they would have been too narrow to fit the width of the wall. If K2 had had a gabled roof, the plan should have been more elongated. Considering its almost square plan and the lack of traces of columns or engaged columns on the wall, it is improbable that K2 was a sarcophagus type and had a gabled roof. Instead, the roof would most likely have been in a pyramidal form. In this report, the roof was reconstructed with a stepped pyramidal form. Some parallels with pyramidal roofs are reported as s a non-Greek tomb at Amrith in Syria which is before 4th century [4] and the Lion Tomb at Knidos which is datable to the late fourth or early third century. [5]

Notes for Chapter 3

1) K2 was reported for the first time in brief in Prakt 1995, p.79, fig.3. Photographs are in Prakt 1996, Pl. 66b and 1997, Pl. 48. P. Themelis, *Heroes and Hero Shrines in Messe*ne, Athens, 2000 (in Greek), pp.119-121.
2) In case that original dimensions of blocks are unknown due to breakage, present dimensions are shown in parentheses.
3) These are stored in the Museum at Mavromati.
4) A. Khrichian, *Les Foilles d'Amrith sden 1954*, Les Annals Archeologiques de Syrie 4 and 5, 1954/55, pp.189-204.
5) I. C. Love, *A Preliminary Report of the Excavation at Knidos*' AJA 76, 1972, p.63-

Chapter 4

Grave Monument K3

4-1 Architectural Remains

4-1-1 Temenos or enclosure

The K3 is surrounded by walls on three sides. (Fig. 23, Pl. 26, 27)[1] Its area is 13 m long from north to south and 4.75-5.25 m from east to west, forming a kind of temenos. The west wall, ca. 2.5 m high, is of very rough masonry and sustains the upper terrace on the back. The north and south walls, of which up to some 0.5 m remain, are of smaller stones. The east wall is of rough ashlar and is joined to the eastern corners of K3. The grave stands in the middle of the temenos with small courts on the north and south, and there is a passage 1 m wide on the west. The passage was closed in later times by a small wall at the northwest corner of K3. The grave itself was approached by a ramp. Its two vertical supporting slabs remain in situ to the south of the grave. A broad stepping slab of ca.1.12 m x 1.94 m was also found on these slabs, and this slab is broader than the distance between two supporting slabs. The door was found lying in the south court of the grave. In the temenos were found 23 corpses of babies, as well as some of dogs and cats.

4-1-2 Euthynteria

The lowest course is the euthynteria, laid on a foundation of smaller stones. The foundation is exposed on the east side, but the rest has not been excavated and is covered by mud. (Fig. 24, Pl. 29) The lengths of the blocks on the east vary from 1.09 m to 1.25 m, the width is around 0.70 m, and the height 0.274 m. The total length of the east euthynteria is 4.656 m. On the four blocks of the east euthynteria remain handling bosses. On the upper surface of the block on the southeast corner, which is exposed due to the lack of the crepis block above, is a dowel hole set 0.053 m off from the west edge of the block. Clamps can not be recognized on the euthynteria, as far as we see from its southeast corner.

4-1-3 Lower crepis

The lower crepis consists of 14 blocks, one of which on the southeast corner is missing. (Pl. 28)

Four blocks laid lengthwise form the full length of the lower crepis along the north and south sides, and three blocks each on the east and west are laid between them. The blocks are set 0.043-0.051 m off from the edge of the euthynteria on the east side, 0.055 m on the north and 0.053 m on the south. The total lengths of the lower crepis are: 4.541 m on the north side, and 4.552 m on the south, and very possibly 4.458 m on the east. We do not know about the west side, because the west side was not excavated to the level of the lower crepis. The lengths of the blocks vary from 0.95 m to 1.21 m, the widths from 0.66 m to 0.67 m. The height is 0.267 m. On the exterior of the blocks on the east, a relieving margin is carved on their bottom and recessed joint on right side. The width of the relieving margin is 34 mm, and that of the vertical recessed joint 28 mm, and their depths are 8 mm. On the inner surface of some blocks are shallow cuts, ca.0.15 m wide and 0.015 m deep, to receive the ends of the separating slabs of the cists.

On the upper surface along the east, a setting line for the upper crepis is drawn at 0.070- 0.075 m away from the edge. (Fig. 24) This setting line is 5 mm in width, probably because the limestone was weathered along the line. Each block of the lower crepis is joined by two clamps. All of these have been removed, but fragments of lead still remain. A pry hole can be recognized near the center of each block. The usual shape of pry holes is crescentlike, and they were used to support the end of pry with its cord. Only the second block from the north on the east has no pry hole but rather a dowel hole in the center. Another two dowel holes are set on the lower crepis: one on the north side of the northeast corner, another on the west side of the northwest corner. The latter one still retains a dowel itself in situ with lead around it. The dowel is 3 cm square with a height of 5.5 cm above the upper surface of the southwest corner block. There was probably a dowel on the southeast corner, but it is unknown because the block is missing. There was another dowel as well on the north side of the northwest corner.

4-1-4 Upper crepis

None of the blocks of the upper crepis remain exactly in situ except for a fragmentary block on the northwest corner. The block is set 0.069 m away from the north edge of the lower crepis and 0.059 m away from its west edge.

Another block of the upper crepis was found removed only several centimeters on the southwest corner of the upper crepis. It was dislocated from its original position, but it is clear that in all probability the block was on the southwest corner, because the position of the dowel hole on its side is exactly at the same position of the dowe that remains on the southwest corner block of the lower crepis.

4-1-5 Tomb chamber

Inside K3 is a tomb chamber with eight cists or tombs for corpses under the floor. (Fig. 24, Pl. 28) The dimensions of the interior at the lower crepis level are: 3.200 m on the east, 3.228 m on the north, 3.213 m on the south. The cists are separated by rough slabs ca.1.82 m long, ca 0.15 m wide and 0.64 m high. The distance between the slabs is uniformly ca.0.56 m from surface to surface. Four pairs of cists, located side by side in parallel, are arranged in spiral form. This arrangement leaves a pit of 0.42 m square in the center. The slabs were joined by clamps which are now missing. The separating slabs incline eastward by the pressure of the mud slope of the site. Due to this inclination, the difference of the levels from

the upper surface of the lower crepis to the top of the separating slabs are 0.19 m and 0.22 m on the east side, and 0.27 m and 0.30 m on the west side. The height of the dislocated block of the upper crepis is ca.0.27 m. This shows that the top level of the separating slabs and that of upper crepis were likely the same. The clamps were used to join the separating slabs together, but the slabs do not seem to have been joined to the upper crepis with clamps, as there is no trace of clamp on the blocks of upper crepis.

One of the separating slabs on the northeast corner is partially broken to make an adjacent cist much larger, probably for a tall person, and one short slab with an inscription was also added for separation. According to the excavator, this partial alteration of the cists happened around the end of the first century B.C., when K3 was reused for a new family. They cleaned up the cists and discarded the remains into the central pit. This reuse of the tomb is very clear from the new inscriptions on the wall blocks and findings from the cists and the central pit. Archaeologists date the original erection of K3 to late 3rd century B.C., judging from findings from the pit and from outside the tomb in the temenos.

4-2 Dislocated blocks

Some 200 dislocated blocks were found from at the site. K3 was seemingly demolished on purpose, because the destruction is complete down to the crepis level and most of the blocks have been preserved also equally from crepis to roof top. Even so, they have been preserved in good condition.[2] It seems that the blocks and iron were dislocated with care, probably so that they could be reused. This would have happened in the Byzantine period, when Christians demolished ancient monuments as Pagan and made use of the blocks for their churches and houses, etc.[3] All the clamps and dowels were dismounted from the dislocated blocks and probably taken as precious metal to be reused, although some fragmentary lead adhesive remains. We do not know why blocks were not taken from K3 in contrast to K1 and K2, where most of the dislocated blocks are gone. At any rate, this was a very lucky happenstance, which made it possible to reconstruct the original form of K3.

The blocks are categorized into groups by their positions and described one by one, except for the roof blocks from the second to tenth course due to their uniformity and abundance. The size of each block is shown on the first line of each description. Dimensions in parentheses indicate the present dimensions of blocks whose original sizes are unknown due to breakage.

4-2-1 Lower crepis block

XI.124

Length (0.558 m), height 0.269 m, depth 0.664 m

XI.124 is wider than the other blocks by ca.6 cm, and its width is the same as the width of the remaining lower crepis. Thus, it is evident that XI.124 must have been located on the southeast corner of the lower crepis, where only one block is missing. The depth of the lower crepis is ca.0.66 m, so all the other blocks must have belonged to the upper crepis.

More than half of the block is broken off. At the end of the top are traces of two clamps. On one

of them remains a lead remnant with traces that it was packed in using a pointer. A tiny part of a handling boss remains on the exterior face. There is neither recessed joint nor relieving margin.

4-2-2 Upper crepis blocks

K3.70, K3.71, XI.12, XI.2, XI.11, XI.212, XI.74, XI.78, K3.68, XI.29, XI.76

We found 18 upper crepis blocks. Their height varies from 0.267 m to 0.283 m, and the depth from 0.592 m to 0.605 m. Three of the blocks XI.78, K3.68, and XI.29 have a double relieving margin and a recessed joint at the right side of the exterior surface. The small fragmentary block K3.70 shows a trace of a double relieving margin. These blocks must have been placed on the east side to be seen from the street. For the other blocks of the upper crepis, there is neither relieving margin nor recessed joint.

Many of the crepis blocks are broken into almost half the size of the original blocks. There are some shallow cuts on the side of the upper crepis to fit in the ends of vertical separating slabs of the cists. The cut is ca.0.14-15 m wide, ca.0.015 m deep. Together with each cut, a clamp was used to make a tighter joint with a slab.

1) Upper crepis blocks with relieving margins

K3.68

Length (1.067 m), height 0.270 m, depth 0.592 m

The left end of the block is broken off. However, traces of two clamps are identified on each end of the top, as well as the trace of another clamp in the middle of the interior edge to connect the block to an adjacent block to form a corner. In the center of the block is a pry hall. There remains a handling boss on the exterior surface. A double relieving margin is recognizable at the bottom and a recessed joint on the right.

XI.29

Length 1.112 m, height 0.268 m, depth 0.600 m

The block is almost completely preserved. Along 0.055 m off the exterior edge on the top there is a trace of setting line of the blocks above. The line is 0.008 m wide probably due to weathering by rain water. One end is cut obliquely in the middle. There are traces of two clamps on each end and a dowel hole in the middle. Along the bottom of the exterior is a double relieving margin. On the left end of the exterior is a vertical recessed joint which continues to the relieving margin on the bottom.

XI.78a+b (Fig. 27)

Length 1.060-070 m, height 0.270 m, depth 0.594 m

The block is preserved almost completely. On its top, there are two traces of clamps on each end, another two on the interior edge to connect the vertical slabs of the tombs, and two pry holes in the middle. On the interior surfaces are shallow cuts to set ends of the vertical slab. There is a double relieving margin

along the bottom of the exterior, and a recessed joint on the right.

K3.70

Length (0.138 m), height (0.247 m), depth (0.145 m)

A small fragment of a corner block of the upper crepis. An upper course of a double relieving margin, with a height 0.037 m, is recognizable, but the lower one is missing.

2) Upper crepis general blocks

XI.76

Length 1.110-113 m, height 0.267 m, depth 0.593-595 m

An almost complete block of the upper crepis with two traces of clamps on each end. Those on the left end show remnants, probably of iron. Near the center of the top is a square dowel hole 0.033 m deep. On the outer joint faces of the top, 0.070 m away from the edge, is a trace of a setting line of a toichobate block.

K3.71

Length (0.513 m), height 0.277-281 m, depth 0.607 m

The block is badly broken with more than half missing. At the end of the top remain traces of two clamps.

K3.72

Length (0.404 m), height 0.277 m, (depth 0.220 m)

A small fragmentary block of upper crepis with a shallow cut to fit in an end of a separating slab of tombs. The cut is 0.137 m wide and 0.014 m deep.

XI.2

Length (0.550 m), height 0.278 m, depth 0.605 m

Half of the block is missing. Traces of two clamps are on the top, to one of which is adhered metal remnant.

XI.11

Length (0.573 m), height 0.281-283 m, depth 0.604 m

Half of the block is missing. The surface of the end is broken off. On the top remain traces of clamps and in the middle a dowel hole where the block is broken. The exterior face slopes 5 mm inward.

XI.12

Length (0.545 m), height 0.276-280 m, depth 0.604 m

Half of the block is broken off. Two clamp traces are on the end of the top, which projects slightly. There are no dowel holes.

XI.74

Length (0.755 m), height 0.272 m, depth 0.600-605 m

Half of the block is broken off. There are two traces of clamps, one on the end and another on the inner side. The clamp on the inside is apparently to join a vertical separating slab, because beside it is a shallow cut to fit in the end of the slab. There are lead remnants for the clamps. The exterior face is very slightly sloped.

XI.212

Length (0.668 m), height 0.274 m, depth 0.605 m

Half of the block is broken off. There are two clamp traces on the end of the top. Lead filler still remains around the hook of the clamps.

K3.4a+b+c+d

Length (ca.1.155 m), height 0.275 m, depth 0.597 m

Though broken into four parts, the whole block is preserved almost completely. On the top there are traces of two clamps on each end, a dowel hole and a pry hole in the middle. Peculiarly, there is a rectangular cut on one corner of the inner side of the bottom; length 0.335 m, height 0.048-065m, depth 0.112 m. The purpose of this cut is not clear, but it could have been to patch the broken corner of the block.

K3.6

Length (0.710 m), height 0.275 m, depth 0.603 m

Only the right half of the block is preserved. On the top, there is a dowel hole in the middle, a clamp hole on an end, and another clamp hole with a shallow cut on the inner edge to join a vertical slab of a cist. The cut is 0.123 m long and 0.013 m deep.

XI.4+XI.5

Length (ca.0.465 m), height 0.279 m, depth 0.603 m

Two fragmentary blocks from the left end of an upper crepis block. Traces of two clamps with remnants of lead are visible. On the inner edge is a shallow cut for a vertical separating slab for a tomb.

XI.30

Length (0.428 m), height 0.272 m, depth (0.561 m)

A fragmentary block with an end. Only traces of two clamps are recognizable on the top. The exterior surface is broken.

XI.14

Length (0.513 m), height 0.273 m, depth (0.435 m)

A single fragmentary block. Only the top, inner and bottom surfaces are partially visible. The

top is greatly weathered and its finishing is not clear.

XI.6

Length (0.578 m), height 0.272 m, depth (0.205 m)

A small fragmentary block with top, bottom, outer surface and joint.

4-2-3 Toichobate blocks

XI.18a+b

Length 0.871 m, height 0.272 m, depth 0.484 m

The left one-third is broken off. The remaining right section is also broken into two pieces. There is a band of edge molding along the exterior side of the top. A vertical recessed joint is along the right end of the exterior face and a double relieving margin along the bottom. There are traces of two clamps on the top and a dowel hole and pry hole are in the middle of the top.

XI.80a+b

Length ca.0.909 m, height 0.270 m, depth 0.482 m

The right end of the block is missing. There is molding along the edge of the top. A recessed joint on the left of the exterior face continues to the double relieving margin along the bottom. There is a dowel hole in the middle and a clamp trace at the end of the top.

XI.97

Length (0.35 m), height 0.271 m, depth 0.485 m

Corner block. The left part is missing. The molding along the edge shows the trace of the pilaster on this corner. A double relieving margin is recognizable at the bottom of a side. On the other side, there is no relieving margin.

XI.113a+b

Length (ca.1.025 m), height 0.247 m, depth 0.481, 0.490 m

The block is broken into two. The original block had a missing part on the right end which was supposedly on a corner. Traces of two clamp holes are recognizable on the left and on the right is a 0.48 m square dowel hole. The depth of the block is 0.010-015 m wider on the right end probably to be joined to another corner block at right angles. Along the outer edge of the top is a molding which ends at the right end probably at a corner pilaster. Along the bottom of the exterior is a single relieving margin.

K3.75a+b

Length 1.100 m, height 0.247 m, depth 0.492 m

Preserved in good condition, although the corners are broken. There are two traces of clamps on each end, and a square dowel hole in the middle with a pry hole on the top. Along the outer edge of the top is a molding. A double relieving margin is along the bottom and a recessed joint is on the left.

K3.69

Approximately (0.26 m x 0.30 m), height (ca. 0.18 m)

Small fragmentary block of a bottom corner of the toichobate. Two exterior faces and the bottom are original and the rest are broken. A square dowel hole at the bottom shows remnants of metal, probably lead and iron. On one exterior face is a double relieving margin and on the other is a single one. The end of the lower course of the double relieving margin ends with vertical round molding. The corner block shows how the transition of single and double relieving margin on the corner was executed.

K3.76

A small fragmentary block of toichobate. Approximately 0.27 m square. The fragment is apparently from a corner, because it has an edge molding, half of which is narrower than the other half. A single relieving margin is recognizable on the bottom.

K3.49 (Fig. 28)

Length 1.020 m, height 0.270 m, depth 0.480 m

Broken into three pieces, but one small part on the left is missing. There is an edge molding along the exterior of the top with width 0.063 m and height 0.020 m. Along the bottom of the exterior is worked a single relieving margin. Near the middle of the top is a dowel hole, and on the left end are traces of two clamps, but on the broken left end only one remains.

XI.15

Length (ca. 0.74 m), height 0.270 m, depth 0.490 m, 0.558 m

The block is shallow L-shaped, showing that it was used on a corner, although the corner is broken. Along the exterior is a molding, which shows that there was a corner pilaster. The width of the molding is 0.066 m, and the height 0.014 m. The bottom of the exterior is worked in a single relieving margin, the height of which is 0.035 m and the depth 0.009 m. On the left of the top are observed traces of two clamps, in one of which still remain a fragmentary iron clamp and filling lead. In the middle of the top, there is a pry hole and a square dowel hole.

XI.7

Length 1.100 m, height 0.270 m, depth 0.480 m

Preserved well, but broken into three pieces. One corner is also slightly broken. Along the exterior is a molding, the width of which is 0.061 m, and the height 0.018 m. Along the bottom is a single relieving margin with a height of 0.033 m, depth 0.006 m. Also along the left end of the exterior is a vertical recessed joint with a width of 0.028 m, depth 0.007 m. On both ends of the top are traces of two clamps, and there is a pry hole in the middle of the top.

XI.67

Length 1.091 m, height 0.271-0.274 m, depth 0.489 m

A perfectly preserved toichobate block. Traces of two clamps are observable on each end of the block. Two square dowel holes and a pry hole can also be found near the middle of the top. There is no edge molding, but its height and depth are identical to other toichobate blocks. There is neither relieving margin nor recessed joint along the edges.

K3.1

Length 0.545 m, height 0.272-4 m, depth 0.495 m

The left half of the block. Traces of two clamps are seen at the end of the top. There is no edge molding. In addition, there is neither relieving margin nor recessed joint along the edges.

4-2-4 Threshold block

K3.79

Length 0.449 m, height 0.261 m, depth 0.47 m

The left half of the threshold block has been found but its right half is missing. In addition, the bottom 10 cm is also missing due to cleavage. The left end of the block is cut 0.195 m wide and 0.109 m deep to set a wall block. There are traces of two clamps at the left end. The upper 0.126 m of the block is the threshold itself, and on its left end is a square dowel hole to connect it with the doorway frame of the wall block. The bottom course of the threshold is a molding which continues to the toichobate.

4-2-5 Door

K3.82a, b, c (Fig. 31, Pl. 33)

Height 1.756 m, width 0.937 m, thickness 0.110 m

The door was found laid on the south court of the sanctuary. It is complete, though broken into three parts. The surfaces were finished well with chisel marks. The pivot projects only 0.014 m at the bottom, and is broken on the top. On the top of the door is a narrow channel, 0.465 m long, 0.014 m deep and 0.040 m wide. There are three holes in this channel, two square and one round, with depths of 0.28-0.34 m and distances between them of 0.125-0.145 m. The channels and the holes are probably to fix a metal cover of the pivot or metal pivot itself on the top.[4)]

On the vertical edge at a height from 0.806 m to 1.381 m, there is an irregular break with two holes to fix a lock which must have been made of iron. Corresponding to this break of the door, there is a trace with five holes where another half of the lock was fixed on the block K3.53.

4-2-6 Wall blocks

Thirty eight wall blocks have been found in total. Although the corners of most blocks are broken, they were in good condition on the whole. Their height and width are almost uniformly ca.0.63 m and ca.0.43 m respectively, but the length varies from 0.7 m to 1.15 m. The height of the unearthed door shows that the wall consisted of three courses and was ca.1.89 m high.

All the wall blocks without exception have conspicuous cleavage of limestone and were shaped

to locate this cleavage around 10 cm off of their inner faces. On the other hand, very peculiarly, several of them have this cleavage even near to their outer faces. Thus, the faces of some of the blocks are exfoliated and these faces are rugged with linear traces which look like tracks of large worms.

The wall blocks are categorized into three groups by the position where they were placed as follows.

1) Doorway frame blocks

Right side of the doorway from the top to the bottom: XI.96 (9283), K3.56, XI.85

Left side of the doorway from the top to the bottom: XI.73, XI.77, K3.53

2) Corner blocks

With a corner pilaster on the left end: K3.64, XI.118, K3.51, XI.35,

With a corner pilaster on the right end: K3.66, XI.27, XI.33, XI.100

3) General blocks

K3.60, XI.30, K3.65, 4203, K3.67, K3.61, XI.13, XI.25, K3.57, K3.55, XI.94, K3.58, XI.36, K3.63, XI.44, K3.59, XI.8, XI.34, XI.71, K3.62, XI.41, K3.52, K3.54, XI.231+217

The first group of blocks all have vertical frames for the entrance way. We have six blocks of this kind, three on each side, and all the wall blocks for entrance have been preserved. The second group is those that form corners and have pilasters. We have seven of these, three of which have engaged pilasters on their left ends of outer face of the blocks and four on the right ends. The third group is the rest of the blocks which were used in the middle of the walls, of which we have found twenty five. Four of them have their ends scooped out on the inner faces to join neatly to the edges of corner blocks with pilasters, because they are wider than the width of the pilaster itself.

1) Doorway frame blocks

The widths of the doorway frames are ca. 0.14 – 0.16 m and the depth ca. 0.30 m. They are separated from the walls by recessed joints which are ca 0.03 m wide. Behind the frames, there are cuts, 0.15 m wide and 0.12 m deep, to receive the door. The blocks were joined vertically with dowels set on the frames.

XI.96 (9283) (Fig. 29, Pl. 35)

Length 1.291 m, height 0.630 m, depth 0.440 m

There is a vertical doorway frame on the left side. The block has a vertical cut of 0.108 m from the top of the frame to place the lintel. The inner edge of the top is cut along its edge to receive a corner ceiling block. Behind the frame there is a cut to receive the door. At the height of 10 cm from the bottom there is a hole with a diameter of 8 cm and depth of 9 cm. The upper 20-30 cm of the inner face of the block is smooth, but the lower part is rough. Behind the frame there is a cut of 12 x 14 cm to receive the door. Along the bottom there is a relieving margin. There are inscribed two names of buried persons in two lines

on the exterior face. The letters of the first line are larger than those of the second line.

First line: ΝΙΚΗΡΑΤΕ ΘΕΟΝΟΣ ΠΡ ΧΑΙΡΕ
Second line: ΕΙΣΟΚΡΑΤΙΑ ΑΡΙΣΤΟΞΕΝΟΥΣ ΧΑΙΡΕ

K3.56

Length 0.841 m, height 0.628 m, depth 0.420 m,

There is a vertical frame on its left side. The block is broken here and there, but the original faces can be recognized inside and on the façade. Behind the frame is a cut to receive a door.

XI.85

Length 1.394 m, height 0.630 m, depth 0.437 m

The bottom course of the right side of the entrance way. The block has a vertical door frame on its left end and at the bottom of the frame there is a cut to join with the threshold. The height of the cut is 0.110 m.

XI.77 (Pl. 36)

Length 1.265 m, height 0.630 m, depth 0.434 m

The block has a vertical frame on the right side. There is a cut, 0.105 m high and 0.138 m wide, to place the lintel above, which shows this is the top course of the wall on the left side of the entrance. The upper 15 cm of interior face is thicker and better finished than the lower part.

K3.53

Length 0.727 m, height 0.639 m, depth 0.425 m

The block is supposedly placed on the middle course of the left side of the doorway. The upper part on the left is missing. It has a vertical doorway frame on its right side. On the top of the frame is a dowel hole. On the back of the vertical frame there are five holes, two on one side and three on the other, which are 3 x 5 cm in diameter and 2-4 cm in depth. They are probably to fix the metal fitting to lock the door. At the corresponding height of the door, there is a cut to fix the door lock, which must have made of iron.

XI.73 (Pl. 32)

Length (0.700 m), height 0.620 m, depth (0.295 m)

Not in good condition on the whole. The interior face is totally exfoliated at the cleavage of the block. The left half of the exterior is lost and more than half of the surface is exfoliated. The frame of the doorway is on the right side and there is a cut, 0.105 m high and 0.157 m wide, to join the threshold. On the bottom of the doorway frame is found a dowel hole where square lead still remains to fix the dowel to the block. The lead seems to be cast into the interstice between the dowel itself and the block and its form is like a square case of the dowel. In its center is a square hole for a dowel whose size is 0.020 x 0.020 m and

0.025 m deep. On the bottom of the lead there is a hole with a diameter of 5 mm, and on the mouth of the lead there are around twenty tiny holes made by a pointer to pack the lead around the stones.

2) Corner blocks

With a corner pilaster on the left end:

K3.64

Length 1.003 m, height 0.625 m, depth (0.304 m)

The inner surface is exfoliated at its cleavage. Broken on the edge and corners of the top. Relieving margin is seen only on the bottom. There are dowel holes on the bottom of the corner pilaster and on the bottom of the joint on the right end.

XI.118

Length 0.840 m, height 0.635 m, depth (0.295 m)

The block has a corner pilaster on the left end. The interior or back face is exfoliated due to the cleavage. There are recessed joints along the pilaster and relieving margin along the bottom.

K3.51

Length 0.990 m, height 0.629 m, depth 0.421 m

The block has a corner pilaster on the left end. There are recessed joints along the pilaster and right edge, and relieving margin along the bottom. There is a dowel hole on the bottom of the corner pilaster. Along the corner pilaster there is a recessed joint.

XI.35

Length 1.062 m, height 0.636 – 0.638 m, depth 0.422 m

Preserved in very good condition. Though there is neither corner pilaster nor recessed joint on the front, there remains a corner pilaster on left end and recessed joint on its bottom. There is no dowel hole which is usually on the bottom of the corner pilaster. Instead, a would-be dowel hole is set on the bottom of the outer surface on the left where a corner pilaster should have been carved.

The block is unusual in terms of its joints. Usually corner blocks have recessed vertical joints along the pilasters, and there is a vertical cut to join the adjacent blocks along them, due to the fact that the pilasters are smaller in width than the block's depth. But this block has no such cut and the real joint is not along the corner pilaster but on the edge of the block without recess.

On the back or interior, there is a little remnant of stucco even on the joint face. This is definitely a joint because there is a trace of clamp on the top, and it shows that the block was jointed after the surface was once stuccoed. We do not know why this should be so.

Wall blocks with a corner pilaster on the right end:

K3.66

Length 1.037 m, height 0.629 m, depth 0.315 m

Only the right end of the block has a corner pilaster, with a very shallow trace of the capital. The molding of the capital goes round to the front of the block, but there is no pilaster in front.

XI.27

Length 0.970 m, height 0.635 m, depth 0.320 m

There is a corner pilaster on the right end. The upper half of the pilaster is broken, and on its bottom is a dowel hole. The back is exfoliated at the cleavage. The joints are recessed along the bottom and the pilaster.

XI.33

Length (0.6150 m), height 0.635 m, depth (0.300 m)

The corner pilaster is on the right end of the block. There remains a dowel hole with lead on the bottom of the pilaster. In the center of the lead is a square hole for a dowel itself and the edge of the lead is pointed by a punch in the same manner as that of XI.73. The left part of the block is broken and the joint cannot be identified.

XI.100a, b

Length 1.023 m, height 0.693 m, depth ca. 0.450 m

The inner part of the block, half of which is missing, is exfoliated from the cleavage. On the top, there remains a square dowel hole. A trace of a clamp is recognized on the left end of the top. At the left end of the bottom remains a dowel hole as well. The block was apparently on the corner because one of its ends does not have a joint but rather a finished face. Along the bottom of the exterior is a recessed joint.

3) General blocks

XI.31

Length 1.016-034 m, height 0.628 m, depth 0.413-427 m

The corners are somewhat broken but preserved in good condition on the whole. The right half along the inner edge of the top is cut, 0.078 m wide, 0.045 m deep and 0.520 m long, to set a corner block. This means that the block was on the top course of the wall. Traces of two clamps on the right and one on the left can be recognized on the top of the block. A dowel hole with a pry hole is also near the middle of the top. A dowel hole is found at the bottom of the left end.

K3.65

Length 1.085 m, height 0.625-629 m, depth 0.406-430 m

Two corners on the top are slightly broken, but in good condition in general. The inner edge on the top is cut all along it, ca. 0.10 m wide and 0.044 m deep, to set a corner block. This cut shows that the block is on the top course of the wall. Two traces of clamps are identified on each end of the top and a dowel hole is carved around the center on the top of the block. The recessed joint is along the bottom. On the bottom of the right end is a trace of a dowel.

4203 (Fig. 30, Pl. 34)

Length 1.057-061 m, height 0.635 m, depth 0.444 m

On the left half of the inner edge of the top is a cut 0.100 wide and 0.445 m deep to set a corner block. This suggests that the block was used in the top course of the wall. On the right end of the top is found only one clamp hole, because the corner is broken. Near the center of the block is a square dowel hole. On the exterior, recessed joints are recognizable along the right and bottom. There are inscribed four names of buried persons in five lines on the exterior surface. The first two lines are along the upper edge, and their first halves are missing. The letters of the other lines are larger than those of the first two.

.....ΝΙΠΠΟΣ
.....ΕΝΙΠΠΟΣ
ΔΙΟΝΙΣΙΕ ΧΑΙΡΕ
ΠΛΕΙΣΤΑΧΙΑ ΔΙΟΝΥΣΙΟΥ
ΧΑΙΡΕ

K3.67

Length 1.146 m, height 0.630 m, depth 0.420 m

The bottom corner on the left end is badly broken. Approximately one-third of the left end is cut diagonally to form a joint with a corner block. On the top, traces of two clamps on the left and one on the right are evident. In the middle of the top is a square dowel hole. At the bottom of the right end is a dowel hole. Recessed joints are recognizable along the left and bottom.

K3.61

Length 1.132 m, height 0.630 m, depth 0.320-325 m

The block was shaped unusually so that the cleavage would be near to the exterior face. The exterior part of the block was completely exfoliated ca.10 cm due to this cleavage. Traces of two clamps are recognized on each end of the top. In the middle of the top is a square dowel hole. The left end is cut, not straight but with its inner half recessed to join with a corner block. In the middle of the bottom, an oblique hole with a diameter of ca.10 cm is observed, of which the purpose is unknown.

XI.13

Length 1.117 m, height 0.631 m, depth 0.380-428 m

The block was shaped unusually so that the cleavage would be near to the exterior face. There are traces of two clamps on each end of the top, three of which have remnants of lead filler and a fragment of the dowel itself. One of the lead filler remnants has tiny holes made by a pointer for packing it around the dowel. In the middle is a square dowel hole. At the bottom of the right end is also a dowel hole. Recessed joints can be seen along the left and bottom.

XI.25

Length 1.309 m, height 0.633 m, depth 0.413 m

The left side of the top is badly broken. Traces of two clamps remain on the right end of the block. The inner half of the right end is cut to form a better joint with a corner block and one of the clamps was set diagonally to join with it. In the middle of the top is a square dowel hole with lead remnant. Another dowel hole is also at the bottom of the right end. The joints are recessed along the left, right and bottom.

K3.57

Length 0.786 m, height 0.632 m, depth 0.363 m

The right one-third and the left corner of the block are missing, as is approx. 6 cm of the inner surface. The block was shaped unusually so that the cleavage would be near to the exterior face. Only a dowel hole remains on the top. No recessed joint is recognizable.

K3.55

Length 0.998-1.028 m, height 0.628 m, depth 0.405-0.410 m

Though four corners of the top are slightly broken, the block itself is almost completely preserved. A dowel hole together with a pry hole beside it is dug somewhat left of the middle of the top. Two traces of clamps are found on the right and one on the left. There is no recessed joint along the edges.

XI.94

Length 1.007-011 m, height 0.633 m, depth 0.252 m

Peculiarly and unusually the cleavage is near the exterior as with K3.57. The inner half of the block is missing. On the top is a square dowel hole near the middle and a trace of a clamp on the left end. Also at the bottom of the left end is a dowel hole.

K3.58

Length 1.044 m, height 0.629 m, depth 0.325 m

The inner face of the block is exfoliated at the cleavage. In the middle of the top there is a dowel hole and a pry hole. On the left end at the top, the trace of only one clamp is identified, though two can be seen on the right. Another dowel hole is recognizable at the bottom of the right end. There is a relieving margin along the bottom.

XI.36

Length 1.053 m, height 0.631 m, depth 0.415-428 m

Though the corners are slightly broken, the block is preserved well. Two clamp traces on each end of the top and a square dowel hole in the middle is the same as the others. There are no dowel holes on the ends. In the middle of the bottom of the inner face, however, there is a peculiar cut 0.02 m square and 0.013 m deep, the purpose of which is unknown. On the right end a tiny remnant of stucco is adhered.

K3.63

Length 1.100 m, height 0.634 m, depth 0.447 m

Though corners and edges are slightly broken, the block is well preserved. The block was shaped unusually so that the cleavage would be near to the exterior face. Two inner corners on the top are cut ca.0.1 m square and 0.045 m deep, where the ends of corner ceiling blocks were set. These symmetrical cuts show that the block was used in the middle of the top course of the wall. Traces of two clamps on each end still remain. A square dowel hole and pry hole are in the middle of the top. Recessed joints are worked along the left and right ends and a relieving margin at the bottom. Two dowel holes are also recognizable at the bottom of the right end.

XI.44

Length 1.115 m, height 0.630 m, depth 0.377-395 m

Though the corners are broken off slightly, the block is preserved almost completely. There are traces of two clamps on each end, one of which still has a remnant of lead. In the middle of the top there is a dowel hole. Another dowel hole is at the bottom of the right end. Joints are recessed along the left and bottom.

K3.59

Length 1.138 m, height 0.629 m, depth 0.295 m

The inner side of a width of ca. 0.12 m is exfoliated due to the cleavage. A trace of a clamp is recognizable on each end on the top. In the middle of the top is a dowel hole as well as a shallow rectangular cut 0.22 m long, 0.07 m wide and 0.01 m deep. The purpose of this shallow cut is unclear. Along the bottom is a relieving margin.

XI.8

Length 1.130-150 m, height 0.633 m, depth 0.411-423 m

The block is very well preserved. Two clamp traces are on each end of the top and a dowel hole is in the middle. Another dowel hole is at the bottom of the right end. Recessed joint is along the left edge and relieving margin along the bottom. On the four corners of the exterior are narrow cuts along the edges which are slightly deeper than the recessed joint and relieving margin. We do not know their use.

XI.34

Length 0.432 m, height 0.638 m, depth 0.305-315 m

More than half of the block is missing and only the right half of it remains. In addition the inner 10 cm is exfoliated. There are traces of two clamps on the top. Recessed joint along the left and relieving margin along the bottom are partially observable.

XI.71

Length 0.568 m, height 0.636 m, depth 0.436 m

The left half of the block is broken off. Traces of two clamps can be recognized on the top though

the corners are also broken. At the bottom of the right end is a square dowel hole and also at the bottom of the block remains a square dowel hole with lead filler.

K3.62

Length 0.825 m, height 0.630 m, depth 0.418 m

The left half of a block; the other half is missing. Two clamp traces are on the end and a dowel hole in the middle of the block. Another dowel hole is at the bottom of the left end. A relieving margin is along the bottom.

XI.41

Length 0.905 m, height 0.628 m, depth 0.420 m

The upper corner of the right end is broken. On the top remain fragments of two clamps on the left and in the middle a dowel hole. There is no recessed joint and it suggests that the block was used on the west wall.

K3.52

Length 1.080-1.085 m, height 0.630 m, depth 0.415 m

The block was shaped unusually so that the cleavage would be near to the exterior face. Both ends on the top are broken and traces of clamps are missing. There remains only a square dowel hole in the middle. On the right end of the bottom is also a dowel hole. Along the left end the edge is recessed and at the bottom there is a relieving margin.

K3.54

Length 1.043 m, height 0.632 m, depth 0.308 m

Except the inner surface which was exfoliated at the cleavage, the block is very well preserved. In the center of the top is a square dowel hole. On the left end of the top are traces of two clamps and one on the right. Another dowel hole is at the bottom of the right end.

XI.231+217 (or XI.217a +b)

Length ca.1.09 m (conjectured), height 0.631 m, depth 0.328 m

XI.231 and 217 are two broken portions of the same larger block; 231 being the left half and 217 the right half. This is evident from the fact that the broken parts fit very well, although the lower part of 231 is missing. The inner approximately 10 cm of both blocks are exfoliated at the cleavage. Traces of a clamp are recognizable on each block and there is a dowel hole on XI.231.

XI.93

Length ca.0.4 m, height 0.631 m, depth 0.416 m

The block is largely broken and only its left quarter remains. Traces of two clamps are identifiable on the top.

K3.60

Length 1.095 m, height 0.636 m, depth 0.432 m

Well preserved, though two corners on the left end are broken. Near the center of the top, there is a dowel hole and a pry hole. Anathyrosis is clear with rough finishing in the middle of the surfaces and smooth edge bands of several centimeters.

4-2-7 Triangular ceiling blocks

K3.47, XI.129, XI.99, K.48

There are preserved four identical triangular blocks which were used as ceiling corners to fill the gap between the square wall and round roof. Their heights vary from 0.304 m to 0.312 m and the original lengths must have been ca. 1.27-1.28 m. The hypotenuses of the triangular blocks are circular. Their inner faces are sloped outward. These blocks were set on the cuts along the inner edges of the corner wall blocks.

K3.47 (Fig.34)

Length 1.270, 1.280 m, height 0.305 m

Preserved almost completely, though broken into two parts. On the top, there is a trace of bedding where the bottom course of the circular roof was laid. Its width is around 0.44 m. There remain a square dowel hole and three traces of clamps, one on one side and two on the other. In the middle of the inner face there is a square hole, and beside it are two square cuts one over the other.

XI.129 (Pl. 39)

Length (1.260 m,1.280 m), height 0.307 m

Preserved almost completely, although broken into two parts like K3.47. Two vertexes of the block are slightly broken and rounded. There are three traces of clamps and a dowel hole on the top also like K3.47. The inner edge is circular and sloped outward with a square hole in the middle. In the center of the bottom, the surface is exfoliated.

XI.99

Length (1.288 m, 1.080 m), height 0.312 m

Broken into two parts and two vertexes of the original triangular block are broken. A dowel hole is recognizable at the same position as on K3.47 and XI.129. Two traces of clamps remain as well on the top. There is a square hole in the middle of the circular surface. The bottom is broken on the edges.

K.48

Length (0.949 m, 0.994 m), height 0.304 m

Two apexes of the triangular block are badly broken. On the top, the bedding for the bottom course of the roof is clearly recognizable, ca. 0.38 m wide. Two traces of clamps also remain. The inner edge is broken and no hole can be recognized.

4-2-8 Architrave-cornice blocks

K3.46, 9284, K3.44, K3.45, XI.98, XI.62, K3.73, K3.84

There were seven architrave-cornice blocks found. No corner block has been found. All the architectural elements of entablature, i.e. the architrave, dentil and cornice are combined in one block. On block 9284, six names of the buried are inscribed. The dentil courses of 9284, K3.44, K3.45, and K3.46 have ornamental repeated rectangles, but XI.98, XI.62 and K3.73 are finished simply flat.

K3.46a+b+c (Fig.32)

Length (ca.1.3 m), height 0.365 m, depth (0.655 m)

A block which bridged the doorway as a lintel. Broken into three parts. The left end is slightly broken but well preserved as a whole. The back is circular to continue to triangular ceiling blocks. The block is composed of architrave, dentil and cornice as the other blocks, but there is a doorway frame attached under the architrave. The height of the frame is 0.090 m. The bottoms of both ends are cut to a height of 0.105 m to rest on wall blocks. On the bottom, there is also a shallow cut with a height of 0.026 m to stop the door when it is closed, and on its right end is a hole for the door pivot with a diameter of 0.120 m and height 0.090 m.

9284 (Fig. 33, Pl. 38)

Length 1.081 m, height 0.262 m, depth (0.647 m)

The block is well preserved, though corners are partially broken. On the top, there remains circular bedding on which a roof block had been set above. The inner edge is also circular with its upper edge sloped. Traces of clamps are observed, two on the left end and one on the right on the top. There are inscribed names of buried persons on two fasciae of the architrave. The letters of the third one on each fascia are smaller than the others. [5)]

Upper fascia: ΕΠΙΚΡΑΤΕΙΑ ΝΙΚΟΞΕΝΑ ΝΙΚΙΧ.....
Lower fascia: .....ΙΝΟΣ ΑΓΗΣΙΣΤΡΑΤΟΣ ΕΠΙΚΡΑΤ.....

K3.44

Length (1.115 m), height 0.254 m, depth (0.395 m)

Two ends are preserved, but cornice is almost broken. Repeated rectangles of dentils are clear. On each end of the top remains a trace of a clamp.

K3.45

Length 1.013 m, height 0.257 m, depth (0.610 m)

A L-shaped block. Although broken into three pieces, it is preserved well with two ends. There is a circular trace to set a roof block above. Traces of clamps are observed on the top to connect with adjacent cornice blocks and a triangular ceiling block. On the bottom of the left end is a dowel hole.

XI.98

Length ca.1.360 m, height 0.261 m, depth (0.400 m)

Broken into two parts. The cornice is mostly broken. There are traces of three clamps and a dowel hole on the top. On the left end remains a circular trace on which a roof block had been set. At the bottom of the left end also remains a dowel hole. There are no repeated rectangles of dentil.

XI.62

Length (0.990 m), height 0.261 m, depth 0.533 m.

The right half of the block is missing. At the bottom of the left end also remains a dowel hole. There are no repeated rectangles of dentil.

K3.73

Length (0.461 m), height 0.258 m, depth (0.369 m)

A small fragmentary block. On the left end of the top remains a trace of a dowel hole. There is no ornament of repeated rectangles for dentil.

K3.84

Length (0.275 m), height (0.206 m), depth (0.392 m)

A small fragmentary block. The cornice is missing. Two fasciae of architrave and dentils are visible.

4-2-9 Roof blocks

Approximately 120 roof blocks have been identified, some of which are broken into two or three blocks. The blocks are described here as a whole rather than one by one. All the blocks are circular and can be categorized into three groups based on their shape and the courses which they belonged to. The blocks of the bottom courses are rectangular in section and form a ring. Those from the 2nd to 11th courses also form a ring but the exterior and interior surfaces are sloped. Those of the top five courses form truncated cones.

1) The bottom course (The 1st course)

Eleven blocks were found for the bottom course of the roof, and only a few are still missing. Five of them are complete and six are partly broken. The heights are ca. 0.235 – 0.240 m and the widths are 0.389 – 0.420 m. The 'lengths' vary from ca. 0.85 m to 1.60 m. (Fig. 35, Pl. 37)

2) General blocks (from the 2nd to 11th course)

Ninety five general blocks of the roof were found in total. General roof blocks are fan-shaped at the top and bottom. The outer face is a part of a cone. The diameter of the bottom is larger than that of the top. Their height is around 0.26 m. Their arcs vary from ca.0.4 m to ca.1 m. There is a clamp hole on each

end of the top of the blocks, as well as a dowel hole and a pry hole. The original faces of vertical joints are mostly weathered and broken. There is a dowel hole on the bottom of each vertical joint. The top and outer faces are angled, at 96 degrees at the top of the room and 131 degrees at the lowest course. In addition, the some of the outer faces are evidently concave. (Fig. 36)

3) Roof blocks with triangular cuts

XI.117, K3.10a+b (Fig. 37, Pl. 41)

There are two roof blocks with triangular cuts which open towards the inside. The opening angles are 45 degrees (XI.117) and 35 degrees (K3.10a). The slopes of the openings are ca. 55 degrees (XI.117) and 60 degrees (K3.10a). The exterior angles of the blocks to the top are at 117 degrees (XI.117) and 113 degrees (K3.10a) and this means that they were not placed at the same course of the roof. Each block has a dowel at the same position of the edge of the cut. We do not know exactly what this cut was used for.

4) The top five courses (from the 12th to 16th course)

The roof blocks of the top five courses formed frustums, in contrast to the fact that those of the lower courses formed rings. The frustums consisted of one or two blocks. The top course or the 16th course is unique with a form of an Ionic or Corinthian column shaft.

The 12th course: XI.88, XI.131, XI.133, XI.202, XI.204, XI.214, K3.2

Height 0.252 m, estimated top diameter 0.990 m, estimated bottom diameter 1.118 m

The block consisted of two semicircular blocks and was joined by two clamps. It is broken into seven pieces.

The 13th course: XI.1, XI.68, XI.121 (Fig. 38, Pl. 40)

Height 0.259 m, estimated top diameter 0.870 m, estimated bottom diameter 0.988 m

It was originally one block, but broken into three pieces. Mostly preserved well. Three dowel holes are recognizable on the top, and one on the bottom.

The 14th course: K3.39a, b

Height 0.256-0.260 m, estimated top diameter 0.770 m, estimated bottom diameter 0.860 m.

The block consists of two semicircular blocks that were joined by two clamps at the top. Each has a dowel hole on its top; K3.39a on its edge and K3.39b near the center.

The 15th course: XI.22a, b

Height 0.265 m, top diameter 0.706 m, bottom diameter 0.762 m

It is preserved in good condition, originally one block, but broken into two pieces. There are two dowel holes on the top, the distance between which is 0.550 m. The dowel holes on the bottom are carved at its edge.

The 16th course or the top column shaft: XI.84 (Fig. 39, Pl. 45)

Height 0.217 m, top diameter 0.780 m, bottom diameter 0.700 m

The block is in a form of the top of an Ionic or Corinthian column shaft. It is in good condition but approximately a quarter of it is broken. At the top of the block is carved a torus, then filet, then flutes. There are unusual 28 flutes which are divided by narrow filets. [6] The grooves of the flutes are deep at the top as with ordinary flutes, but as they come closer to the bottom, they become shallower and finally disappear, converting into a simple circle for their outlines to continue to the block underneath. There are two dowel holes on the top which are 0.617 m distant one another. Also on the bottom a dowel hole is recognizable near the edge.

4-2-10 Finial of the Corinthian capital

Upper block: K3.81 (Fig. 41, Pl. 43)

Height 0.477-488 m, upper diameter ca.0.70 m, lower diameter 0.42-0.45 m

Lower block: K3.80 (Fig. 40, Pl.44)

Maximum height 0.290 m, body height 0.246 m, upper diameter 0.717 m, lower diameter ca.0.64 m

Fragment of abacus with an inscription

The Corinthian capital on the top of the roof consists of upper and lower parts. [7] On the lower blocks are carved sixteen acanthus leaves in two courses (upper and lower) of eight leaves each. This block was found and reported also by Blouet in 1831.[8] The leaves on the lower course are preserved well but those on the upper course are damaged or missing at the top. Each acanthus leaf is carved slightly differently. For instance, the axes of some upper leaves are not straight, and thicknesses and outlines of the leaves are clearly different. The carving technique is not very sophisticated on the whole. In the center of the bottoms of both the lower and upper blocks, there are tiny holes for centering, but no clear traces of centering can be recognized on the tops of either block. There are no dowel holes even on the top or bottom of either block. However, there are two dowel holes on the top of the topmost roof block, and the distance between them is equivalent to the bottom diameter of the lower capital block. This shows that the lower capital block was fixed at its edges by two dowels. The upper block was probably fixed by the projecting acanthus leaves of the lower block.

The upper block of the capital is in good condition, but all the corners are broken. Two broken corner blocks were found. A square bedding with a height of 5 cm probably to set a sculpture is carved at the top of the upper block, in the center of which is carved a hole with a diameter of 0.205 m and a depth of 0.075 m. The top and bottom faces are not precisely parallel and the maximum difference of height is 0.011 m.

From the bottom of the upper block spring eight large volutes, each two of which meet together under a corner of the abacus to support it with their top scrolls, but these top scrolls are missing. This capital differs from standard Corinthian capitals in that no caulicolos or calices are observed. There are

deep grooves between the two volutes on the corners. The four pairs of volutes differ slightly from each other in their inclination, direction, etc. and their carvings are not completely uniform. In the middle of the sides between the volutes which support the corners, shallow symmetrical pairs of smaller central volutes (helices) are carved in relief. They spring upward, widening first, then narrowing in distance, and finally touch at the top with their ends scrolled inwards. Inside the enclosures formed by these central volutes, a very shallow relief of simple slender tendrils is carved, one on each of three sides of the capital. They rise upwards circling back on themselves in the middle and then rising again. Two of these circle counterclockwise and the third circles clockwise.

On three sides of the capital, just under the middle of the abacus, are carved holes which are 35-40 mm wide, 65-70 mm high, and 25 mm deep, probably to set palmets or foliated ornaments. On the fourth side is carved a rough vertical groove ca. 120 mm wide, ca.0.28 m high, and 30 mm deep. At the bottom of this groove is a horizontal hole which is 50 mm deep, 25 mm high, and 60 mm wide. These ended up destroying the tendril relief in the middle, and were probably traces of later remodeling. They are aligned with the other two holes on the top, so they must have been to set the metal fittings to fix the sculpture on the top of the capital.

There are two fragments of abacus, on one of which is an inscription. In spite of its worn-out condition, seven Greek letters (1cm wide and 1.5 cm high) are discernible. Three of them, E, U, L, are intact, while the four remaining letters, K, E, I, A are legible even though they are in imperfect condition. The entire inscription reads EUKLEIA, meaning fame.

4-3 Building materials and technique

4-3-1 Stone

The stone used for K3 is a local limestone. According to the villagers, there are some old quarries in Mt. Ithomi, the acropolis of ancient Messene, although they are now covered by mud and trees. There are also some modern quarries which produce same kind of stones in nearby villages. It is very difficult to say, however, exactly where the stones of K3 are from. The stone is comparatively soft and somewhat easy to weather. The amount of weathering on surfaces of the blocks seems to be 3 -4 mm, judging from linear veins which were less weathered than the rest of the parts. Naturally, the amount of weathering depends on how and how long the blocks were exposed to the air. On some blocks, finished surfaces still remain, and on others, veins are conspicuous like blood tubes.

All the wall blocks were quarried as to contain cleavage. Block with cleavage is certainly not good as building material. Indeed, the surfaces of some blocks are exfoliated at the cleavage. This fact shows that it was probably unavoidable in some reasons because all the blocks have it. Thirty three wall blocks have cleavage approximately 10 cm off the inner surfaces, and five have it at same distance off the outer surfaces. It would be reasonable to have the cleavage near the inner surfaces for the possibility of later exfoliation. Thus, five blocks must have been shaped by mistake so that the cleavage would be near to the exterior

4-3-2 Stucco

Some remnants of stucco are observed on several block, remaining mostly on joints. For example, they are observed at a joint of the lower crepis in the interior on the west side, and at some joints of separating slabs of the tombs. At one joint of the central pit of the tombs, this stucco is 1 cm thick. For wall blocks, at the joint of XI.35, tiny remnants of stucco are recognizable. As for the roof, on the vertical joint of XI.9 remains a stucco fragment of 4 x 10 cm.

Stucco seems to be used not only for joints, but also for the inner surface of the tomb chamber. [9] On the inner surface of the wall block XI.71 of the west wall, there remains only a tiny fragment of stucco. However, several fragments of small red-painted stucco molding from the tomb chamber were found. In addition, inner surfaces of the wall blocks are roughly finished with chisel marks, probably to form a surface to be stuccoed. From all this evidence, we may conclude with certainty that the interior of the tomb chamber must have been completely stuccoed, and probably painted as well.

4-3-3 Clamps

As usual in classical monuments, clamps were used to join adjacent blocks. All the clamps are exclusively pi-shaped. The clamps themselves are completely missing, but some fragments and their traces show that they are like plates and 0.021 m long, 0.015 m wide and 0.014 m thick. Their ends were hooked down and 0.027 m deep. The interstices between blocks and clamps were filled with lead. Two clamps were used for every joint from the lower crepis up to the wall. The cornice blocks were connected to each other by a clamp and to the triangular ceiling blocks by one or two clamps. Roof blocks had only one clamp on each end.

4-3-4 Dowels

Dowels were used in K3 to fix the vertical connections between the blocks and to prevent slipping between courses. They were iron bars whose sizes are usually ca. 3 cm square in section and 10-11 cm high, according to the actual dowel which remains on the southwest corner of the lower crepis. (Pl. 30) The interstices between dowels and blocks were filled with lead as clamps. Some pour channels for lead are observed on the toichobate, wall and upper roof blocks, but most of the dowel holes do not have them.

The dowels had two uses depending on where they fix the blocks. The first use is usual and fixes the ends of the blocks of the upper courses. The dowels are set near the middle of the top of the lower course blocks, and their upper halves fix the ends of upper course blocks. In this case, the dowel holes were worked in advance at the bottom on one ends of the upper course blocks and also near the middle of the top of the lower course blocks. After placing the upper course blocks in right positions, the dowels were set and lead was poured into the interstices between the dowels and the blocks. As it was probably difficult to pour lead into the interstices of the dowel holes of the upper course blocks, the lead might have been poured by pressing a wood plate to the dowel hole not to flow out.

On the corners, the dowels of this type were consequently exposed. (Pl. 30) We can observe some of those on the euthynteria, lower and upper crepis, and toichobate. On the euthynteria, a dowel hole

is observable on the south side of the southeast corner. On the lower crepis, three dowel holes are observable on the west side of the northwest and southwest corners and north side of the northeast corner. On its southwest corner an actual dowel still remains. On the upper crepis, a dowel hole of this use is observable on the west side of the southwest corner. On the toichobate, a dowel hole is observed on the west side of the south west corner. On the northwest corner, the same type of dowel hole is observed from the trace of the reconstructed wall block above. For the wall, architrave-cornice, and the roof blocks from the 1st to 11th course, all the blocks have the dowels of this use.

The other use of dowels was to fix the insides of the blocks, several centimeters off the outer edges, for practical and aesthetical reasons. (Pl.31) This type of dowel was set for the corners of the wall, the doorway frame (Pl. 32) and the frustum roof blocks from the 12th to 16th courses, for the reason that it was not possible physically to set dowels on the outer edges of the blocks. Also for the east side of the upper crepis and toichobate, this type was used not to be exposed to the street.

The blocks with this type of dowels were set in the following manner. The blocks to be set were turned over and the dowel holes were worked. The dowels were set in them and lead was filled in the interstices to fix them. The blocks were turned over again and pulled up with ropes, then pulled down to the right position, adjusting the dowels and the dowel holes of the lower courses. After the blocks were set, melt lead was poured through the pour channels.

4-3-5 Pry holes

Every block usually has a pry hole on its top, used to maneuver the block of the next course above and set it at exactly the right position. In K3, pry holes are observed on almost all of the blocks except those for walls, cornice, and several frustum blocks of the top courses of the roof. The cornice blocks have no pry holes reasonably, because there were no blocks above. We do not know the reason for this, and we can only presume that these blocks were set directly at the exact position by a crane or pulleys.

Most of the pry holes are long and narrow, usually 7-8 cm long, 3-4 cm wide and 3-4 cm deep. They are in V-shaped in section, and one side of the hole is usually steeper than the other. The gentler side of the pry hole is closer to the joint of next upper course, judging from the position of dowel holes where the blocks of the upper course were joined. Usually, they are several centimeters apart from the joints. This means that the steeper side was used as a fulcrum for leverage when workers pushed the blocks to join them to adjacent ones. The examination of the pry holes therefore makes it possible for us to understand the placement of the blocks. [10)]

4-3-6 Anathyrosis

Joint faces of the blocks were worked in such a way that only their edges were in contact, what we call, anathyrosis. The width of the contacting faces varies from 6 cm to 15 cm at most in horizontal joints, but the anathyrosis is usually not very clear at the bottom of the blocks. On the vertical joints, the width of this edging is rather narrow, some 3 cm to 5 cm at most.

4-3-7 Setting line

For each block on a course to be set in the right place, guide lines were drawn on top of its lower course. These lines were necessary especially for toichobate and crepis and are clearly recognizable on the east side of the lower crepis.

4-4 Reconstruction

4-4-1 Hypothesis

Almost all the blocks for K3 have been preserved, though they were dislocated. For the reconstruction of K3, as with K1 and K2, we had a hypothesis that K3 was built so that its east side would be seen from the street by passers-by, because these grave monuments were built along the main street which leads towards the south from the Propylon of the Gymnasium complex. Thus, it would be right to conjecture that its architectural elaboration was concentrated especially on the east front, and, in contrast, that the west side which faces only the supporting wall would show little architectural elaboration.

In reconstructing the locations of the dislocated blocks, there are clues on the blocks themselves which indicate their original positions. [11] Some blocks with two neighboring finished faces are evidently from corners. Some crepis and toichobate blocks have double relieving margin, indicating that they might have been placed on the east side for its architectural elaboration so as to be seen from the street. Other crepis and toichobate blocks had single relieving margins indicating that they might have been set on the north and south side, and still others without relieving margins on the west side. As to wall blocks, the clues to solve the puzzle were corner pilasters, frames of the entrance way, recessed joints along edges, correspondence of positions of clamp holes and dowel holes, etc.

4-4-2 Upper and lower crepis

Lower crepis

XI.124

The block XI.124 is the only block with a horizontal depth of 0.664 m. Its depth is identical with other lower crepis blocks in situ. Thus, it is evident that this block must have been set on the southeast corner where only one block from the lower crepis is missing.

Upper crepis (Pl. 46)

13 blocks have an average horizontal depth of 0.600 m. We know only the heights of 5 other fragmentary blocks due to damage; thus we cannot identify which course; lower or upper crepis, or toichobate, they belonged to.

1) Blocks with relieving margins: XI.29, XI.78, K3.68, K3,70

These blocks have double relieving margins, while the others have none. These margins must be for architectural elaboration, and they must have been placed on the east side so as to be seen by visitors

from the street. XI.78 has two shallow cuts to set the ends of cists; consequently, it was probably set as the second block from the south. K3.68, with a clamp hole to join a block at a right angle, was probably set on the southeast corner. The clamp holes on the end also match those of XI.78. Thus, XI.29 was probably joined to the north side of K3.68. The small fragmentary block K3.70 was most likely placed on the northeast corner.

2) Blocks with shallow cuts to connect with cists: K3.6+XI.4+5, XI.74, K3.72

Blocks K3.6, XI.4 and XI.5 evidently came from one block, judging from their broken edges. This block must have been set as the second from the northwest corner, which should have had two shallow cuts for the cists, and this is the only block showing such a feature. XI.74 was likely placed in the middle of the south side, judging from its oblique clamp hole to that of a cist there. Consequently, K3.72 can be placed in the middle of the north side without hesitation due to its shape and the position of the shallow cut for a cist.

3) Others: XI.2, XI.6, XI.11, XI.12, XI.14, XI.30, XI.76, XI.212, K3.4a-d, K3.71

XI.11 has a concave end and XI.12 a convex one, indicating they were probably joined together. The only place where these two blocks could be set is on the north side. K3.4a-b has been preserved as a whole, though broken into four blocks. XI.76 also is completely preserved. The position of these blocks was decided on the basis of the position of their clamp holes. K3.4a-b was joined to K3.6, and XI.76 to K3.68. XI.2 may have been set as the other half of XI.11, and XI.14 could have been joined to XI.12, with their broken faces being adjusted together. XI.212 could also have been joined to the southwest corner block, and K3.71 to XI.5 as well, judging from the position of their clamp holes.

4-4-3 Toichobate

We have 17 toichobate blocks with widths ranging from 0.473-0.492 m. They are categorized into five groups according to formal characteristics. (Pl. 49)

2) Blocks with double relieving margins: XI.18a+b, XI.80a+b, XI.97, K3.75a+b, K3.69

Double relieving margins are more elaborate than single ones. Thus, these five blocks must have been used on the east side as architectural elaboration. XI.97 and K3.69 have both double and single relieving margins, meaning that they were corner blocks. Thus, XI.97 was set on the southeast corner and K3.69 on the northeast corner. XI.80a+b has a recessed joint on its left end, while XI.18a+b and K3.75a+b have recessed joints on their right ends. As two recessed joints could not be adjacent, XI.80a+b must have been placed as the second block from the south on the east side. Judging from the position of the clamp holes, XI.18 was set in the middle and K3.75 adjoined it to its north.

2) Corner blocks XI.119, XI.15, K3.76

The next key blocks are three corner blocks. The complete block XI.119, though broken into three parts, has a single relieving margin on its side and none on one finished end. Thus, it was probably put on the southwest corner, because the northeast corner was already occupied by K3.69. The small block K3.76 might be combined with K3.69 as one block. Consequently, XI.15 was probably placed by

process of elimination on the northwest corner.

3) Threshold block K3.79

For K3.79, there is only one possible location, i.e., the middle of the west side.

4) Blocks with single relieving margins XI.7, XI.113, K3.49, K3.50

Blocks with single relieving margins were probably used on the north or south side of the monument. XI.113 was probably combined with corner block XI.97, because only this block lacks a right end which must have been XI.97. The other blocks XI.7, K3.49 and K3.50 were likely set on the north side from west to east, judging from the positions of their clamp holes.

5) Others XI.6, XI.67, XI.207+208, K3.1

The other blocks without any relieving s were probably placed on the west side. Using their clamp holes as clues, we determined that XI.207+208 were probably joined to the southwest corner block XI.119, then XI.67 and finally the fragmentary blocks XI.6 and K3.1 towards the north.

4-4-4 Walls

Clues used to decide the original position of the wall blocks are: 1) frames for the doorway, 2) corner pilasters, 3) recessed edges for joints, 4) cuts to set ceiling blocks, threshold blocks, lintel blocks, etc., 5) capitals for corner pilasters, 6) coincidence of holes for dowels and clamps, 7) size and dimensions, 8) rectangular corner cuts on the joint of the blocks and alternate setting of end and side of the blocks on the corners. The corner pilasters and doorway frames show with certainty that the blocks were set on the corners and doorway. Cuts for ceiling or lintel blocks, capitals, etc. show that they are from the upper or lower course, or from the middle course if none are present. The blocks without recessed edges suggest that they are from the west side. Besides these clues, the positioning system of the blocks was that one block was always set on two blocks underneath and the ends and sides of the blocks were set alternately on the corners. As in a jigsaw puzzle, these clues and conditions were combined to enable us to identify the original positions of the blocks. (Fig. 43, 44, Pl. 48, 49)

1) Blocks with doorway frame

XI.73, XI.77, XI.85, XI.96, K3.53, K3.56

Blocks XI.73, K3.53 and XI.77 have frames on their right sides, and they were probably placed on the left side of the doorway. For the opposite reason, XI.85, XI.96, K3.56 were probably placed on the right side. XI 73 and XI.85 had cuts for the threshold and could be placed at the bottom, and XI 77 and XI.96 had cuts for the lintel and were placed at the top. Consequently, K3.53 and K3.56 were probably placed on the middle course.

2) Blocks with corner pilasters

XI.27, XI.33, XI.35, XI.100a+b, XI.118, K3.51, K3.64, K3.66

Blocks XI.35, XI.100a+b and K3.66, due to the lack of recess along the edges and the block setting of the wall, were placed on the top or bottom of the west side. K3.66 had a pilaster capital on its right and must have been set on the top of the southwest corner. XI.35 without a pilaster capital was

probably set at the bottom of the northwest corner. XI.100a+b has a pilaster on the right side without a capital, thus it was placed at the bottom of the southwest corner.

K3.51, XI.118 and K3.64 have corner pilasters on their right ends, and XI.33 and XI.27 on their left ends. Each block has two or three possible location, but with the conditions written above, K.51 must have been set on bottom course of the southeast corner on the east side, XI.118 on the middle course of the southeast corner on the south side, K3.64 on the middle course of the northeast corner on the north side, and XI.33 on the middle course of the northwest corner on the north side.

3) Blocks without recess along the edge

XI.31, XI.36, XI.41, XI.71, XI.93, XI.94, K3.55, K3.57, K3.60

These blocks were probably placed on the west side. K3.60 and XI.31 have cuts for ceiling blocks at the top, and their position shows that they were placed adjacent to each other in the middle of the top course. From the number of blocks found, we know that most of the blocks have been preserved, and we cannot help supposing that XI.41 and XI.93 were from an identical block. Conditions for placement on the northwest corner indicate that K3.57 must be a single block. For the other blocks, it is conjectured that XI.36 was set on the middle course of the northwest corner, XI.41+XI.93 on the middle course of the southwest corner, XI.71 in the middle of the middle course, XI.94 in the middle of the lower course and K3.55 as the second from the northwest corner on the lower course.

4) Others

XI.25, K3.61, K3.67

The clues of these blocks are that their one end of the blocks were cut diagonally to join to the corner blocks. According to the size and shape of the cuts, XI.25 was set on the middle course of the northeast corner on the east side, K3.61 on the lower course of the northeast corner on the north side, and K3.67 on the middle course of the southeast corner on the east side.

4203, K3.63, K3.65

These blocks belong to the top course, because they have cuts on the top to set ceiling blocks. According to the shape and location of the cuts, 4203 must have been placed as the second from the southwest corner on the east side, K3.63 in the middle of the north side, and K3.65 on the northwest corner on the north side.

XI.217a+b, K3.58, K3.59, K3.62

These blocks have no recess along their vertical joints, while the others do. XI.217a+b could have been joined with 4203 in the middle of the top course on the east side. K3.58 must have been the second from the southeast corner on the bottom course of the east side. K3.59 was located on the northeast corner of the top course on the north side. K3.62 has no choice except for the southwest corner on the south side. It means that it could have been combined with XI.73.

XI.8, XI.13, K3.52, K3.54

The places of these blocks could be identified only by their size and position of the holes of the clamps and dowels. As a result, XI.8 was probably located on the bottom course of the northeast corner on

the north side, XI.13 in the middle of the bottom course on the north side, and K3.52 and K3.54 adjacent to each other in the middle of the middle course on the north side.

XI.34, XI.44

The place of the fragmentary block XI.34 is ambiguous and difficult to identify, but we have tentatively located it on the bottom course in the middle of the east side. XI.44 could be placed in the middle of the middle course on the east side, due to its size.

4-4-5 Cornice and ceiling

Cornice and triangular ceiling blocks belonged to the same course. Three large cornice blocks with round edges on their backs must have been set between triangular ceiling blocks which also had round edges, their circular edges corresponding and continuing as an arc. K3.46 with a lintel and a hole for a door pivot underneath was evidently set in the middle of the south side for its doorway. Block 9284 was probably placed in the middle of the east side for its inscription to be read by passers-by. XI.62 was probably placed on the west side because no dentil was worked on it. Consequently, K3.45 was set on the north side by process of elimination. XI.98a+b and K3.73 were also placed on the west side without dentils. K3.44 was set on the east side with its clamp hole corresponding to that of 9284.

The ceiling blocks were placed behind the cornice blocks with two sides set on the cuts of the topmost wall blocks. They filled the triangular corners of the wall forming a hollow circle in the ceiling. This is evident because the vertical depth of these cuts is 0.041-0.048 m and the height of the cornice blocks is 0.254-0.262 m. Thus, the total height of the cuts and cornice blocks is 0.295-0.310, which is identical with the height of the ceiling blocks (0.304-312 m). Investigation of corresponding clamp holes and size and shape of the blocks revealed that K3.48 must have been placed on the southeast corner, K3.99 on the southwest corner, K3.47 on the northeast corner and XI.129 on the northwest corner.

4-4-6 Roof

1) Bottom course (the 1st course)

1st XI.16+XI.125, 31a+b+c, K3.41, XI.90, XI.48, XI.218 (right end missing), K3.42, XI.32+XI.38, K3.43, 33

A round roof was obviously constructed on the cornice and triangular ceiling blocks, judging from the circular traces on the top of these blocks. For example, the widths of the traces are ca. 0.43 m on K3.47 and ca. 0.39 m on K3.48 for ceiling blocks, and for cornice blocks; ca. 0.41 m on 9284, ca. 0.41 m on K3.45, and ca. 0.40 m on K3.46. Correspondingly, the widths of circular blocks with vertical outer surfaces are from ca.0.39 m to ca.0.42 m. From these facts, the lowest course of the roof must have used the circular blocks with vertical outer surfaces. (Fig. 43, 44, Pl. 48)

We found ten such blocks: XI.16+XI.125, 31a+b+c, K3.41, XI.90, XI.48, XI.218, K3.42, XI.32+XI.38, K3.43, and 33. Where should these blocks be placed? The clue to solve the question is the position of dowel holes on the cornice and ceiling blocks, since each of these circular blocks has a dowel

hole on one end.

Consideration of these dowel holes, circular traces on the cornice and ceiling blocks, size of the circular blocks, breakage, etc., led us to the hypothesis that there were nine blocks on the bottom course of the roof and their joints were at the following positions.

Joint No. Position

1. A dowel hole at the west end of the northeast ceiling block (K3.47)
2. (A dowel hole) on the missing part between the central cornice block of the east side (9284) and the southeast ceiling block (K3.48)
3. (A dowel hole) on the missing part of the west end of the southeast ceiling block (K3.48)
4. A dowel hole in the middle of the central cornice block on the south side (K3.46)
5. A dowel hole at the east end of the southeast ceiling block (XI.99)
6. A dowel hole at the north end of southwest cornice block (XI.98)
7. A dowel hole at the north end of west cornice block (XI.62)
8. A dowel hole at the south end of northwest ceiling block (XI.129)
9. (A dowel hole) on a missing north cornice block adjacent to the northeast ceiling block (K3.47)

It is presumed that there were nine joints, and six of them still remain on the blocks. The other three cannot be identified and are assumed to have been placed on missing parts. Considering the size of the circular blocks for the bottom course of the roof, it is definitely necessary to infer the joints on the missing parts.

Eleven blocks remain for the bottom course; six of them have both ends and five only one end. Specifically, XI.218, XI.16 and XI.32+XI.38 have left ends (when we view them from outside), and XI.48 and XI.125 right ends. Two of the blocks with left ends and the two blocks with right ends most likely formed two identical blocks, and only one end of a block would be missing. In order to locate the positions of all these blocks, we considered all the possible combinations of the broken blocks, and all the probabilities of positioning of the blocks to the right places. We obtained the following results.

Position between joints	Block
1 - 2	XI.16+XI.125
2 - 3	31a+b+c
3 - 4	K3.41
4 - 5	XI.90
5 - 6	XI.48
6 - 7	XI.218 (right end missing)
7 - 8	K3.42
8 - 9	XI.32+XI.38
9 - 10	K3.43
10 - 1	33

This positioning on paper was proven to be correct by trial reconstruction at the site by the complete accordance of positions of dowel holes.

2) Main part (from the 2nd to 12th course)

Concerning the main part of the roof from the 2nd to 12th course, the keys to deciding the positions of blocks are the slope of their exterior faces and position of clamp holes and dowel holes. It is an extremely difficult three-dimensional jigsaw puzzle.

The blocks are circular and formed parts of rings. The upper diameter is shorter than the lower one. Thus, their interior and exterior faces sloped. The larger the diameters of the blocks, the steeper their exterior faces are sloped. Thus, it was evident that the roof sloped more steeply as it rose higher. This means that the shape of the roof was concave and conical. How did the architect decide the outline? Here, we made a hypothesis that the outline of the concave roof was decided based on a geometrical curve: either a circle or a catenary, which would have been the simplest and easiest to construct on site in ancient times. (Pl. 50, 51, 53)

For the top of the roof from the 12th to 16th course, each of which formed a frustum, it was not difficult to combine the broken blocks and we were able to identify all the preserved blocks. Thus, we measured the upper and lower diameters of their truncated conical form, or calculated them if they were broken, with certainty as: 1.118 m, 0.988-0.990 m, 0.860-0.870 m, 0.762-0.770 m, 0.700-0.706 m. A series of these diameters and the height of the courses produce a curve of the outline. Also, we were able to calculate the diameter of the bottom course of the roof as 4.179 m from the traces on the ceiling blocks. The original roof curve was probably approximated based on these numerical values. We tried to approximate the curve as both a catenary and a circle so as to produce a minimum error. Supposing the top line of the bottom course as the X axis and central vertical axis as the Y axis, we best approximated the curve as the following equation of a circle.

$$(x - 6.477)^2 + (y - 4.327)^2 = 6.162^2.$$

This is a circle with the diameter of 6.162 m, which is equivalent to approximately 20 ancient feet. At the same time, we also realized that the sloped part of the roof was built in fifteen courses. The top five courses were of truncated cones and the topmost one was a fluted column drum. The other courses formed rings with their inner faces left unfinished. The bottom course was set on the triangular ceiling blocks and the cornice blocks.

It was a very hard task to locate the blocks at their right positions. Many of them did not keep original complete shape and their original dimensions were ambiguous with weathering and breakage. In addition, some blocks are missing. However, only clues were the angles of the exterior slopes, the upper and lower diameters, clamp holes, and dowel holes. Horizontal correspondence of clamp holes and vertical correspondence of dowel holes of the blocks should have been satisfied at the same time. After repeating trials and errors many times, we reached the final solution.

The blocks of each course are shown clockwise from the south above the doorway.

2nd XI.91, XI.75+XI.26, K3.16, K3.14, XI.82+XI.107, XI.17, XI.56a+b, 27, K3.19, XI.69+ XI.79, XI.111+(XI.111b), XI.223, XI.122

3rd K3.26, K3.9, K3.85, XI.86, K3.20+K3.77, XI.126, XI.120+XI.226, XI.229, K3.28, XI.64, XI.42

4th XI.92, XI.46, XI.59+XI.45, XI.220+XI.70, K3.25+XI.232, XI.128+XI.127, XI.105+XI.116, K3.17, K3.7, XI.209, XI.95, K3.33

5th XI.49, K3.78, XI.47+XI.9, XI.87, K3.86, XI.123, K3.15, (XI.50)+XI.103, XI.60, K3.8, K3.36

6th XI.102, K3.13, K3.29, XI.55, XI.43, XI.117 (with triangular cut), XI.72+K3.32, K3.37a+b

7th XI.37+K3.D2, XI.219, K3.30, XI.28, XI.225, XI.222 (to be placed on XI.117 with a triangular cut), K3.24+XI.63, XI.221, XI.224

8th XI.203, XI.40, XI.115, K3.10b+a (with a triangular cut), K3.35, XI.205, K3.31

9th K3.22, XI.206, K3.12 (to be placed on K3.10a+b with a trace triangular cut), K3.34, K3.23, XI.104

10th K3.18, K3.38, XI.130, K3.27, K 3.11

11th K3.74, K3.40, K3.21

3) Top five courses (from the 12th to 16th course)

12th XI.131, XI.88, XI.214, XI.133, K3.2, XI.204, XI.202

13th XI.68, XI.121, XI.1

14th K3.39a+b

15th XI.22a+b

16th XI.84 (fluted column drum)

Four frustum blocks were found. (Pl. 52) Although three of them were broken into several pieces, we were able to restore the original size and shape of each block. Two of them were of monolithic blocks, and the others consisted of two semicircular blocks. Their lower and upper diameters were calculated from 0.700 m to 1.118 m through this reconstruction. The smaller the diameters are, the more their exteriors are sloped. In addition, a top block of a fluted column shaft (XI.84), the size of which was close to these blocks, was also found. Comparison of these blocks led us to the conclusion that they must have formed the top five courses of the concave conical roof. The top course must have been a fluted column drum, because its shaft diameter was 0.700 m, which was almost equal to the upper diameter 0.706 m of the smallest frustum block XI.22. The distances of their dowel holes from the outer edges on their joint were identical in both of the blocks. Thus the column block was probably located on XI.22. The flutes of the column block are deepest at its top, and become shallower as the flutes go down and finally disappear at the bottom of the shaft. The slope of the flutes continues spontaneously to the outline of the blocks underneath, but on the other hand, the flutes also appear gradually; a good solution to the problem of how to place a fluted column drum on top of a sloped roof.

The courses of the other three could be identified by comparison of their top and bottom diameters. There were errors of some millimeters between the diameters, but these errors could have been caused due to weathering and fragmentation of the blocks. The position of the dowels corresponded completely. Thus, the top five blocks were identified as follows.

Course	block no.	upper diam.	lower diam.
12th	XI.131, etc	(0.990)	(1.118)
13th	XI.68, etc.	(0.870)	(0.988)
14th	K3.39	(0.770)	(0.860)
15th	XI.22	0.706 0.762	
16th	XI.84	0.780 m	0.700 m

* The diameters in the parentheses were calculated.

4-4-7 Finial of the Corinthian capital

K3.80 is a drum with acanthus leaves all around, and K3.81 is a bell-shaped block with traces of volutes and abacus. (Pl. 52) These two blocks were restored as lower and upper halves of a Corinthian capital, which must have been placed on the top of the fluted column shaft of the roof. Evidence for this conclusion was that two blocks of the capital were found at the site of K3. Also, the lower diameter of K3.80 is approximately 0.619 m, and that of the torus of the column shaft is 0.780 m; thus, the size of the lower block of the capital is just right to place on the fluted column drum. Thirdly, the position of the only remnant dowel hole on the fluted column drum shows that the probable distance between two dowels is approximately 0.63 m, which is equal to the diameter of the bottom of K3.80. This would mean that K3.80 was fixed by being jammed by two dowels on its edge, probably at the points between two adjacent acanthus leaves, because there are no dowel holes on the bottom of K3.80.

K3.81, too, does not have dowel holes at the bottom, and there is no evidence for the use of dowels to connect K3.80 and K3.81. The flat top of K3.80 is encircled by eight acanthus leaves, which are broken at the top. The distance between two leaves on opposite sides is 0.535 m. The diagonals of the square bottom of K3.81 are approximately 0.49-0.50 m, which is a suitable size to be placed on top of K3.80. The roughly square bottom of K3.81 is supposed to have been placed on the octagonal top of K3.80, with its diagonals between two opposite acanthus leaves. Thus, it is highly reasonable to think that K3.80 and K3.81 are lower and upper halves of an identical Corinthian capital. The only problem with this assumption is the lack of dowels for joints.

The capital was reconstructed here so that the height of the acanthus leaves for the second row is three-fifths of those of the first row. Volutes on the corners were restored so as not to protrude out of abacus, following the capital of the Tholos at Epidauros. For a Corinthian capital, the abacus is comparatively small and the capital itself does not spread outward, which is proportionally a little modest.

4-5 Parallels

It was not very difficult to reconstruct K3, because there were many clues like dowel and clamp holes, corner pilasters, doorway frames, etc., to join the adjacent blocks. However, it was very difficult to discover the roof blocks which fit together. After many trials on the desk and at the site, we succeeded in joining the blocks and reconstructing the whole building of K3. (Fig. 43-47)

What does the discovery of K3 imply for the history of architecture? Circular roofs such as domes or cones have attracted immense attention not only from architects but also from people due to their symbolic form and prominent visual effects. This would be understandable if you can imagine, for example, the dome of the US Capitol Building in Washington D.C. When a round roof was constructed over cylindrical walls such as at the dome of the Pantheon in Rome, there would have been no difficulties which are caused by its form. But to construct it over a square plan, which was usually the preferred method for functional purposes, was not very easy because it caused triangular gaps at the corners of the square walls. How people have filled these gaps so that the square wall transforms harmoniously into the round roof has been an annoying but stimulating historical theme for many architects.

Throughout the centuries, there have been many proposed solutions to this obstacle. One way was to fill the gaps by small half domes, called tromps, as seen in some Persian domes, [12] and another way was done by bridging 'squinches' over the square walls to form an octagonal course, then a dekahexagonal course, and then finally placing a circular dome on it. [13] There were other variations of this method; however, in any case their forms are usually not satisfactory from the viewpoint of architectural design and structural stability. The best and most monumental example is the dome of the Hagia Sophia, [14] the greatest Byzantine church in Istanbul, which was only possible by the invention of a 'pendentive'. This is a spherical triangle placed in the corner which connects the square plan to the upper dome without any formal inconsistency. This dome was so perfect that most of the domes after the Renaissance were constructed with pendentives, such as that of Michelangelo's dome at Saint Peters in Rome.

Compared with these descendants, the concave conical roof of K3 shows a direct or beginner's solution by filling the triangular gaps with simple triangular blocks. However, we can tell that the architect of K3 was pioneering and creative, because there are no contemporary examples of this type of architecture from that time. The only forerunner is a Hellenistic tumulus called the "Royal Kougan" [15] in Bosporus, Turkey, dated to the second half of the fourth century B.C., whose roof is conical. But this is an underground tomb which people cannot see at all from outside. The closest parallel that we have is the 20 m-high Tomb of Absalom from the first century A.D. in Jerusalem, [16] which has no interior space but merely a narrow staircase like a cave. K3, on the other hand, had architectural consistency, which maintained an interior space that corresponded to its exterior appearance. At Assos in Asia Minor, a concave roof of the tomb of Pubrius Varius from the first century was unearthed, although no evidences were shown for its reconstruction. [17] At any rate, as far as we know, the concave conical roof of K3 is the oldest example of this kind. [18]

On a festival day in antiquity, there must have been thousands of people who came to the Stadium to see the races. After passing through the Propylon, their eyes must have glimpsed the prominent roof of K3, which was probably the intention of the owner and the architect of the grave. Both the location and form of K3 were carefully chosen to proudly display the richness and power of the owner's family.

The unique form and structure of the concave conical roof on the square plan was conspicuous. This is incomparable in the history of architecture; indeed, the strong visual effects of K3 can be seen as the quintessential essence of Hellenistic architecture.

Notes for Chapter 4

1) K3 was reported in Prakt 1997, pp.100-104, Fig. 7, 8, 9 and Pls. 57, 58, 59a. It was mentioned also in Prakt 1996, p.164 with respect to its inscription.
2) The situation before removing the dislocated blocks at the site was photographed in Prakt 1995, Pl. 22 and 1997, Pl. 57a. According to these photographs, many of the blocks were found piled up at the site when the surface soil was removed.
3) In fact, an early Christian basilica found 100 m southeast of the theater at Messene was built mostly of the blocks from the theater. The scene building and seats of the theater were found largely destroyed, and must have been used as a quarry for 'ready-made' blocks.
4) An example of this kind of channel and holes was found also on the door of a Macedonian tomb in Langada. An iron bar with a round hole to set a pivot at an end and two hooks were fixed at the top of the door. Cf. Th. Macridy, *Un tumulus Macedonien a Langada*, JdI 26, pp.193ff, fig.20, Berlin, 1911
5) The drawing of the block 9284 with inscription is shown in P. Themelis, Prakt 1997, p.102, fig.9; *Heroes and Hero Shrines in Messene*, Athens, 2000, pp.132-133, fig.123, 124.
6) The Ionic or Corinthian column shaft with 28 flutes is very unusual, compared with usual ones which have 24 flutes. Some Hellenistic examples have 20 flutes as that of the Temple of Apollo at Bassae, those of the inner columns of the Tholos at Epidauros, those of the inner columns of the Tholos at Delphi, and also that of the Olympieion at Athens. At Messene, the Corinthian columns of the surrounding stoas of the Asklepieion at Messene have 20 flutes. The number 28 could be related to the 28 days a month of lunar calendar, but the true reason is an open question.
7) The good example of Corinthian capital which is composed with two blocks is that of the Olympieion at Athens. Considering that the Olympieion capital dates from the second quarter of the second century B.C., our capital of K3 is much older example of this kind.
8) A. Blouet, *Expedition scientifique de Moree*, Paris, 1831, p.28 and Pl.28, F.V. Only the lower block of the Corinthian capital was drawn in perspective and introduced as 'divers details du stade de Messene'.
9) On the inner surface of a wall block K1.2 of K1, two fragments of stucco with a thickness of 1 cm is observed as well. A same kind of fragment was also found on the interior surface of the toichobate of K2.
10) How to use a pry and pry holes was shown in an illustration by Orlandos. Orlandos, K. *The Architecture of the Parthenon*, 1978, (in Greek) p.289, fig.191.
11) Our reconstruction was also introduced by P. Themelis with four elevations in Prakt 1998: pp.114-120, fig.5a-d. Also in P. Themelis, *Heroes and Hero Shrines in Messene*, Athens, 2000, pp.124-134, our reconstructed elevations and photographs of temporal reconstruction at the site are introduced.
12) A. U. Pope, *Persian Architecture*, London, 1965
13) A. Choisey, *Histoire de 'Architecture*, II, Geneve/Paris, 1982, rep. pp.5-21.
14) R. J. Mainstone, *Hagia Sophia*, London, 1988, pp.159-183
15) Unknown author, Report about the Royal Kougan, Ojh10, 1907, p.235, fig.72
16) A. Avigad, *Ancient Monuments in the Kidron Valley*, (in Hebrew) Jerusalem, pp.91-105.
17) J. T. Clark, F. H. Bacon, R. Koldewey, *Investigation at Assos*, London/Cambridge/Leipzig, 1902, Figures in pp.229-231.
18) J. Fedak, *Monumental Tombs of the Hellenistic Age*, Toronto/Buffalo/London, 1990, pp.167-170.

Chapter 5

The environment of the grave monuments

The grave monuments to be discussed in this book are located at a special place where the Propylon of the Gymnasium complex stands. The excavation of the complex shows that it contains a Stadium, pi-shaped Stoa, Palaestra, latrine and Propylon. Since our grave monuments are located on this place which must have been chosen deliberately for its high traffic, we should describe the area briefly to have a better understanding of the general location and environment.(Fig. 1, Pl. 2, 3)[1)]

5-1 Architectural remains

5-1-1 Stadium

The stadium lies on the south edge of the city, adjacent to the city wall and the Heroon.[2)] The area of the stadium is a very shallow valley between gentle slopes with a small stream in the middle. The whole area slopes gently southward. Of the seats, which are arranged in U-shape, the northern section has been preserved well though broken in part by the flow of the stream. There are 19 rows of seats. In the middle of the front row of the east side, there are 'VIP' seats with backs, one independent and another long bench. There are no seats remaining on the southern half. It suggests that there were facilitated no seats at all from the beginning. Excavation was finished in 2000 to the original race course level, and revealed that the race course was blocked by a semicircular wall in the middle and the northern half of the Stadium was transformed into an amphitheater in Roman times.

5-1-2 Pi-shaped stoa of the stadium

The stadium was surrounded by three Doric stoas on the east, north, and west sides.[3)] Approximately 120 columns are preserved, some still standing in-situ and the others lying down. The east stoa was the longest, and though its southern half is gone completely, the southern end must have reached to the city wall. The columns of the east stoa have all fallen forwards probably due to an earthquake, because the columns lie in parallel with architrave and frieze above. There is a middle colonnade inside the north stoa.

Its back wall on the eastern half has been preserved well up to the height of ca. 1.5 m. It was built in ashlar masonry with roughly finished surfaces probably to be stuccoed. Some 15 m in the middle has been broken down by the flow of the stream. The west stoa was built with its back wall along the street from the Propylon towards the south. Its back wall was restored extensively in Roman times, and its original orthostates seem to have been reused in the wall on the south of the Propylon.

5-1-3 Propylon (Room I)

On the northwest corner of the North Stoa of the Stadium, the Propylon was built in tetra-style in Doric order, facing north. The façade must have strongly attracted the eyes of the visitors who came down? from the town center to the Stadium. The Propylon is now under reconstruction, and the results of this research will be published in the near future.[4)]

The columns are rather slender Hellenistic type with thin capitals. The middle intercolumniation is wider than the other two on the sides. They have twenty flutes as usual Doric columns do, but the column on the west end has only fifteen flutes; the other five on the west side being unfinished. This is because it backed up to the end of the wall which extended westward, of which now only the foundation remains. Six flutes on the south side of the east column were also left unfinished, because it backed up to the northwest corner of the North Stoa.

The interior space of the Propylon (Room I) is 7.5 m long and 6.3 m wide. The west wall is in rubble masonry, which is dated by the excavator to the first century A.D. like the other Roman walls behind the West Stoa. The south façade of the Propylon is uncertain and confusing with the restoration of probably first century A.D. There remain three steps and the third step consists of three thresholds in a row, wider in the middle and narrower on both sides. Two small bases for sculptures stand between them. These thresholds and bases are probably an addition of the first century A.D. There remain lower parts of two balastrades on both ends which are joined to the wall of the West Stoa and to the Roman wall. These balastrades might have been from the original structure.

On the whole, the reconstruction of the Propylon, especially its south façade, east and west walls, is a difficult problem. Results of the study are expected to shed some light.

5-1-4 Room II

The grave monument K1 was blocked in the first century A.D. by a wall in front of its façade which extends 15 m from the Propylon to Room III. This space is called Room II by the excavator, though it is not clear if the room was roofed or not. Its height is ca.2 m and the width 0.55 m. The wall inclines towards the east about 0.10 m in front of K1. The lower part of its east side was built in ashlar masonry of limestone from the steps of the Propylon to the wall of Room III, and the upper part opus incertum. These blocks must have been taken from the orthostate of the West Stoa, because the height of the blocks is 0.65-0.67 m which is identical with some of the orthostate blocks in situ. The upper part is in rubble masonry with leveling courses of tiles. Some other architectural blocks were also inserted into this wall.

On the south end of this Room II, there stands a base for a monument, which is 0.89 m deep, 1.94 m long and 1.20 m high.[5)] This base is originally from the second century B.C. and was most likely

moved here from somewhere else and reused in the first century B.C. Doriphoros, which is exhibited in the Museum, stood on it. On the left side remain traces of a tripod with a lion's paw.

On the east side of the Room II, a wide entranceway to the West Stoa was open. There were three slender columns, two of which are still standing. Their style is unknown, since they have no flutings, bases or capitals. The intercolumniation was ca. 3.25 m, and the lower diameter 0.458 m.

5-1-5 Room III

To the south of the Doriphoros' base is a square room of ca.6.8 x 7.2 m.[6] The entrance is on its east side which was originally the back wall of the West Stoa. The orthostate of the stoa seems to be original in situ and the Roman opus incertum wall above it remains to the height of 1.2 - 1.5 m. The width of the entranceway is 1.52 m. The width of the walls varies from 0.50 m to 0.55 m. The threshold and the vertical frame of the entrance seem to be reused. Along the east wall of the room, the floor was paved very roughly with large slabs of ca.1 x 2 m. Slightly towards the west from the center of the room, there remain bottom blocks of a large base of a monument with the size of 1.3 x 3.9 m. On the northeast corner of the room there is also a base of a smaller monument which is reused.

The lower part of the walls was built mostly of larger blocks. On the east wall, the original orthostate blocks were used in situ. On the eastern half of the north wall, the orthostate blocks of the west stoa were reused. The lower part of the other wall was also of rough larger blocks, which seem to be taken from the supporting walls of the west terrace of the slope. The interior of the walls were stuccoed, judging from the remaining fragments which are 6- 7 cm thick. The upper part of the west wall is repaired by opus reticulatum. The south wall was bridged over the drain with a large beam, height of 0.45 m and length of 2.5 m. On this beam large ashlar blocks with heights of 0.75 m, lengths 0.95 - 1.3 m, widths 0.5 m. were laid

5-1-6 Room IX

The second enclosed room from the north is called Room IX and measures 5.1 x 5.8 m.[7] It was 6 m away from Room III and enclosed independently. The wall was of opus incertum with comparatively large blocks, and is preserved only up to 1 m at highest. The width of the walls is ca. 0.55 m. For the east wall, the back wall of the West Stoa was reused. Its foundation, i.e. the toichobate of the stoa, remains in situ, but only two of the orthostates remain in situ and the others are lost. The other part of the east wall is of opus incertum and opus reticulatum. In the middle of the east wall there was originally a 1.5 m wide entrance, which was closed later. The drain must have been covered by orthostate blocks, although only one of them, 1.7 m long and 0.3 m thick, remains. Three large slabs were found in the drain. To bridge the south wall over the drain, a slab, 0.55 m wide and 1.7 m long, was laid and the opus incertum wall was built on it. The interior was stuccoed and its remnants are still visible especially on the south wall. The floor is not very clear. In front of the west wall of the room, there is a pair of statue bases; one on the right side measuring 0.58 x 0.52 x 0.91 m and the other on the left side of 0.63 x 0.55 x 0.92 m. The right one has an inscription on the front.

5-1-7 Room XI

Room XI is just in front of K3. It is 5.3 m wide and 5.8 m deep, and its back wall is aligned with that of Room IX. The room is enclosed by the wall of opus incertum, but the west wall contains some long blocks probably from either the orthostate of the West Stoa or the sustaining wall of the west terrace. The north wall is bridged over a ditch by slabs and the south wall by an unfinished column shaft with the diameter of ca.0.5 m and the length of 2.7 m. The walls contain many reused blocks from earlier buildings such as square cut stones, long orthostate-like blocks, etc. The widths of the north, south, and west walls averages 0.55 m and that of east wall is ca. 0.6 m. The entrance in the middle of east wall is 2.1 m wide but was closed later by filling with rubble.

The floor is filled with mixed strata of small stones, pebbles, fragments of tiles, etc., and some of the stones have remnant of stucco. Near the middle of the room a row of three toichobate blocks continue from the latrine on the south. The drain under the room was covered by seven large slabs, ca. 1 x 2 x 0.15 m. Three of them are broken in the middle, perhaps because they were too thin to bridge the span. The one in the center was lain on adjacent slabs. Only one slab with a clamp hole beside the north wall was neatly finished, and all the other blocks were very roughly finished.

In front of the west wall, there was a statute base with inscriptions in front and back. On the front was readable "APIΣTOMENE", the name of an ancient Messenian hero, but the inscription on the back was illegible due to the weathering of the block. According to Prof. Themelis, the excavator, the base was taken from somewhere else and reused.[8] The original inscription was written on the back and the later inscription in front; thus the base was reversed at the time of second use to write the new inscription. Room XI aligns with the statue base and also with K3 on an axis. It is not sure if this axial planning was intentional or not.[9]

5-1-8 Latrine

On the south of K3, a latrine which was built over the drain was found. The floor was paved with large rough slabs as those of Room III and XI, and its level is about 1 m higher than its entrance on the north. There might have been some steps to enter the latrine from the entrance. The drain along the west stoa flew under its toilet. This latrine seems to be a later addition because its floor was supported by rough stone beams which were inserted into the orthostate of the west stoa. The orthostate was not cut properly but roughly broken for the beams to be inserted. This shows that the latrine was not contemporary with the west stoa, although it is not sure how many years later it was built. Part of its foundation is seen under the wall of Room XI and this fact suggests that the latrine was possibly built in the second or first century B.C., before Room XI was built in the first century A.D. In addition, two standing slabs at the north of the latrine were taken from the orthostate of the West Stoa, judging from their identical height.

The latrine was a long narrow building. The interior was 3.3 m wide and 26.5 m long. Its southern half was 2.1 m wide. All along the wall of the west stoa, the floor was paved with large rough slabs with various sizes from 0.80 - 1.10 m wide and 1.20 - 1.60 m long. These paving blocks are similar to other paving blocks of Room III and IX, and those of the street to the north of the Propylon. The western half of the northern part of the latrine was not paved but filled with rubble.

Toilet benches were set over the drain along the back wall of the West Stoa, in an open space of 0.45 - 0.50 m between the paved floor and the orthostate of the West Stoa. Supporting slabs of sandstone for the bench were set at axial distances of 1.40 - 1.45 m on the beams, which also support the large pavement blocks. Some fragmentary blocks of toilet holes have been found.

The beams for the floor were some 0.40- 0.50 m square in section, but their ends were smaller so that they could be inserted into 0.35 - 0.40 m square holes. At the north end of the toilet, its foundations show that the west wall extended ca. 9.60 m towards the north. Two vertical slabs of this wall have been preserved. These slabs seem to have been taken from the orthostate of the West Stoa, because their height, 0.67 m, is identical with those of the West Stoa. This trace of the wall extends just to the front of the monument base of the Room IX, passing under its south wall. Room IX was built in the first century A.D., according to the findings, and this shows that the latrine was built in the second or first century B.C., after the West Stoa was built in the third or second century B.C.

5-1-9 Street and Drain

The street to the north of the Propylon from the agora area has been excavated. On the west side of this street is a residential quarter and the east a sanctuary probably for a hero. The width is ca. 7.2 m or 24 ft. The street continues, passing the Propylon and the three grave monuments, to the latrine of the Palaestra which is located at the end of the street.

The drain was built along this street. Along 70 m north of the Propylon, its covering blocks of limestone, ca. 1.1 - 1.3 m x 1.8 - 1.9 m at maximum, have been found in the middle of the street. The drain passed under the Propylon, continued along the back wall of the West Stoa, and again passed under the latrine of the Palaestra. The drains in front of K2 and K3 might not have been covered before Rooms III, IX and XI were built in the first century A.D., as there are no traces of support for covering slabs on either side of the drain. The drain is ca. 1 m wide and probably 1- 1.5 m deep. The rough covering blocks can be observed in Rooms II, III and IX. Toilet benches of the latrine were set on the drain.

The street level and the euthynteria level of K2 and K3 differ by ca. 1 m. This suggests that there must have been a sustaining wall in front of them, and the west wall of Rooms IX and XI could have formed part of it.

5-2 Architectural chronology of the buildings

Further study of archaeological findings will allow for more precise dating of the buildings, but their approximate chronology by the excavator is given here to show the transition of the environment of the graves. The chronological table is as follows.

3rd century B.C.	East and North Stoa, West Stoa, Palaestra, K1
late 3rd century B.C.	K2, K3
1st century B.C.	Propylon, latrine
1st century A.D.	Rooms III, IX, XI. Their monument bases were moved to the present places.

	The Doriphoros base, originally from the 2nd century B.C., was also moved to the present place.
	Wall in front of K1 and of Propylon
	Tombs between K1 and K2
4th century A.D.	Rooms III, IX, XI closed.

The three grave monuments of K1, K2 and K3

The city might have been gradually facilitated with public buildings after it was founded in 369 B.C. The pi-shaped Stoa of the Gymnasium complex was probably built in the 3rd century B.C.; the East and North Stoa first and then the West Stoa was extended. Some years later, K1 must have been built at the north end of the West Stoa just in front of its entrance, then K2 and finally K3 towards the south in order, because the best place for the monuments to attract visitors would have been the opposite side of the entrance. When the grave monuments were built, the street continued directly to the Palaestra with the peristylar court. In the 2nd or 1st century B.C, the latrine would have been added to the north of the Palaestra along the back of the West Stoa to accommodate the increased demand of users and visitors of the Gymnasium complex. In the 1st centuryB.C., the Propylon was built at the northwest corner of the North Stoa. The Propylon played an important role as the entrance to the whole Gymnasium complex.

The area around the grave monuments was greatly transformed in the 1st century A.D. Rooms III, IX and XI were built on the streets in front of the grave monuments. We do not know what happened exactly to the whole building of the West Stoa, but the back wall of the stoa was rebuilt in opus incertum on the original orthostate, as we can see on the west side of the back wall. Some orthostate blocks of the West Stoa were reused for the walls of Rooms III, IX and XI and the floor over the drain. The reuse of the orthostate blocks were also observable at the lower part of the wall in front of K1. The new rooms and their walls were constructed not in Greek style, but in the Roman style of opus incertum and opus reticulatum with stucco on them. We do not know the reason of this drastic transformation of the area, but it is probable that the West Stoa was demolished by an earthquake. It is not sure if the stoa itself was reconstructed but the new Rooms III, IX and XI were constructed at the back of the stoa, occupying the street. Thus, the construction of these rooms finally blocked the view of K1, K2 and K3.

5-3 Historical transformation of townscape

It was quite important, from the viewpoint of townscape, for K1 to have been located in front of the entrance of the West Stoa in the 3rd century B.C. K1 was in symmetrical plan aggrandized with wings on both ends and it had a group of statues on its roof top, one of which was a lion hunting a deer. It was quite intentionally located there to be seen dramatically and impressively by the visitors who came out from the West Stoa. K1 and K2 were built in a row next to K1 towards the south and this group of grave monuments no doubt must have attracted visitors as well as symbolizing the wealth of the families who built them. The 'kitsch' or arresting shape of K3 with its concave conical roof on a square wall was probably to get attention of visitors at its distant place from the entrance.

In the 1st century B.C. when the Propylon was built at the northwest corner of the North Stoa, it worked to articulate the space of the street and enliven the general view of the area. For visitors who came down from the agora, it was the actual entrance itself to the Gymnasium complex and served to promote a change of atmosphere. The visual effects of the grave monuments certainly increased with this addition of the Propylon.

The convulsive transformation of the area, caused by the construction of Rooms III, IX and XI on the street in the 1st century A.D, changed its Hellenistic characteristics completely. First of all, it was no question that the attracting façade of K1 was blocked by a wall and it became impossible for the people to see its best view from the front. The views of K1 and K2 were also obstructed by the newly-built rooms.

Notes for Chapter 5

1) This area was described in a series of articles by P. Themelis. See Themelis, Prakt 1995, pp.68-83, Fig. 3; 1996, pp.157-165, Fig. 6; 1997, pp.96-100, Fig. 7; 1998, pp.108-112, 114-126. In these articles, the description is mostly on inscriptions and sculptures, but as for the architecture, a more detailed explanation is necessary. Also see *Heroes and Hero Shrines in Messene*, Athens, 2000, pp.59-71.
2) Themelis, Prakt. 1987, Pl.76; 1988, pp.65-72, Pl.49; 1989, pp.106-107, Pl.88-89;1991, Pl. 73; 1997, Pl. 48, 49 (aerial photographs); 1998, Pl. 52a. Also see P. Themelis, *The Stadium of Messene*, (in Greek), in W. Coulson and H. Kyrieleis edit. Proceedings of the International Symposium on the Olympic Games, 5-9, Sept. 1988, Athens, 1992. In 2000, the excavation of the Stadium was finished down to the race course level. It was transformed into an amphitheater in the Roman era by closing the race course in its middle by a circular wall. Mr. Themistocles, a Greek architect, is studying its architectural remains and is planning to reconstruct them.
3) Themelis, Prakt 1992, pp.61-73, Pl. 20-23; 1996, p.163, Pl. 70; 1997, pp.93-94, Pl. 48-51.
4) Themelis, Prakt 1995, pp.70-74, Fig. 4, Pl. 21. The Propylon was partially reconstructed in 1999 on site. Also see *Heroes and Hero Shrines in Messene*, Athens, 2000, pp.59-71
5) The base was used to set a sculpture of Doryphoros which was found beside it. Themelis, Prakt 1995, pp.74-77, Fig. 5, Pl.22-27.
6) Themelis, Prakt 1995, pp.79-83, Pl. 30b, 31.
7) Themelis, Prakt 1996, pp.158-163, Pl. 65.
8) Themelis, Prakt 1997, pp.96-99, Pl. 54, 55a.
9) If the alignment of axis is intentional, room XI must have been open to the sky and the walls could not have been very high, because unless the visitors could see K3 from the room, this alignment would have been meaningless. It could also be, of course, just a simple coincidence.

Chapter 6

Summary and conclusion

The three grave monuments in the Gymnasium area in Messene are dated to the 3rd century B.C., although, for their precise dates, we have to wait until the study of the findings will be finished. Considering that K1 was built right in front of the entrance of the West Stoa, probably in order to be seen quite impressively by visitors, it was probably built at first among the three. Then K2 and finally K3 were built in a row towards the south, forming 'a grave street' behind the West Stoa.

K1 was rectangular in plan with four steps and had wings on both ends. It had a tomb chamber with stuccoed wall and seven cist tombs in a row under the floor. The wall blocks on the east side have been preserved, but no roof block has been found. The sculpture of a lion hunting a deer was found from the inside and must have crowned the top of the roof. Some other fragmentary sculptural blocks have been found, but it is difficult to reconstruct the whole composition of the sculptural works. The symmetrical plan exaggerated by wings shows a quite Hellenistic characteristic, as we also see in the Stadium surrounded by the symmetrical pi-shaped stoa and the Asklepieion where the Temple of Asklepios was set symmetrically in the court surrounded by the stoas all around.

K2, the smallest among the three, had an almost square plan with four steps. Four cist tombs were built under the floor in a row and the tomb chamber was stuccoed as well as K1. Only a few blocks of the lowest course of the wall have been preserved, and the wall was probably built in three courses of the blocks. The form of the roof is an open question due to the lack of the remaining blocks. However, contemporary examples in Asia Minor and Egypt suggest that the roof was in pyramidal form as the Lion Tomb at Knidos, where the lion is lying on the top of the roof. The same motif of a lion hunting a deer cannot be found in the contemporary tombs.

K3, which was located down to the south of K2, had the most unique form for its roof. It is square in plan and had eight cist tombs under the floor as well as the other two. The tombs were arranged in the way that each two were set along the side, leaving a small square pit in the center. Most of the dislocated blocks have been preserved, and this makes it possible for us to reconstruct the whole building. The wall was built on the four steps in three courses with corner pilasters. The doorway was set on the south side and was accessed by a ramp. The roof was in concave conical form in 16 courses. Major part of

the roof was hollow inside but the top five courses are solid with frustums. The top drum of the roof was in the form of fluted column shaft. The finial in Corinthian capital form was set on the top of the roof. There must have been a sculptural ornament on its top judging from the trace, but nothing remains. There is no parallels of concave conical roof among the Hellenistic tombs. The only existent example is that of the 20 m-high Tomb of Absalom from the first century A.D. in Jerusalem. The form of K3 is, so to say, 'kitsch' or eye-catching. The architect and client intended that it attracted the visitors with its peculiar and symbolic form.

These grave monuments were unique for its location, because cemeteries or necropolis were usually located outside of the city walls, as, for example, we see in the Keramaikos at Athens. In Messene, there have been found two other graves in the town. One has been discovered on the main street on the east side of the Asklepieion by Oikonomos. [1] The grave has not been preserved well, but its size can be identified as ca. 11. 25 x 4 m. At least seven cist tombs are identified in a row and larger than K1. The place was exactly in the city center near the Agora and was intentionally chosen to show it to the citizens. The other one is near the south entrance of the Asklepieion. [2] It is rectangular 6.30 x 3.25 m, also monumental as a grave in the center of the city. All these grave must have been related to the hero cult in Messene as P. Themelis mentions, [3] and were probably located intentionally where many citizens passed by.

Notes for Chapter 6

1) Themelis, Prakt 1995, pp.65, Fig.2, Pls. 17-18; *Heroes and Hero Shrines in Messene*, Athens, 2000, pp.88-95.
2) G. Oikonomos, Prakt 1925, pp.64-66; AA, 1926, p.427. Themelis, Ibid. pp.88-95.
3) Ibid.

ギリシア古代都市メッセネのギムナシオンにおける家型墓の建築的研究

中間報告

緒言

本書は、ギリシアのペロポネソス半島にある古代都市メッセネで発見された、ヘレニズム時代の３基の家型墓に関する建築調査の報告書である。調査は、1998 年度の前田記念工学振興財団の助成金と、1999 年度から 2001 年度にかけての文部科学省科学研究費補助金によって行なわれた。

熊本大学建築系教室の伊藤研究室によるメッセネの建築調査は、1997 年に開始された。調査開始に当たって、メッセネ考古学協会会長でクレタ大学教授のテメリス教授に要望されたのは、市南側の城壁に隣接して建てられたスタディオンを中心としたギムナシオン複合施設に付随して建てられたＫ３と呼ばれる家型墓の調査であった。我々が本格的な調査を開始した 1998 年には、Ｋ３は床面下に埋葬された遺体と副葬品が発掘されている最中であり、この上に山積みの状態で発見された石材はすっかり取り去られて、スタディオンの一角に並べられていた。発見された石材の中で最も多かったのは円錐台の一部をなす部材で、外側が傾斜しており、半径が大きいものは傾斜が緩やかで、小さいものは急であるという奇妙なものであった。矩形の壁部材やコーニス部材は容易にそれと判断できるが、これらの円錐台形の部材や、２部材に分かれたコリント式の柱頭や、１個の円柱ドラムなどについては、当初どう解釈すべきか皆目見当が付かなかった。98 年の調査では、約 120 個のこの円錐台部材の図面作成に２ヶ月間の調査日程の殆どが費やされた。そして、この年の調査が終了する頃には不十分ながらも建物のおおよその形の見当は付いた。99 年の調査で壁部材を含めてほぼ全ての部材の調査が終了し、資料の全てが揃ったので、この年の帰国後の仕事は不完全ながらもピースの揃ったジグゾーパズルを完成させる仕事であった。とはいえ完成図はなく、ピースも全部揃ったものではないジグゾーパズルであり、試行錯誤を繰り返しながらの、正にゲームを楽しむような感じで各部材の位置を決定し、完成図を作成することが出来た。2001 年の調査では、この出来上がった完成図をもとに、現場の空き地に仮復原を行なった。重機を用いて石材を１個ずつ運び、Ｋ３が少しずつ復原され立ち上がっていくと、我々は図らずも興奮してしまった。恐らく古代の建築家も同様に興奮したに違いない。

しかしながらこの時点で、屋根については、部材の形状から反り付きの円錐形とは分かったもの、実際にどの部材がどの位置に来るのか皆目分かっていなかった。というより、何回か現場で実際の石材を使って復原を試みたものの、考えられる部材の組合わせの数があまりに多く複雑で、実際の部材による復原を殆ど諦めていたのだ。2000 年の調査の後、帰国後に気を取り直してじっくり取り組み、縮小コピーした屋根部材の図面を使って、やっと机上での復元を完成させることが出来た。そして、2001 年の調査のとき、現場での仮復原までこぎ着け、これでＫ３の部材の全ての位置を確定することが出来たのである。結局Ｋ３については、殆どの部材が残っていることが判明し、ほぼ確実に当初の姿を復元することが出来た。

その後、Ｋ３と並列配置されているＫ１、Ｋ２の調査を併せて行ない、これら３基の家型墓の調査と研究を行なうことが出来た。しかしながら、Ｋ１とＫ２については、残存する部材が少なく、復元はかなりの部分について推測の範囲にとどまることとなった。とはいえ、例えばＫ１については、両端に翼部が付けられ左右対称性が強く、屋根にはライオンの彫刻を載せた素晴らしいもので、ギムナシオン一帯で一際人目を引く建物であったには違いない。

最終報告については、今しばらく時間が必要であるが、本書には既に内容の大半は盛り込まれている。ここに中間報告としてまとめることで、助成を頂いた文部科学省と前田記念工学振興財団、そして調査許可を頂いたメッセネ考古学協会に対する成果報告としたい。

謝辞

本調査のような現地調査は、元より一人の研究者によって出来るものではなく、多くの関係機関や人々の協力なしには出来ないものである。ここに関係者及び関係諸機関の名前を挙げて、謝意を表したい。

調査には多額の費用が伴うが、主たる調査費として文部科学省科学研究費の助成を得た。文部科学省国際学術局並びに、後に取り扱いが移管した日本学術振興会、そして直接事務を担当された熊本大学事務局、それぞれの担当職員の方々の多大の労に感謝したい。研究協力者として、他大学から参加して下さった前橋工科大学の星和彦助教授には、現地調査での測量や図面作成、学生の指導に大変お世話になったし、国士舘大学の岡田保良教授には現地調査でのご助力は勿論、国内での調査の取りまとめなどに指導を頂いた。女子美術大学の勝又俊雄教授には、彫刻や碑文の分析にご苦労をおかけした。都城高専の林田義伸教授には、いつもながら調査の殆ど全期間中、現場での副隊長をお願いし、また描画技術のいる彫刻や柱頭の図面を描いて頂いた。堀内清治熊本大学名誉教授には、設計法に関する指導を頂いた。何よりも調査の主力となったのは、総勢２１人の学生諸君である。夏のギリシアにおける炎天下での作業にもかかわらず、細かい測量によって各石材や遺構の詳細な図面を作成出来たのは、彼らの忍耐と努力の賜である。また、武田明純君（現室蘭工業大学助手）は博士課程後期の学生として参加し、Ｋ３の復元作業に尽力してくれ、その成果は彼の博士論文の一部となった。東京大学元副学長の青柳正規教授、㈱アジア航測の真許英治氏、重森博氏（両氏はその後、Ｍ文化財企画を設立された。）、稲田幸助氏そして模型ヘリの操縦士工藤忠氏には、ギムナシオン全域の航空測量に関して、多大のご協力を頂いた。尚、家型墓の後に調査しているアスクレピオス神域の写真測量については、宮塚文化財研究所の宮塚氏義人、宇野慶子氏にご協力頂いた。

ギリシアは勿論、欧米諸国の研究者にも多大の協力を頂いた。メッセニア考古学協会会長でクレタ大学のＰ・テメリス教授には、そもそもメッセネ発掘調査の共同研究者として受け入れて頂き、これ以上のご恩はない。そもそも調査許可がないことには、何事も始まらないのである。伊藤のギリシア留学時代の恩師であるアテネ大学教授のＧ・ラヴァス教授にも、調査に関して様々の忠告を頂いた。オックスフォード大学のＪ．Ｊ．クールトン博士、ベルリン自由大学のＷ・ヘプフナー教授にも、現地調査の様々な局面で学問的指導を頂いた。テッサロニキ大学のトクマキディス助教授にも、いつもながら現場での遺跡測量に多大の協力を頂いた。また筆者らの拙い英文を立派な英文になるよう校正頂いたのは、熊本学園大学のＪ・ヨネオカ助教授である。最後に、毎夏約２ヶ月の間、日本の調査団の面々にいつも親切にしてくれた発掘作業員や、宿舎のマヴロマティ村の人々にも、感謝の意を表したい。

平成１４年３月　　熊本大学ギリシア古代建築調査団　団長

熊本大学助教授　　伊　藤　重　剛

調査概要

現地調査

平成9年 (1997)	8月	ギムナシオン複合体の全体測量
平成10年 (1998)	7～9月	墓廟Ⅲの実測
平成11年 (1999)	7～9月	墓廟Ⅲの実測
平成12年 (2000)	7～9月	墓廟Ⅰ，Ⅱの実測及び墓廟Ⅲの仮復原
平易13年 (2001)	7～9月	アスクレピオス神域の実測及び墓廟Ⅲの仮復原

助成金

平成10年度 (1998)	1,850,000 円	前田記念工学振興財団
平成11年度 (1999)	8,700,000 円	文部科学省科学研究費(A)(2)海外　課題番号11691154
平成12年度 (2000)	7,100,000 円	同上
平成13年度 (2001)	7,100,000 円	同上 (直接経費)
	2,130,000 円	同上 (間接経費)
合計	26,880,000 円	

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9. 地中海古代都市の研究（107） メッセネのギムナシオンのストア調査2000(1) 遺構の概要
日本建築学会九州支部第40号3，2001年3月，pp.541-544
吉武隆一，伊藤重剛，林田義伸，武田明純，岩渕耕平，冨尾佑子

10. 地中海古代都市の研究（108） メッセネのギムナシオンの調査2000(2) 立体復元試案

日本建築学会九州支部第40号3，2001年3月，pp.541-545
林田義伸，伊藤重剛，冨尾佑子，武田明純，吉武隆一，島田啓

11. 墓廟Ⅲの遺構概要　－　古代ギリシア都市メッセネの建築調査（1）
日本建築学会計画系論文報告集第541号，pp.251-257，2001年3月
武田明純，伊藤重剛

12. 墓廟Ⅲの復原　－　古代ギリシア都市メッセネの建築調査（2）
日本建築学会計画系論文報告集第549号，pp.285-291，2001年11月
武田明純，伊藤重剛

13. 古代都市メッセネのスタディオン地区調査報告（1）　スタディオンの概要
日本建築学会（関東）学術講演梗概集，F-2分冊，2001年，pp.3-4
吉武明純，伊藤重剛

14. 古代都市メッセネのスタディオン地区調査報告（2）　3次元ＣＧによる景観分析
日本建築学会（関東）学術講演梗概集，F-2分冊，2001年，pp.5-6
島田啓，伊藤重剛

15. 古代都市メッセネのスタディオン地区調査報告（3）　墓廟Ⅰの復原試案
日本建築学会（関東）学術講演梗概集，F-2分冊，2001年，pp.7-8
伊藤重剛

16. 地中海古代都市の研究（109）　メッセネのｱｽｸﾚﾋﾟｵｽ神域調査2001（1）ストア遺構の概要
日本建築学会九州支部第41号3，2002年3月，pp.447-480
吉武隆一，伊藤重剛，林田義伸，島田　啓

17. 地中海古代都市の研究（110）　メッセネのｱｽｸﾚﾋﾟｵｽ神域調査2001（2）ストアの各部寸法
日本建築学会九州支部第41号3，2002年3月，pp.481-484
林田義伸，伊藤重剛，吉武隆一，島田　啓，冨岡　大

これら発表論文のうち、日本建築学会九州支部及び全国大会で発表した1，2，4，5，6については、最終的に同計画系論文集に発表した11，12に集約されるので、ここでの掲載は省略する。

Drawings

List of Drawings

The authors express a deep thank for the contribution of the participants who made the drawings at the site and the in the drawing room, mentioning their names in the parentheses.

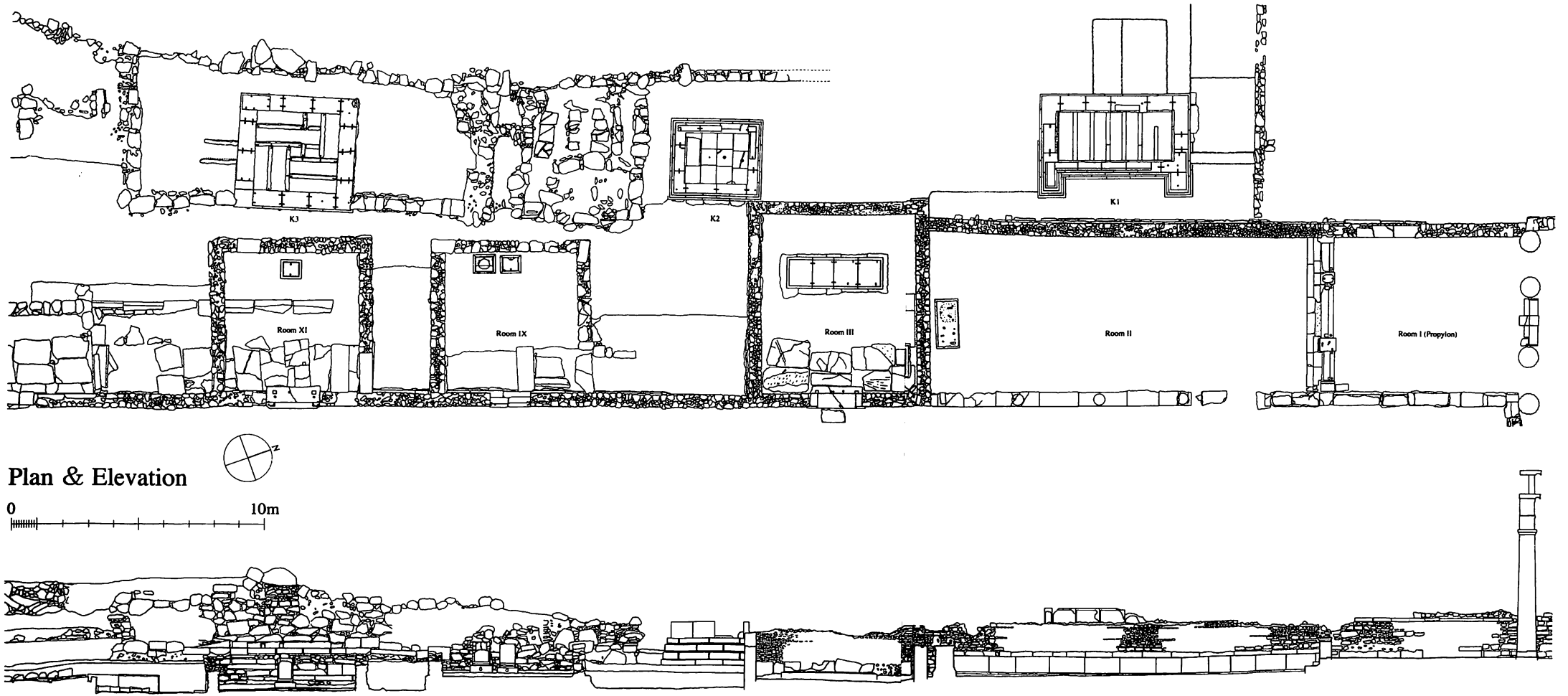


Fig. 1 Environment of the grave monuments, plan and elevation

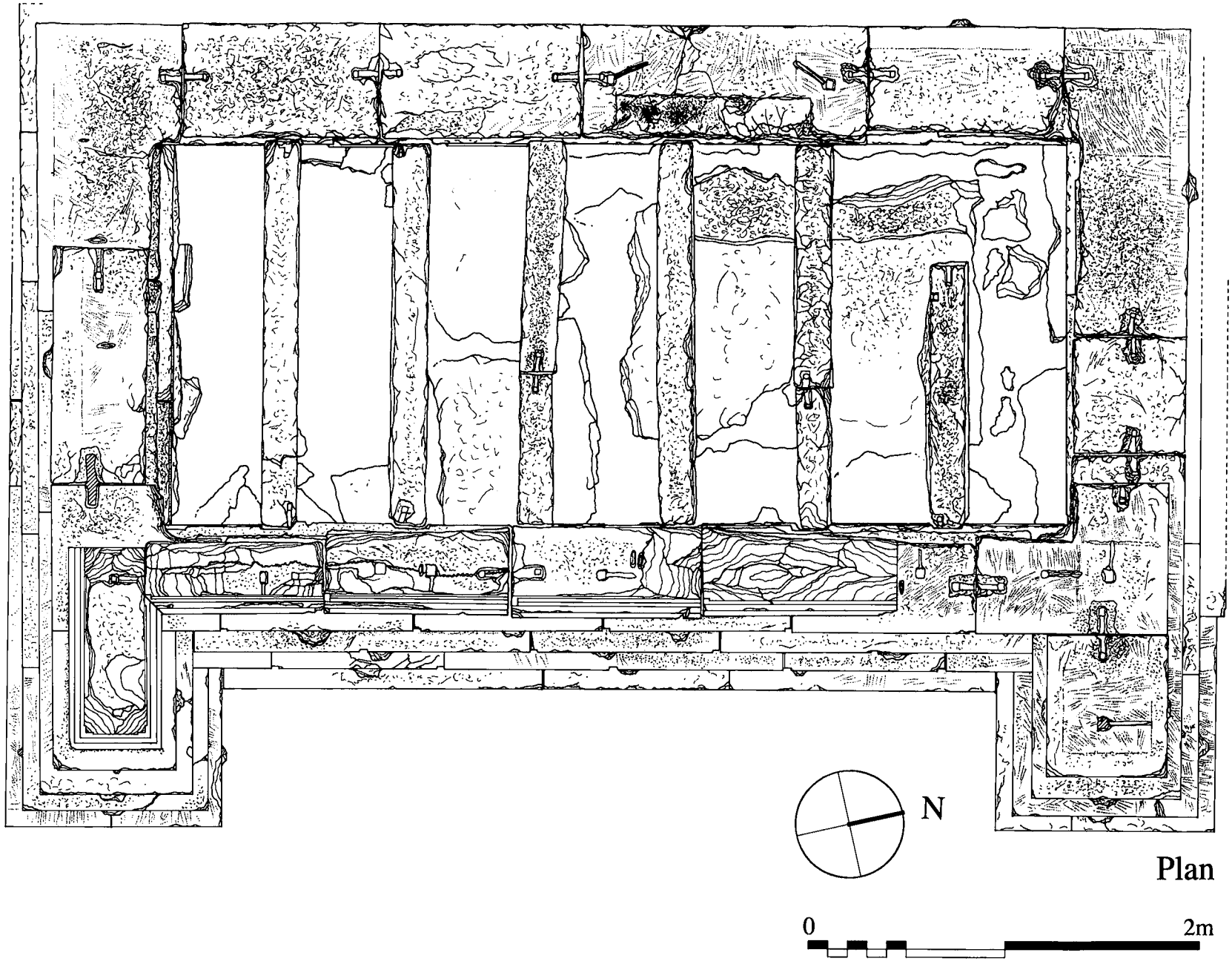


Fig. 2 K1, Plan

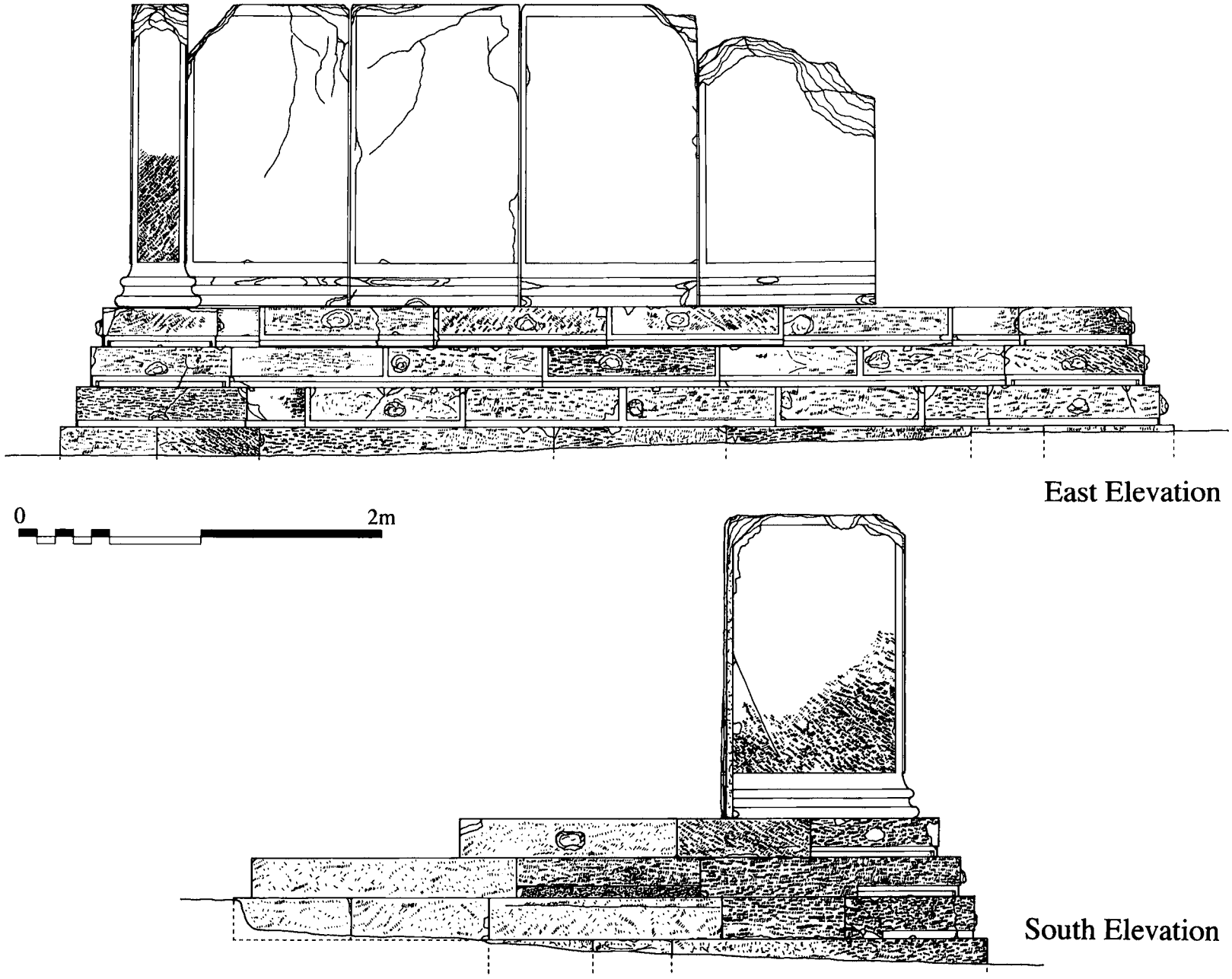


Fig. 3 K1, East and south elevations

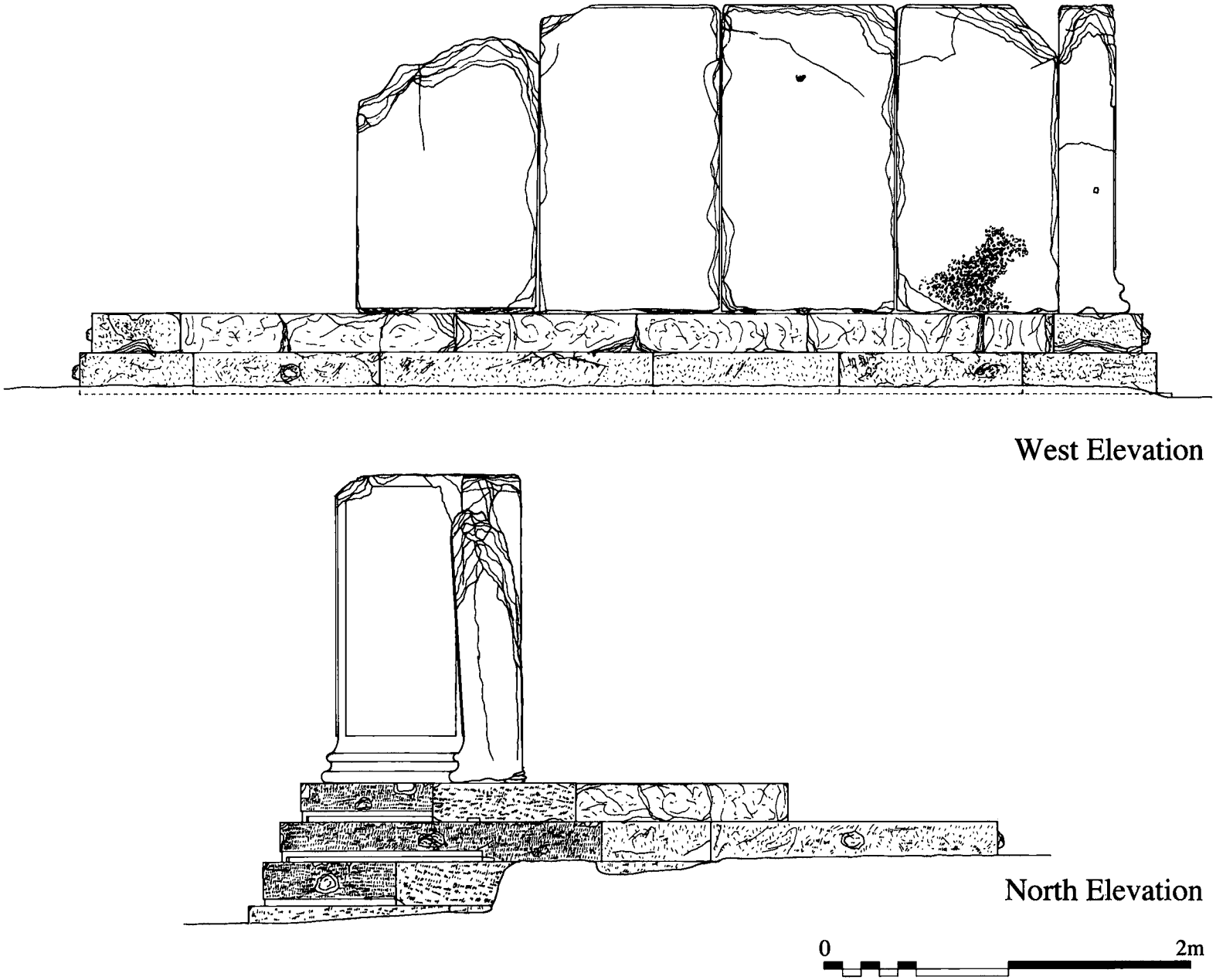


Fig. 4 K1, West and north elevations

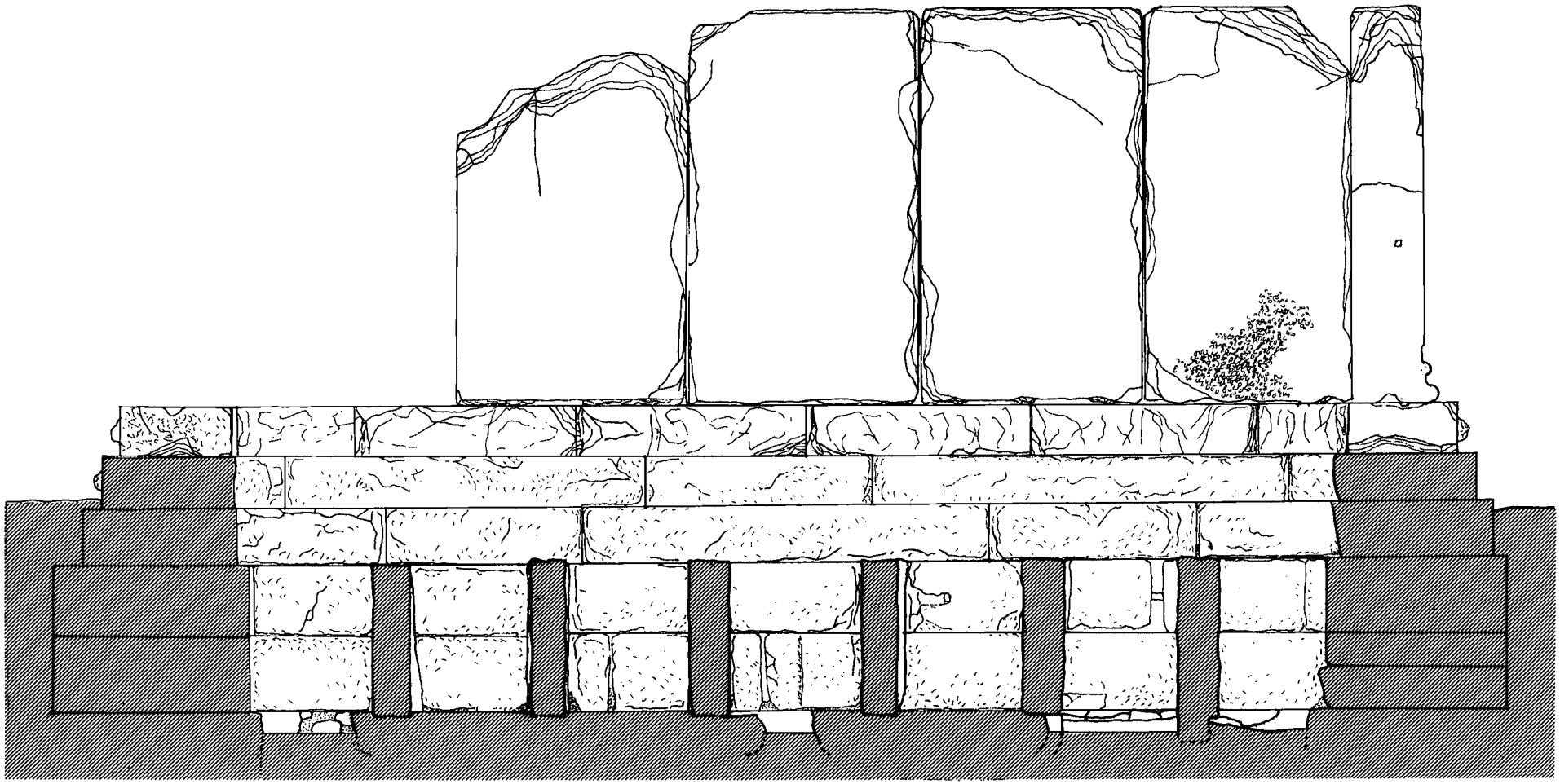


Fig. 5 K1, N-S section

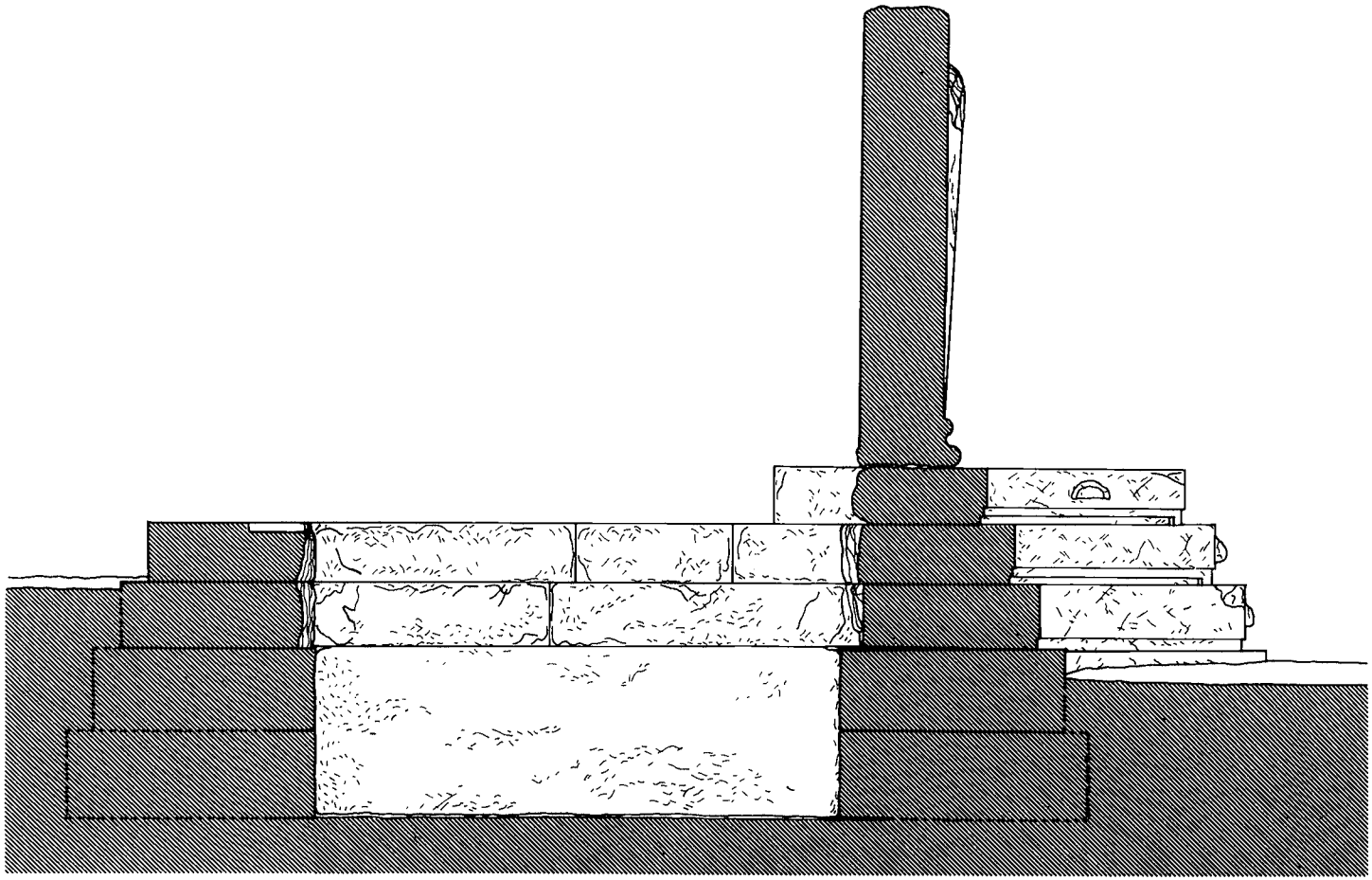


Fig. 6 K1, E-W section

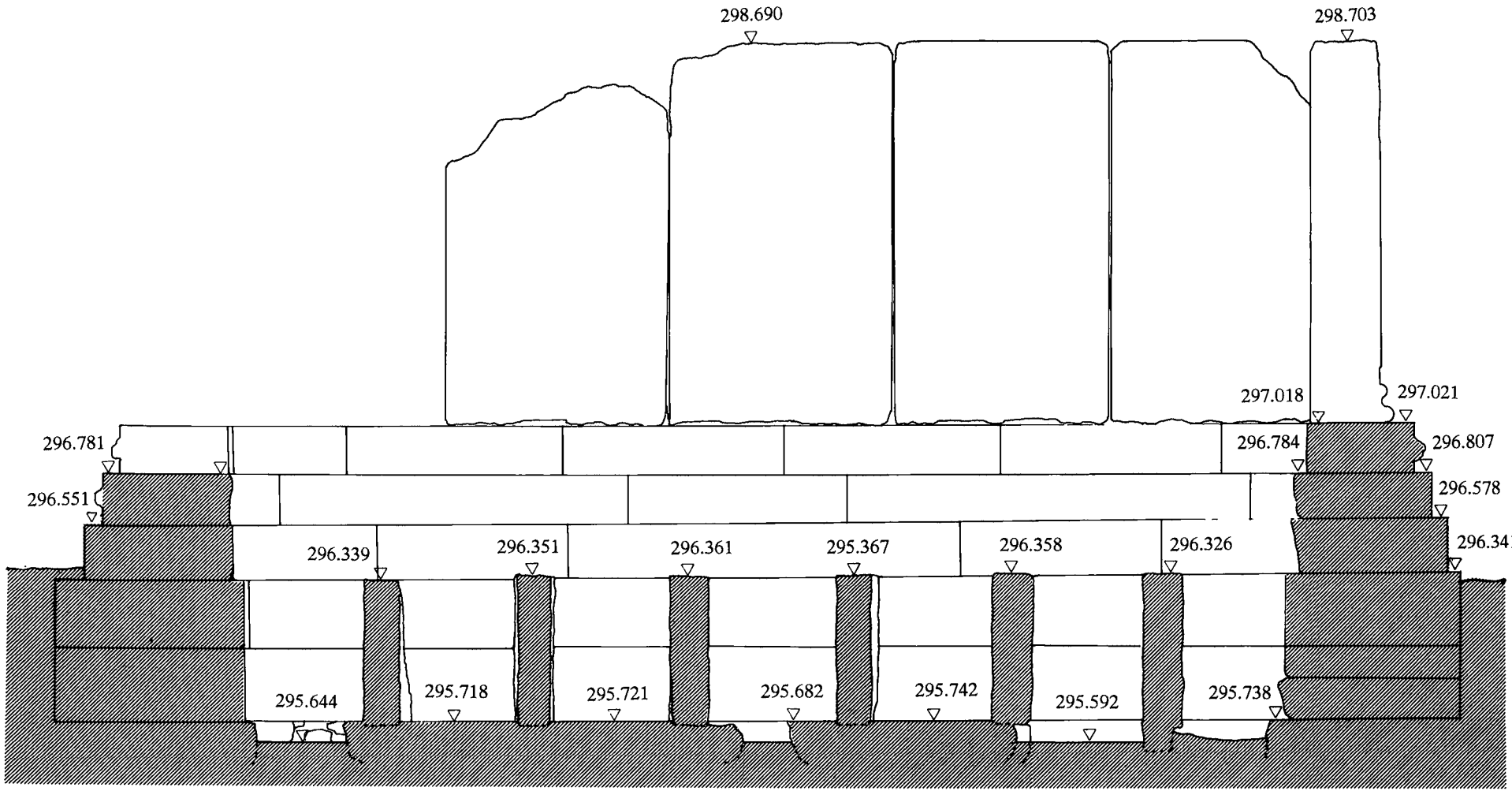


Fig. 7 K1, N-S section with levels

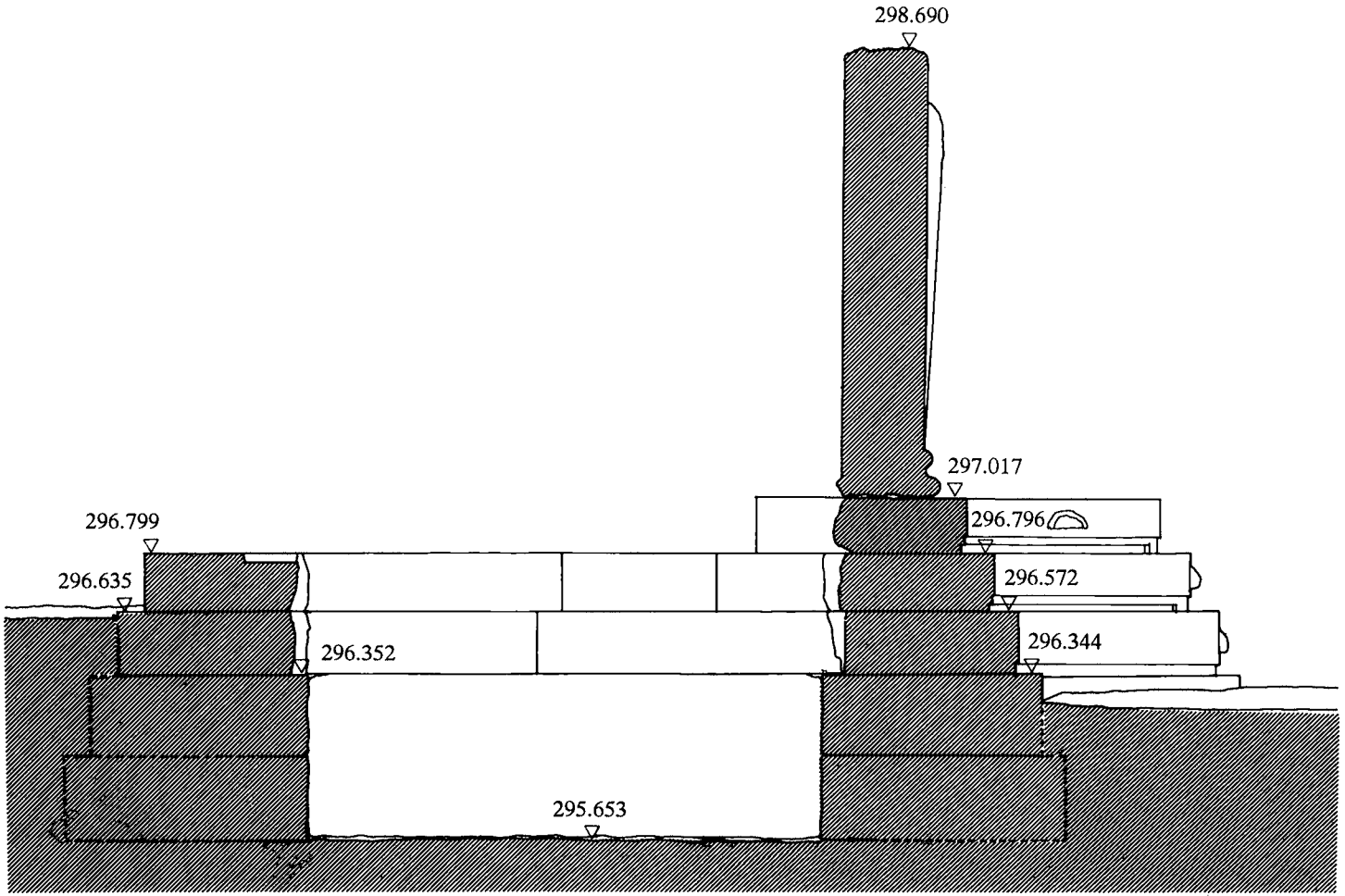


Fig. 8 K1, E-W section with levels

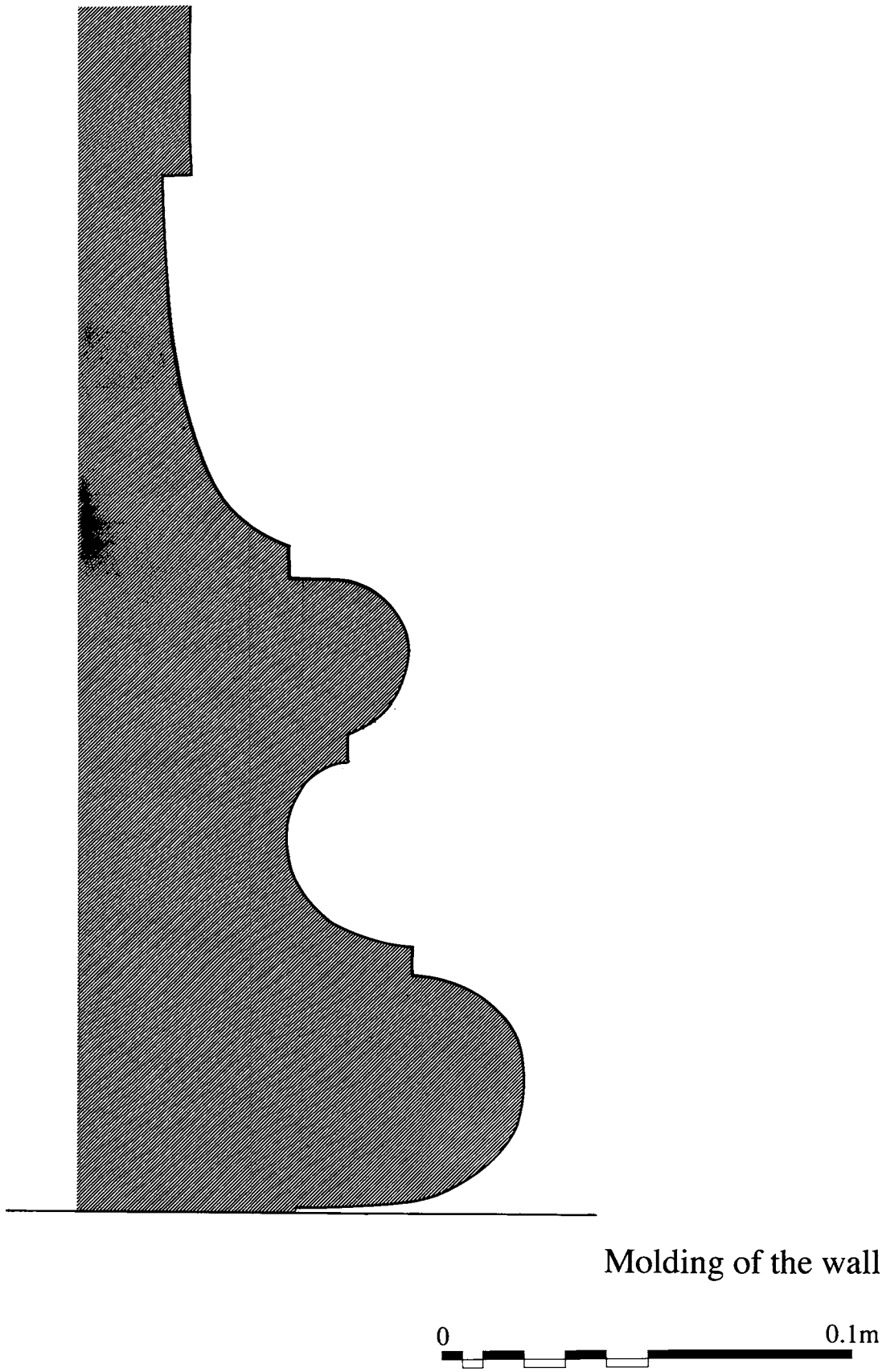


Fig. 9 K1, Molding of the wall base

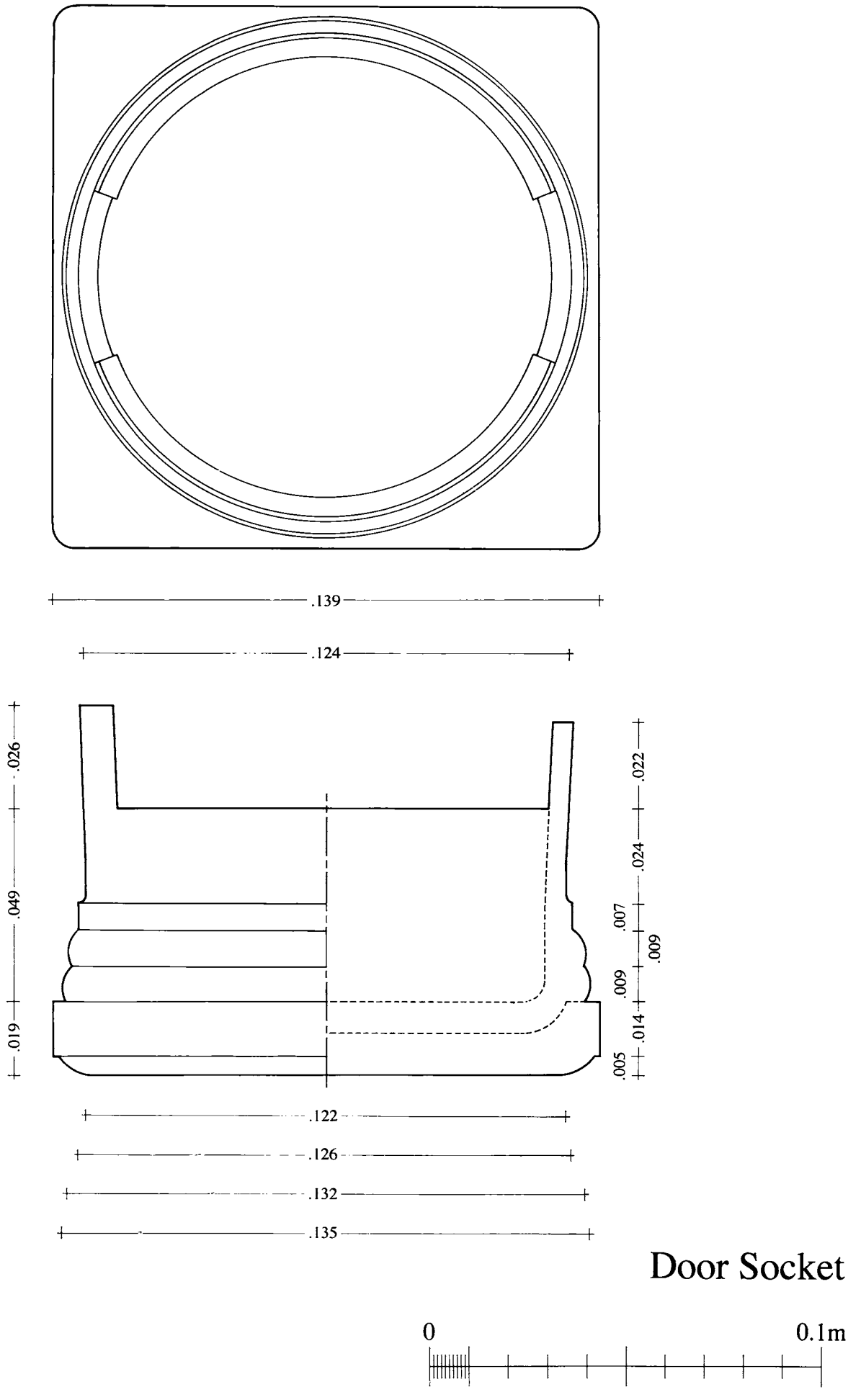


Fig. 10 K1, Bronze door socket

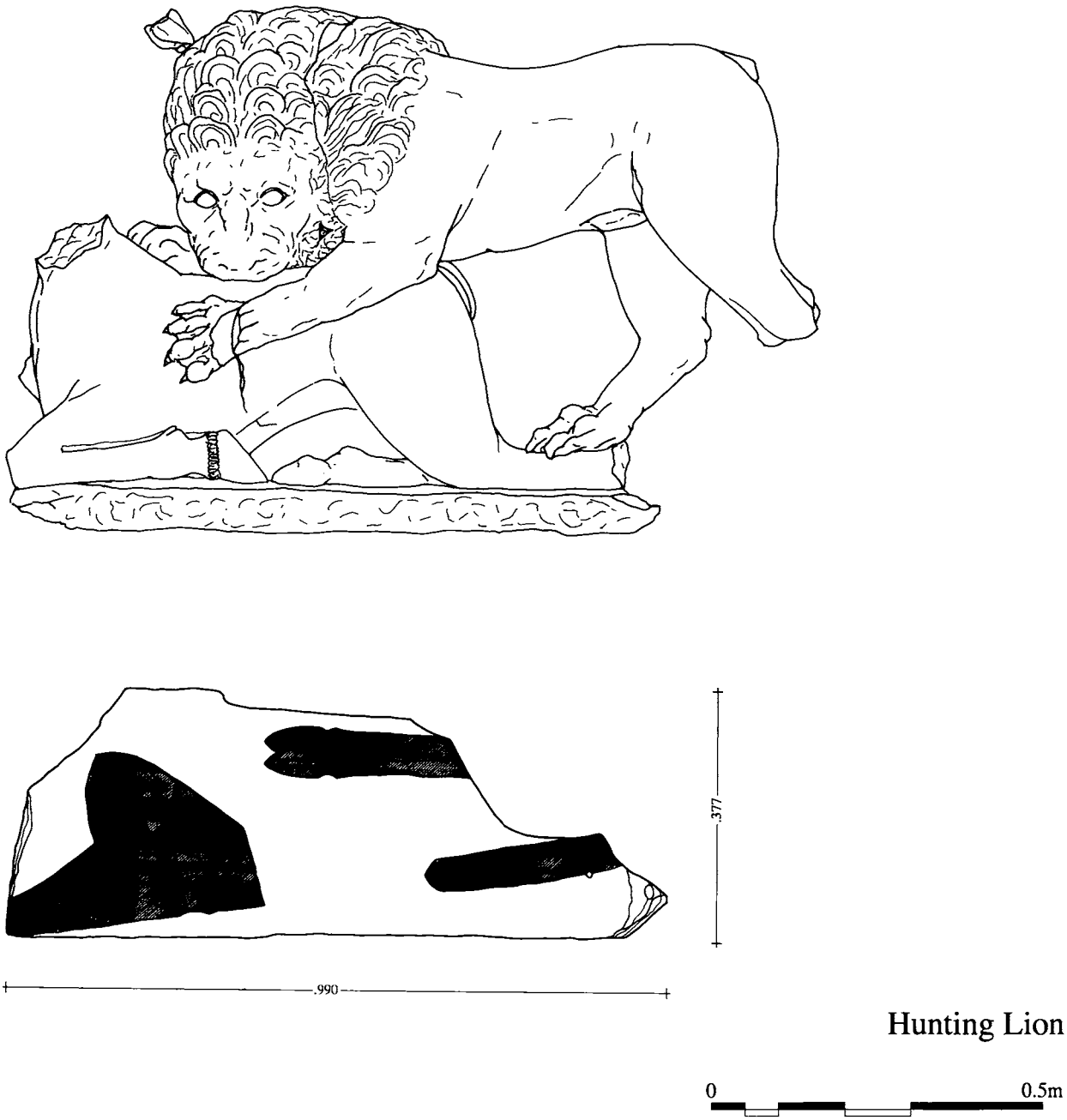
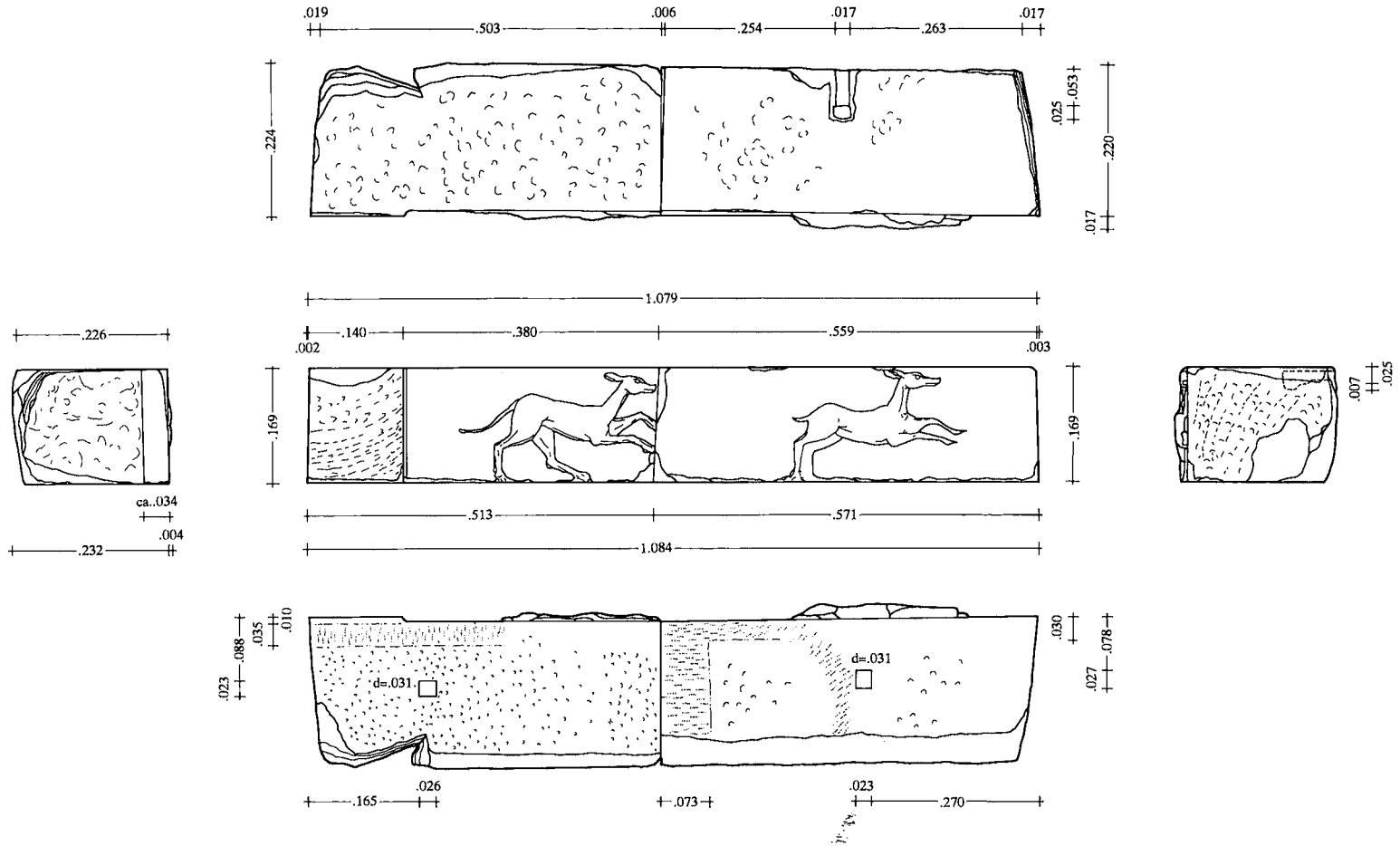


Fig. 11 K1, Lion hunting a deer



K1.4, K1.5

0 0.5m

Fig. 12 K1, Reliefs of a dog and a deer

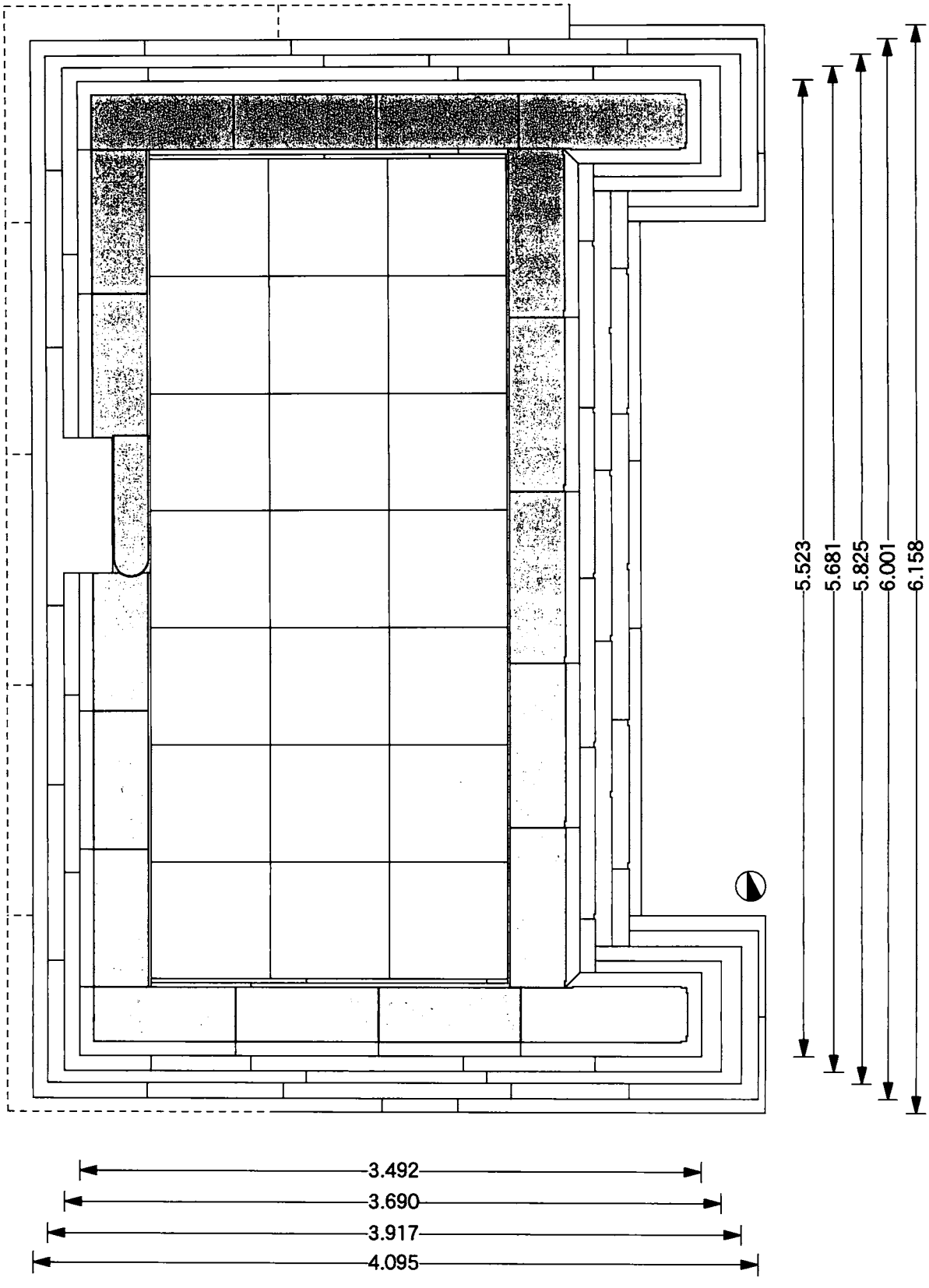


Fig. 13 K1, Plan reconstructed

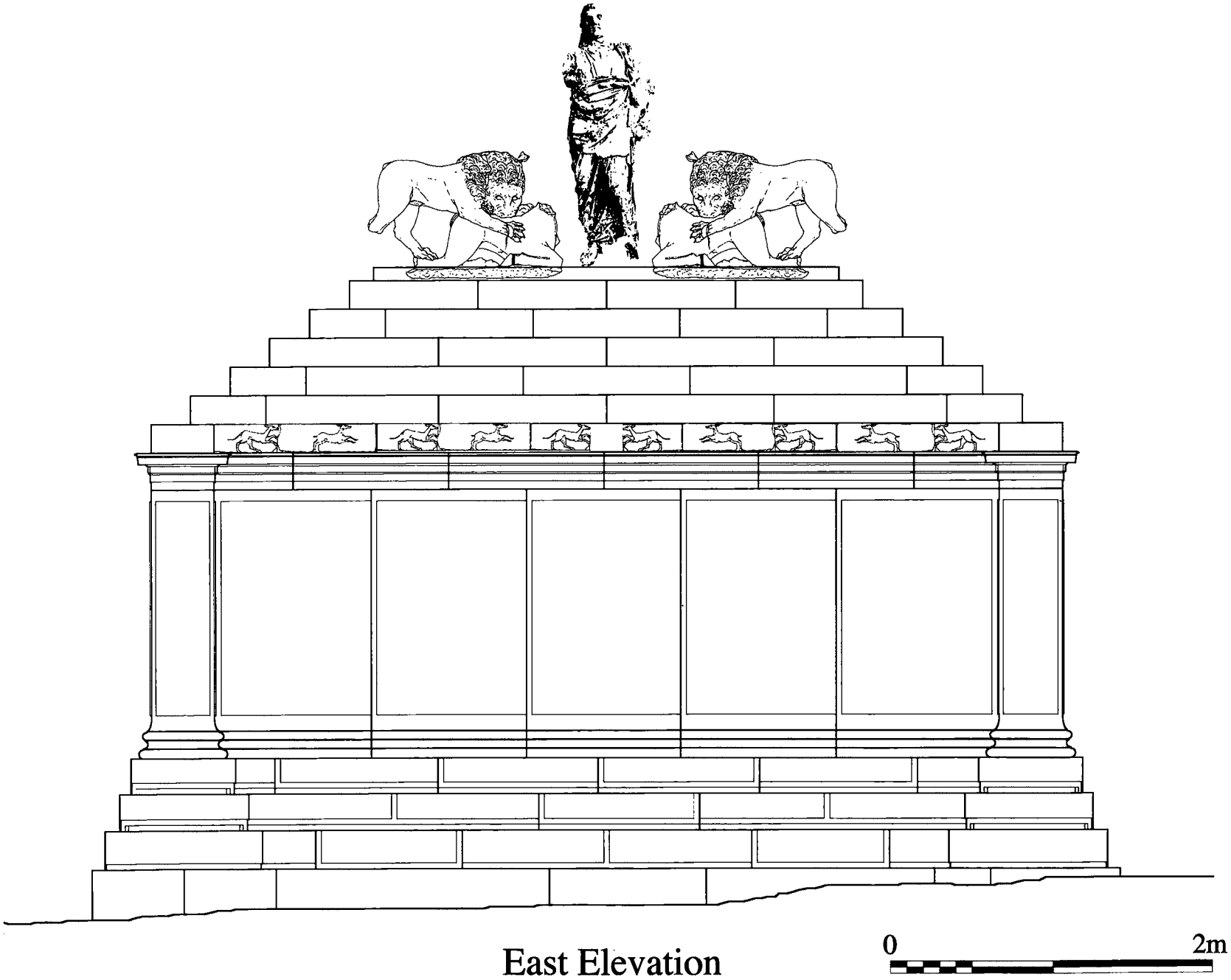


Fig. 14 K1, Trial reconstruction of the east elevation

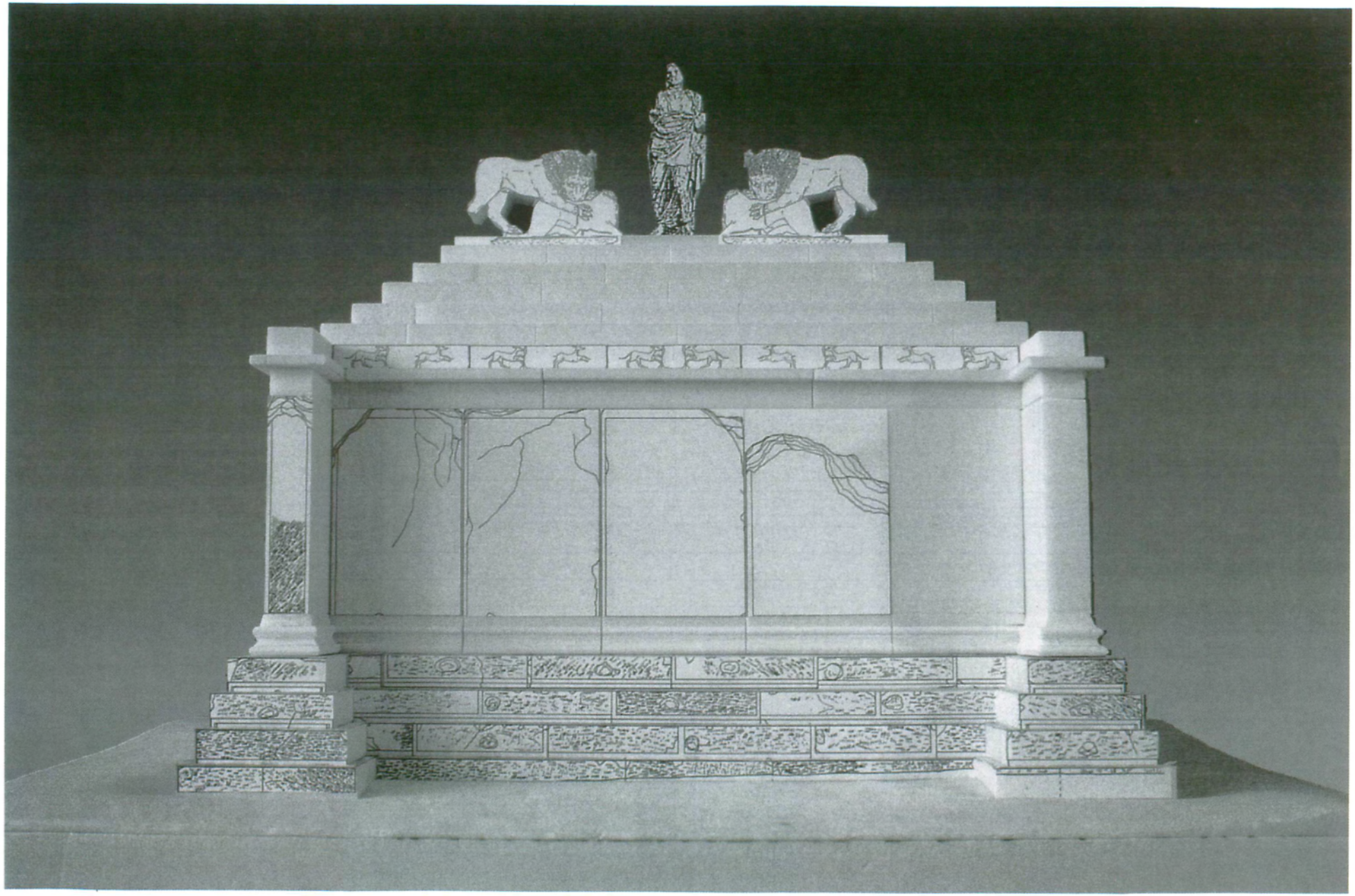


Fig. 15 K1, Model, view from the east

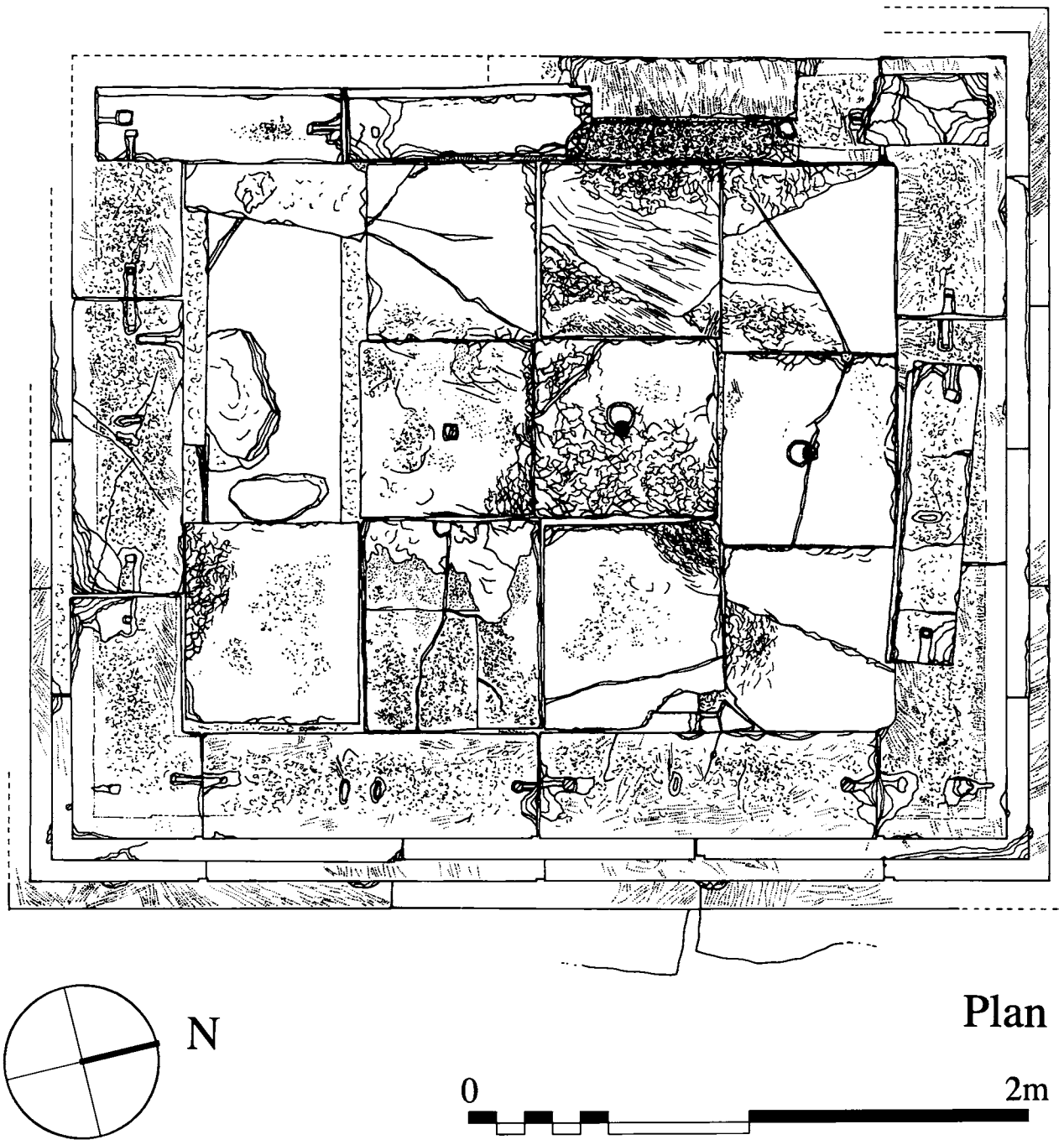


Fig. 16 K2, Plan

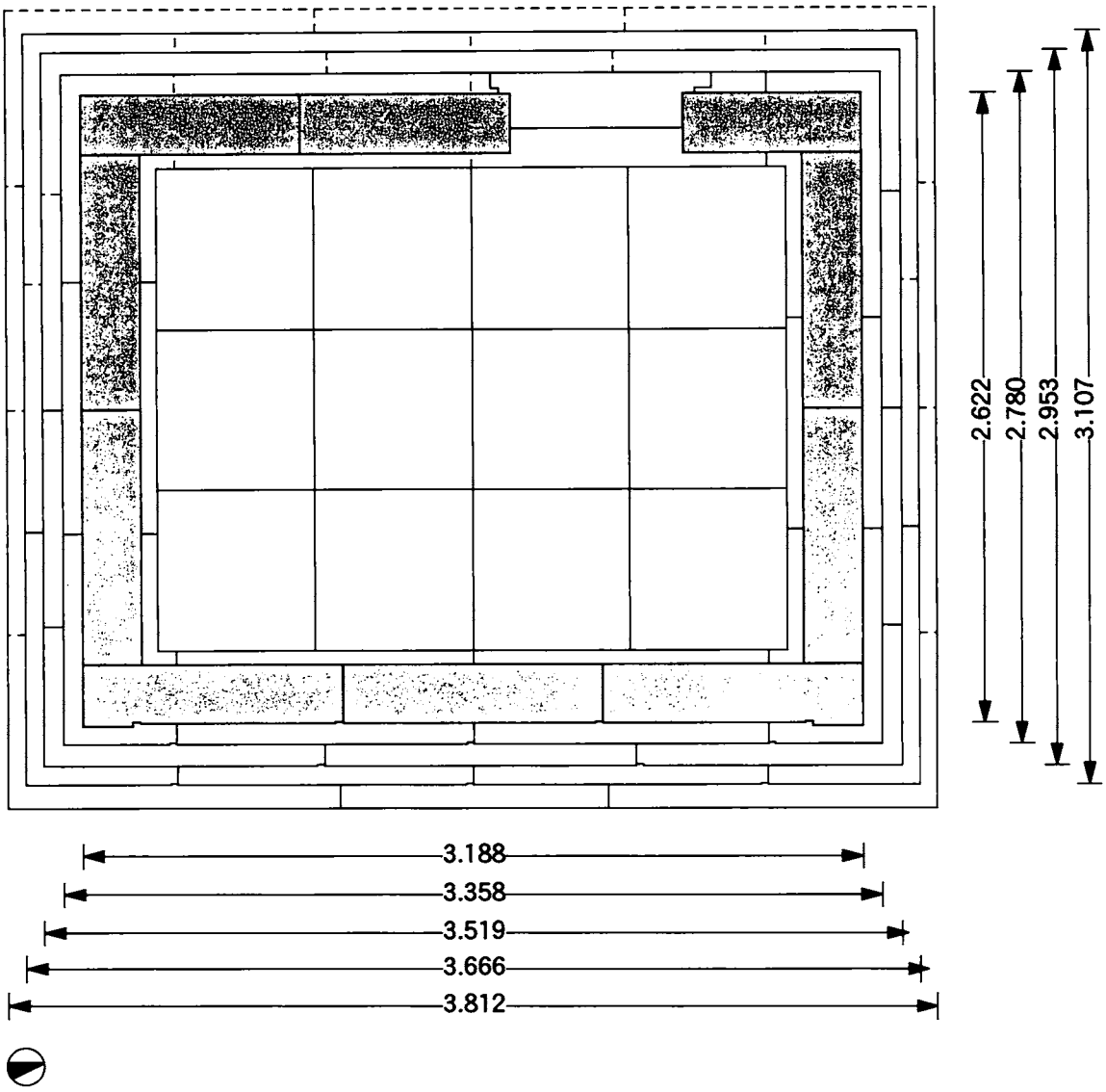
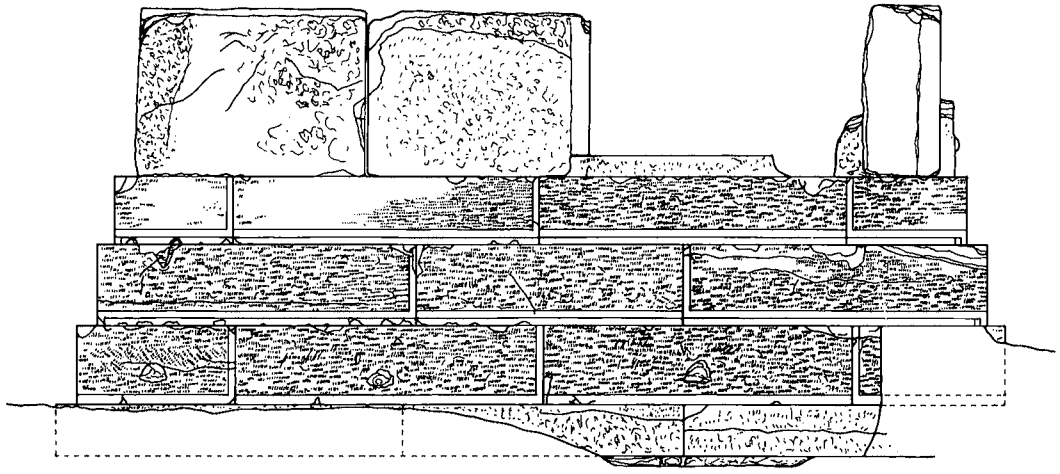
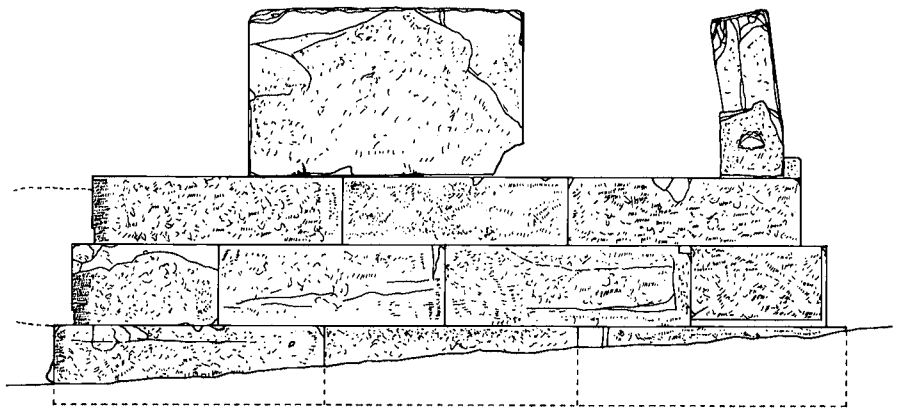


Fig. 17 K2, Plan reconstructed

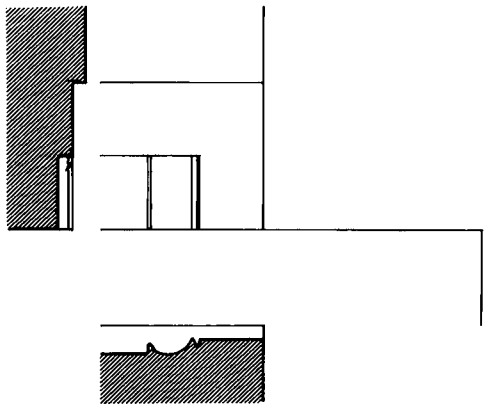


East Elevation



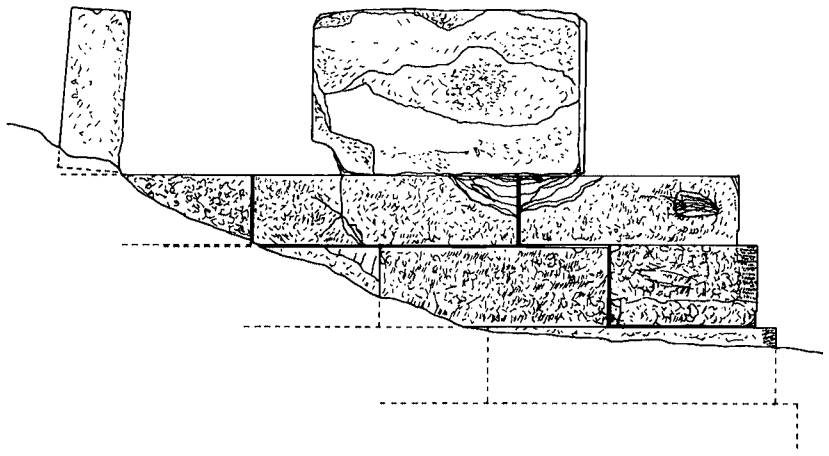
North Elevation

0 2m



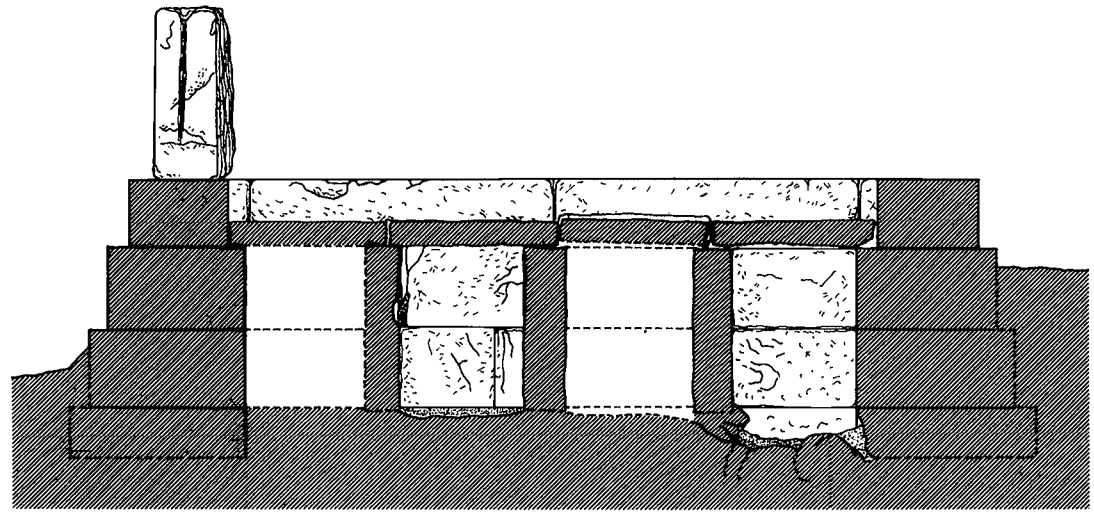
0 0.1m

Detail of North-east Corner

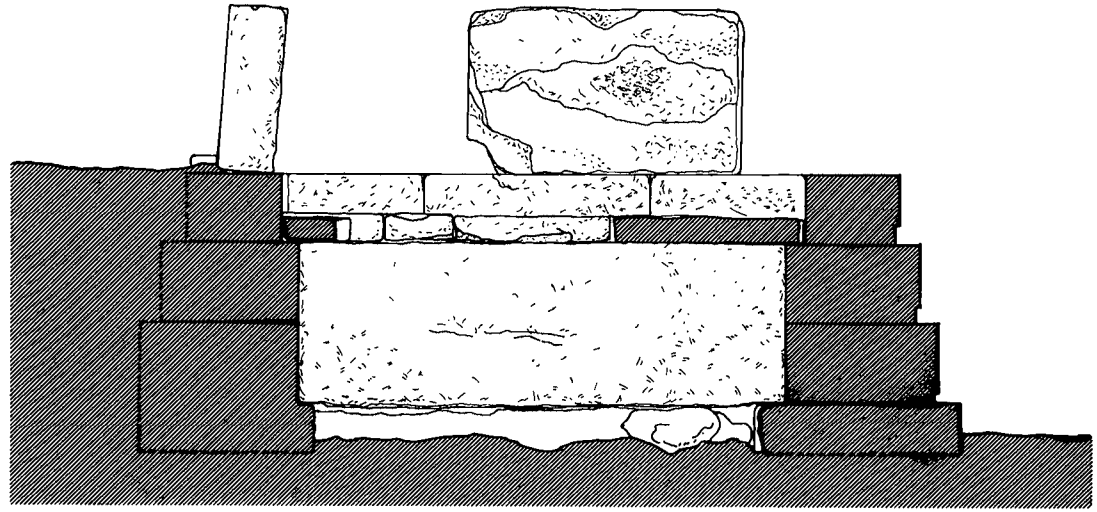


South Elevation

Fig. 18 K2, East, north and south elevations, a detail of relieving margin



N-S Section



E-W Section

Fig. 19 K2, N-S and E-W sections

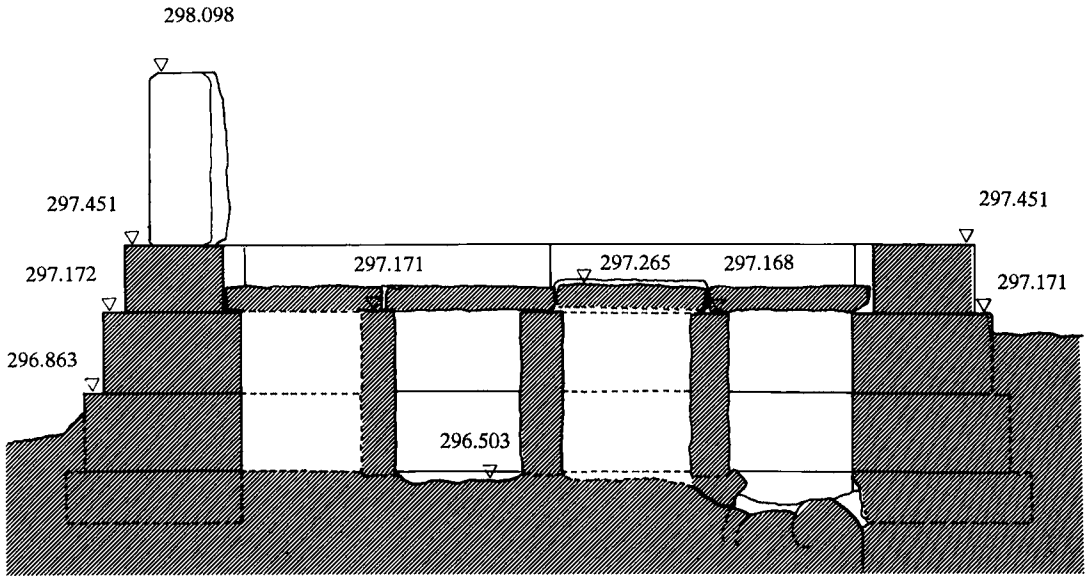


Fig. 20 K2, N-S and E-W sections with levels

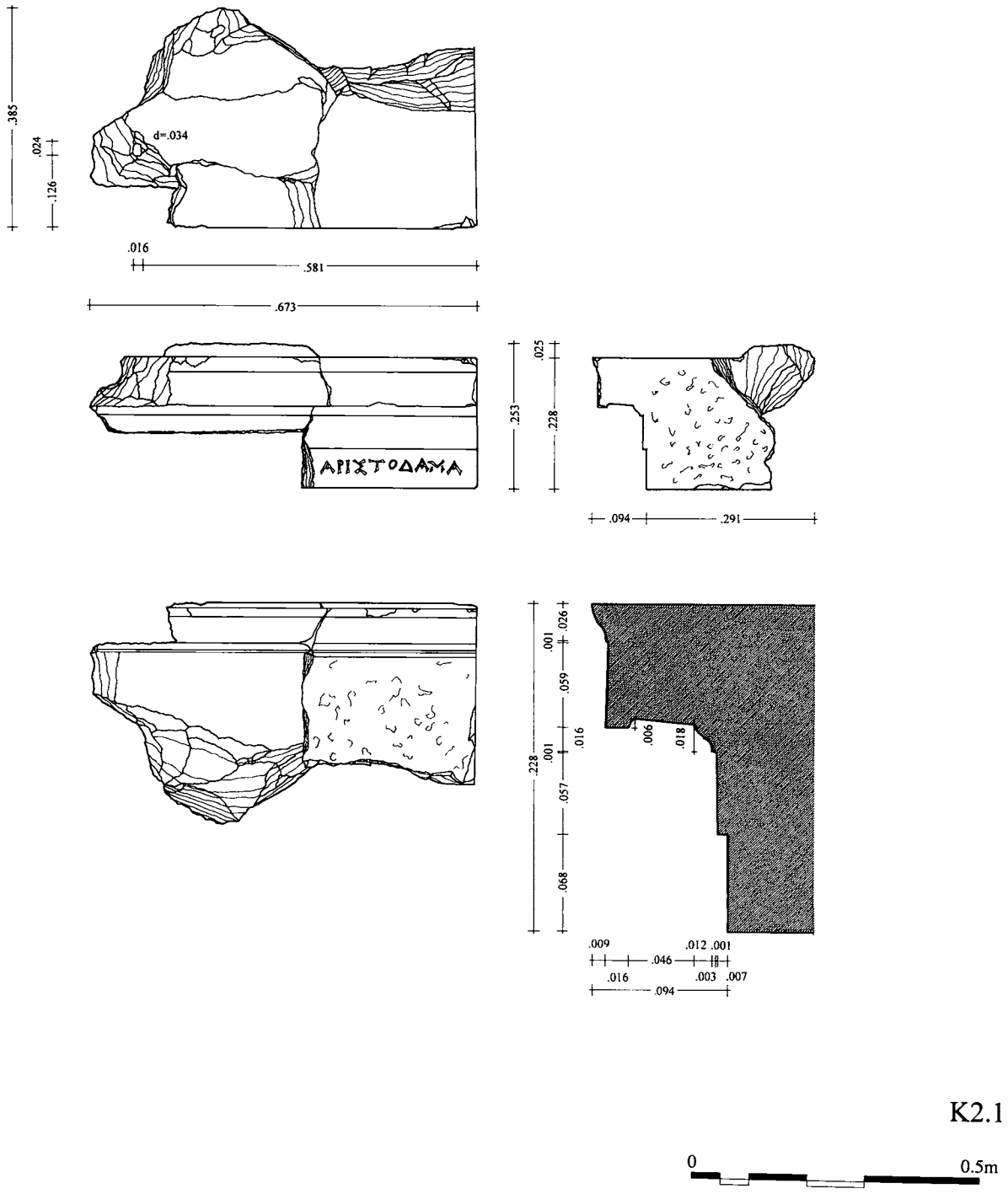


Fig. 21 K2, Fragmentary cornice block with an inscription

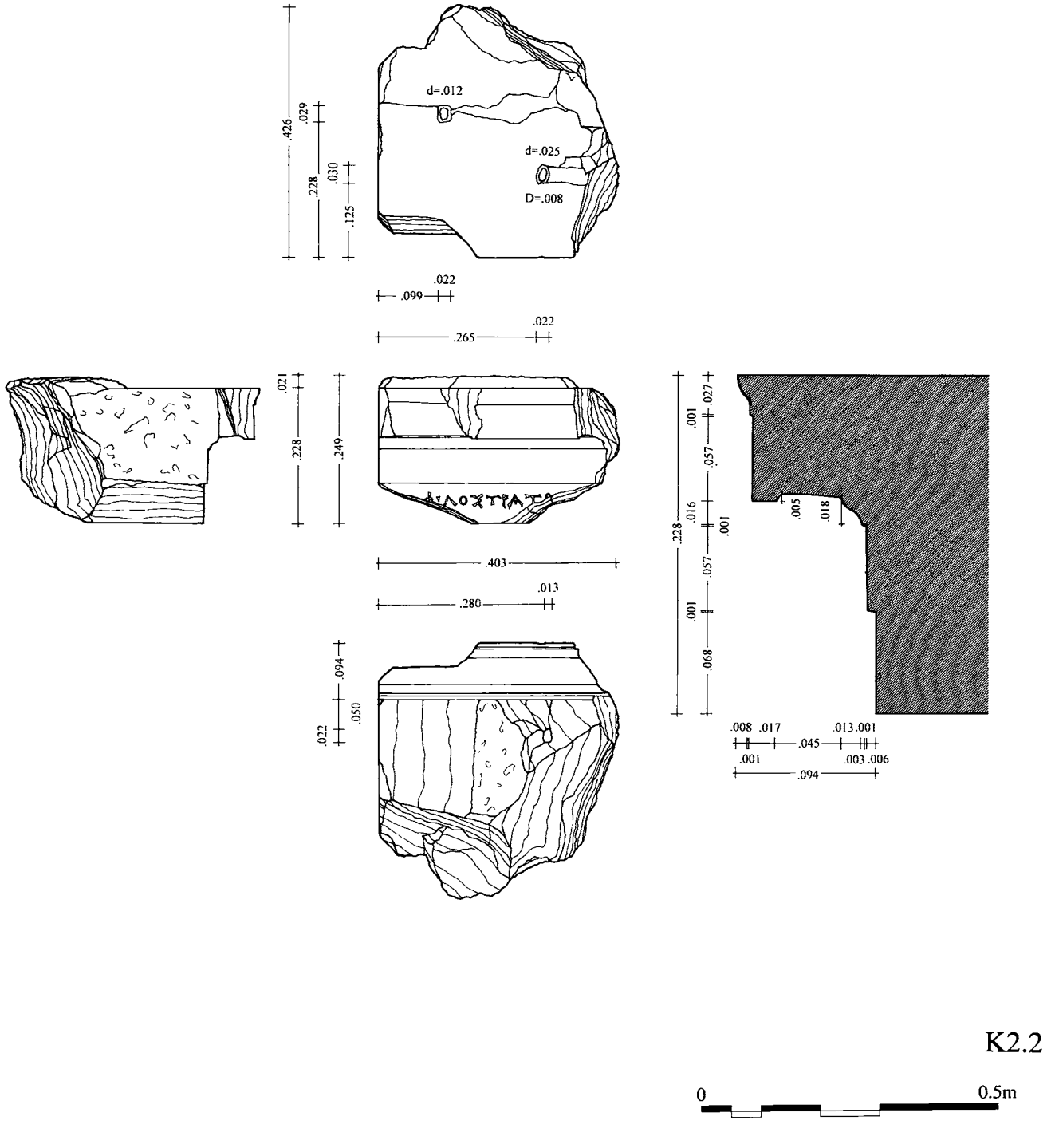


Fig. 22 K2, Fragmentary cornice block with an inscription

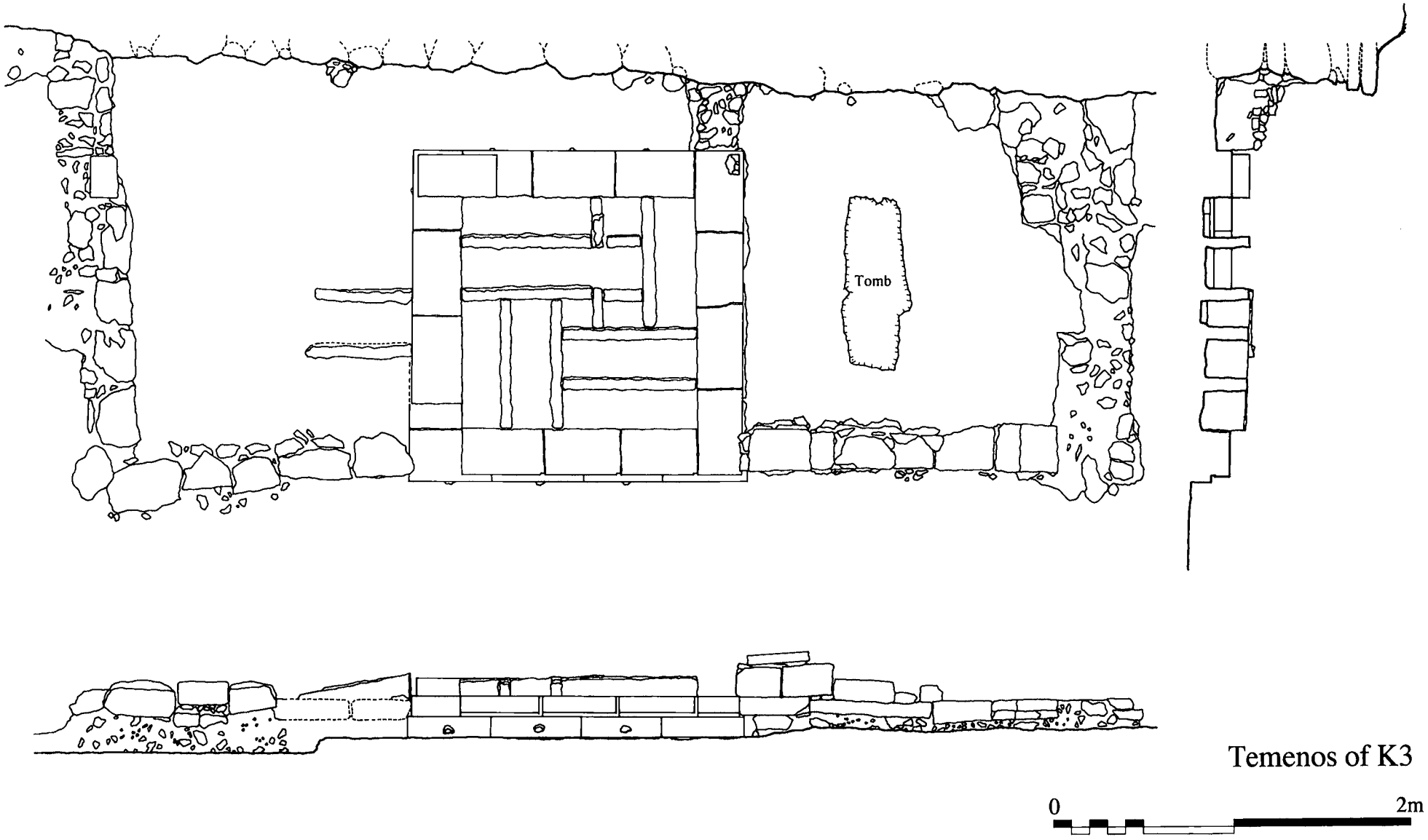


Fig. 23 K3 and its enclosure, plan

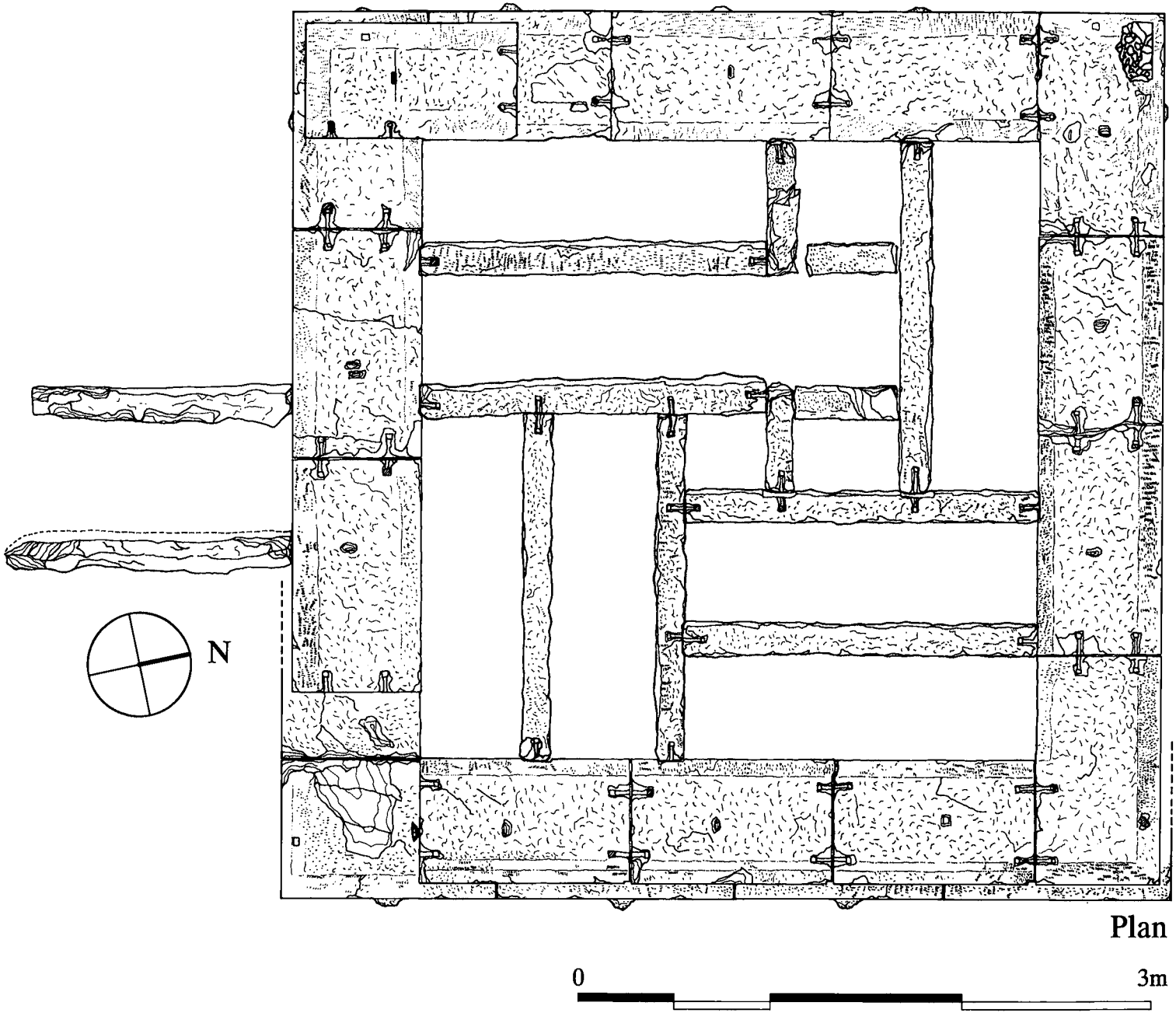


Fig. 24 K3, Plan

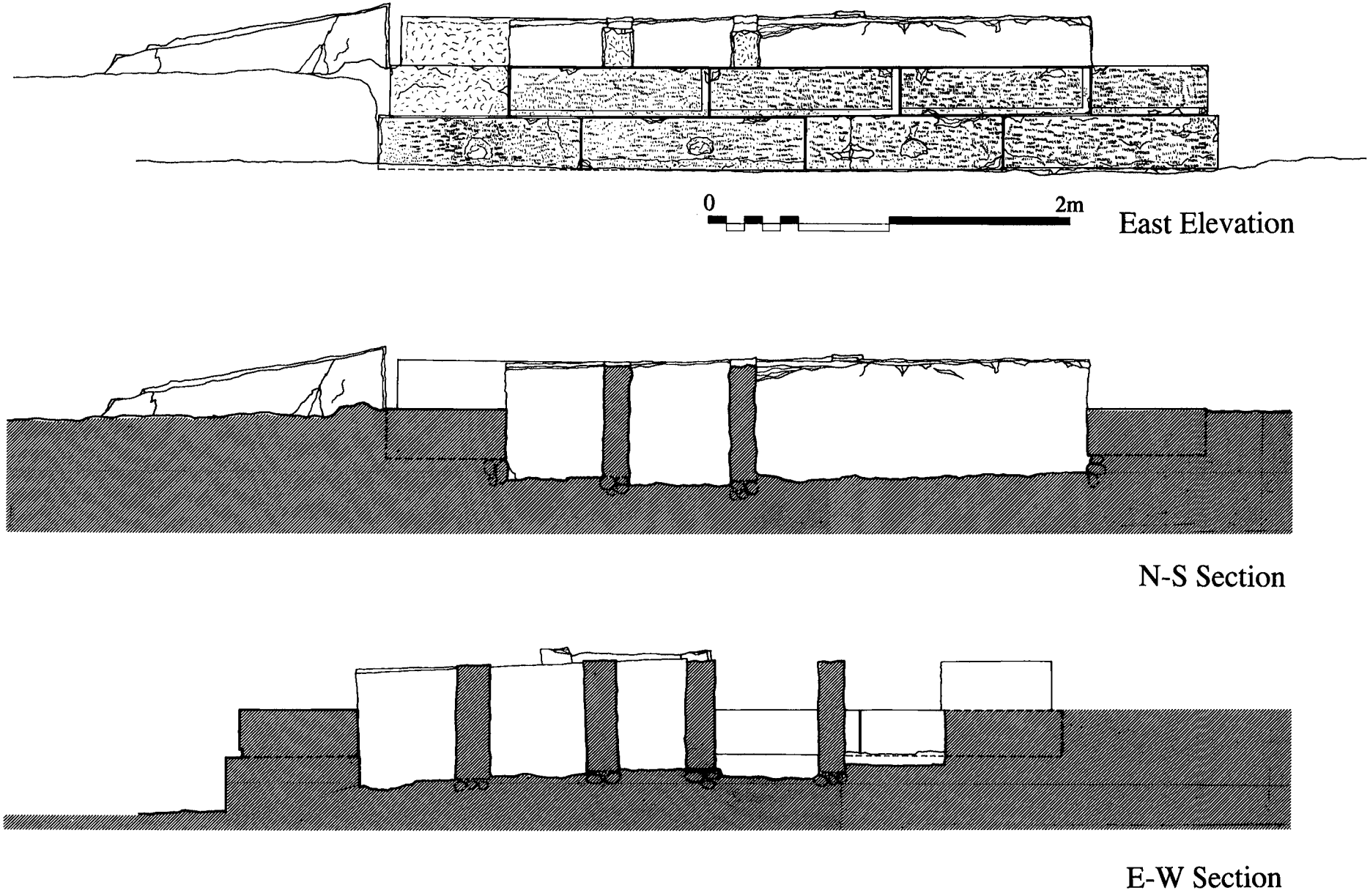


Fig. 25 K3, East elevation, N-S and E-W sections

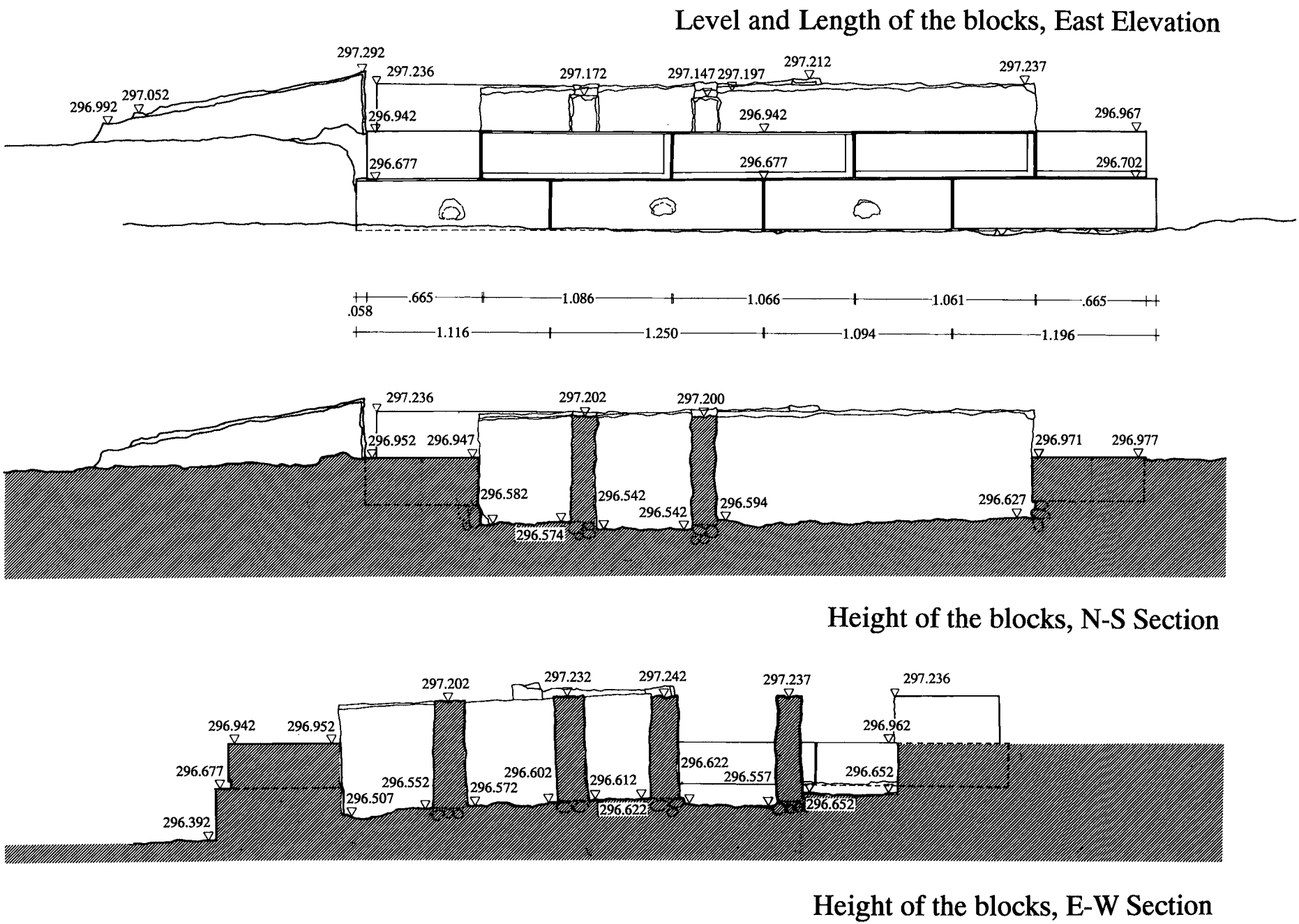
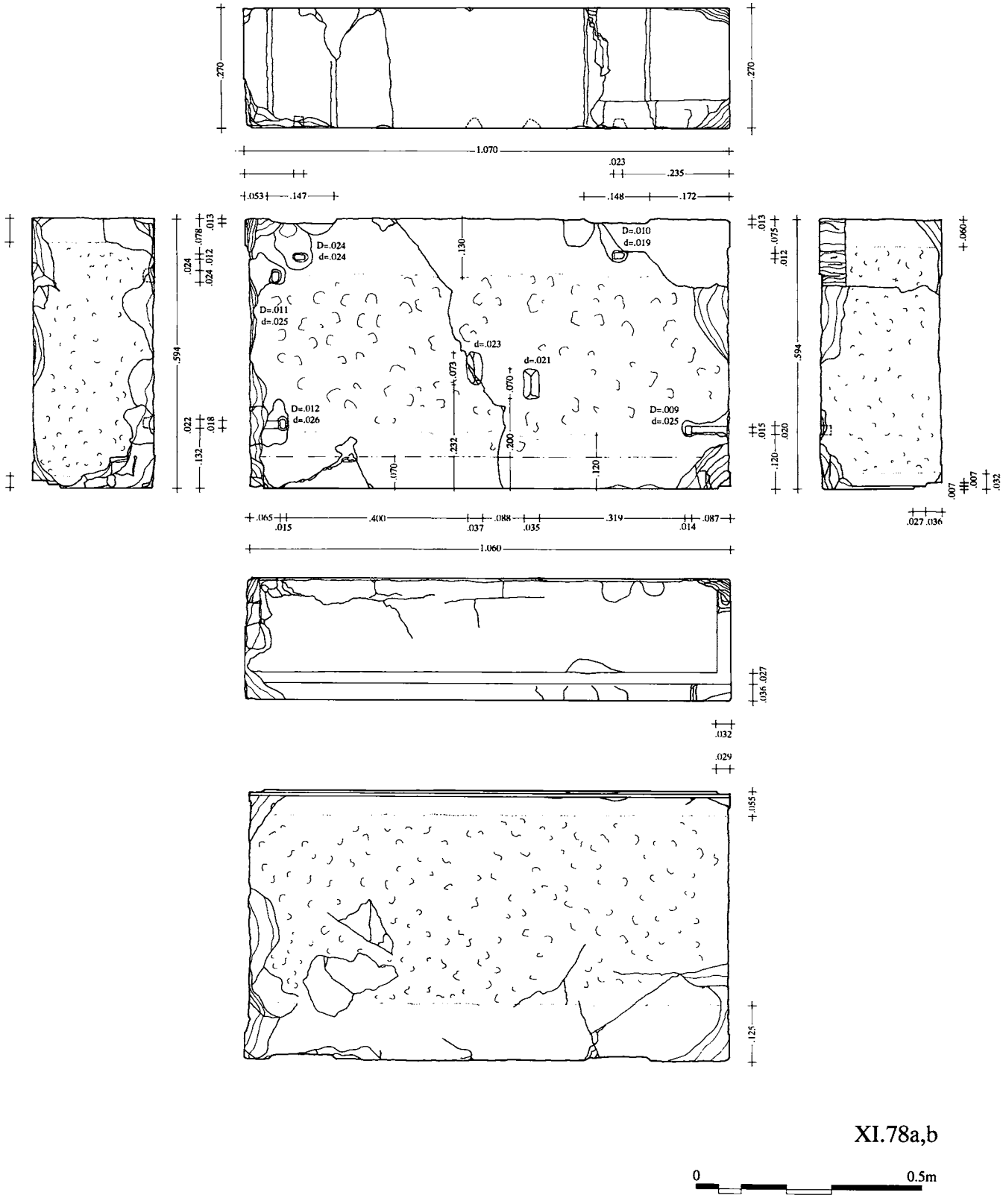


Fig. 26 K3, East elevation, N-S and E-W sections with dimensions and levels



XI.78a,b

Fig. 27 K3, Upper crepis block, XI.78a, b

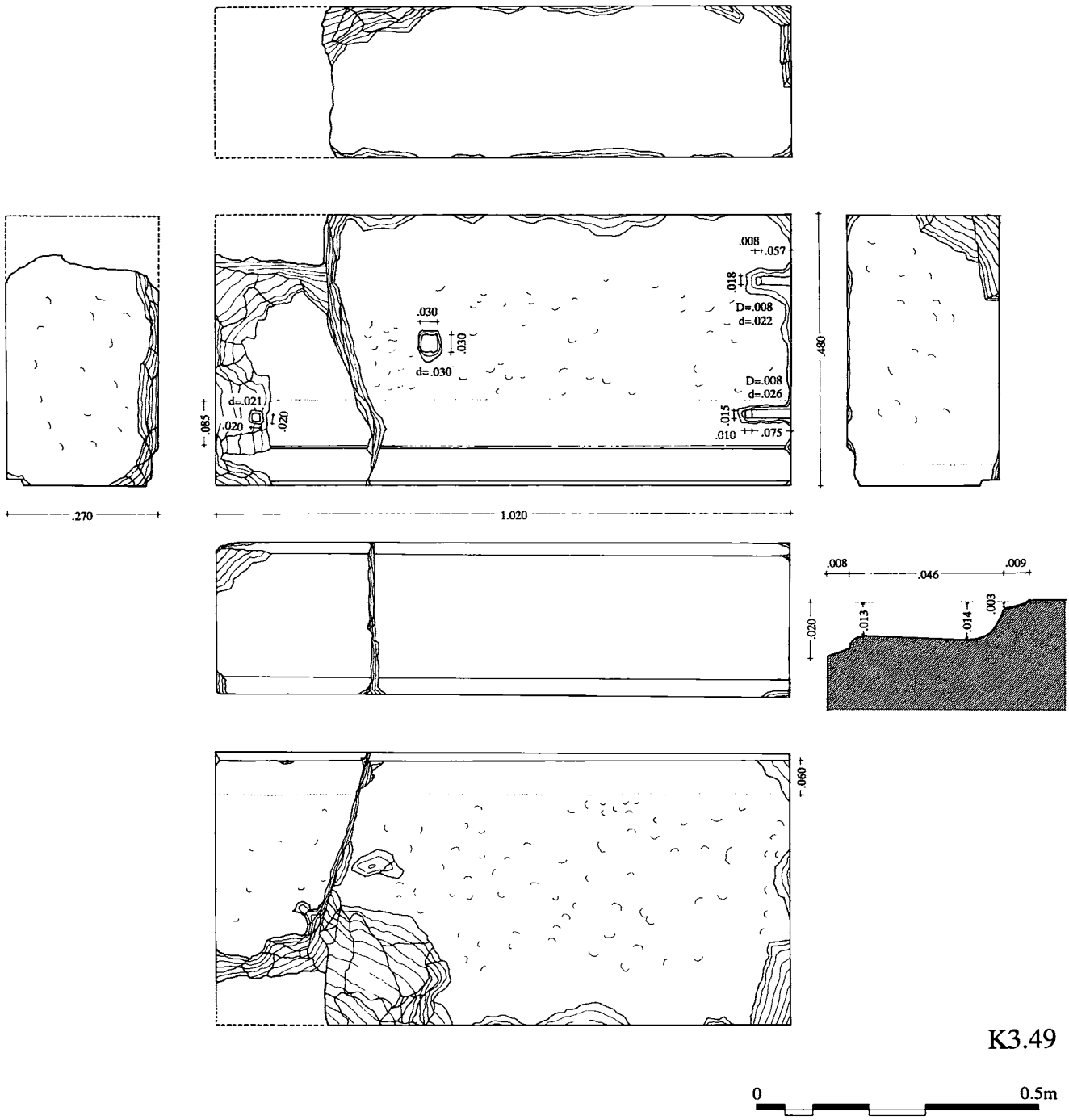


Fig. 28 K3, Toichobate block, K3.49

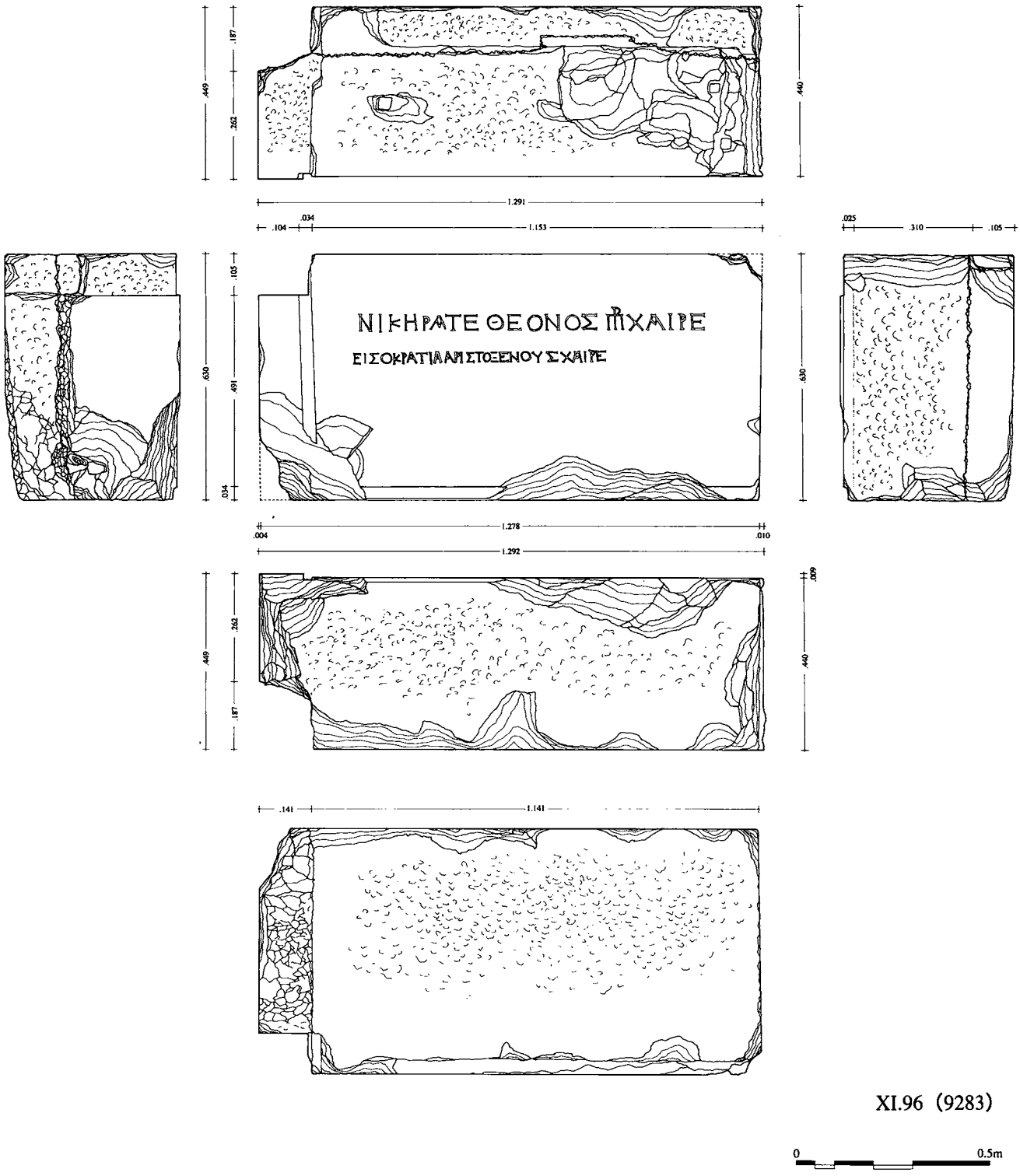


Fig. 29 K3, Wall block with inscriptions, XI.96 (9283)

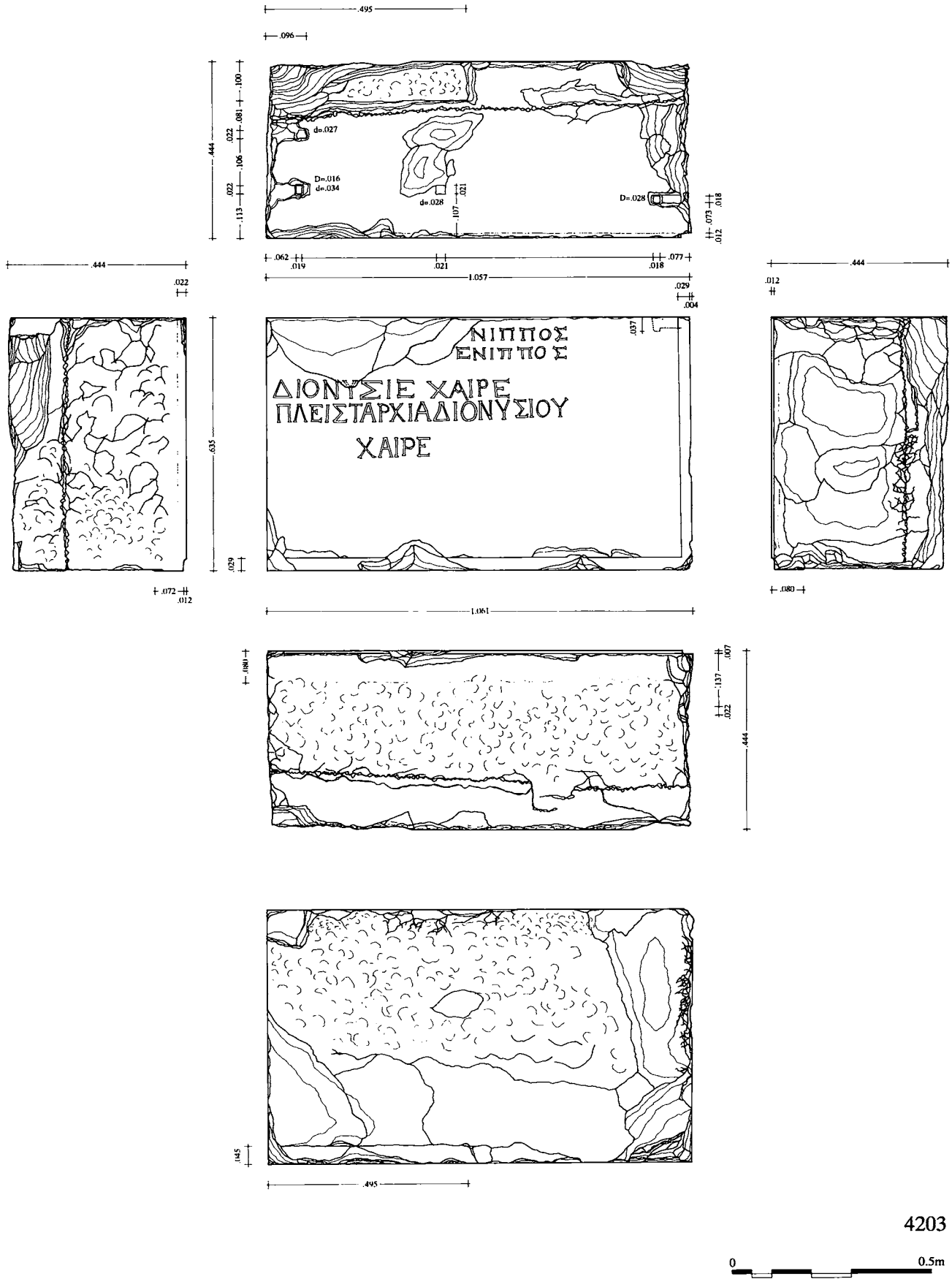


Fig. 30 K3, Wall block with inscriptions, 4203

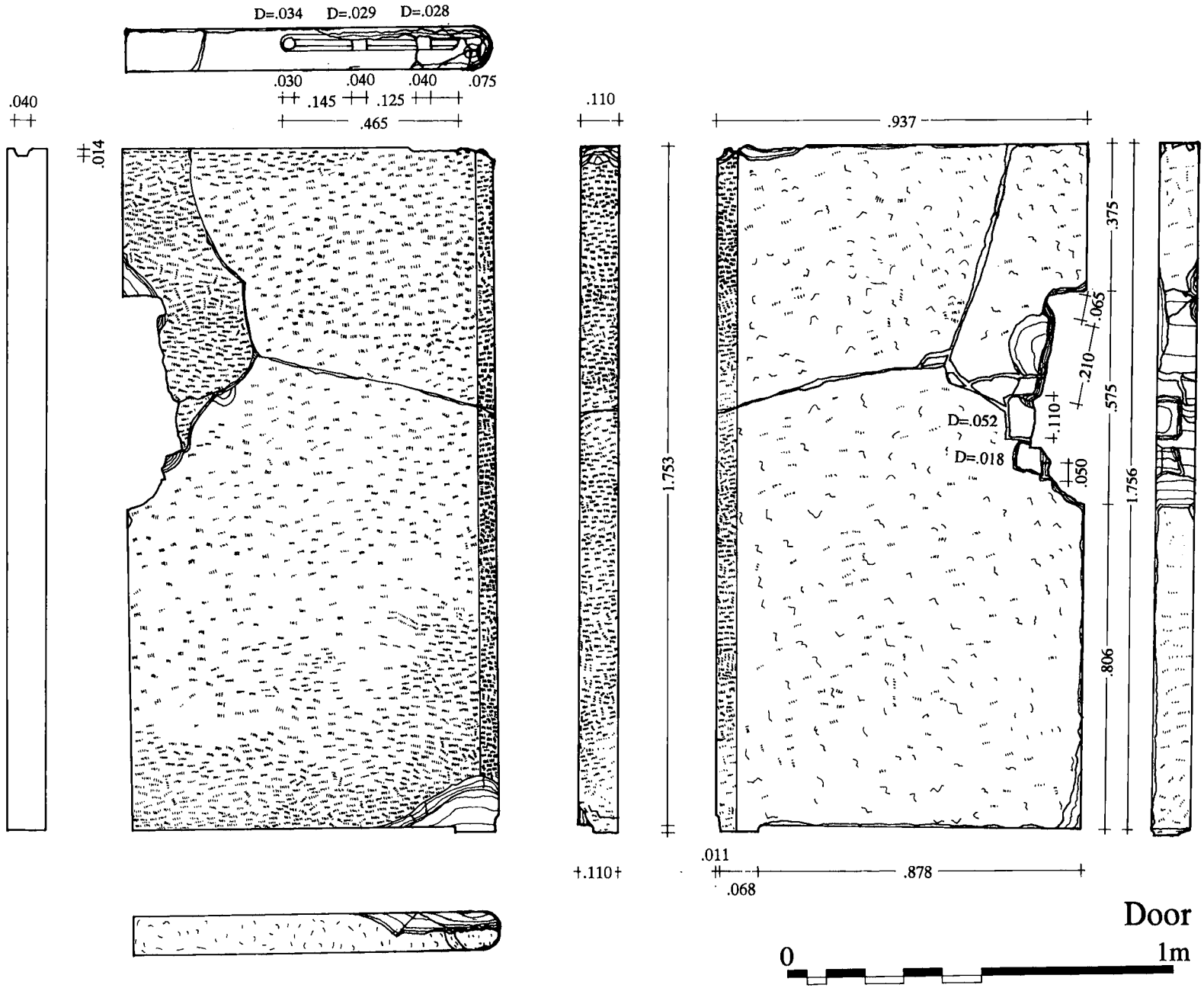


Fig. 31 K3, Door

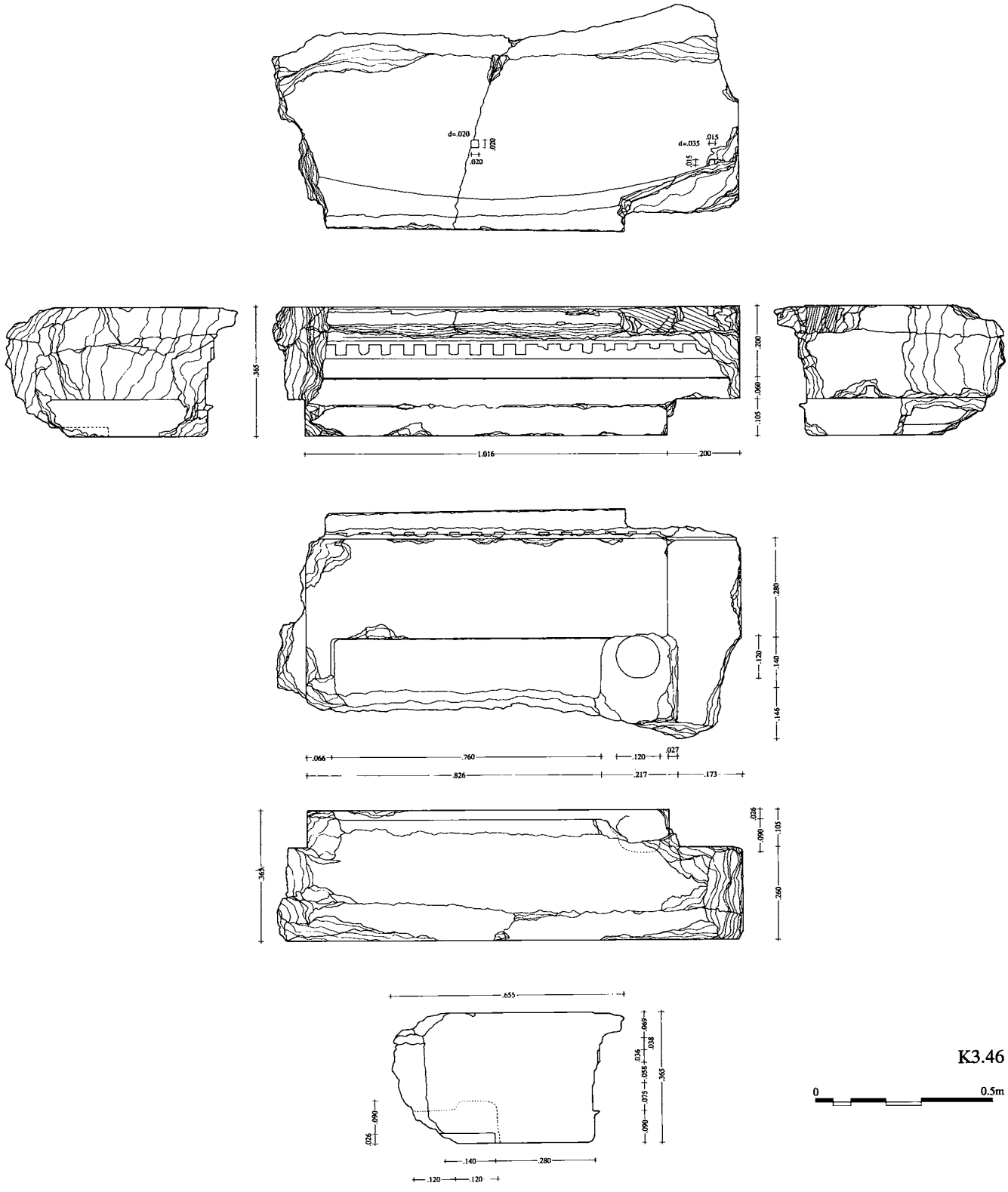


Fig. 32 K3, Cornice block with lintel for doorway, K3.46

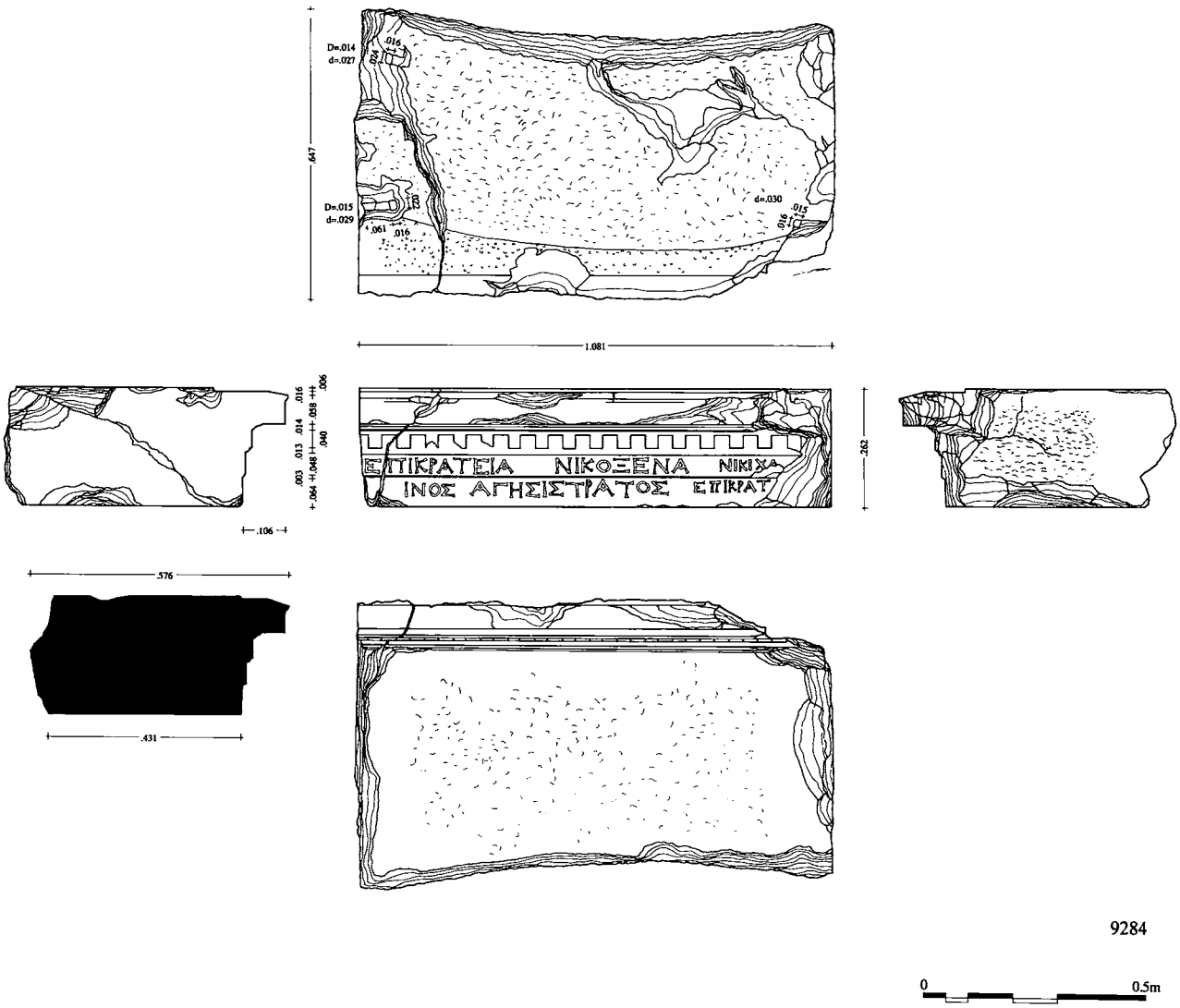


Fig. 33 K3, Cornice block with inscriptions, 9284

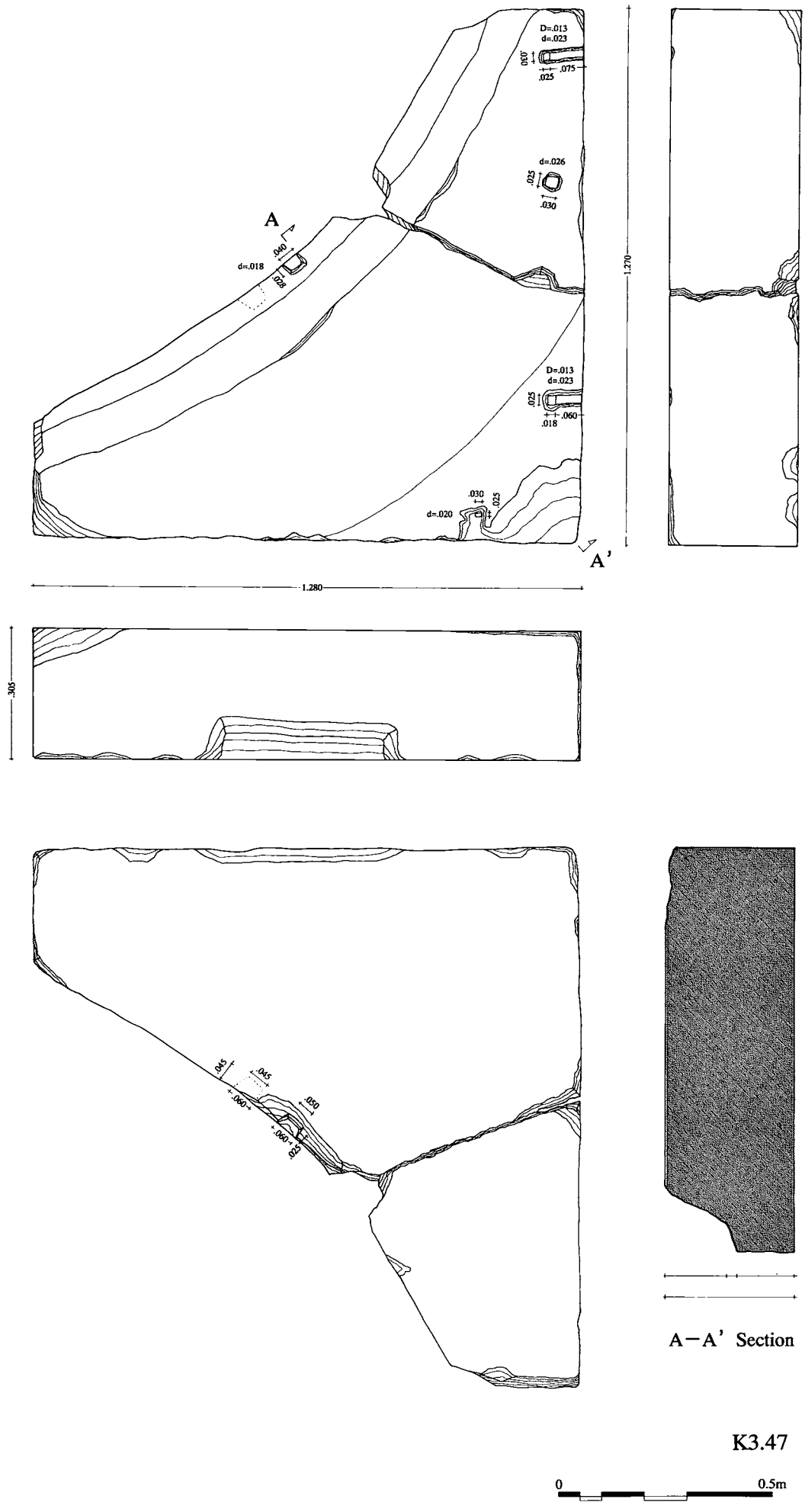


Fig. 34 K3, Ceiling block, K3.47

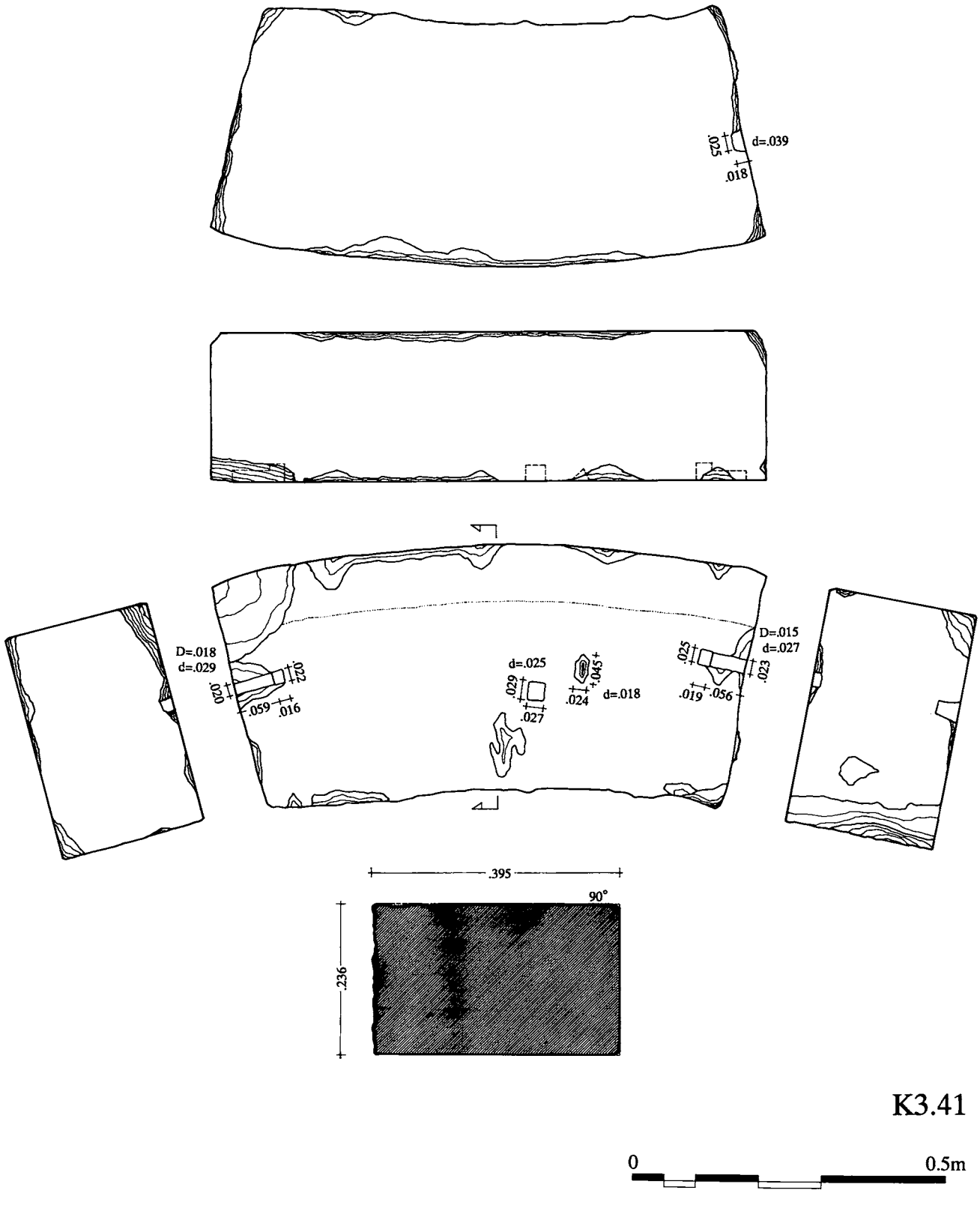


Fig. 35 K3, Roof block of the bottom course, K3.41

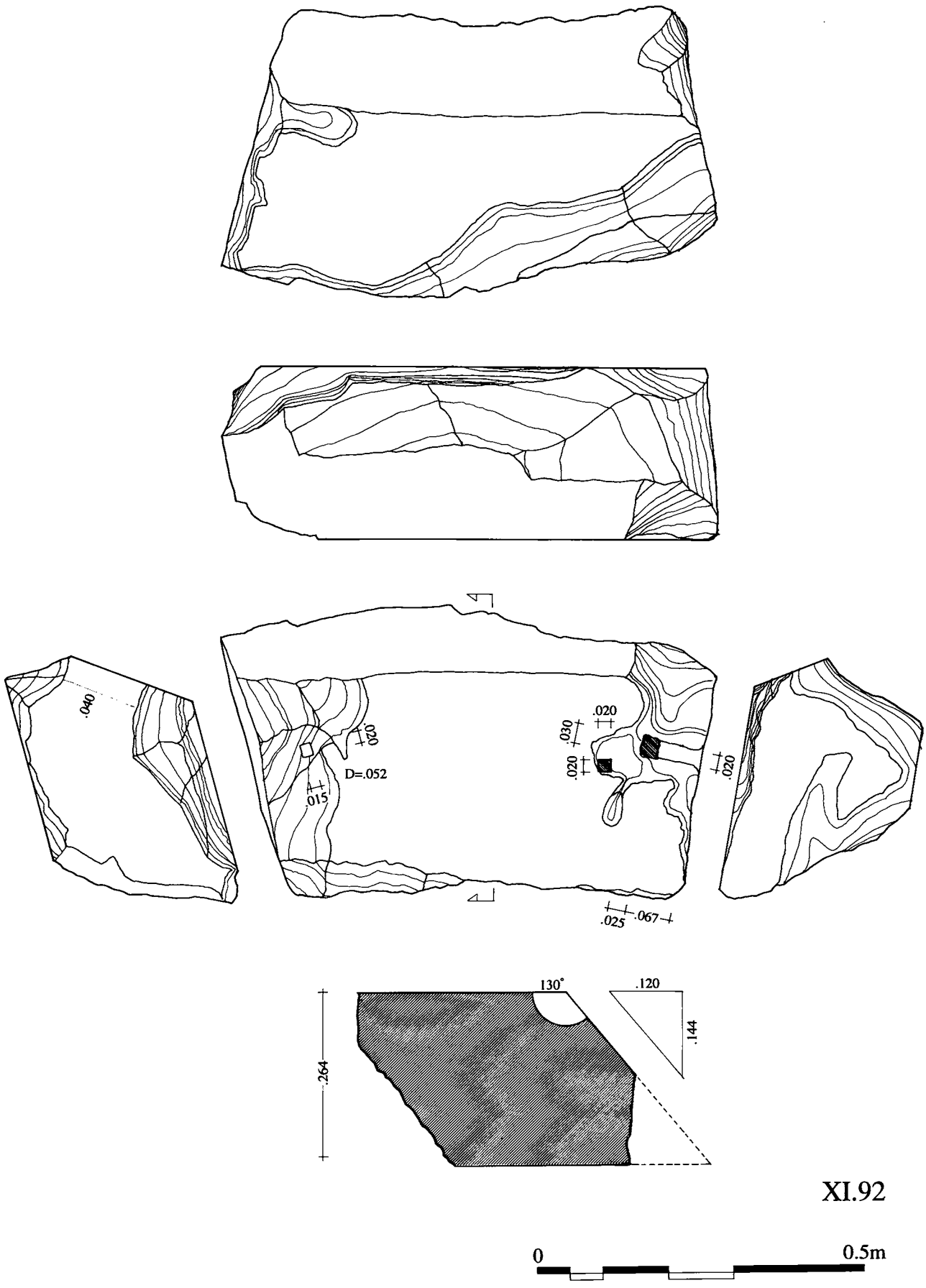
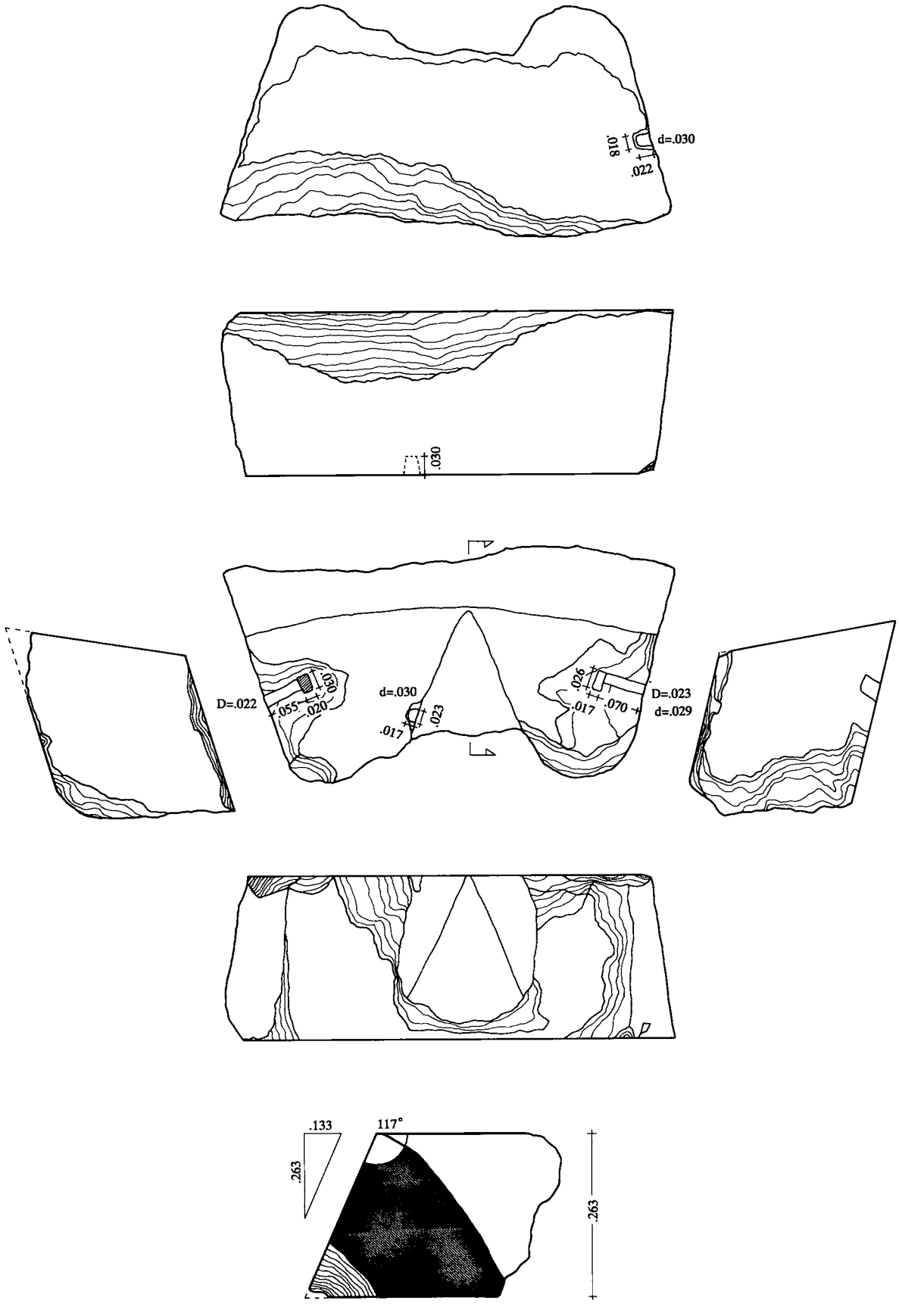


Fig. 36 K3, Roof block, XI.92



XI.117

0 0.5m

Fig. 37 K3, Roof block with a triangular cut, XI.117

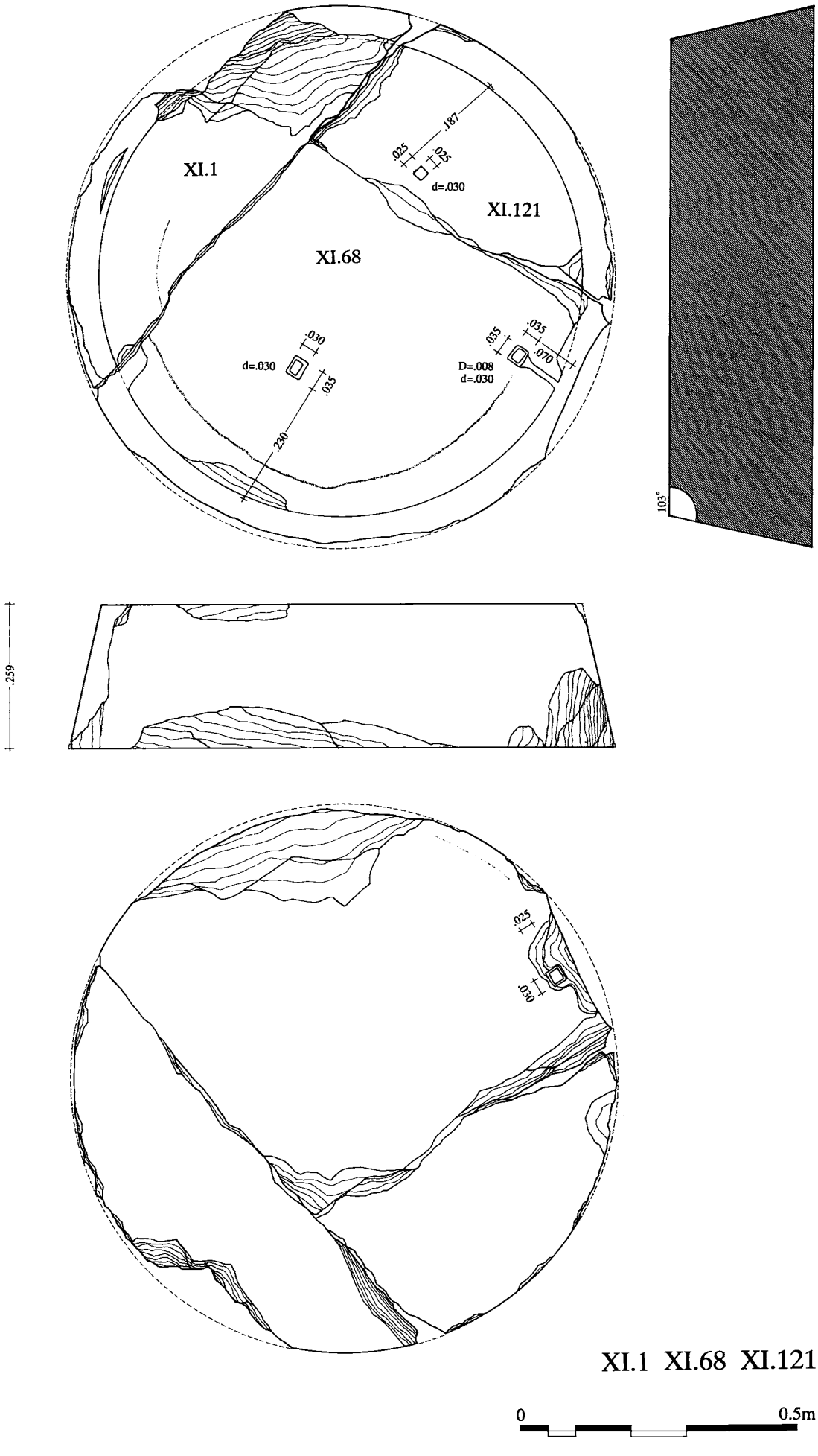


Fig. 38 K3, Truncated roof block, XI.1, XI.68, XI.121

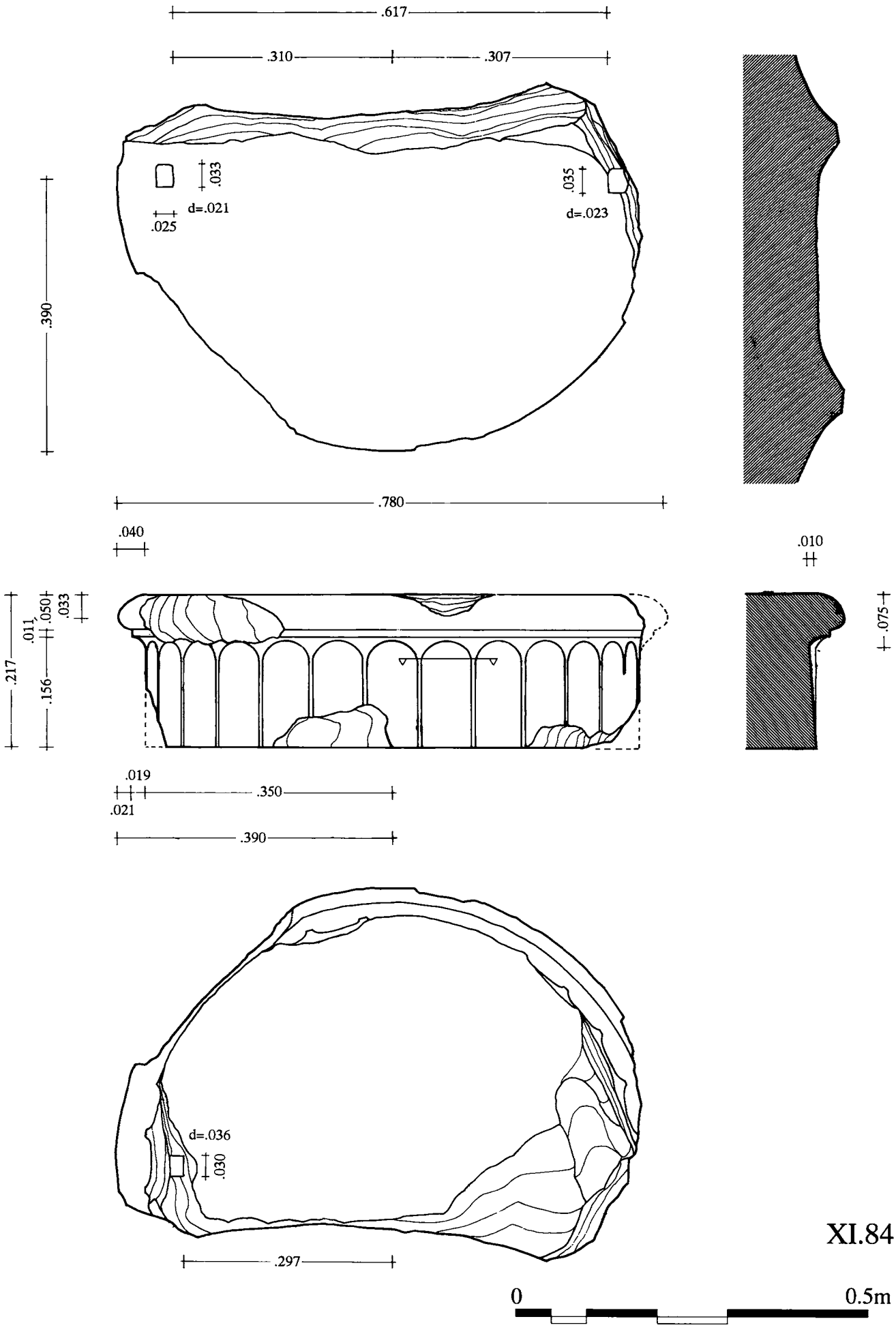


Fig. 39 K3, Top roof block with flutings, XI.84

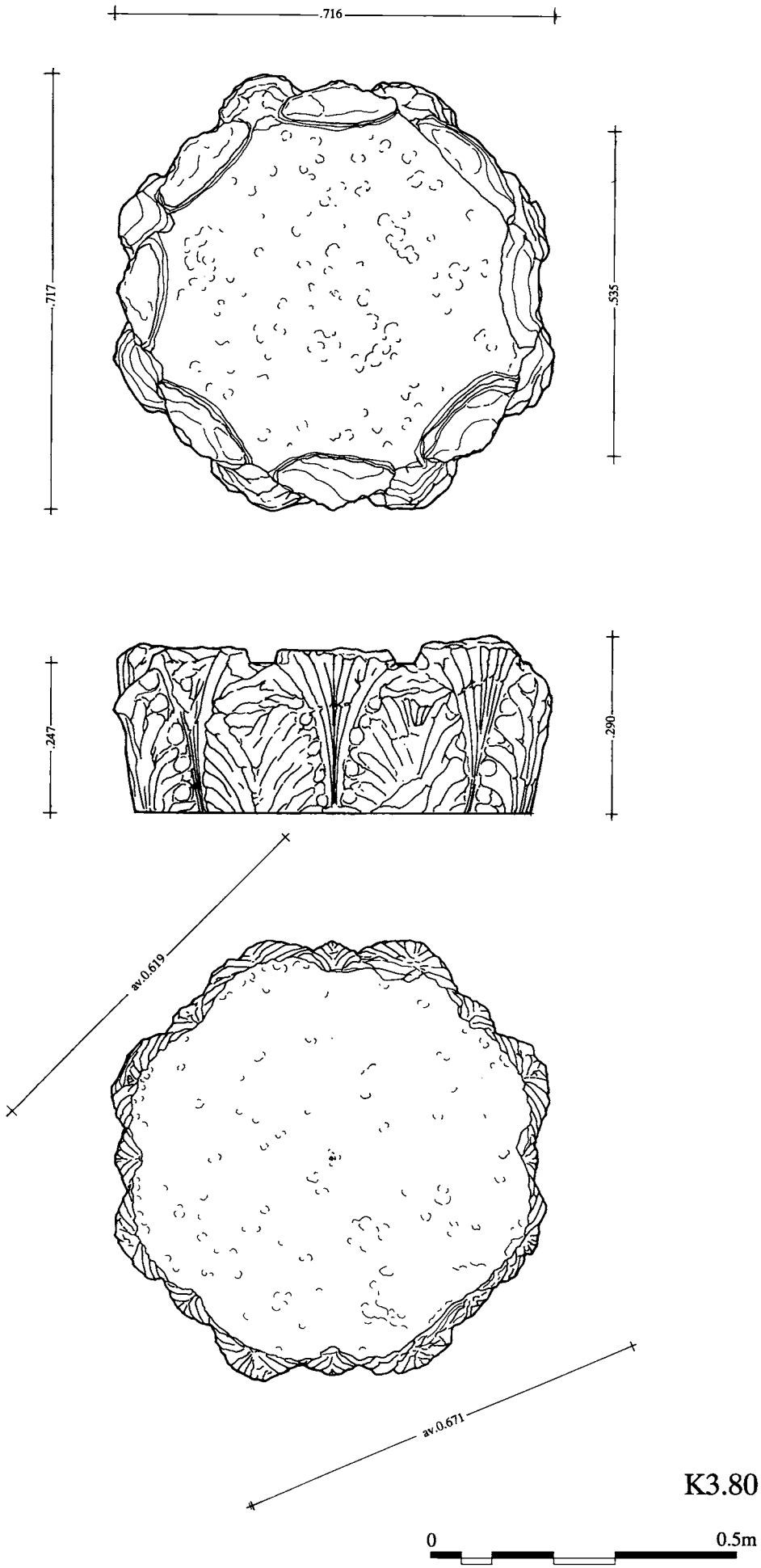


Fig. 40 K3, Lower half of the finial of the Corinthian capital, K3.80

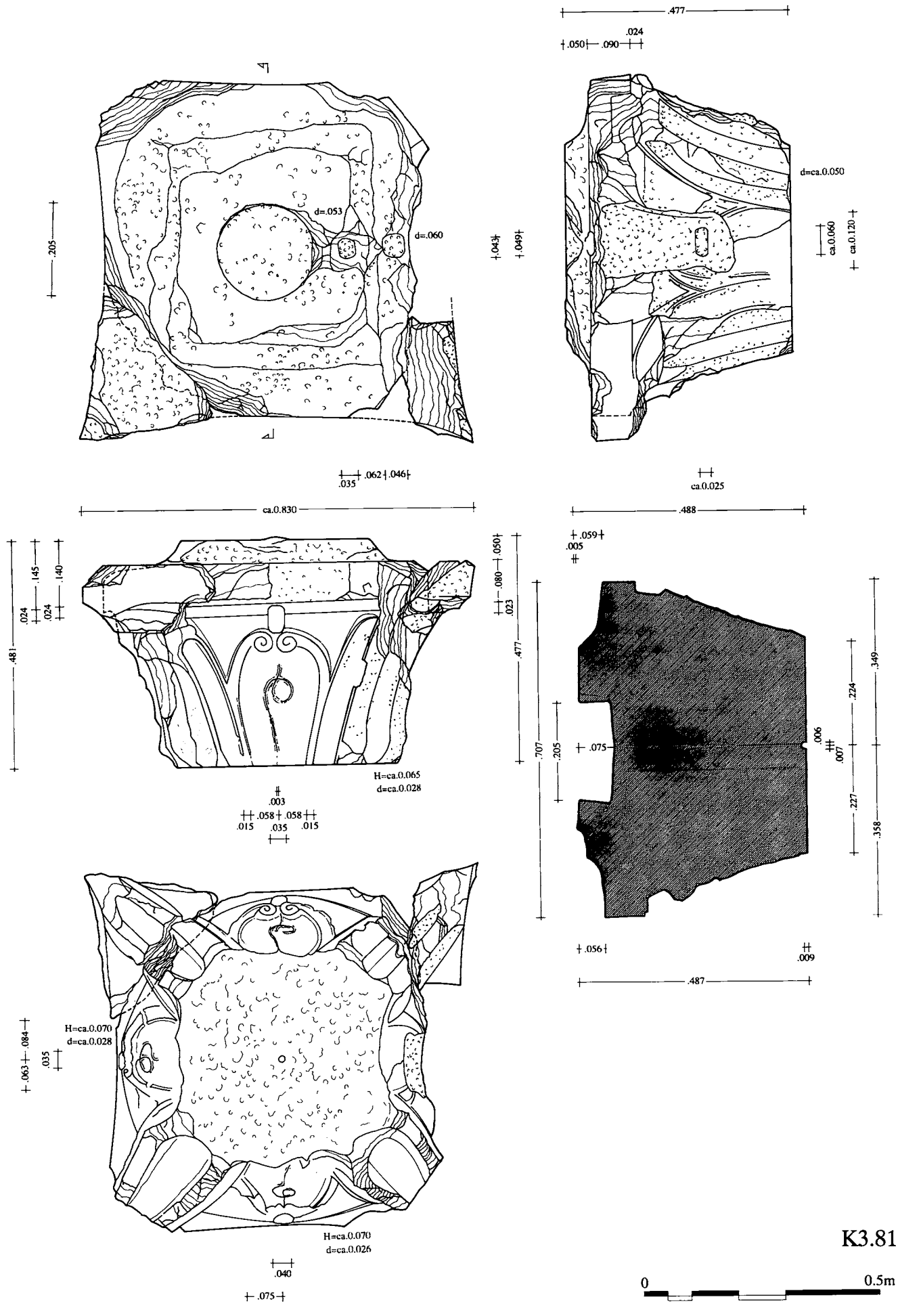


Fig. 41 K3, Upper half of the finial of the Corinthian capital, K3.81

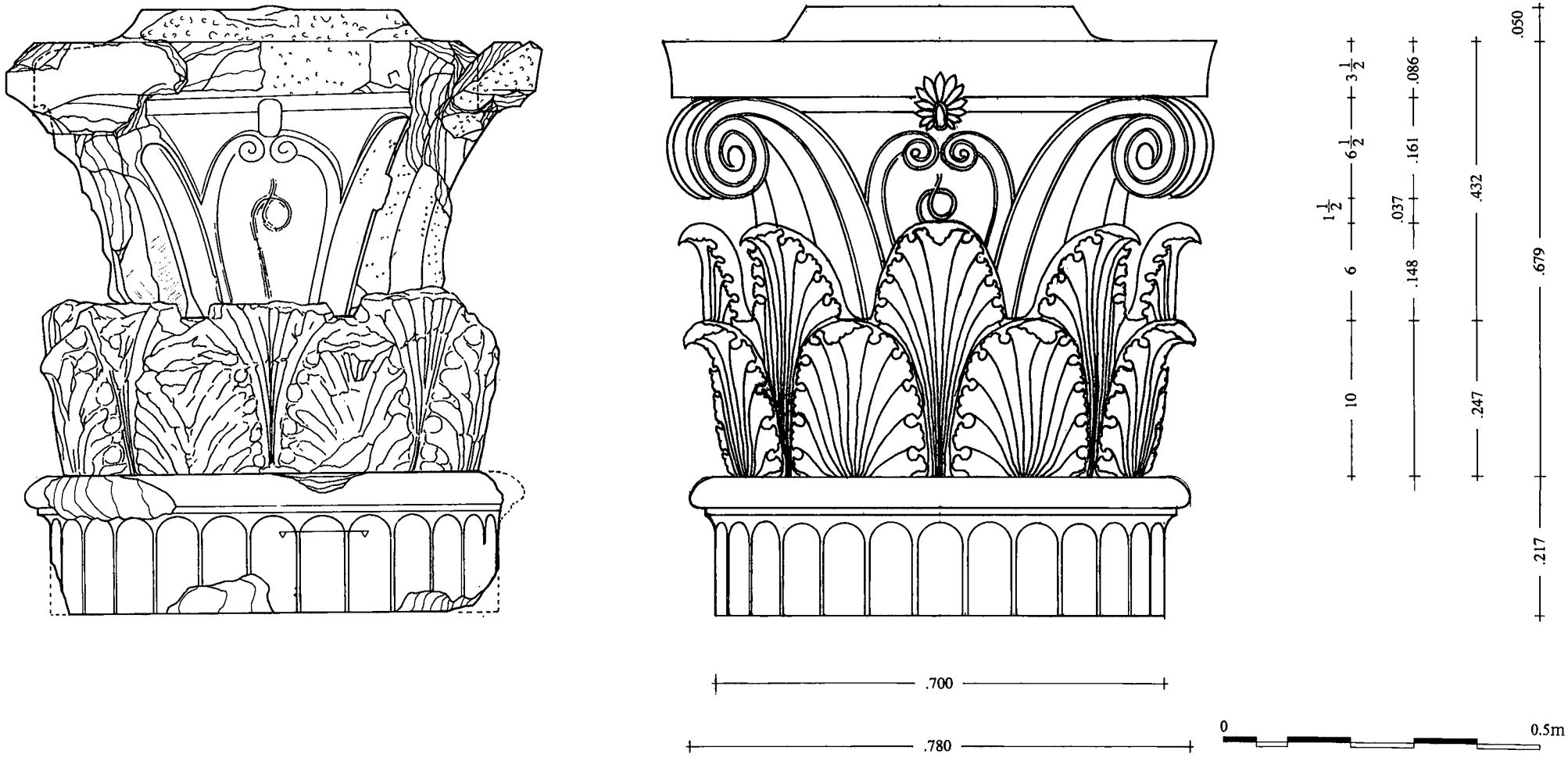


Fig. 42 K3, Corinthian capital compounded and reconstructed

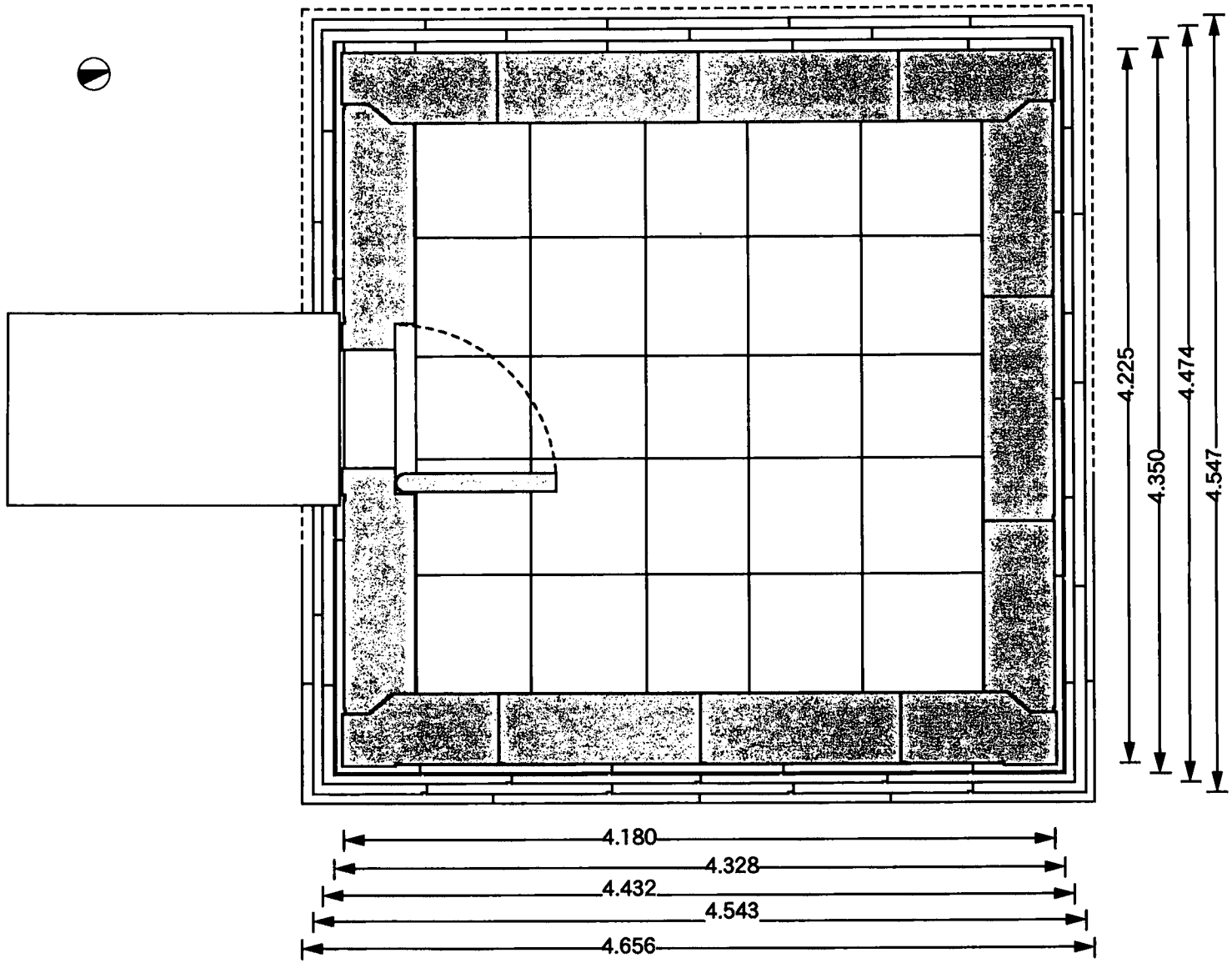
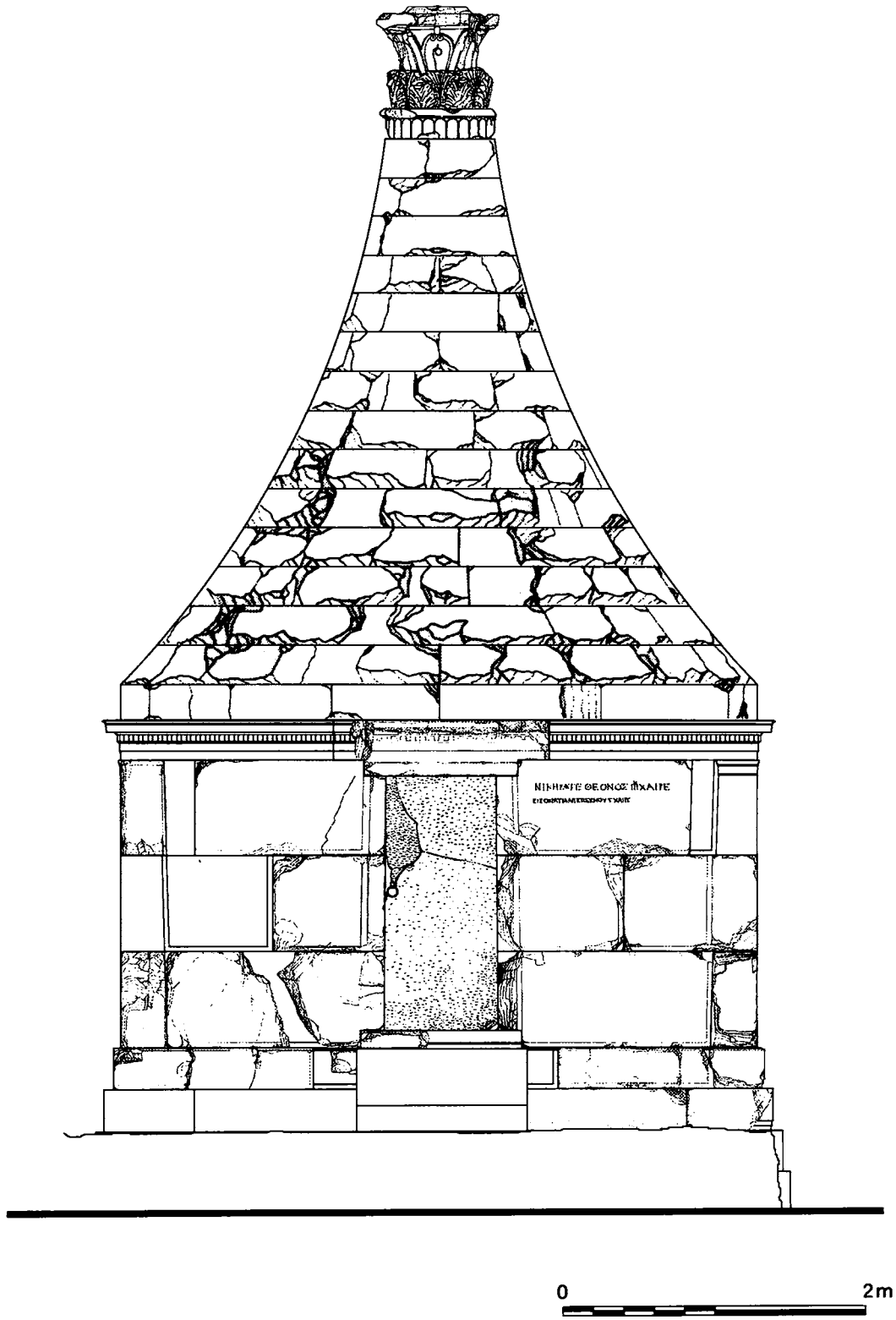


Fig. 43 K3, Plan reconstructed



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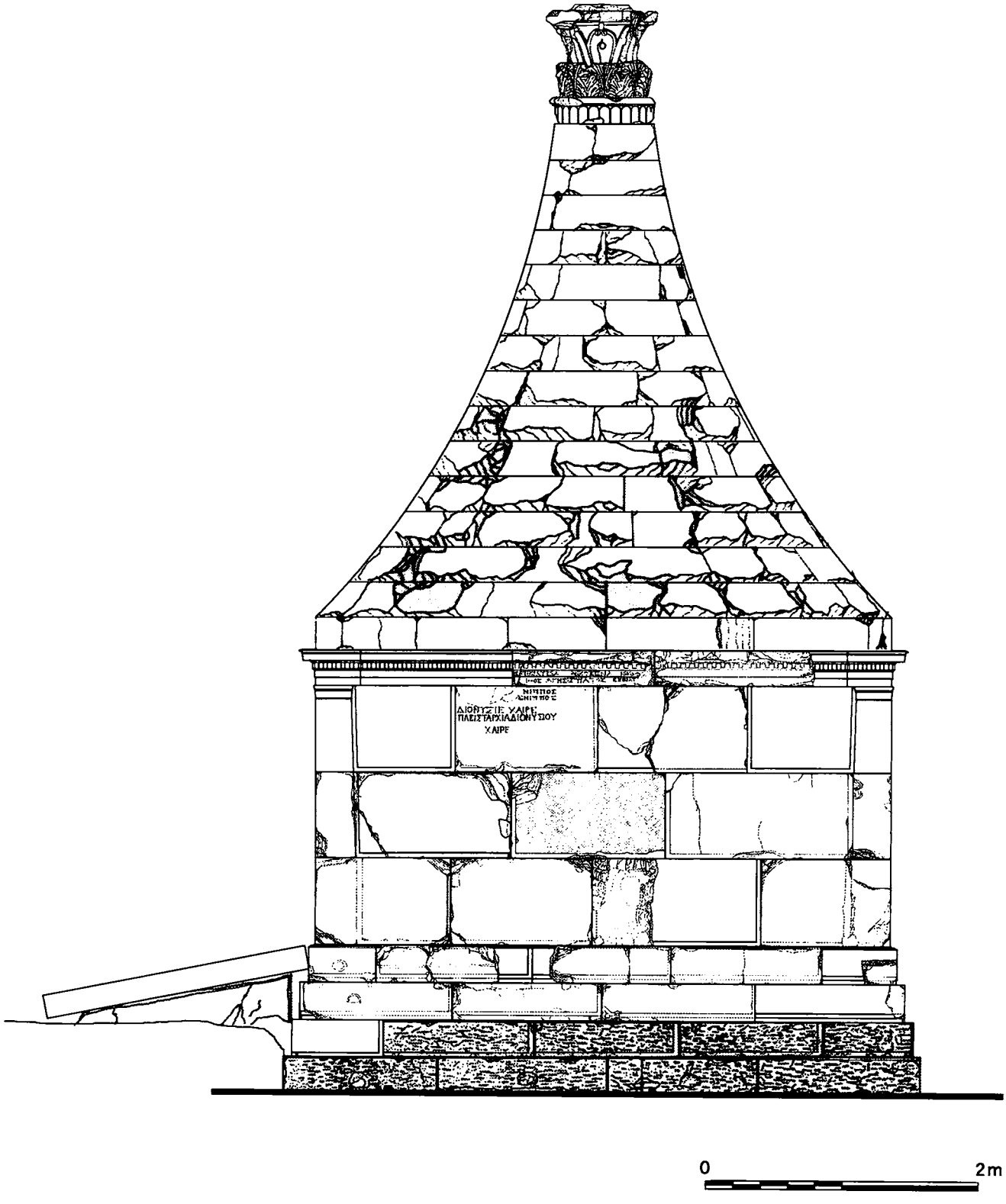

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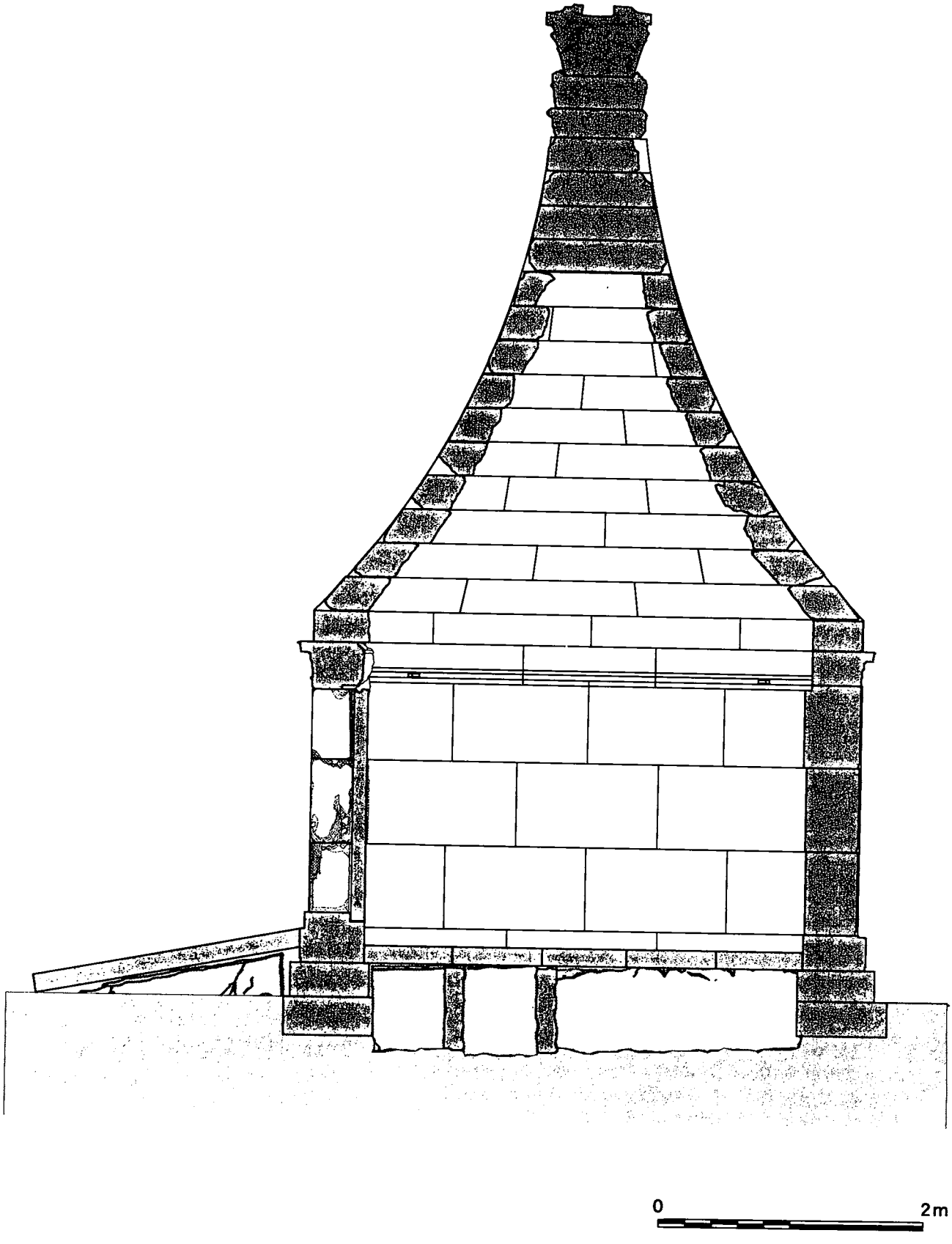

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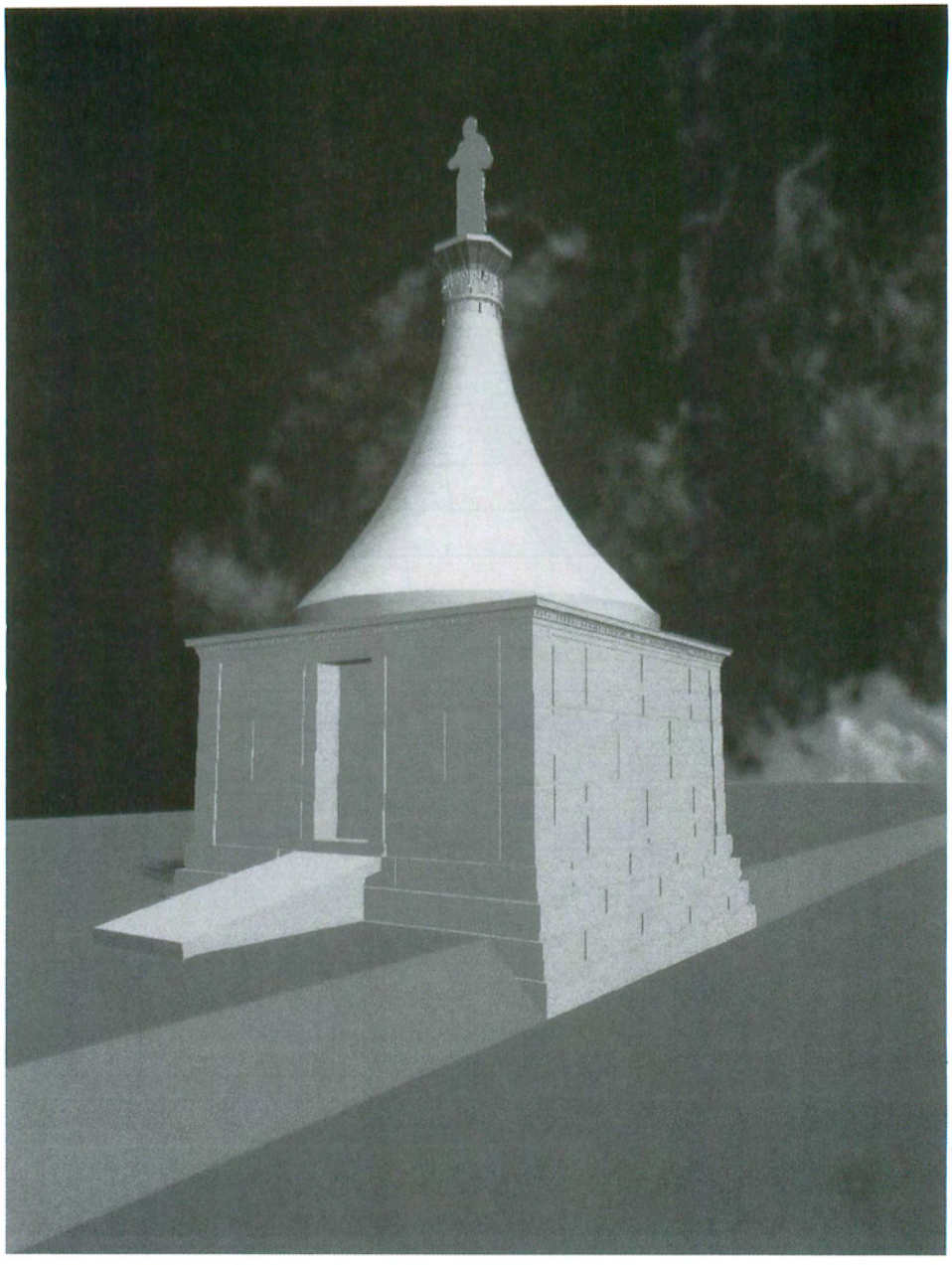

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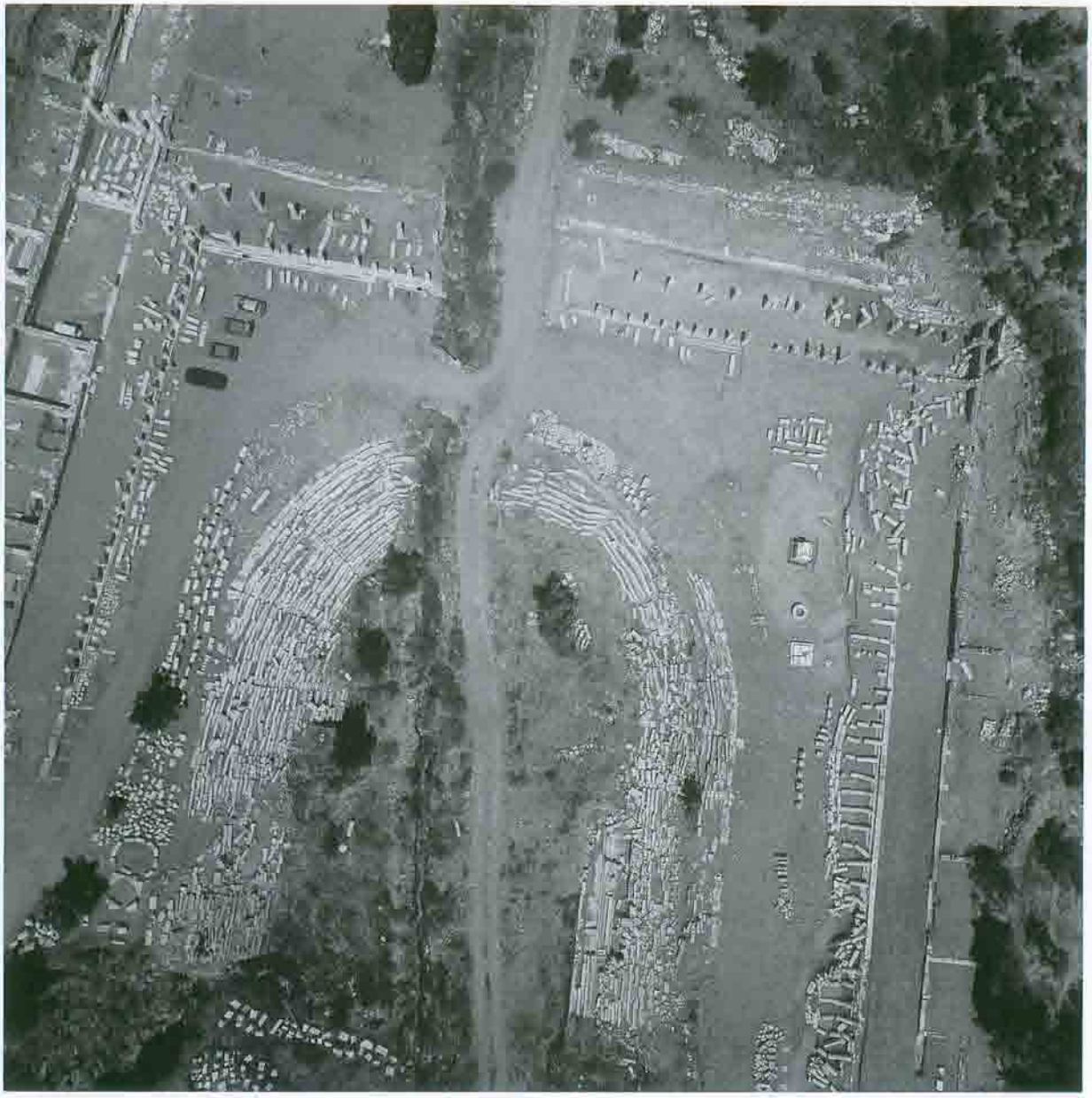
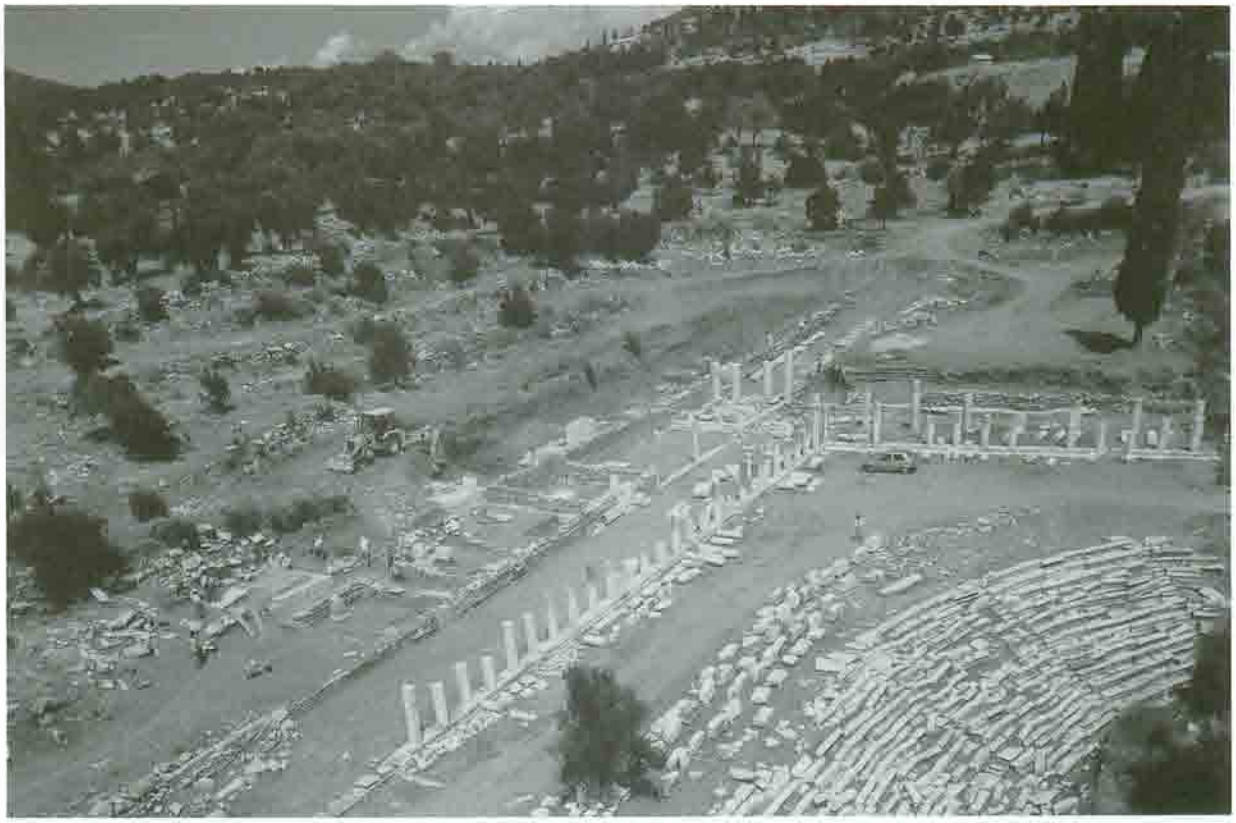


Pl. 1 Aerial view of the whole Gymnasium complex



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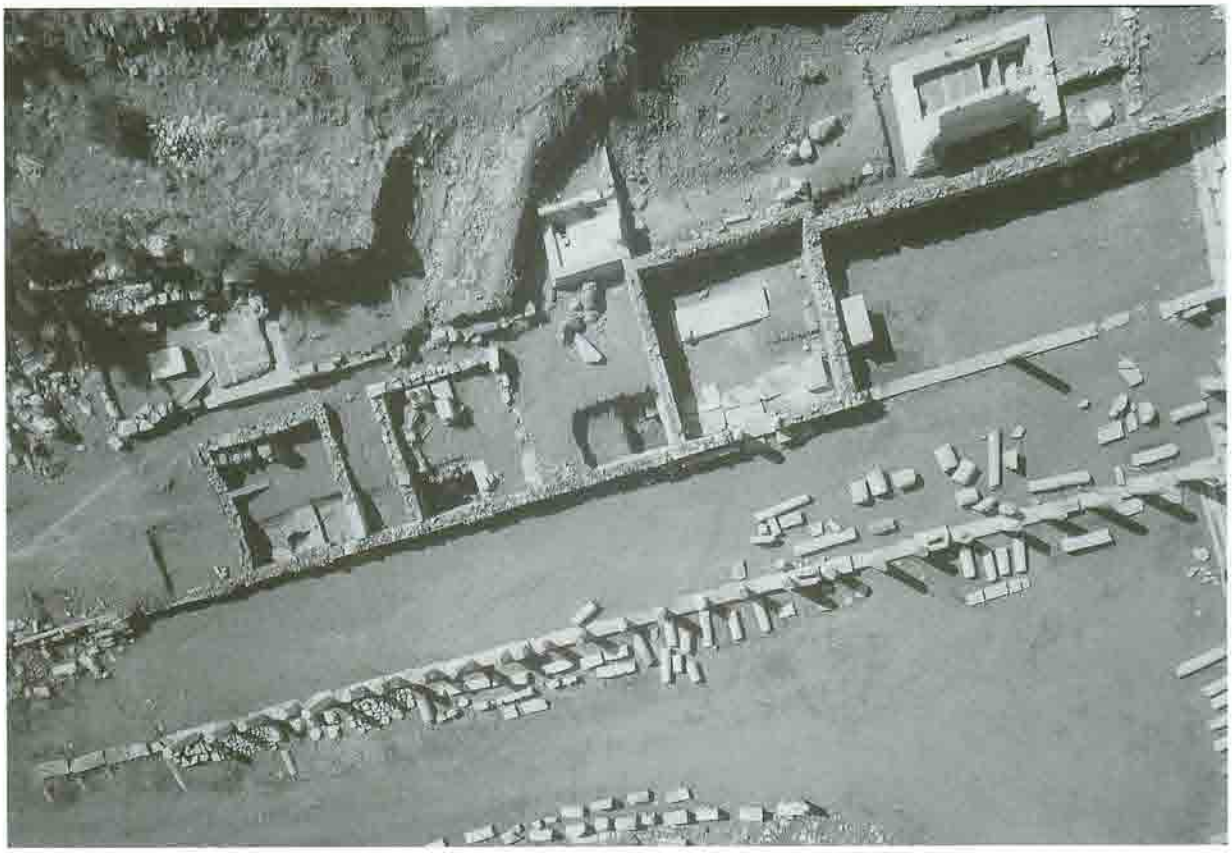

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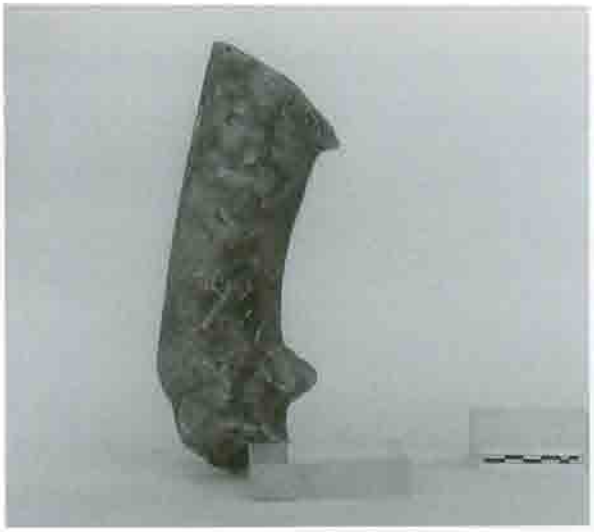

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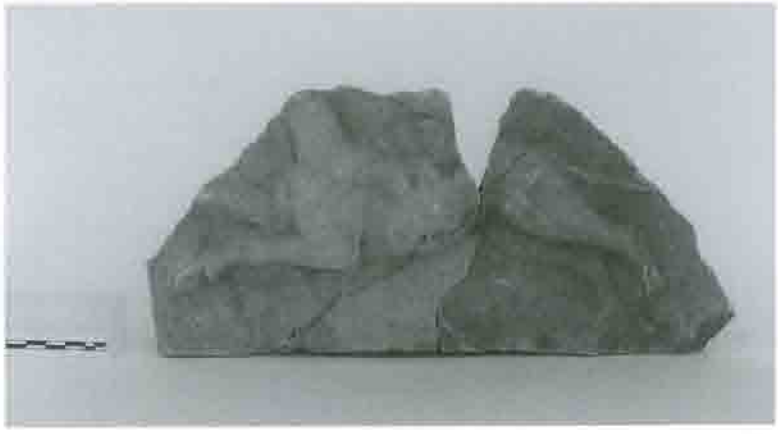

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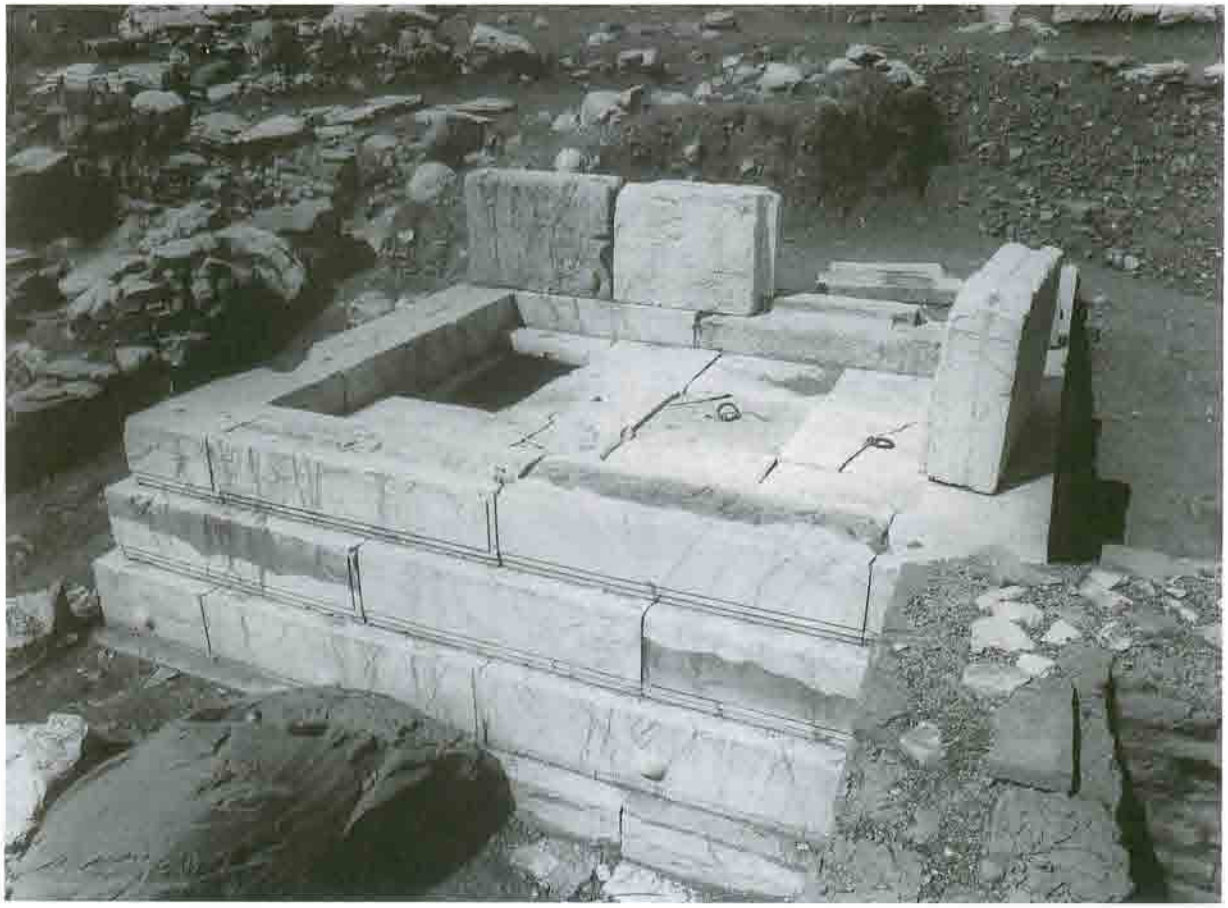

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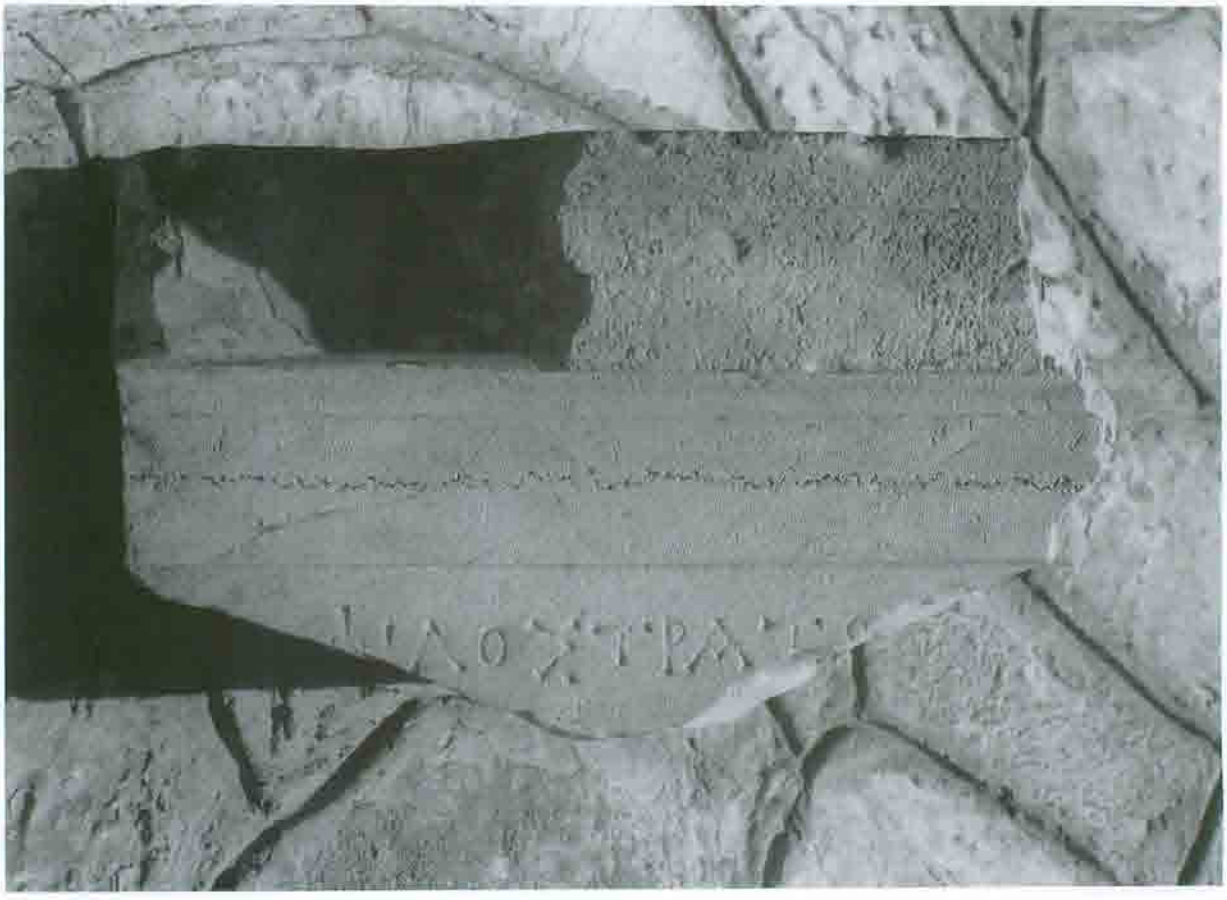

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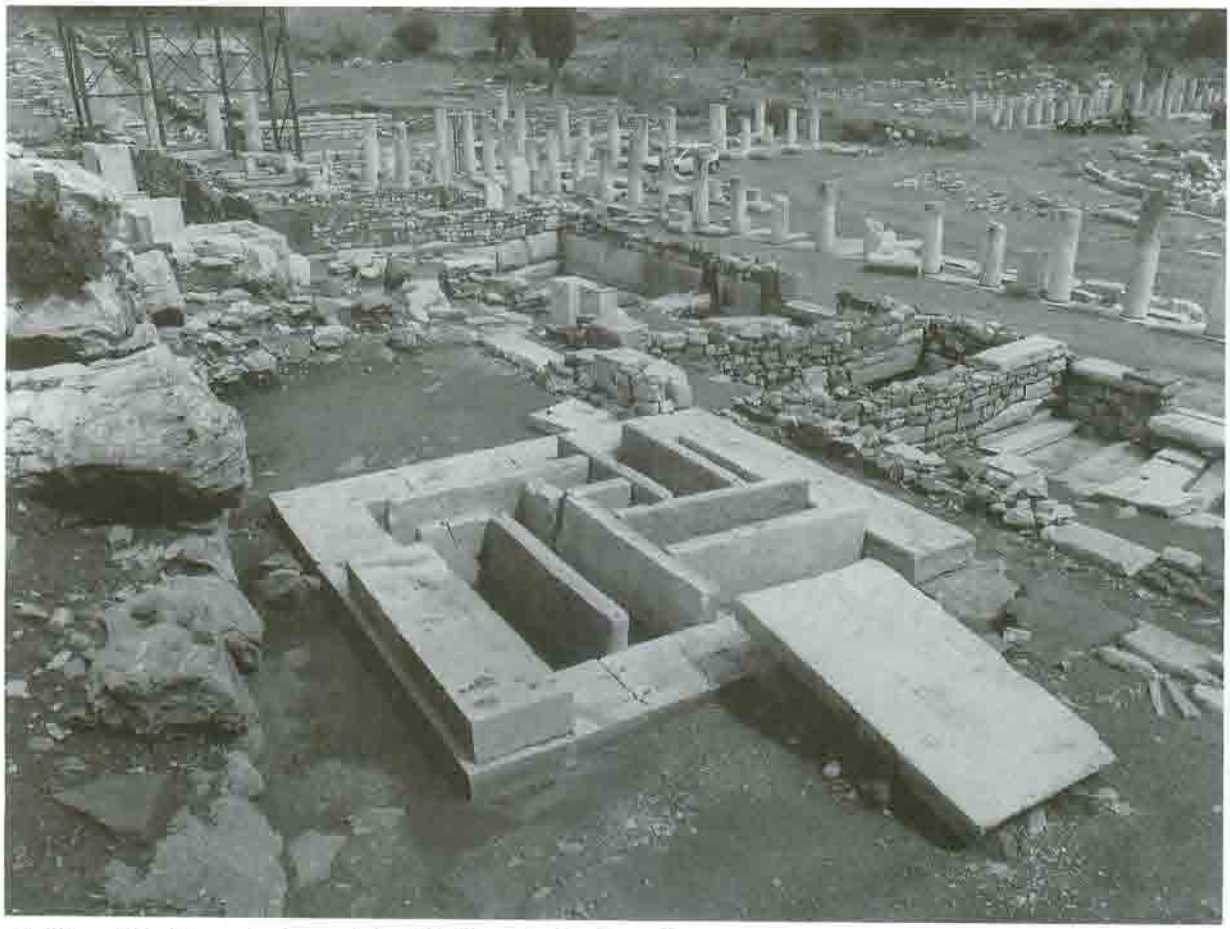

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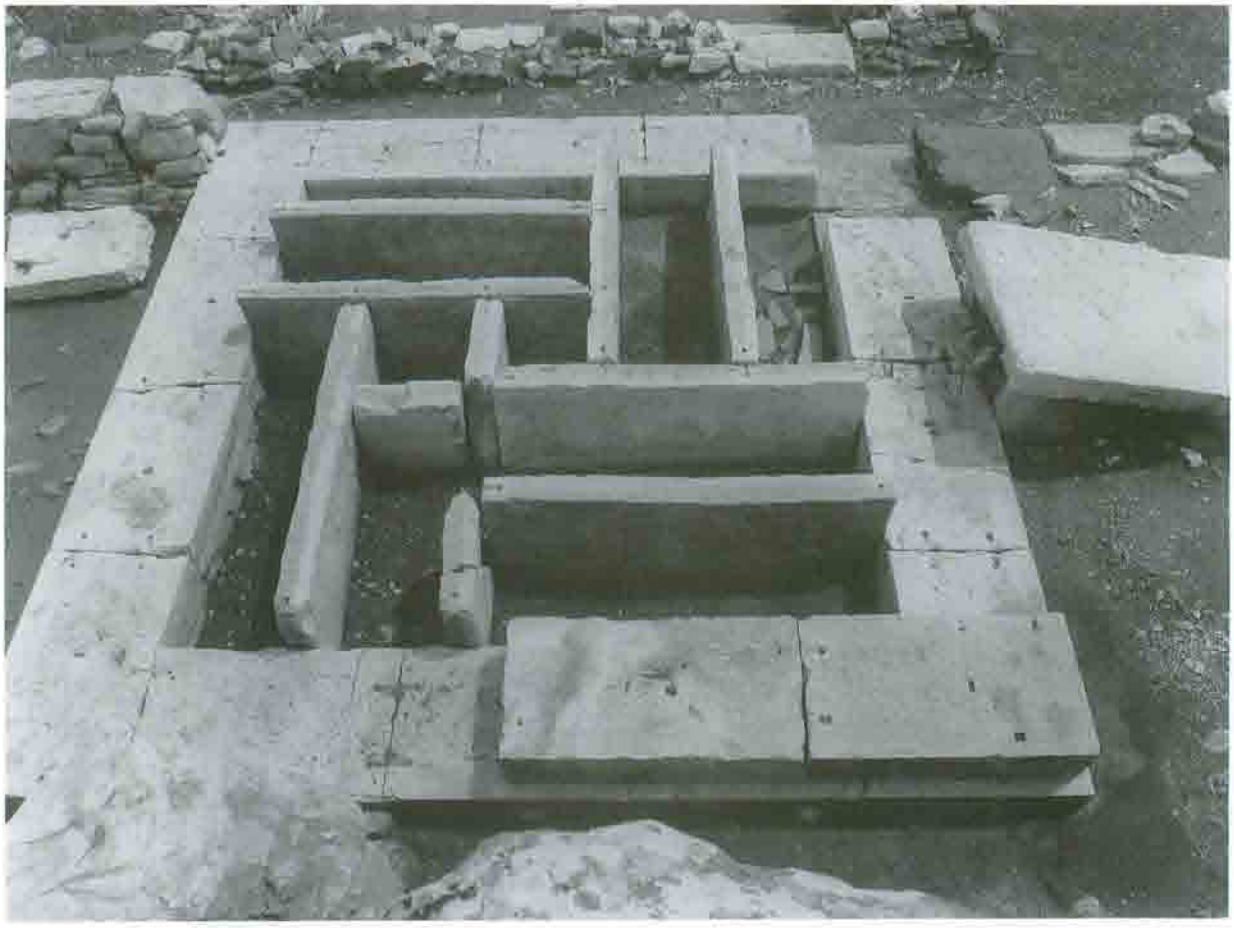

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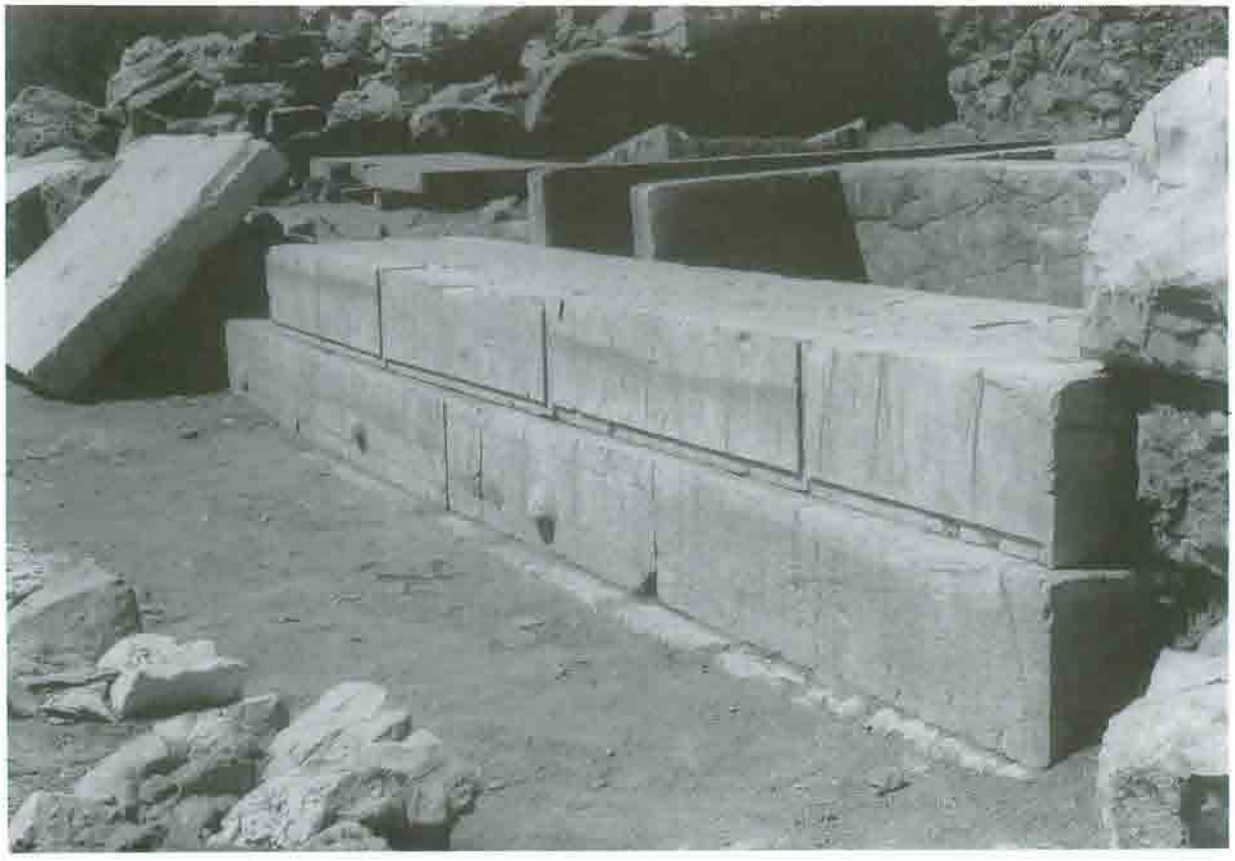

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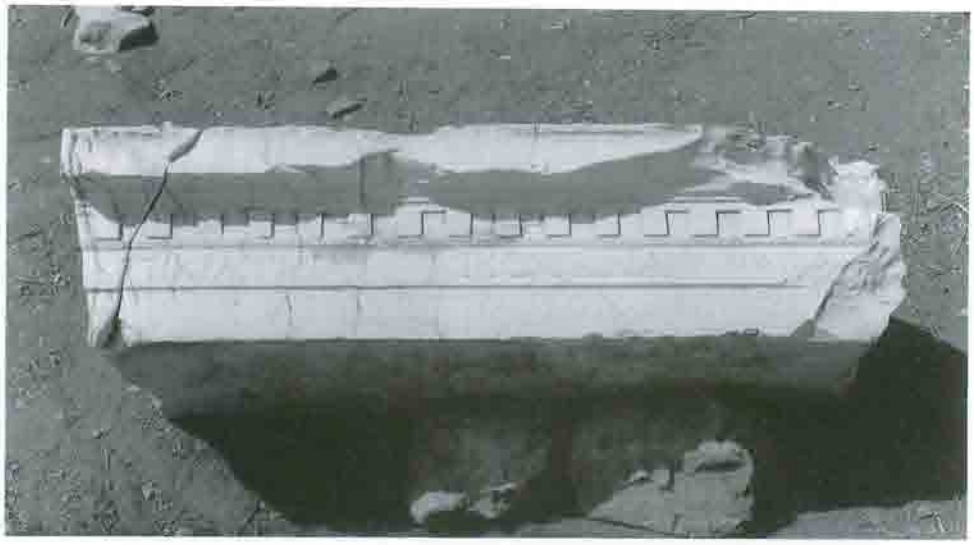

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