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SARDIS

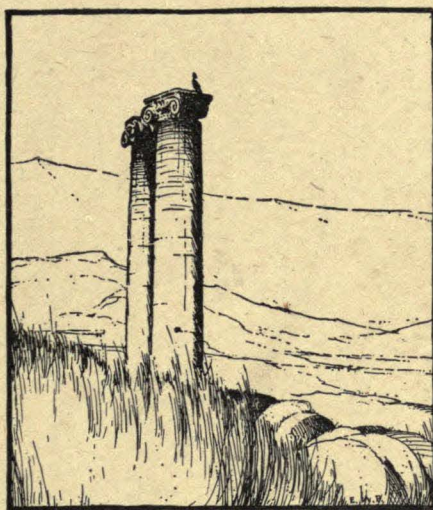






# SARDIS

PUBLICATIONS OF THE AMERICAN SOCIETY FOR THE EXCAVATION OF SARDIS



VOLUME II

ARCHITECTURE

PART I

THE TEMPLE OF ARTEMIS

BY

HOWARD CROSBY BUTLER

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## PREFACE.

In the Autumn of 1921 Mr. BUTLER completed the present study of the temple of Artemis at Sardis. He withheld the manuscript from the printer in the hope of verifying several details by further study on the site. His sudden death prevented the incorporation into the text of the results obtained by his sojourn at Sardis in the Spring of 1922. The text, therefore, stands as it was drafted by the author, who had not the opportunity of revision or correction of any matter after it had been set in type. Indulgence is craved for any misprints or other typographical errors that may have escaped the eyes of the author's colleagues, who have corrected the proof-sheets. Mention should specially be made of the time and care devoted to the task of completing the publication of this work by W. H. BUCKLER and C. N. READ.

A drawing by Mr. READ, completed after Mr. BUTLER's death, has been added to the text as illustration 94*a*. And the final illustration in the book, No. 135, presents a study of the capitals at Sardis, prepared by Messrs HOLDEN and McCORMICK on the basis of observations made on the site in 1922 in company with Mr. BUTLER. This illustration is accompanied by a brief explanatory note which is published as an appendix to the book.

The exhaustive scientific study of this great temple that was resurrected from ages of oblivion by the hand of Mr. BUTLER is the culminating achievement of his useful life, and will be a permanent memorial to his scholarly fame. In the finest sense it attests the verity of PINDAR's trenchant statement that "the final trial is the test of men," *διάπειρά τοι βροτῶν ἑλεγχος*.

Princeton, November, 1924.

T. L. SHEAR.







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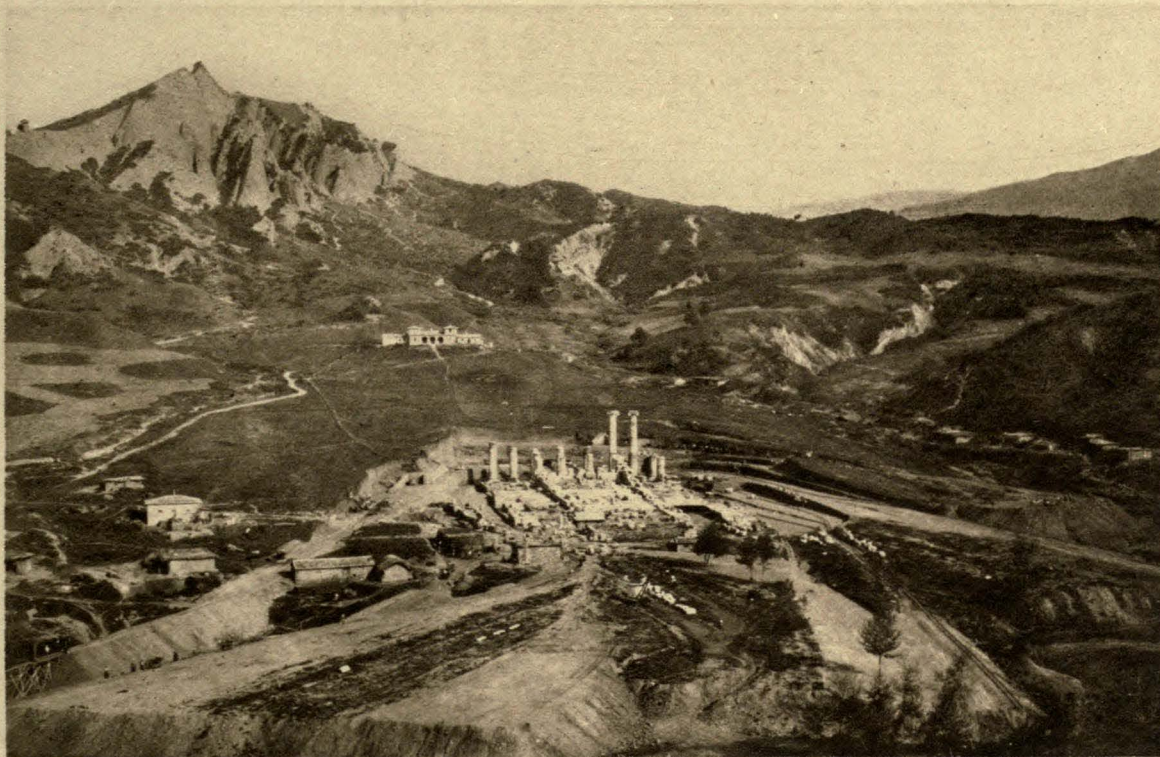
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III.	—	" " "	—	Doorway. Restoration and Detail.
IV.	—	" " "	—	Doorway, Console.
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VI.	—	" " "	—	Base; Columns 11 and 12.
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III. 1. View of the Temple and the Akropolis.

## CHAPTER I.

1. The Site of the Temple.
2. History of its Destruction, XVII—XIX Century, A.D.
3. Probable Course of the Destruction, IV—XVII Century, A.D.

The great temple at Sardis has been referred to by modern writers as the Temple of Cybele or Cybebe, and as the Temple of Zeus, according to the reading of different ancient texts which mention Sardis. It is now known, from inscriptions in Lydian and in Greek<sup>1</sup> discovered on the spot, to have been dedicated to Artemis without other titles. The story of the excavation of the temple has been told briefly in annual reports published in the *American Journal of Archaeology*<sup>2</sup>, and more fully in Volume I of this series<sup>3</sup>. In that volume will be found a detailed account of the manner in which the great building was unearthed, of the order in which its parts came to light, and of the finding of the various disconnected details, as well as a

<sup>1</sup> *A. J. A.* XVI (1912), pp. 26—28.

<sup>2</sup> *Ibid.* XIV (1910), pp. 401—416, XV, pp. 445—458, XVI, pp. 465—479, XVII, pp. 471—478, XVIII, pp. 425—437.

<sup>3</sup> Part I, Chapters III to VII inclusive.

Sardis Expedition II.



description of the extant remains and a brief discussion of their probable restoration. It will be unnecessary to repeat here more than a small amount of that material. Here it is proposed: first, to describe the site of the temple, to trace the history of its destruction from travellers' accounts published since the seventeenth century, and to carry that history back to Early Christian times in the light of evidence derived from the excavations; second, to discuss the plan of the temple, to study the construction and decoration of its superstructure with the aid of such portions as are now standing, and to investigate the problem of its restoration; and, finally, to determine, so far as possible, the dates at which it was built and rebuilt.

In Volume I may also be found, under the heading "The Pioneer Explorers", references to, and quotations from, the accounts of most of the travellers who came to Sardis in the seventeenth, in the eighteenth, and in the first half of the nineteenth century. Many of these references have little or nothing to do with the Temple of Artemis; but it may be of interest here, to review some of the passages in those early publications particularly referring to the ruins of the temple, in order to understand its history since the revival of interest in the monuments of classical antiquity.

## I. THE SITE OF THE TEMPLE.

The temple stands on the east bank of the Paktolos at the western foot of the rugged Akropolis which rises to a height of about two hundred metres above the river's bed (Ill. 1). It is impossible, in the present stage of the excavations, to speak of the site in relation to the city of Lydian, Persian, and early Hellenistic times. Remains still visible above the soil suggest that in Roman days the principal part of the city lay at the northern foot of the Akropolis (see Vol. I, Map I). HERODOTUS, V, 101, states that the Paktolos flowed through the agora of Sardis; but the Lydian agora to which he referred has not yet been discovered, and there are no remains to show whether it lay near, or above, or below the temple; though the river valley, directly opposite to the temple, is rather too narrow to have permitted the placing of a large market-place at that point. It is not impossible that the Roman city covered part at least of the site of the Lydian city, in which case the ancient agora would probably have lain on both sides of the Paktolos, just to the west of the large Roman ruins. The temple then would have occupied a more remote quarter of the city, to the south of the agora, well up in the valley<sup>1</sup>. But I am inclined to take at its face value the poetical reference of EURIPIDES<sup>2</sup>,

τὸν ἀνθεμώδη Τμῶλον οἷσθ' ἃ που κλύων;  
οἶδ', ὅς τ' ὁ Σάρδεων ἄστυ περιβάλλει κύκλῳ.

which represents Mount Tmolos as encompassing the city, and to place the Lydian capital between the Akropolis and Nekropolis hills, south of the line of the "Royal Road".

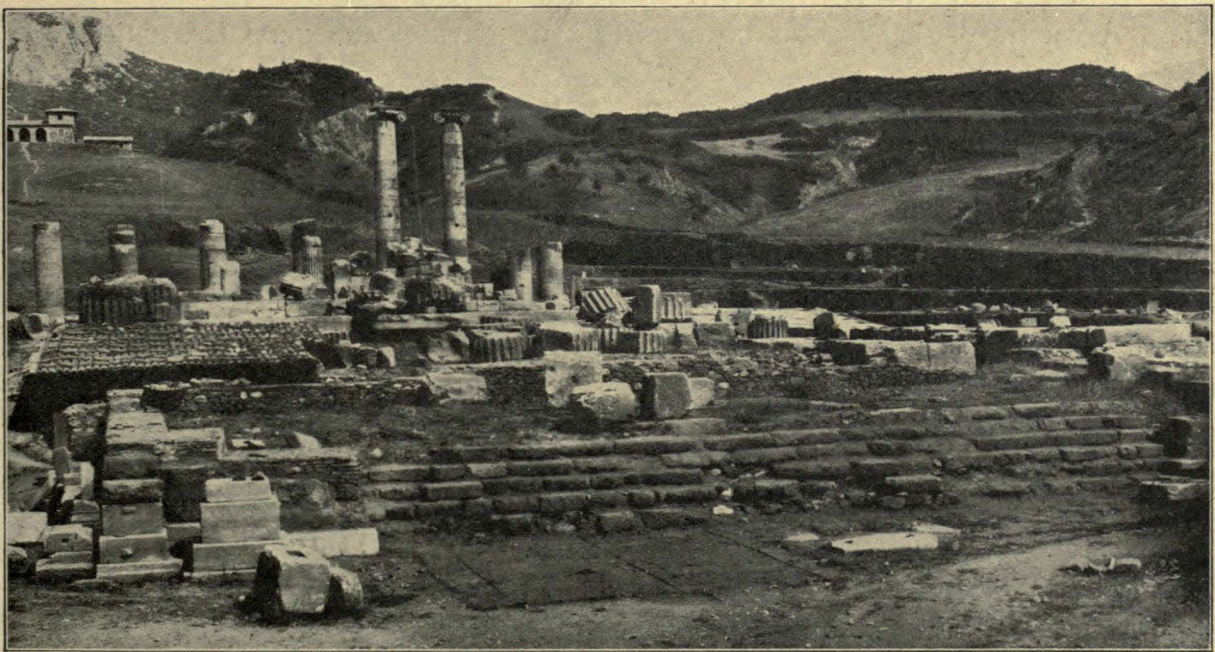
The temple was apparently oriented with its front, or eastern, portico facing the steep side of the Akropolis, and its west end rising almost directly above the river.

<sup>1</sup> Cf. Plan of Ruins in Vol. I, p. 30, Ill. 18.

<sup>2</sup> *Bacchae*, vv. 462—3.



One would assume that there must have been some level space in front of the temple, between the east porch and the actual foot of the steep ascent. The building was in 1910 still buried at this end in earth lying about ten metres deep at the columns, and becoming rapidly deeper toward the east. It was this side of the Akropolis that suffered most at the time of the great earthquake of A.D. 17, when huge masses of the hard clay of which the hill is formed appear to have fallen upon the lower city. It is this side also which has been crumbling ever since, at times with great rapidity, perhaps in gigantic land-slips, and constantly year by year with each heavy winter rain, until the once broad summit has been reduced to a slender peak, and the entire area between it and the river has become a vast triangle formed of *débris* (Ill. 1), sloping from the river bed to a point about half way up the hill, and deeply burying the city in the neighbourhood of the temple. To the south of the temple stands a low hill extending to the river's edge; to the north the ground rises slightly, but much of the earth on this side, for a considerable distance, is probably *débris* eroded from the western slope of the Akropolis in more or less recent times. The sloping field, out of which the two surviving columns of the temple rose before our work began, was quite smooth, and was sown with barley.



Ill. 2. Lydian Building; View from the West.

LYDIAN BUILDING: Immediately in front of the west end of the temple the excavations revealed an older structure, set on the level of the lower foundations of the temple (Ill. 2). This Lydian Building, as we have called it on account of pottery fragments and inscriptions found upon its level, lies in such a position that the temple is centred upon it without being precisely on the same axis; for there is a slight deflection of three or four degrees between the axes of the two buildings. It was constructed of purple sandstone — a material found in the immediate vicinity —



covered with a fine stucco. An outcropping of this stone may be seen on the east bank of the river a short distance below the temple. It was the material most commonly used at Sardis in the more ancient constructions, including the foundations of an earlier temple discovered within the later one. The building is 20.90 m. wide and 10.10 m. deep (Plate I, Atlas) and its longer axis is almost at right angles to that of the temple. The exterior faces of its walls are now a little over 2 m. high at their highest point. A flight of six steps, 14.15 m. wide, occupies the greater part of the west front, two of the steps projecting beyond the front wall, and four set within it. In the middle of the structure is a large platform, or basis, of limestone, its surface level with the uppermost step. This fixes the level of this floor as 1.62 m. below that of the temple platform. The outer walls now rise from 63 cm. to 89 cm. above the floor; they are 80 cm. thick, and were possibly high enclosing walls when originally erected. The marble foundations of the peristyle of the existing temple were laid directly against the rear wall of this structure, and if this wall was higher than it is to day, it was evidently reduced to its present height when the temple was built, as will be shown later.

## 2. HISTORY OF THE DESTRUCTION OF THE TEMPLE, GATHERED FROM PUBLISHED ACCOUNTS OF TRAVELLERS DURING THE XVII<sup>TH</sup>, XVIII<sup>TH</sup> AND XIX<sup>TH</sup> CENTURIES.

The earliest published reference to the temple of Sardis that I have found is that of THOMAS SMITH<sup>1</sup> who visited it soon after 1670. Even at this date the greater part had disappeared; for he found only six columns standing. The next reference to it is that made by EDMUND CHISHULL<sup>2</sup> who reached Sardis in 1699. He also found six columns of the east portico standing, and mentions the two anta-walls and the great portal. Two of the columns were certainly those between the north anta and the outer row, as drawings made later show; the four others almost certainly belonged to the front row. One of the capitals was slightly displaced as we see it to-day (Ill. 3). The lintel of the portal was still in place, "a vast stone which occasioned wonder by what art or power it could be raised".

In the second quarter of the eighteenth century two Dutch travellers made notes on the site of the temple, published in London in 1759 in a book of travel by J. AEGIDIUS VAN EGMONT and JOHN HEYMAN<sup>3</sup>. We do not know the exact date of their visit, but it is certain that they were in Sardis before 1750. Their description is as follows: "We saw at the foot of an eminence on which Sardis is built six pillars of remarkable beauty. They were of the Ionic order, about twenty feet in height, and stood at the distance of twelve feet from each other, forming a very grand ruin. The capitals were still entire, one only excepted, which was fallen down, and another something mutilated. On two of these pillars and the remainder of a frontispiece was a transverse stone, of such enormous weight that it is difficult to conceive how it

<sup>1</sup> *Epistolae Quatuor*; 1674, pp. 136, 137; *Septem Asiae Ecclesiarum Notitia*. 1676, pp. 27—32.

<sup>2</sup> *Travels in Turkey and back to England*, London, 1747.

<sup>3</sup> *Travels through part of Asia Minor, the Islands of the Archipelago, Syria, Palestine, Egypt, Mt. Sinai etc.* Translated from the Low Dutch. 2 Vols. London, 1759, I. p. 147.



was possible to be placed at such a height. The ground is covered with fragments of very large pillars, and on one of these there are letters  $\varphi\iota$ . No reference is made to the portal which CHISHULL had seen, and it is probable that by this time it had fallen.

It also must have been before 1750 that ROBERT WOOD, famous for his publications on Palmyra and Baalbek, visited Sardis. He does not name Sardis in his works, but mentions the fact that he had visited various sites in Asia Minor, equipped with tools for digging. CHANDLER, who came several years later, mentions a column that had been excavated by WOOD, so we are probably safe in assuming that this great Englishman was the first to break the ground which for so long had buried the temple of Sardis. His work however was probably limited to the unearthing of a single column.

The Frenchman CHARLES DE PEYSSONEL<sup>1</sup> came in 1750, but his account of the ruins was not published until fifteen years later. He was the first visitor to make drawings of the ruins for publication. He published several sketches and plans of other ruined buildings in Sardis, but unfortunately only one drawing of the temple (Ill. 4). PEYSSONEL writes: "There still remain of this temple five columns of the Ionic order, . . . They are about thirty feet high. The two middle columns support a cornice and an architrave which abuts upon a pier of an order approaching the Doric. Toward the south are two other similar columns placed north and south at a

distance of ten feet from each other, and a pier exactly like the first. About forty feet to the north one finds a column like the others, the capital of which has fallen and has planted itself in the ground at the foot of the column . . . I observed a hole excavated in the earth at the foot of one of the columns which support the cornice. My guide told me that this hole had been made by an English traveller,

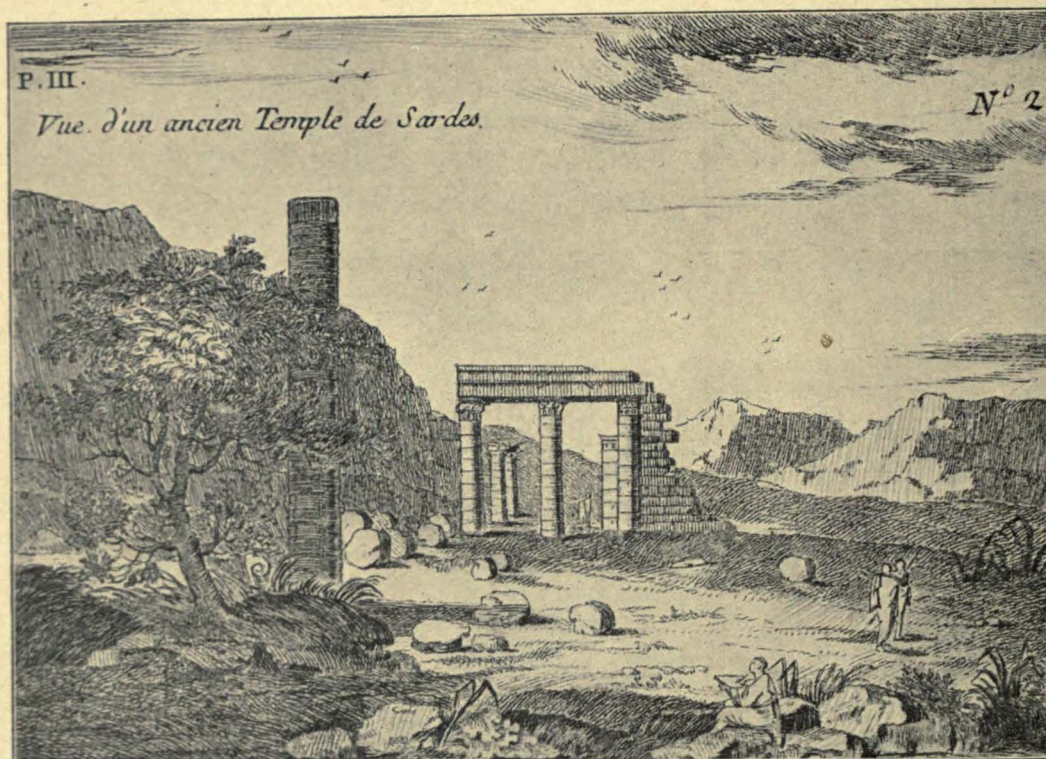


Ill. 3. The two standing Columns at the East End of the Temple; View from the West before the Excavation began.

<sup>1</sup> *Observations historiques et géographiques sur les peuples barbares*. Paris, 1765, pp. 336—337 (my translation).



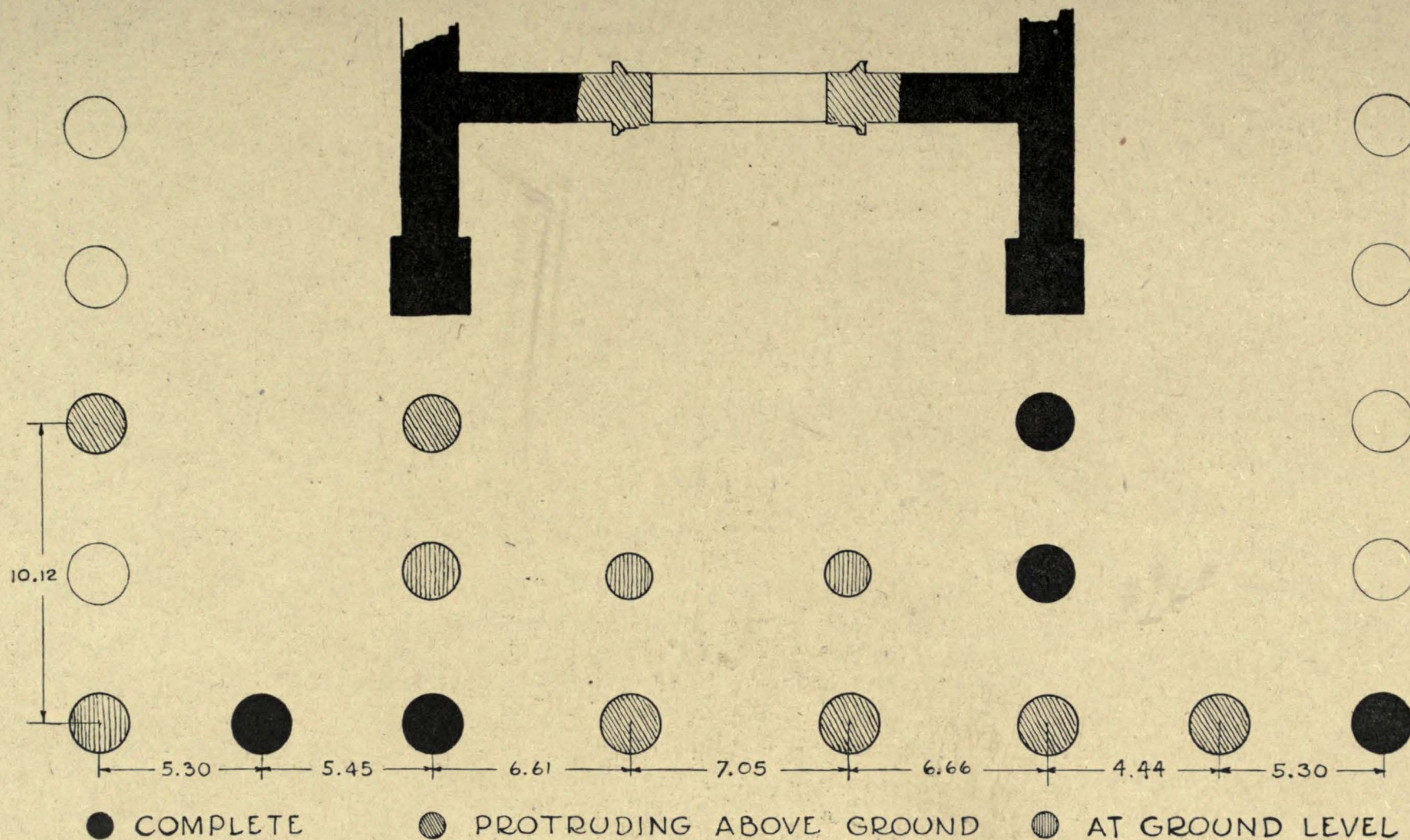
(WOOD?) who had desired to find the depth of the column". It is plain from this description that one column had fallen since the visits of the English and Dutch travellers; but it is not possible to say which column that was. PEYSSONEL's drawing shows that the level of the accumulated earth above the temple was exactly the same as in 1910, and depicts the shaft of the column at the northeast angle of the temple in place with its capital at its foot, standing on one end. The only column missing between this one at the angle and that in front of the north anta is apparently represented in the column-drums lying scattered on the surface, and was perhaps the sixth column seen by CHISHULL in 1699, and by the Dutch travellers only a few



III. 4. PEYSSONEL's Sketch of the Ruins of the Temple of Artemis. View from the North.

years before 1750. Beyond this the drawing shows the north anta complete, with a section of wall behind it and two columns in front of it, all three carrying blocks of a ponderous architrave. In the distance are seen the south anta entire, and the two columns which still remain. This sketch may be taken to have been in the main correct as to the number of columns, the presence of both antae, and the architraves in place; but certain inaccuracies appear in it and are reflected in the text. The headless column of the northeast is not almost forty feet from the others, it is only 8.80 m. distant, or a little more than twenty-eight feet (Ill. 5). The scale of the drawing is small, but the great architrave is plainly shown projecting to the outer face of the outer column, which proves that this column does not belong to the outer row but to the interior portico. It is a pity that the capital lying at the foot of the





Ill. 5. Actual Plan showing East Porch as seen by PEYSSONEL in 1750.



northeast column has been broken up; for this would have given us an example of one of the corner capitals of the temple, a detail which has not come to light.

Soon after 1764 Dr. RICHARD CHANDLER<sup>1</sup> visited Sardis as the representative of the Society of Dilettanti, and thus describes the ruin as he found it: "Five columns are standing, one without its capital; and one with the capital awry to the south. The architrave was of two stones. A piece remains on one column, but moved southward; the other part, with the column which contributed to its support, has fallen since the year 1699." He refers to CHISHULL's account of the portal, and adds that it has been destroyed, leaving the great lintel still visible in a heap of débris. He further states that "part of one of the antae is seen about four feet high", and mentions the exquisite beauty of the capitals. From this description we gather that the antae seen and sketched by PEYSSONEL had fallen or had been destroyed, within a period of less than fifteen years. The doorway probably had collapsed still earlier, since it is not noticed by PEYSSONEL. The architrave blocks had fallen, leaving, according to him, a single piece on one column; but it is difficult to understand how such a piece could remain upon one column, unless the architraves rested only their extreme ends on the capitals with a narrow block of architrave inserted between those ends, an arrangement which is not out of the question considering the width of the spaces to be spanned.

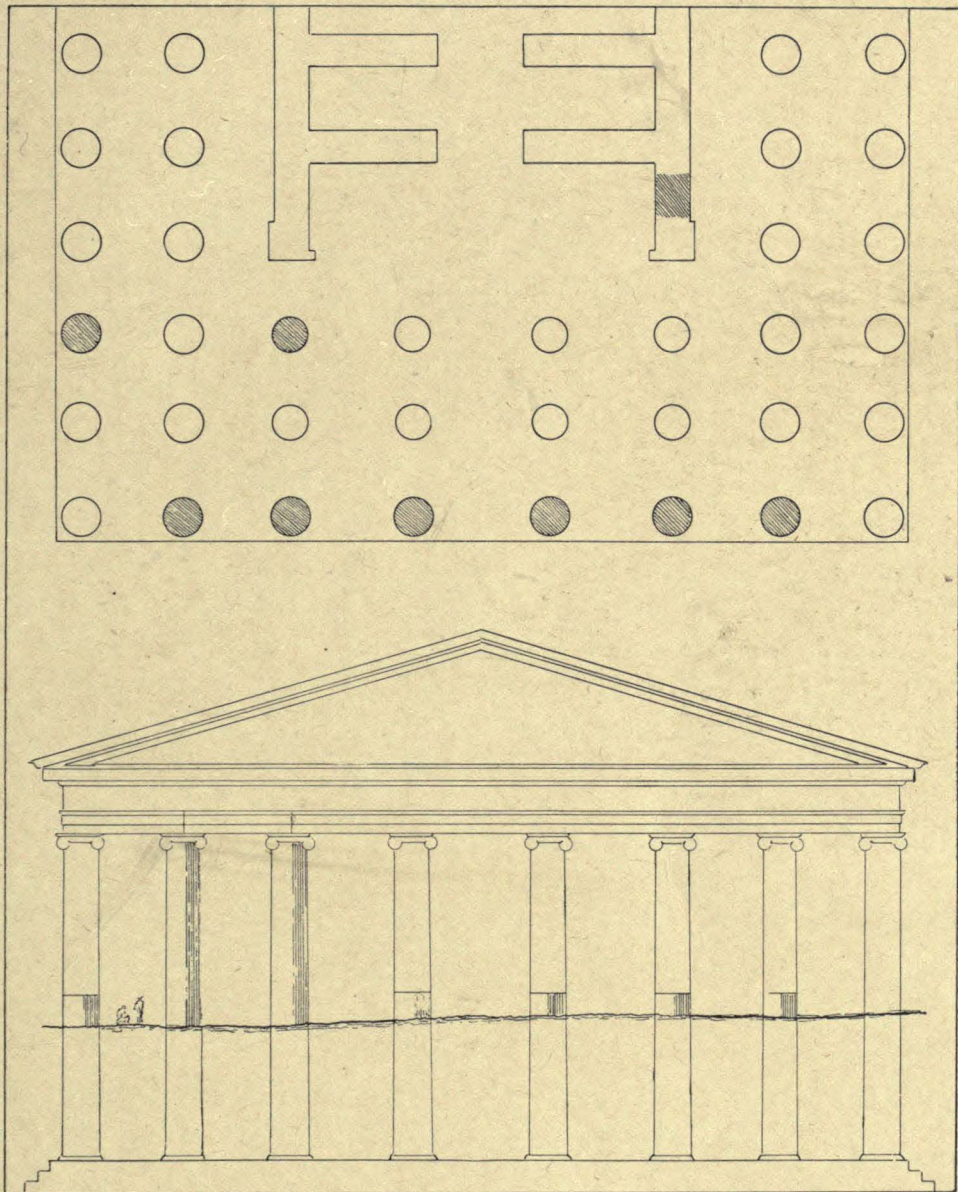
It was not until 1812 that C. R. COCKERELL came to Sardis. His full and interesting observations on the ruins of the temple were published as a note in LEAKE's *Journal*<sup>2</sup>. From this note, which covers almost four pages, a few extracts may be quoted at this point. "Two columns of the exterior order of the east front, and one column of the portico of the pronaus are still standing, with their capitals; the two former still support the stone of the architrave which stretched from the centre of one column to the centre of the other.... I was told that, four years ago, three other columns of the temple were still standing, and that they were thrown down by the Turks, for the sake of the gold which they expected to find in the joints. Besides the three standing columns which I have mentioned, there are truncated portions of four others belonging to the eastern front, and of one belonging to the portico of the pronaus; together with a part of the wall of the cella." Here follow some measurements and comparisons with other Ionic temples; and he notes that the architrave block between the two standing columns of the east front must have weighed 25 tons. Then he continues: "The capital appeared to me to surpass any specimen of the Ionic I had seen, in perfection of design and execution. I suppose the temple to have been an octastyle dipterus, with seventeen columns in the flanks; though in regard to the number in the flanks, I am more guided by the proportions of the other dipteral temples of the Ionic order than by any proof that can be derived from the ruins in their present state." He then discusses various details, and the question of the probable date of the building, and gives a simple plan of the east end of the temple showing which columns were still visible, and an elevation of the east front restored as he thought it should be (Ill. 6). Two columns, not

<sup>1</sup> *Travels in Asia Minor.... Made at the Expense of the Society of Dilettanti*; London, 1776, p. 225.

<sup>2</sup> WILLIAM MARTIN LEAKE, *Journal of a Tour in Asia Minor*. London, 1824. Note on p. 342.



three, had fallen between 1764 and 1812, leaving the two which still survive and the one directly in front of the north anta, as that was seen by PEYSSONEL. No reference is made to the architrave sketched by PEYSSONEL, and described by VAN EGMONT and HEYMAN as being a single block; but a block of an architrave which



III. 6. COCKERELL's conjectural Plan made in 1812.

was two stones in thickness is mentioned as being in place upon two columns of the exterior order, the two still standing. COCKERELL in his little elevation shows the block in that position; he also gives its height, and comments upon its probable weight. It is not mentioned by any of the former writers, nor is it seen in PEYSSONEL's drawing; but as this is executed on a small scale and contains a few inaccuracies, COCKERELL's block of architrave was also probably omitted by mistake. It seems impossible that he, an architect, could have erred in a matter so simple as this, and as there were then



only three columns standing and both antae had disappeared, such a stone could only have rested on two of the columns. Moreover this very stone, as it seems, was found in our excavations completely preserved, directly west of the two standing columns, and hardly buried beneath the surface<sup>1</sup>.

Twelve years later, in 1824, the temple was visited by ANTON VON PROKESCH<sup>2</sup>. His description of the ruins is full and interesting; but at this late date in the history of their dilapidation only two of his observations are important. First, his statement that two columns only were standing, and second, that his host held a concession for making lime from the marble of the temple. The first tells us that the ruin was in the condition in which it has been ever since, that is for almost a century; the second suggests the probable reason for the gradual destruction of the temple during the sixteen hundred years or more since it ceased to be a shrine of Artemis. Time and earthquake have had their share in this work, but the cupidity of man has certainly played a much larger part. The search for bronze and lead in the clamps which held the marble blocks together, and the demand for the lime so easily made by heating the broken marble, has since early Byzantine days made this ruin, like many others, a prey to the commercial instincts of the inhabitants. The eagerness of the natives of the present day to seize upon lead found in the excavations shows the continuance of a very old practice, and the finding by us of lime-kilns upon level after level is sad evidence as to the manner in which the temple slowly disappeared.

An engraving published in 1836 by HORNE in his *Biblical Keepsake*<sup>3</sup> was the first attempt to depict the Temple of Sardis in artistic fashion (Ill. 7). The engraving was drawn by C. STANFIELD A. R. A., from a sketch which he had made on the spot, probably several years before the date of this publication. This drawing is interesting for several reasons; first, for the accuracy with which the details still visible were executed; second, for a group of three truncated fluted columns which stand near the ruin; and third, for a block of cornice barely shown in the foreground. The truncated columns are not mentioned by other early travellers who probably imagined that they belonged to another building; but we discovered a drum from one of them lying on the surface, and several others just below the level of the soil. The *Cyclopaedia of Biblical Literature*<sup>4</sup>, published in 1857, contains a woodcut of the columns at Sardis.

### 3. PROBABLE COURSE OF THE DESTRUCTION OF THE TEMPLE FROM THE FOURTH TO THE SEVENTEENTH CENTURY, AS DEDUCED FROM THE EXCAVATIONS.

Tracing the history of the destruction of the temple from data found in excavations is a very different matter from piecing together out of the published writings of witnesses the more recent phases of that history during two hundred and fifty years.

<sup>1</sup> The reference to the overthrowing of the columns by the Turks in search of gold is amusing, since we know that for centuries the inhabitants of all places in Europe and Nearer Asia in which there were Greek or Roman ruins had been tearing down the ancient buildings for the sake of the lead and copper in the joints of the masonry. Indeed this is still a common practice in Syria and Asia Minor.

<sup>2</sup> *Erinnerungen aus Aegypten und Kleinasien*. Wien, 1831, III, p. 138.

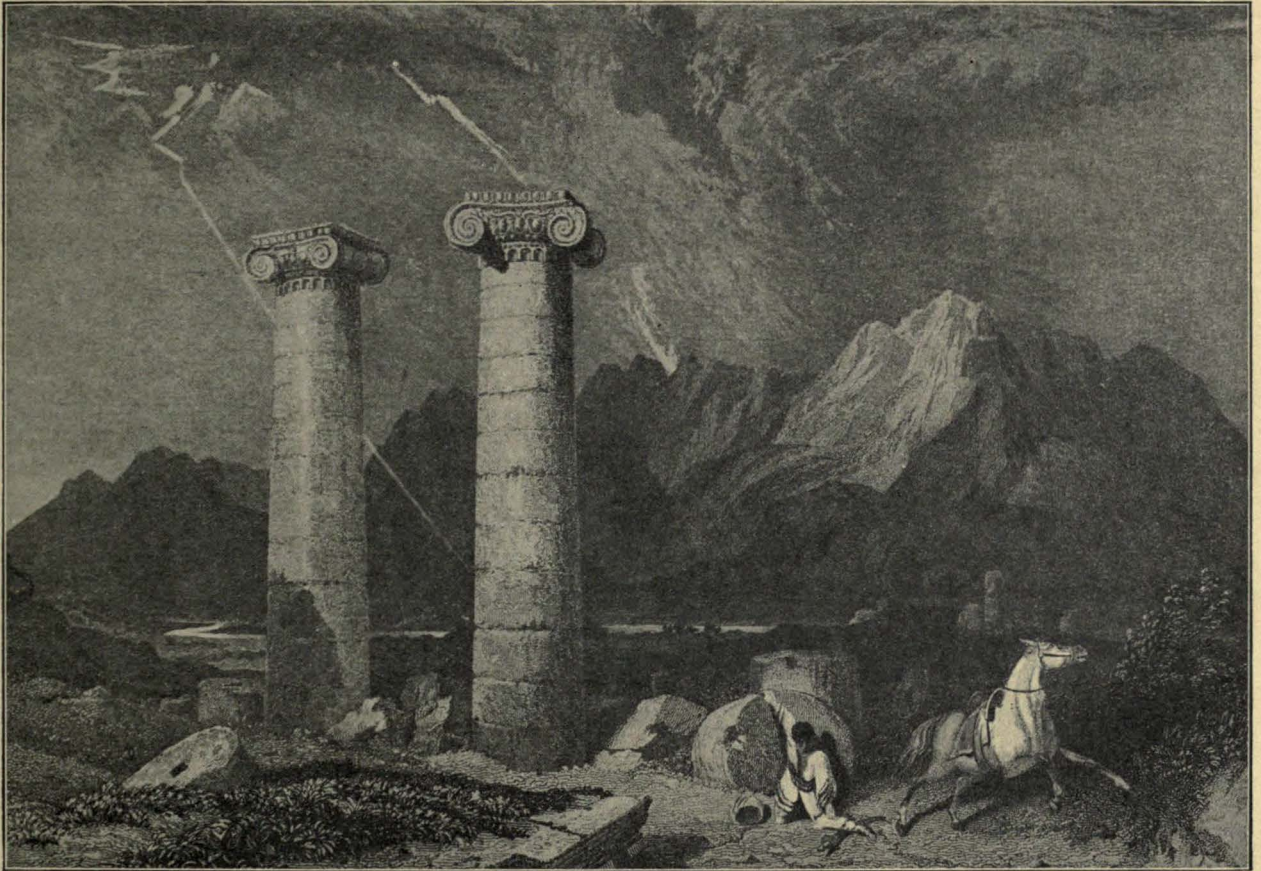
<sup>3</sup> Rev. THOMAS HARTWELL HORNE, *Biblical Keepsake*, London, 1836. p. 167.

<sup>4</sup> By JOHN KITTO, New York, 1857, Vol. II, p. 692.



The latter process is based upon things actually seen above ground, the other upon evidence long buried. In place of written statements we have to depend upon various sorts of material signs, such as strata of marble chips, lime-kilns and coins, on various levels; even the tools of destruction have been discovered, and a hoard of coins<sup>1</sup> of small value, found deep in the excavations, like hidden blood-money, is doubtless a relic of some ancient destroyer.

Leaving aside all discussion of the probable damage done by occasional earth-



Ill. 7. From an Engraving by W. FINDEN after a Drawing by C. STANFIELD from a Sketch made on the Spot.

quakes since that of 17 A. D. recorded by the Roman historians, including the havoc believed to have been wrought by the earthquake of 1493 among the ancient Greek and Roman as well as among the later and contemporary structures of Asia Minor, we shall examine the actual signs of intentional destruction discovered in the process of unearthing the temple. It is evident that the temple was not deeply buried in the fourth, fifth and sixth centuries, when the little church just outside the southernmost columns of the east front was built and in use. The soil at the southeast angle of the temple had then risen only 1.40 metres, and only a little higher at the northeast angle. From these points it sloped very gradually toward the river, leaving the west end of the building entirely exposed. It would be idle to speculate as to

<sup>1</sup> p. 12 and Vol. I, I, p. 68.



the condition of the temple at the beginning of the fourth century. We do not know how much it had suffered in the catastrophe of A. D. 17, or to what extent it had been repaired after that date; but it is quite certain that large parts of the temple were standing at this time, especially the east and west porches. On this level, dated by coins of the fourth, fifth and sixth centuries, few evidences of intentional breaking up of the structure, such as layers of marble chips, are found.

By the end of the sixth century the soil had risen from 30 to 40 centimetres at the northeast angle and all along the north side of the temple almost as far as the western porch. At this time very extensive destruction of the temple was begun, especially along the north side, where we found broad, thick layers of marble chips extending along the wall, beyond the line of the columns of the north flank, and across the west end. On this level several blocks from the cella wall were found partly broken up by the hammer, with quantities of fragments and chips lying about. Beside one of these stones lay some chisel-like tools of iron; and under a large block tilted up against another, was a sack of 216 coins dating between the years 569 and 615, which probably represent the hidden savings of some workman employed in the breaking up of the temple. During this period the labourers who were employing the ruin as a quarry even dug out the marble foundations of a few columns; for this temple had no crepidoma in the ordinary sense, but each column had its own marble foundation extending in four or more courses, from three to five metres below the pteroma level. On the north flank the foundations of the fourth, fifth and sixteenth columns, (Nos. 19, 21 and 43 on the plan: Pl. A, and Pl. I. Atlas) were entirely removed. All the columns on this side, with the exception of those three and two others, had been encased in concrete on three sides. The fact that three of the foundations were not encased made it easier to tear them out, but does not explain why the two others without casing were spared. The upper courses of some of the encased foundations were torn out from the casing, leaving an outer shell of concrete. On the south flank were seen fewer evidences of marble breakage above those appearing on the pteroma level, where one would expect to find marble chips left from the dressing of blocks in the original construction. On this side all the column foundations were encased in concrete on three sides, and almost all of them are perfectly preserved, except at the west end where the uppermost courses of several piers have been taken away. No one can tell how long the columns on this flank remained standing. It was at the west front that the most extensive destruction went on. Here, apparently, the six interior columns of the porch, with the exception of the second from the northern anta, remained standing; indeed they stood until long after this period, as will be shown later. But the columns of the outer row, all save that at the southwest angle, not only were destroyed, but had their foundations entirely removed, as did also the second column in front of the northwest anta. This row did not have the concrete casing about its foundations, as every column but one in the inner row had, for the reason that four of the foundations were fitted into a space between the substructure of the very solid old Lydian Building and the casings of the inner row. Not a stone was left of any of these foundations, except at the south end, as mentioned above. At the



opposite end are still to be seen a few stones used in levelling the bottom course.

The fact that a column was in a standing position had, it seems, something to do with its preservation. One that had fallen was quickly broken up; but the overthrowing of one of these gigantic shafts was attended by difficulties and dangers. There seems to be no other way of explaining why certain columns were spared while others close by were broken up. There were not so many lime-kilns, on the levels marked by coins of the fourth to the seventh centuries, as on those of later date. It may have been that many of the marble blocks were re-dressed for building purposes, or that the kilns were placed at a distance. There was one huge kiln at the extreme southwest; but here the stratifications of débris are so thin that we cannot determine to which period each belonged.

Soon after the middle of the seventh century A. D. a great change came upon the temple. There must have been another great landslip from the Akropolis; for the levels rise suddenly to within a metre or more of the depth of earth in which the temple was found in 1910 at the east end, diminishing toward the river as before. In all this mass of débris no antiquities were found, and not a coin dating between the years 668 and 867 — a period of two hundred years — while coins of the succeeding centuries, from 867 to 1400 A. D., were all found on the higher levels. The little church at the southeast angle of the temple was overwhelmed and almost completely buried, and a few fallen details of the temple which would soon have been broken up were saved by being deeply hidden.

Either before this great change or soon after it — one cannot know definitely for lack of coins — the cella of the temple was converted into a cistern. This was effected by a thorough clearing out of the interior. The columns were removed, the pavement was torn up, the uppermost courses of some of the foundations taken out, and the dividing walls of the cella cut down to a level just below that of the pavement. The whole interior was then filled with rubble over which a mass of concrete was placed, and this filling was covered over with a layer of cement — a Byzantine variety of *opus signinum*, pinkish in colour from the finely crushed pottery in its composition. This water-tight lining brought the bottom of the cistern a little above the original level of the pavement. Over the floor of the treasury chamber, which was a metre or more lower than that of the cella, the filling was correspondingly deeper, for the dividing wall had been removed and the bottom of the cistern extended on one level from one end of the cella to the other. When the water-tight cement was laid over the rubble filling, the smooth marble walls of the cella were roughened by the use of a chisel of several points, so as more readily to hold the cement which was rounded up at the edges and carried up the wall about twenty centimetres. This probably accounts for the effacing of the upper part of the long inscription on the wall of the treasury, for the effacing begins exactly at the level of the bottom of the cistern.

It seems reasonable to assume that the conversion of the cella into a cistern took place in the later period of the temple's destruction, after the second great accumulation of débris about the cella, for several reasons. In the first place, the



walls of the cella would have made a better container for water after they had become well banked up with earth on three sides; in the second place, only a thin and rather poorly constructed wall of brick, which would have served very well if backed up by a great mass of earth had been used to close the east portal; and in the third place the great earthenware pipes, which presumably conducted water to the cistern and thence to the late Byzantine city, are found for the most part above the level marked by coins dating from the fourth to the middle of the seventh century. We do not know how much of the cella walls was left intact above the portions required for the cistern.

It seems quite certain that a considerable number of the columns still remained erect during the whole period. The thirteen at the east end, which preserve half their height, plainly did not fall, nor were they overthrown, until the earth about them had risen, practically to the level at which it was found when the excavations began in 1910. At the west end other columns were standing until a very late period; for several fluted drums were found at this end on the surface and many more immediately below the surface of the ploughed field. That they had fallen, and had not been intentionally pulled down, would seem probable from the fact that they were not entirely broken up for lime. One would suppose that they must have collapsed before the middle of the seventeenth century, because they are not mentioned by the early visitors who give the number of intact columns as six at the east end. But STANFIELD's drawing, made shortly before 1837, shows the lower parts of these columns still *in situ* (Ill. 7). Those at the west end were quite certainly the one in front of the north anta and that on the inner row on the north side of the main axis, for their plinths were in place, and two broken capitals were found near them not far below the surface. In addition to these it is probable that columns of the inner porch were standing on the south side of the main axis, and possibly one or more on the north flank; for fragments of three varieties of carved bases were found in the vicinity, not deeply buried.

In comparatively recent times, but certainly before the middle of the seventeenth century and presumably after the destruction of Sardis about 1400 by TIMOUR, the cistern was abandoned, and the western half of its walls was destroyed down to the foundations. According to ANTON VON PROKESCH<sup>1</sup>, one of the mosques of Manissa (*Magnesia ad Sipylum*) erected by MURAD II about 1443, was built of marble taken from the ruins of the temple of Sardis.

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<sup>1</sup> *op. cit.*, III, pp. 125 and 145.



## CHAPTER II.

### I. Foundations and Plan. — 2. Parts still Extant.

#### I. THE FOUNDATIONS AND THE PLAN.

The plan of the Temple of Artemis is to be studied for the most part in foundations; though the east end assists in determining the plan of the west end where even the underground portions are less well preserved. The temple was octastyle, and the foundations on the south side, one solid pier of marble for each column, show that there were twenty on the flanks, giving a total length of 97.94 m. and a width of 45.51 m. measuring outside the plinths of the columns. The older observers of the ruin, basing their judgments entirely upon surface indications, believed that the temple was dipteral. Thus COCKERELL, after his visit in 1812, wrote to LEAKE<sup>1</sup>: "I suppose the temple to have been an octastyle dipterus with seventeen columns on the flanks." The excavations have proved that the plan was not dipteral, but pseudo-dipteral (Plate A). The width of the cella is equal to that of the three middle intercolumniations which are wider than the others. The space between the cella walls and the peristyle measures 8.50 m. and is amply wide enough for a second row of columns within the pteroma, but there are no indications that such an arrangement was ever intended (Pl. I, Atlas). The intercolumniations of the front row, beginning at the south end, are as follows: 5.30 m., 5.45 m., 6.61 m., 7.05 m., 6.66 m., 5.44 m. and 5.30 m.; the width of the middle space (7.05 m.) was excelled only in the Artemision at Ephesos where, we are told, the middle intercolumniation measured 8.75 m. The intercolumniation on the south side at the east end measures 5.13 m. at Sardis; but the average lateral intercolumniations measured 5.02 m., the spaces at the ends being a little wider. The lateral plinths measure 2.69 m. and the spaces between them consequently 2.33 m. The plinths of the front row are from 2.65 m. to 2.70 m. square, those of the columns within the porch 2.55 m. to 2.57 m. square; while those of the elevated columns are 2.40 m. square. In front of each anta were three columns, counting those in the outer row; and directly west of the two widely spaced columns of the middle intercolumniation stood a pair of columns raised upon high pedestals, one on each side of the main axis. Thus there were only six columns in the porch inside the peristyle, leaving a broad rectangular space 17.50 m. by 13.50 m. in front of the portal entirely free from supports of any kind.

<sup>1</sup> *op. cit.*, p. 343.



The west end, so far as its foundations offer evidence, was of precisely the same plan, but here a number of the foundation piers are wanting, having been removed at the time when the ruin served as a quarry as described on page 12. The twentieth pier on the south side gives the key to the restoration; all the other piers of the front row columns to the west are missing (Ill. 8). The foundations of two columns at the end of the south anta are in place, as are the piers of the two which stood one on either side of the main axis, and the foundation and plinth of one directly in front of the north anta; the sixth column pier of the porch of the epinaos is gone. A space to the west of the west wall of the cella, entirely devoid of foundations for columns, matches that at the east end. The pier directly north of the main axis



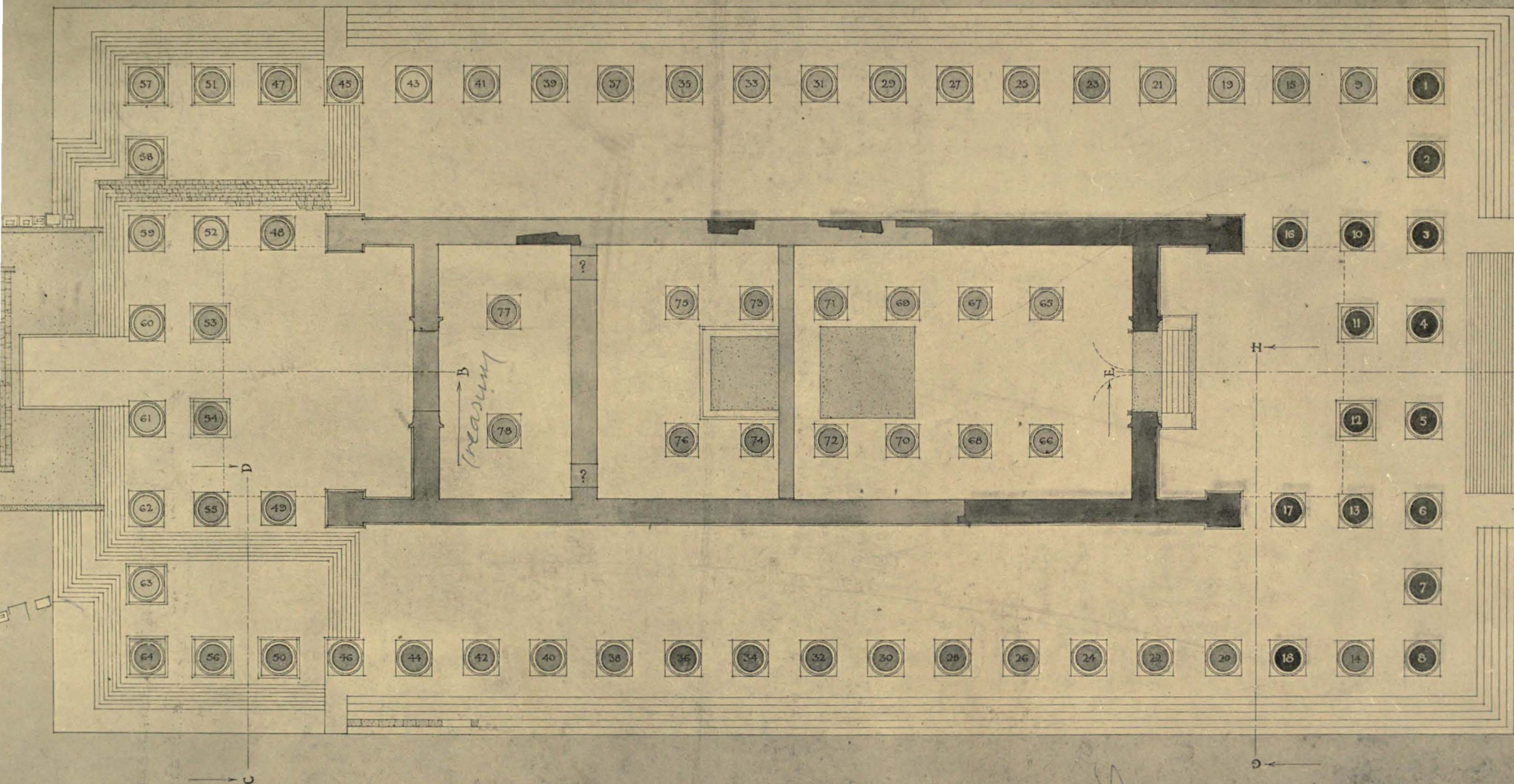
Ill. 8. Foundations at West End of the Temple; View from the South.

(col. 53) preserves one half of its plinth. The upper face of this block shows that the stone above it was rectangular, not circular, a fact which proves that there were pedestals here like those at the east end.

The walls of the cella are preserved in sections of considerable height at the east, and in mere foundations at the west end. They show that the cella was 67.50 m. long — including the antae which have a projection of 6 m. — and 22.50 m. wide over all. The interior width is 18.35 m. The east wall, standing to a height of four and five courses above the pteroma level, preserves the lower parts of a great portal 6.10 m. wide; the west wall, which still retains one course above the foundations



■ STANDING ABOVE 2M.  
 ■ FOUNDATIONS EXIST.  
 ■ CONJECTURAL.  
 ■ IN SITV.



TEMPLE OF ARTEMIS AT SARDIS  
 RESTORED PLAN

SCALE: 25 CM = 1 M





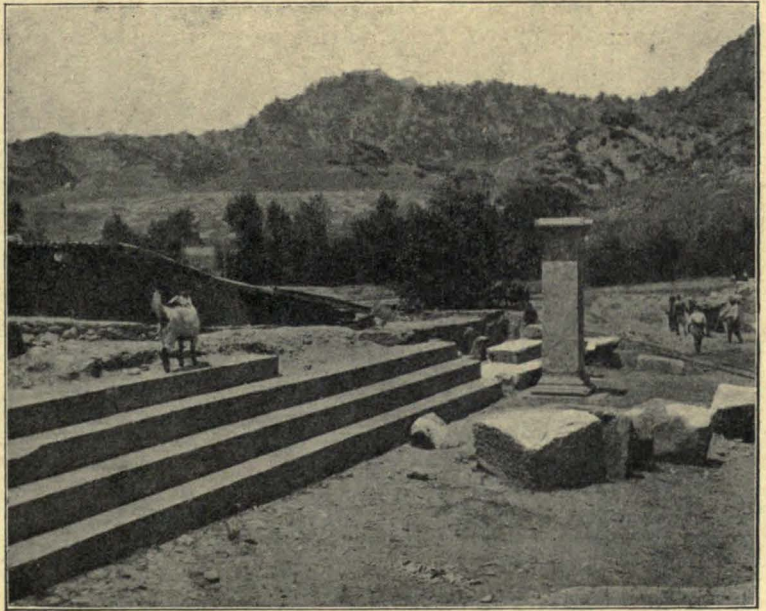


(Ill. 8), was also provided with a portal, as is proved by the omission of foundations in the middle of the wall, but the width of this western doorway cannot be exactly determined.

There were two division-walls in the interior, the one a very heavy wall preserved only in foundations, which divided the cult-chamber from the treasury, — a room at the west end, about 10 m. deep — and the other a thin light wall of which only the single foundation course remains, extending across the cult-chamber at a point 25 m. from the east wall. In this latter room there were ten columns, five on either side, four of which were on the west side of the light division-wall. Two columns stood symmetrically placed in the treasury chamber. The floor of the cult-chamber was elevated 1.54 m. above the pteroma; whereas that of the treasury was on the pteroma level. The east portal was approached by a flight of steps, the foundations of which are plainly visible in front of the opening.

A curious feature of the plan, as revealed by the remains in place, is a flight of steps which descends from the north side of the inner porch at the west end (Ill. 9).

These steps, originally seven in number, of which the uppermost two have entirely disappeared, begin beside the northwest *antä*, and run westward along the two column bases in front of it; the two lowermost extending to a point 1.50 m. beyond the outside line of the western row of columns. Here they were probably returned and carried across the west end of the temple on a level directly above the ruins of the Lydian Building, which at the time



Ill. 9. Steps on North Side at West End of the Temple.

of their construction must have been in much the same condition in which we see it today. The steps descended from the level of the interior porch into a space within the pteroma, below the pteroma level, and within the foundations of the columns of the peristyle which are now encased in, and connected by, concrete. It is difficult to imagine a suitable use for these steps unless we assume that, at some time in the temple's history, there was no peristyle, and that the plan of the two ends of the building consisted of a tetrastyle porch with one or two columns on the return at either side. This question will be taken up in the next chapter and in the discussion of the temple restoration in Chapter V.



## 2. PARTS STILL EXTANT.

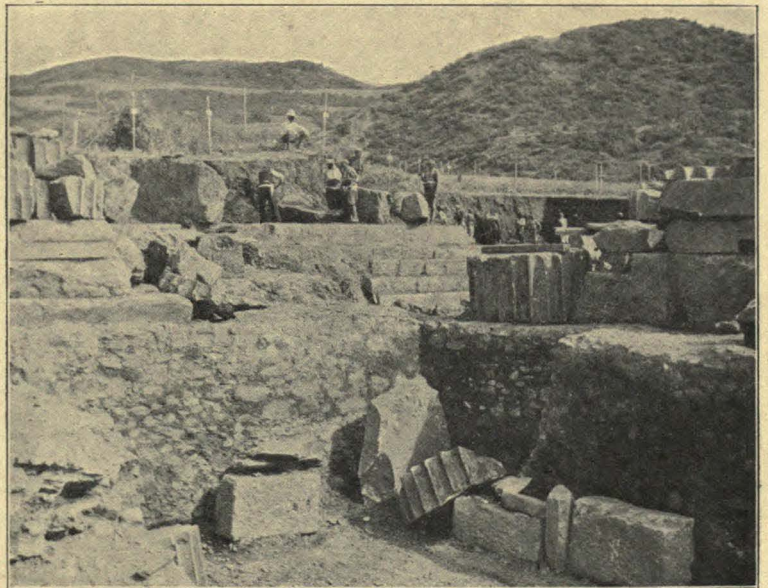
The large plan presented in the Atlas which accompanies this volume (Plate I) is drawn exactly to scale, and shows the parts still extant in their actual state. In the indicator at the lower left hand corner are explained the general features of the drawing; showing four different shadings for the four different materials employed, and pointing out the parts that are preserved to a height above two metres. Here also will be found an explanation of the use of signs and figures to mark the height of a course above or below the pteroma level, which is assumed as zero; the bottom of the first course below the pteroma being shown as  $-1$ , which equals 36 cm. below, and the top of the first course above the pteroma as  $+1$ , which equals 51 cm. above that level, and so on. Most of the blocks in the foundations and those in the two lower courses of the walls are simply marked by 0, or by  $+$  or  $-$  signs, followed by numerals 1, 2, 3 etc., the depth of which above or below the pteroma may be found by reference to the table. Blocks in the immediate vicinity bearing no signs may be assumed to be on the same level as those adjoining them which have the  $+$  or  $-$  signs. But there are many other blocks shown in the plan, especially those in the foundations of the columns, which cannot be referred to the table because the heights of the courses differ from one column-pier to another. These are marked by  $+$  or  $-$  signs followed by the actual measurement above or below zero. To several points on the plan not represented by individual blocks of stone are given simple  $+$  or  $-$  measurements; thus the space excavated between the west end of the temple and the Lydian Building is marked  $-2.386$ , which shows its depth in metres below the pteroma level, and the highest preserved part of the wall of the Lydian Building is marked  $-0.98$ , which indicates the level of this point below the pteroma. The majority of the piers are marked by measurements, written upon or beside them, which give the actual depth of the blocks now in place below the pteroma. This indicates that all the blocks in that course are preserved; but in cases where one or more blocks of a course are missing, the depth of the course below is marked upon the stones of the lower course.

It will be observed that crosses not followed by figures appear upon several of the piers. These are not *plus* signs, but crosses actually carved upon the upper surfaces of the stones. Most of these occupy one, or two, or all four of the angles of a square which represents the square of the plinths of the column bases; sometimes there are right angles instead of crosses; and occasionally crosses are placed in the middle of the sides of a square. The fact that these crosses were engraved upon stones in the lower foundation courses of the piers shows that they were not guides for the actual placing of the plinth-blocks, but for the general laying out of the plan and construction of the foundations, in order that the workman might build substructures sufficiently ample for the columns. It is important to observe that these squares equal 2.30 to 2.40 m. All the clamps, or incisions for clamps, are shown at the joints between the stones upon which they occur.



*Exterior Columns.*

A general statement regarding the parts of the temple still extant, in addition to what may be gleaned from the plan and the above explanation, would be as follows. All the foundations of the eight outer columns of the west porch are missing, with the exception of that at the south end (No. 64 on the Plan) which is represented by three massive courses occupying a greater superficial area than any similar ones uncovered. The foundations of the second column in front of the northwest anta (No. 52) are also missing, but those of all the other interior columns of the west porch are preserved in whole or in part. Thus the two in front of the south anta (Nos. 49 and 55) rise to within 70 cm. of the pteroma level, and the two on either side of the main axis (Nos. 53 and 54) are complete. One of these last retains half of its plinth block, while the column foundation in front of the northwest anta (No. 48) has its entire plinth block in place. The columns directly in front of the antae (Nos. 48 and 49) were set on extensions of the foundations of the antae (Ill. 8). The piers of 48, 53, 54 and 55 are embedded in concrete; those of 52 were dug out of the concrete at the time of the intentional breaking up of the temple (Ill. 10).



Ill. 10. Empty Space where Foundations of Column No. 52 had been removed from Concrete Casing.

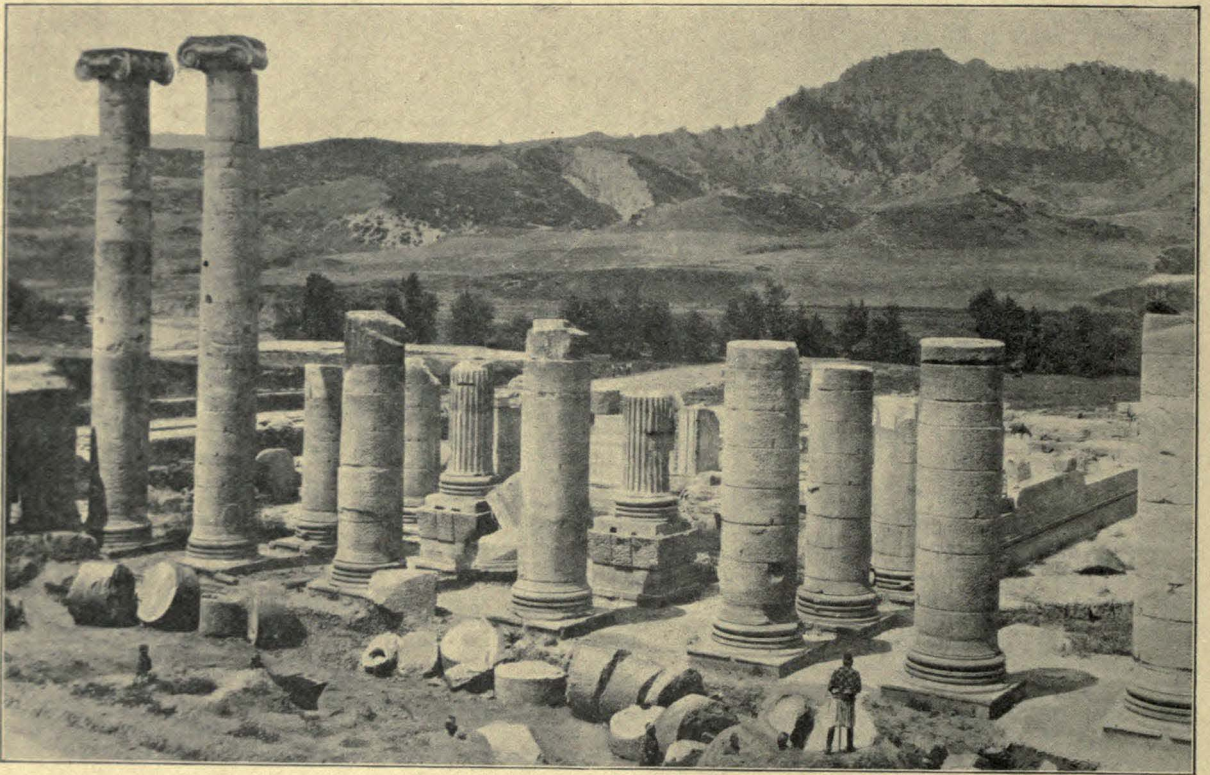
The twenty foundations on the south flank are all represented at varying heights, rising gradually toward the east from  $-1.58$  m. at the southwest angle to  $-0.21$  m. at the seventh column from that angle (No. 40), and to the height of the pteroma level at the fourteenth column (No. 26). The remaining six foundations are entire, that of 20 having its plinth block, and those of 18 and 8 carrying truncated columns of about half their original height. All of these piers are embedded in the concrete on three sides, the side toward the cella being free, and the concrete extending irregularly outward on the south. South of the six westernmost columns on this side the concrete slopes gradually, and upon it, directly south of 44 and 46, is a row of nine blocks which probably constituted part of a step. In the foundation piers of 38 and 40 the concrete was permitted to flow over the blocks, so that it was not possible to draw the individual stones; these two columns must have been taken down when the concrete was added and their plinths had been replaced upon a thin concrete bed.

On the north flank four piers are entirely missing: Nos. 19, 21, 43 and 57; of



these 19, 21 and 43 were apparently never encased in concrete. Two others, 35 and 41, were not encased and were removed down to the bottom course which is in place in both instances. All the other piers on this side had the concrete casing on three sides, as already observed on the opposite flank. They are about as well preserved as those on the south side and in about the same degrees, increasing from west to east. The third pier from the east end (No. 15) carries its plinth block which is completely finished.

It is at the east end that columns and parts of columns are preserved, giving one an idea of the scale and majesty of the temple as it was in antiquity. Here, as the photographs show (Ill. 11), the second and third columns from the southeast angle



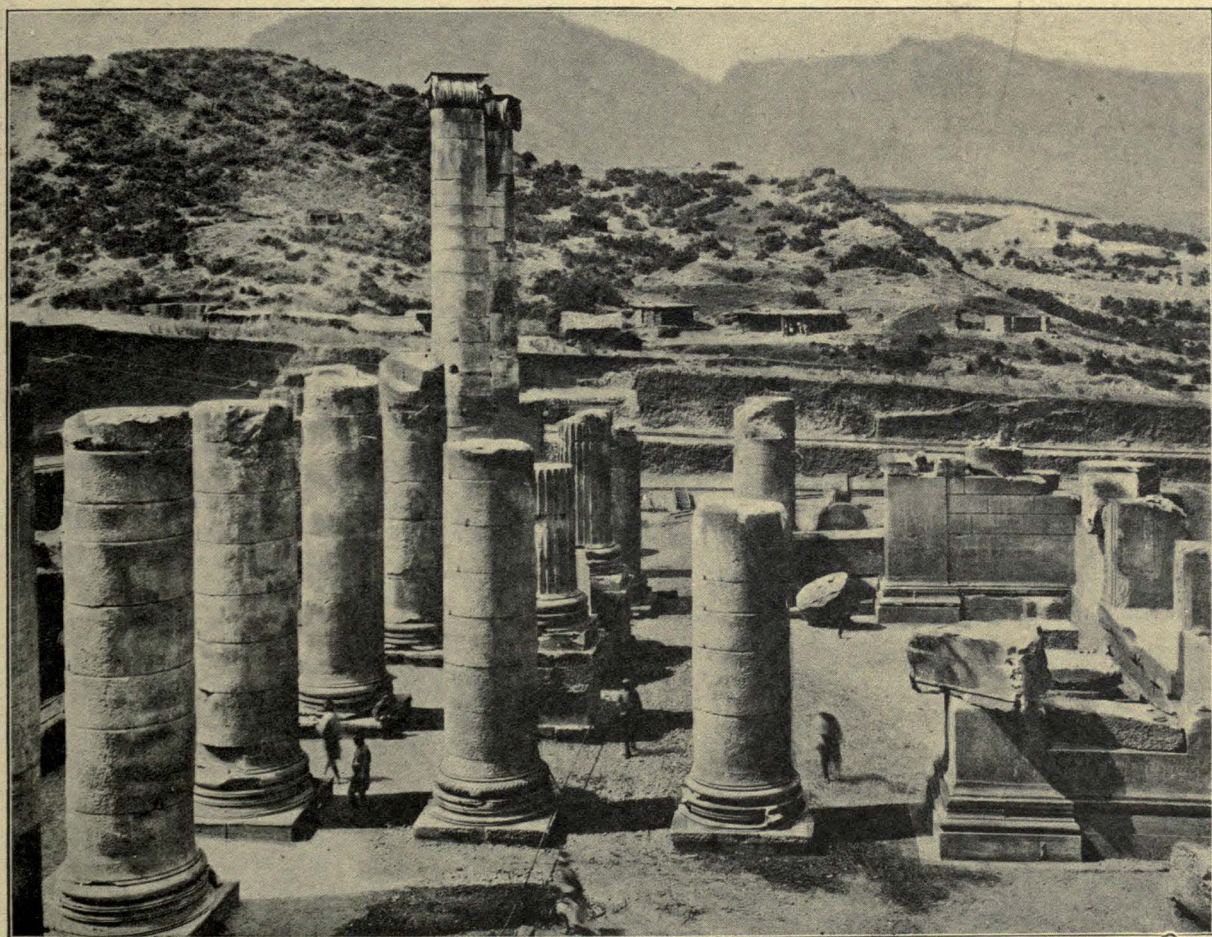
Ill. 11. The Temple of Artemis. View from the East.

(Nos. 6 and 7) are standing in completeness, 17.31 m. high. The other columns of the first row are truncated at heights ranging from a little less than half their original size at the south end to somewhat more than half at the north end. The four columns placed two and two in front of the antae also preserve about half their original stature, and the pair elevated on pedestals stand equally high, but, as the height of the pedestal must be deducted, it is clear that only about one third of either column shaft now remains. A bed of concrete between each pair of columns at the east end, which is carried across the front of the bases, projects, in an uneven line, from 1.50 m. to 2.50 m. on the east. The upper surface of this concrete is flat and on the pteroma level.



*Walls.*

The east wall retains about one quarter of its original height, the southeast anta (Ill. 12) rising 4.57 m. and the other 2.63 m. above the pteroma pavement. The jambs of the east portal still stand 2.65 m. high above the sill, which itself is 1.64 m. above the pteroma. Westward from these antae the side walls of the cella show a height of three or four metres for a distance of about 20 m. West of this the north wall still preserves, first, its lowest finished course as far as the northwest anta, secondly, its next course with a moulding to within 5 m. of the anta, and thirdly, at

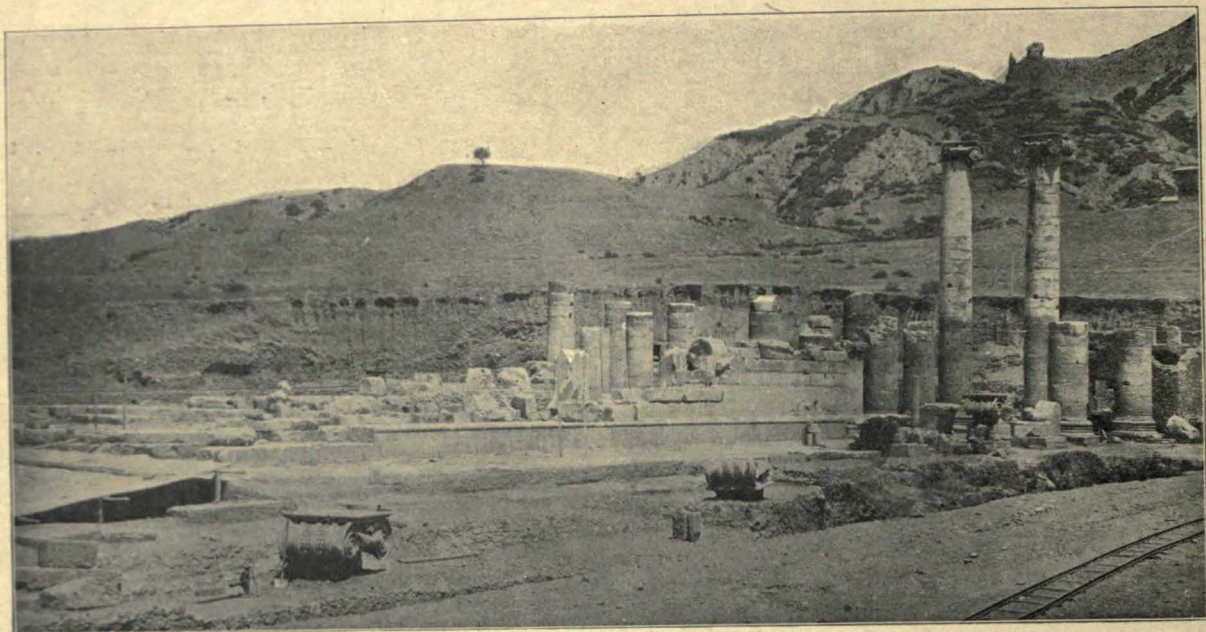


Ill. 12. The East Porch of the Temple as seen from the North.

intervals, its high course above the moulding in which are the two splendid blocks in the north wall of the treasury chamber bearing upon their inner faces the famous mortgage inscription. The south wall, beyond the fine section at the east end which is the least damaged part of the cella, is less well preserved (Ill. 13). The two lower courses extend westward about 15 m., the lower of these about 7 m. further, and then the top of the foundations is seen for about 15 m. more to a point where the level drops to a lower course, till finally at the southwest anta the uppermost visible foun-



dations are 77 cm. below the pteroma level. The west wall of the cella, as has been said above, preserves the first course above the pteroma, except for about 2 m. at its south end. The dividing wall between the treasury and the cult-chamber is represented in part by foundations about 3 m. thick, composed of marble interspersed with roughly hewn blocks of sandstone which probably belonged to an older temple,



Ill. 13. South Side of the Temple as seen from Southwest.

and in part by a few pieces of the lower courses of the actual marble wall. The light screen wall which divided the cult-chamber between the fourth and fifth columns from its east end remains only in a thin foundation wall of one course of marble blocks about a metre thick and 53 cm. high, with its upper surface on the level of the interior pavement. That a marble pavement existed in the cella is attested by a small slab still in place in the extreme southeast angle of the cult-chamber. This slab is 1.54 m. above the pteroma level.

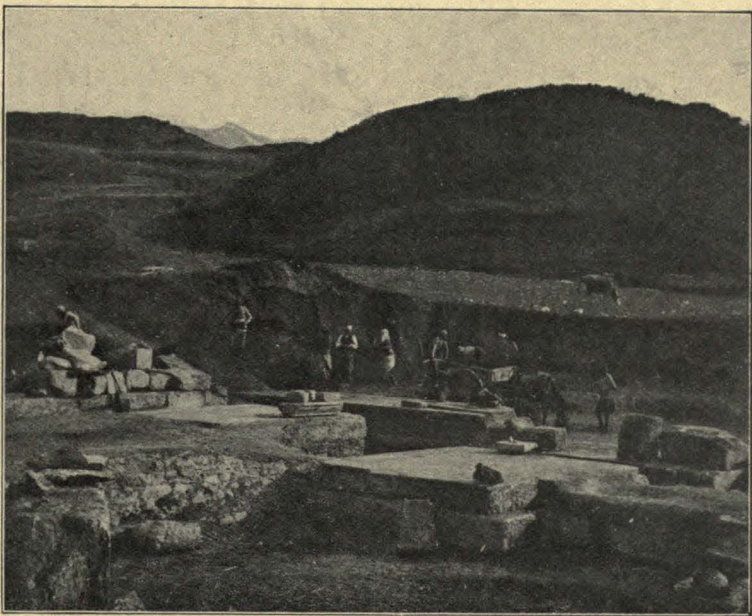
#### *Interior Columns.*

The foundations of the interior columns are almost complete; but no fragment of a column was discovered. The levels of the foundation piers, as shown on the plan, are a little misleading; for the reason that they are taken from the level of the exterior pavement of the pteroma. When we recall that the interior pavement was 1.54 m. higher than the exterior, we shall perceive that most of the piers in the cult-chamber are only a few centimetres lower than the original pavement. The foundation piers of the treasury chamber, where the floor level coincided with that of the pteroma, lack but one low course to complete their height. A mass of concrete within the cella, directly west of the light screen wall (Ill. 14), extends from the north wall to the foundations of the south row of interior columns and from the screen wall to the edge of the westernmost column in the north row (Plate A).

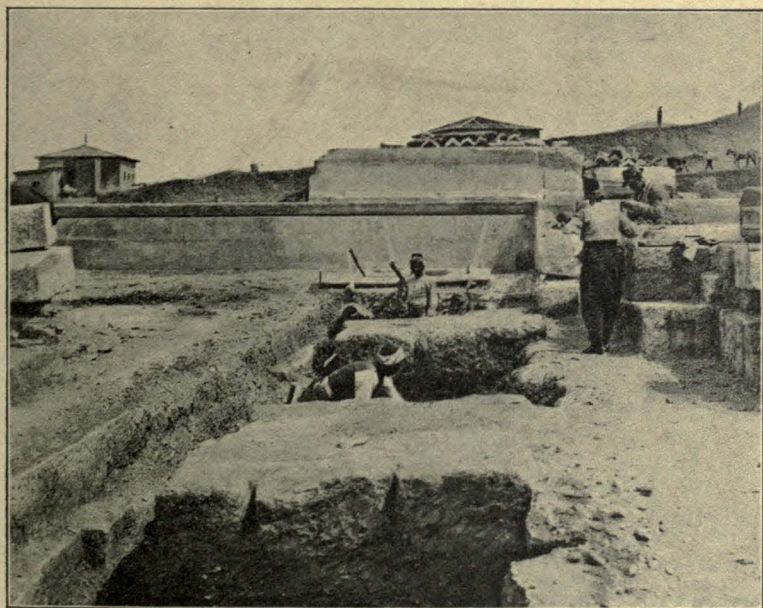


*Older Remains.*

At several points in the interior of the temple, foundations were excavated which belonged to an older building (Plate I, Atlas), and undoubtedly represent a predecessor of the present one, a temple of the time of CROESUS or earlier. These are all made of the purple sandstone used in the construction of the so-called Lydian Building at the west end of the temple. They consist first, of three foundations for columns in the treasury, one on each side of the northern marble pier (Ill. 15) and one directly east of the other pier; second, of blocks of this same sandstone under the dividing wall between the treasury and the cult-chamber; and third, of the sandstone "basis", two courses high, which was found in the middle of that chamber. This "basis" occupies a position corresponding to that of the



Ill. 14. Foundations of Columns and Mass of Concrete in the Cella.  
View from the Northwest.



Ill. 15. Older Foundations in Treasury Chamber. View from the South.

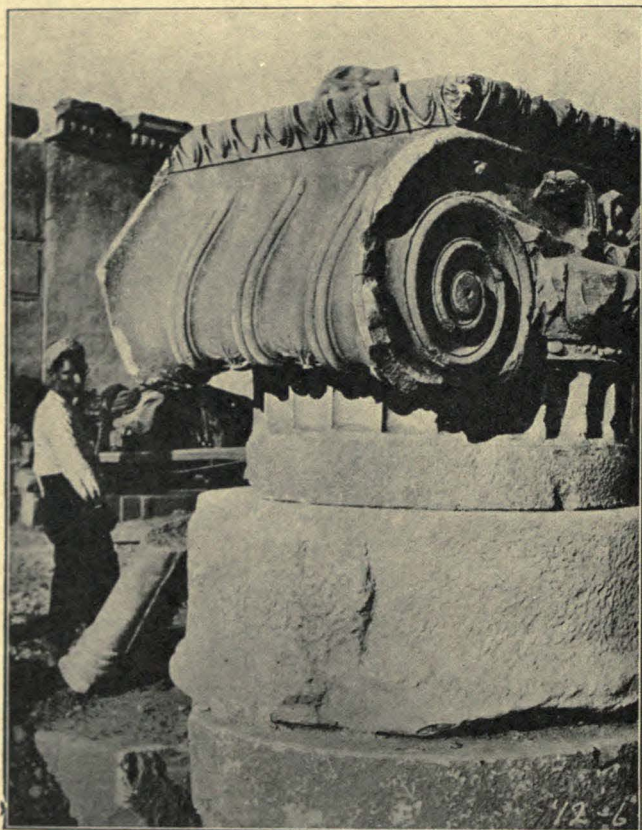
supposed statue basis found by HOGARTH in the Temple of Artemis at Ephesos. The fact that a coin of CROESUS was discovered between the courses indicates that the construction is as early at least as the middle of the sixth century before CHRIST. An account of the opening of this basis and of the excavations carried on beneath it is given in Vol. I, pp. 74—76.

*Details.*

In addition to the architectural features which are *in situ*, such as the bases and capitals of columns, the mouldings of walls and the ornaments of the portal, numerous detached details came to light during the progress of the excavations. At the south-



east angle of the temple there is a carved torus base 2.09 m. in diameter, and an exactly similar base 2.10 m. in diameter at the northwest angle. In addition to the two capitals still in place upon their columns, two others, much mutilated, were found among the débris on the surface near these columns. On the south side, near the southeast angle, another capital was found on the surface, which, though mutilated on one side, preserved the other half almost intact. This has been set up on two drums on the foundations of the fifth column from the east end (Ill. 16). On the same flank two nearly perfect capitals were excavated on the pteroma level just beyond



Ill. 16. Capital set up on Foundations of Column No. 22.

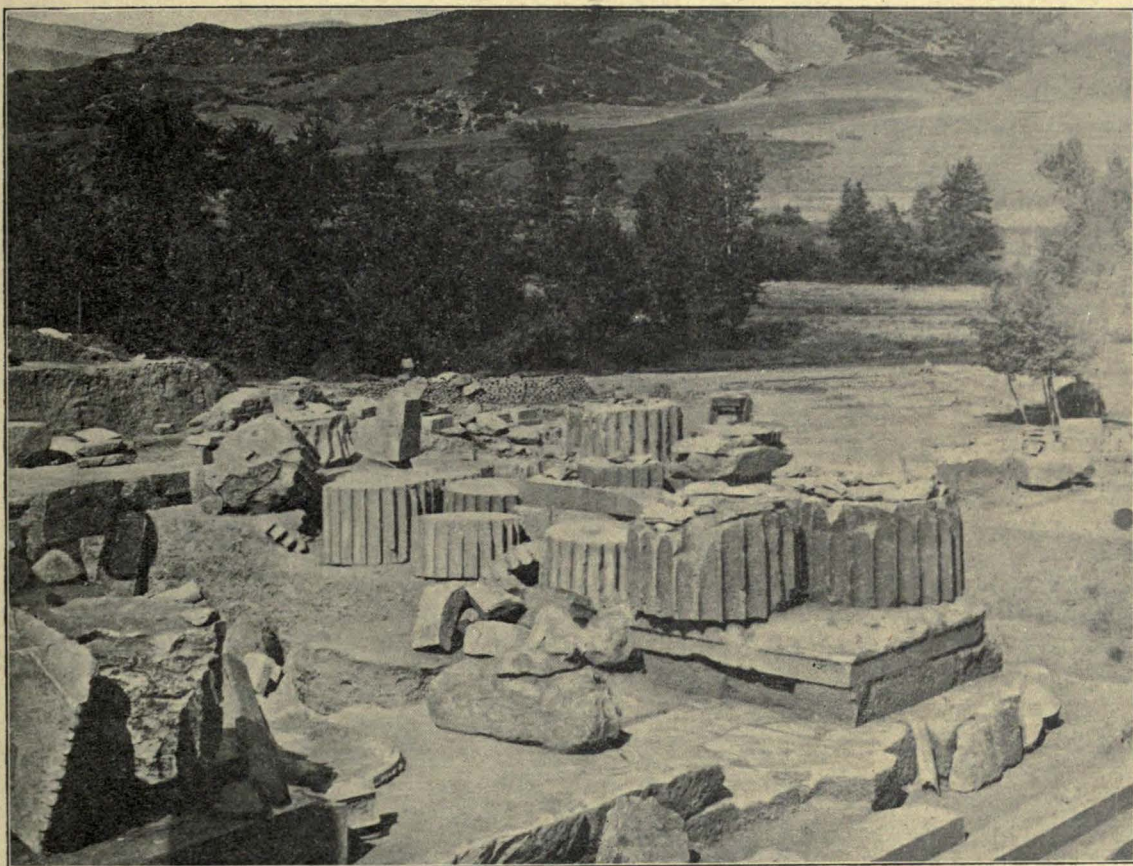
the range of column piers. Well beyond the northwest angle of the temple, in rather shallow soil, was found the inner half of a capital quite intact, and, just below the surface near the northwest anta, the abacus of another capital, all the rest of which had been hacked away and broken up for conversion into lime. Thus nine capitals are accounted for. At the east end a large number of unfluted drums had remained upon the surface, and below it several more, fluted and unfluted. At the opposite end many fluted drums were found (Ill. 17), a few upon the surface of the barley field, and great quantities of fragments from capitals and carved bases in three or four different designs were unearthed at no great depth.

Numerous pieces of an anta-cap, sufficient to give its complete design, came to light near the southeast anta at a height of about 5 m. above the

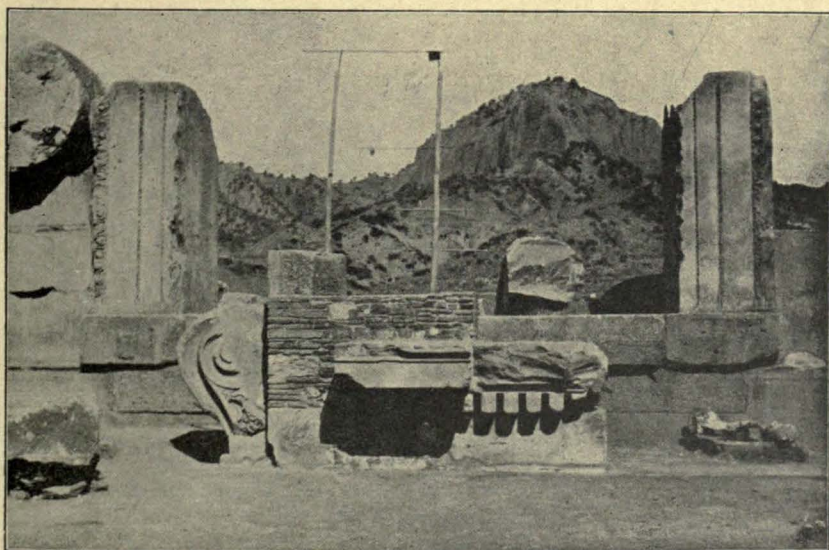
pteroma level. Many of the details of the east portal were unearthed not far below the surface in the neighbourhood of the actual sill. These included several sections of the jambs with their richly carved mouldings, the two huge consoles which have lost only their lower volutes, and fragments of the denticulated cornice. All of these combine to furnish the complete design of one of the largest and most beautiful doorways known up to the present time (Ill. 18).

Three large architrave blocks and two smaller ones are all that remain of the epistyle. One of these was unearthed only a little below the surface near the southeast anta, and is almost certainly the block described by COCKERELL as seen by him in place upon the two standing columns (*cf.* p. 8). The other block was lying at the bottom of a pit, probably of DENNIS' making, just outside and to the north of the east portal; it had apparently rested at one end upon an anta, and is perhaps the





Ill. 17. Fluted Drums of Columns at the West End of the Temple. View from the Northeast.



Ill. 18. Fragments of East Portal.



western end of the section of architrave depicted in PEYSSONEL's sketch (Ill. 4). The third lies in two pieces between the two elevated columns in the east porch.

No fragment of a frieze has been discovered, and it is highly probable that the temple had what is known as an "architrave order", an entablature consisting of only two members, the architrave and the cornice. The cornice is represented by a gigantic water-spout in the form of a lion's head, which was found just to the north of the northeast angle-column and at a very considerable depth. The engraving (Ill. 7), published in 1837, shows a large fragment of cornice lying in the foreground; but the drawing is not distinct enough to bring out the details, and the fragment itself has perished long since. Scattered about through the length and breadth of the temple, generally upon the lower levels, were a large number of marble roof-tiles of both the regular types, the ordinary flat tiles and the imbrex tiles used in covering the joints. Their scale is huge, in keeping with that of the temple. One of the imbrex tiles was intact, and the many broken pieces of the flat tiles were sufficient to give their complete dimensions. One other fragment completes the catalogue of objects known to have been parts of the temple; that is the lower two-thirds of a great angle-antefix which adorned one corner of the eaves. All these details are more fully described and illustrated in the following chapters.

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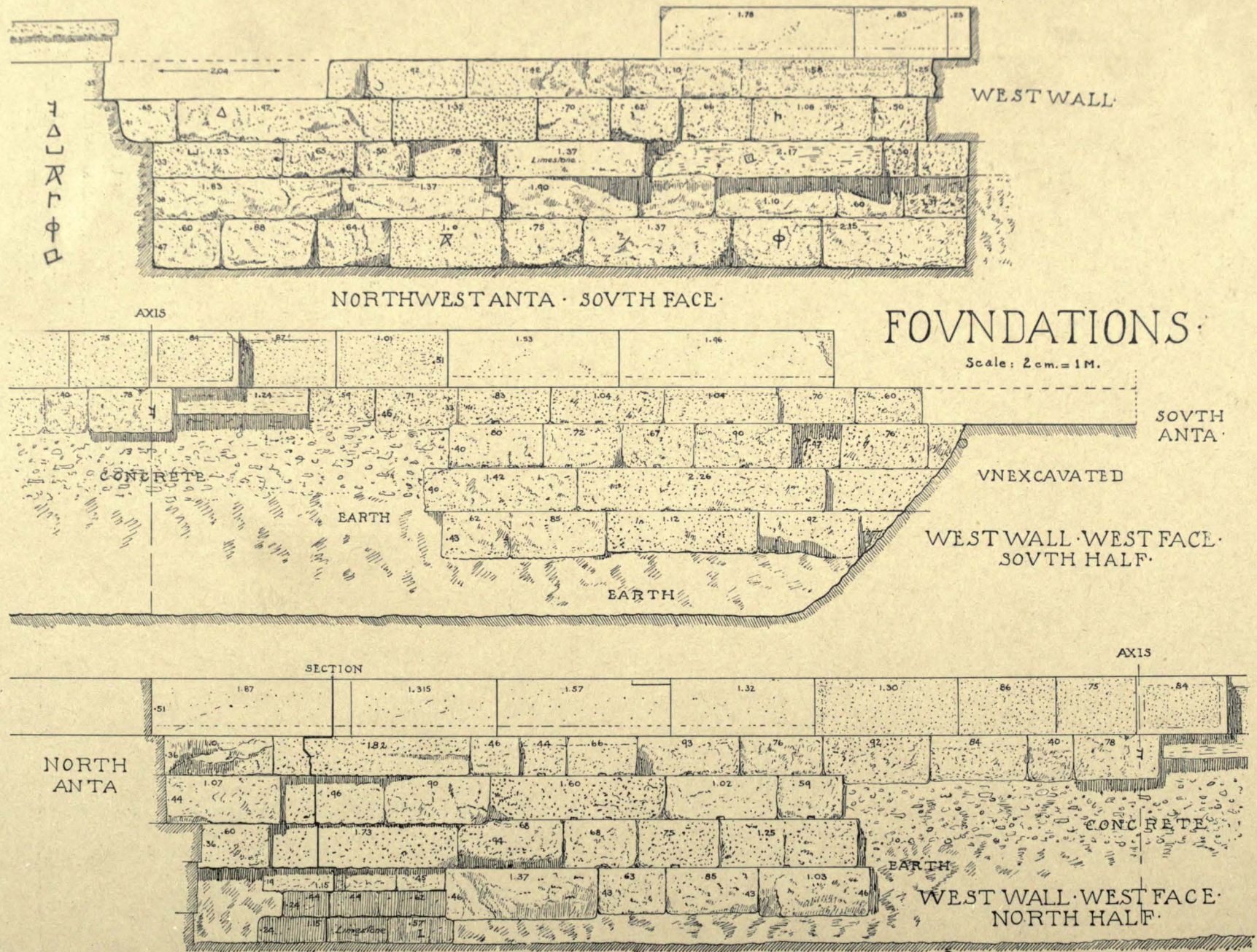
## CHAPTER III.

### CONSTRUCTION.

#### I. FOUNDATIONS.

Something has been said in the preceding pages of the excellent state of preservation in which we find the foundations of the temple. Indeed if we had nothing else, it would not be difficult to make a complete restoration of the plan, a circumstance strongly contrasting with the unfortunate condition in which the excavators of the Artemision at Ephesos discovered its foundations. Those of the temple at Sardis are all of marble, for the most part massive blocks rough-hewn on the outer surfaces but fitted together with the smoothest and closest of joints. At a number of points in the foundations of the cella and antae are blocks which were certainly once employed in the superstructure of a finished wall, and these in all probability belonged to an earlier temple on this same site. The foundations are deeply laid, those of the columns being deeper than those of the walls, which seldom descend more than 2.50 m. below the pteroma level. The deepest column foundations excavated are over 4 m. below that level, and I have no doubt that others which have not been dug out extend much deeper; for there is no solid rock beneath any part of the temple, so far as our borings have extended, and it was necessary for the builders to get down to hard-pan in order to find sound footing for the columns. The foundations of the columns are very spreading at the bottom, but comparatively small at the top; those of the peristyle at the east end are a little smaller than the plinths. The foundations of walls all project beyond the face of the walls. These characteristics are best seen at the west end, where the diggings on the Lydian level laid bare the substructures of the later temple, and where the space between the foundations of the south flank of columns and those of the cella was excavated to a considerable depth. Here the foundations of columns and walls are seen at a level more than 2 m. below that of the temple porch, those of the columns in three or four courses from 60 to 80 cm. high, and those of the walls in five or six narrower courses (Ill. 8). In the process of excavation, the entire space within the western portico was cleared out to a depth of 3 m. or more, and then filled up again. This digging revealed the substructures of the west wall of the cella and those of the flanking anta-walls. The former were not very deep (Ill. 19), consisting of only four rather narrow courses of marble at the two ends, and of only one course in the middle below the place where the doorway





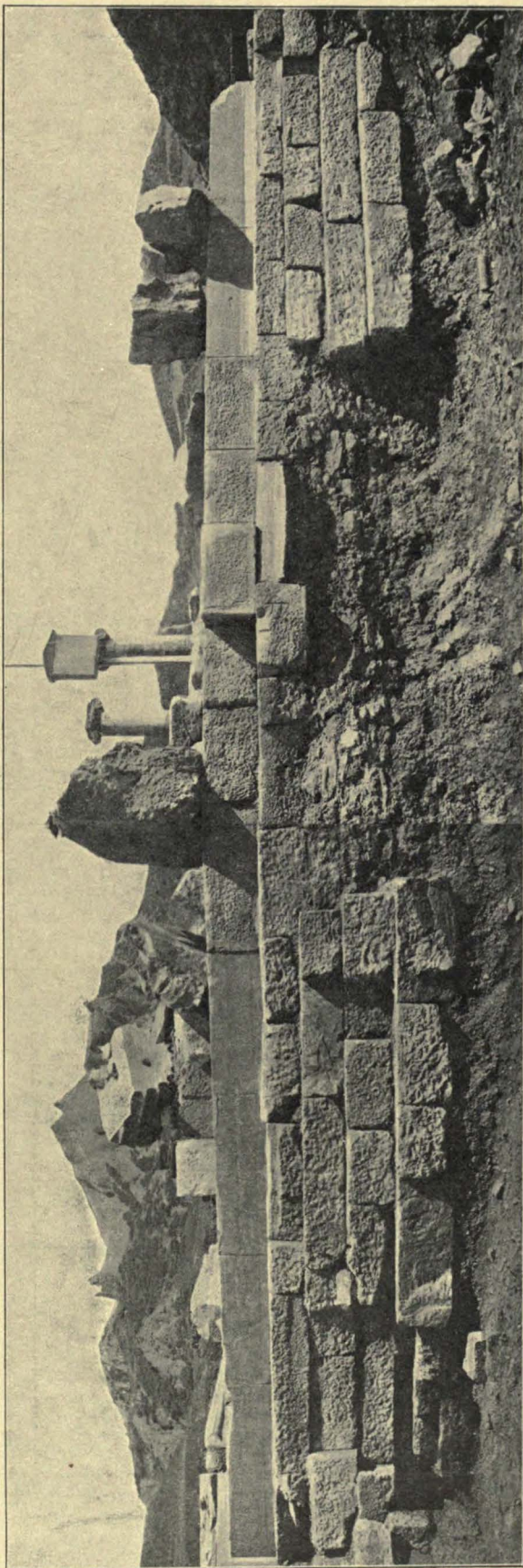
Ill. 19. Foundations of the Cella.



had been (Ill. 20). In the bottom course at the north end are blocks of other materials than marble, probably relics of the older temple. The foundations of the anta-wall adjoining this cross-wall on the north (left) are much heavier and deeper (Ill. 21). Many of the blocks used in foundation courses of the walls bear signs of having been used for other purposes elsewhere, as mentioned above; many still retain lifting bosses (Ill. 22), and many others bear as masons' marks rather crudely inscribed monograms of Artemis and other symbols in the form of ancient Lydian letters (Ill. 23). The great "basis", or foundation for the cult statue, in the middle of the cella, was composed of irregularly quadrated blocks of purple sandstone in two courses 42 cm. thick. Some of these were held together by iron clamps of the  $\sqcap$  shape with short legs. The "basis" extended from the column foundations on one side to those on the other. Its irregular outline suggests that its outer edges had been broken when the new column foundations were put in, or in the clearing out of the cella at the time of its conversion into a cistern.

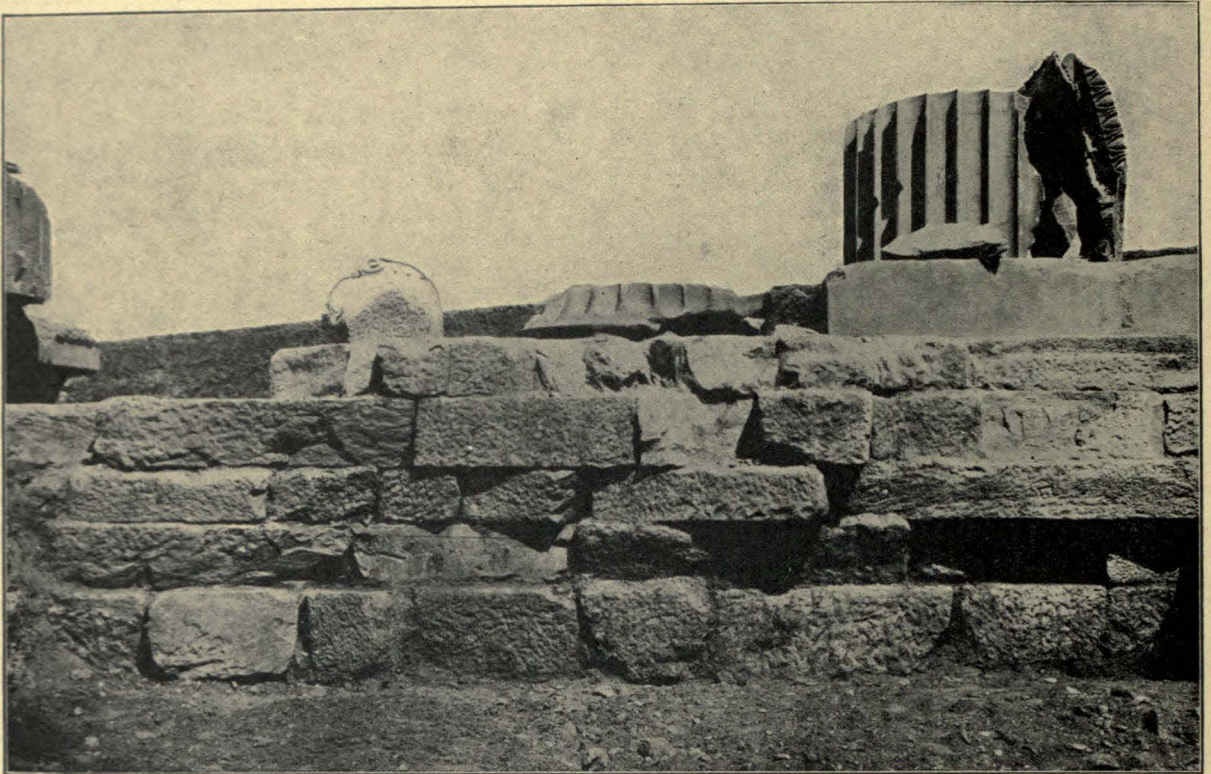
## 2. WALLS.

The finished walls above the foundations deserve close inspection. That of the cella had along its entire outer side a high base moulding (Ill. 24). The bottom course, 50 cm. high, is highly finished with close vertical joints. Above this, and set back about a centimetre, is a course 57 cm. high, the upper part of which was to be carved as a torus. This moulding was completed in the western half of the north

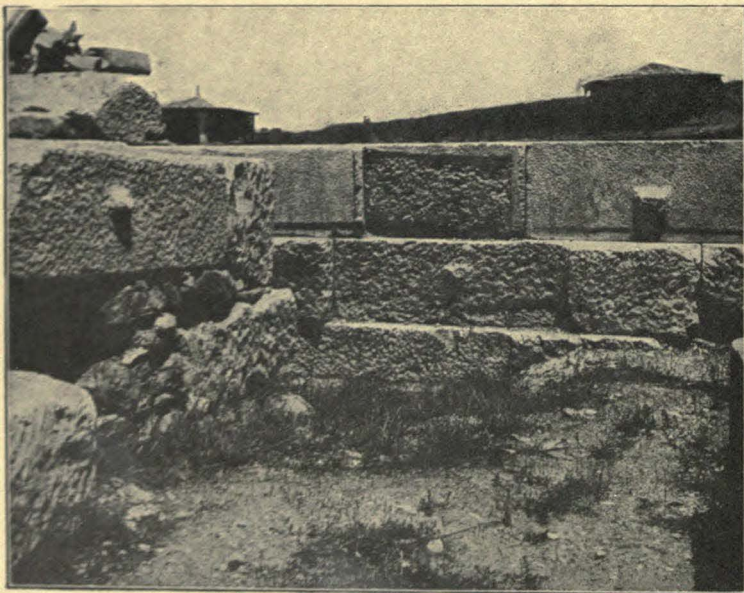


Ill. 20. Foundations of West Wall of the Cella. View from the West.

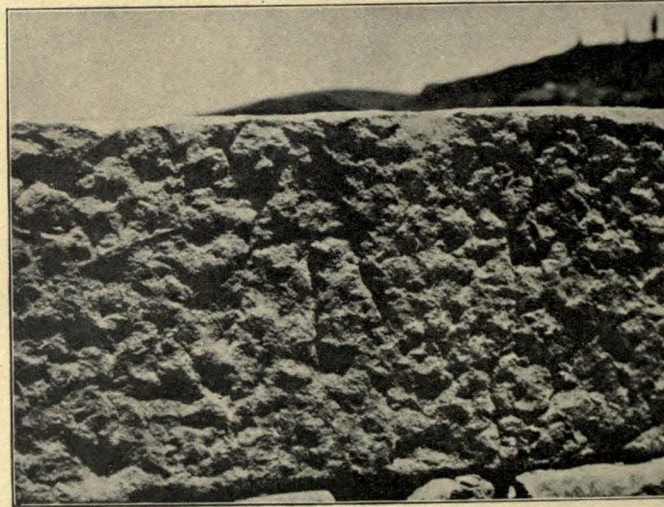




Ill. 21. Foundations of Northwest Anta. South Face.

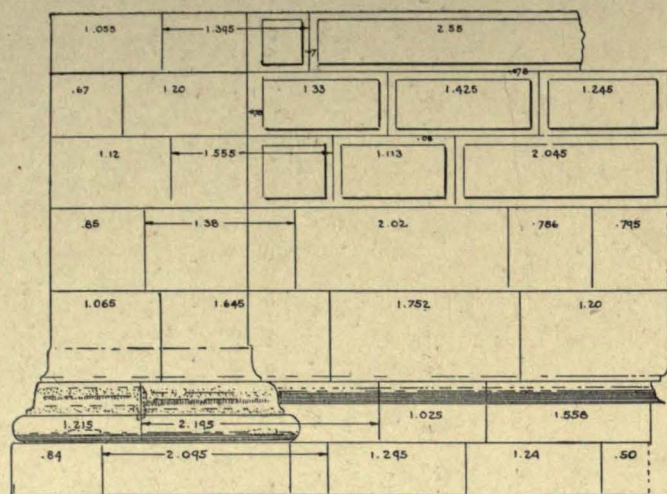


Ill. 22. Foundations of Cella Wall. North side; South face.

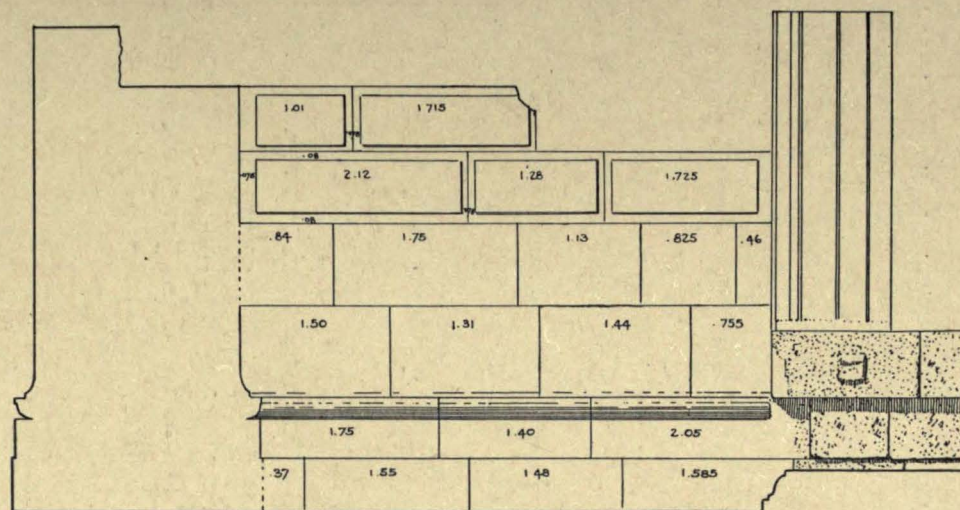


Ill. 23. Masons' Marks on Foundation Stones.





SOVTHEASTANTA-WALL NORTH FACE

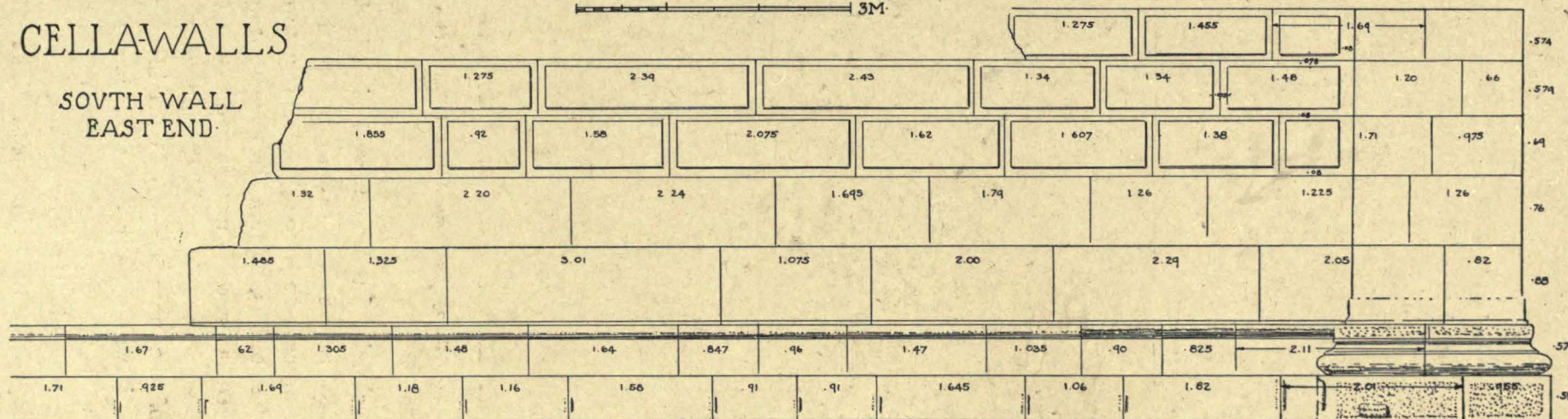


EASTWALL SOUTH HALF

SCALE 3M.

## CELLA-WALLS

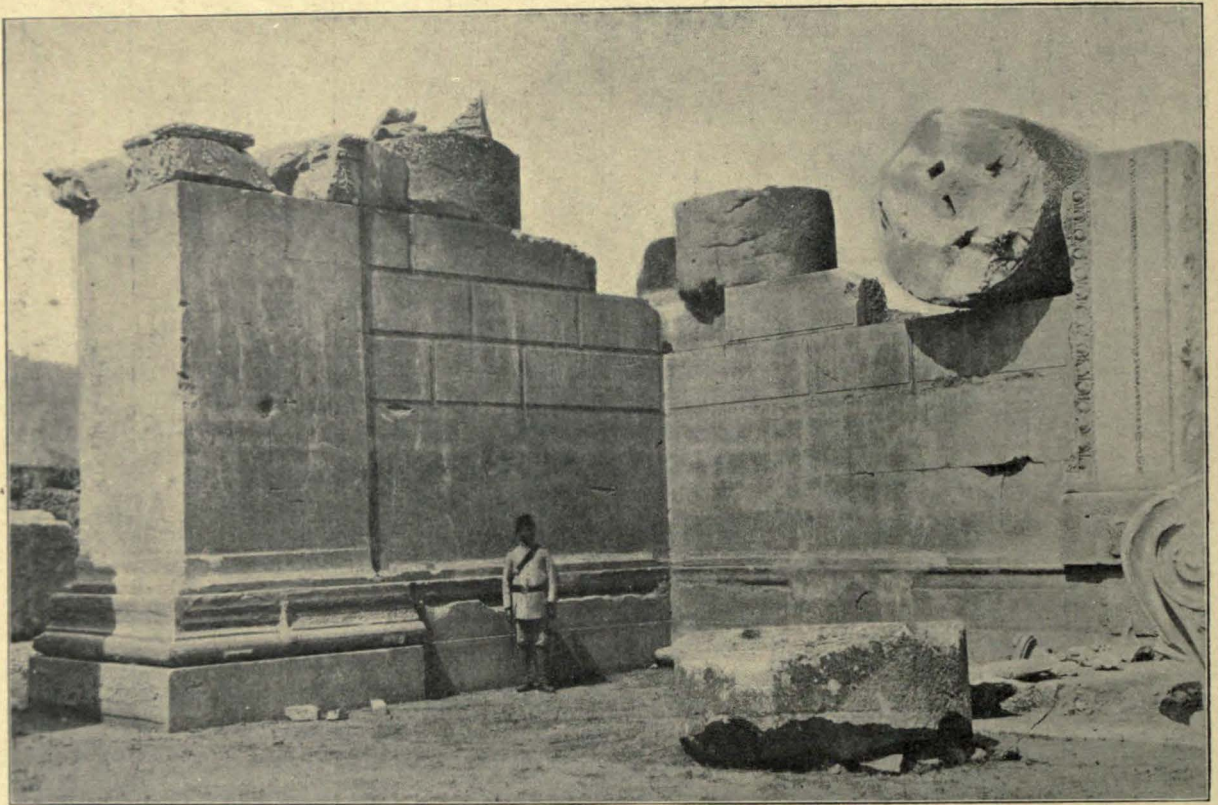
SOUTH WALL  
EAST END



Ill. 24. Walls of Cella; actual State.



side of the temple, but eastward from the middle of this side only its lower half is finished, so that the moulding becomes a deep ovolo with rough outer edge and flat upper surface. The next course above this constitutes the lower part of a sort of orthostate or dado. It is 88 cm. high, the blocks are fitted with almost imperceptible joints, and the lower edge of each is provided with a flat band below a graceful apophyge, or inward and upward curve. The fourth course, the second of the orthostate, is 76 cm. high and received the same high finish. Above this the ashlar is draughted (Ills. 24 and 25), the fifth course is 69 cm. high, the sixth and seventh 57.9 and 57.4 each. This draughting consists of shallow sinkages, 7 to 8 cm.



Ill. 25. Southeast Anta and East Wall of the Cella. View from the Northeast.

wide, the closely fitted and well nigh invisible joints coming, with the exception of that directly above the orthostate, in the centre of each draught (Ill. 24). This serves to accentuate strongly the structure of the walls. The outer edges of the ends of the blocks, where two come together in the thickness of the wall, have also received a smooth marginal dressing (anathyrosis) to make the vertical joints as close as possible and to avoid the labour of finishing the entire end surface. But here the rest of the unseen end of each block was of course treated differently from the outer face; it was slightly depressed and was given a picked surface. This treatment is common in all Greek stone-work. The blocks were fastened together with iron clamps like those in the foundations. The walls are double-faced, that is, two blocks were employed in their thickness. The thickness of these varies on both sides and



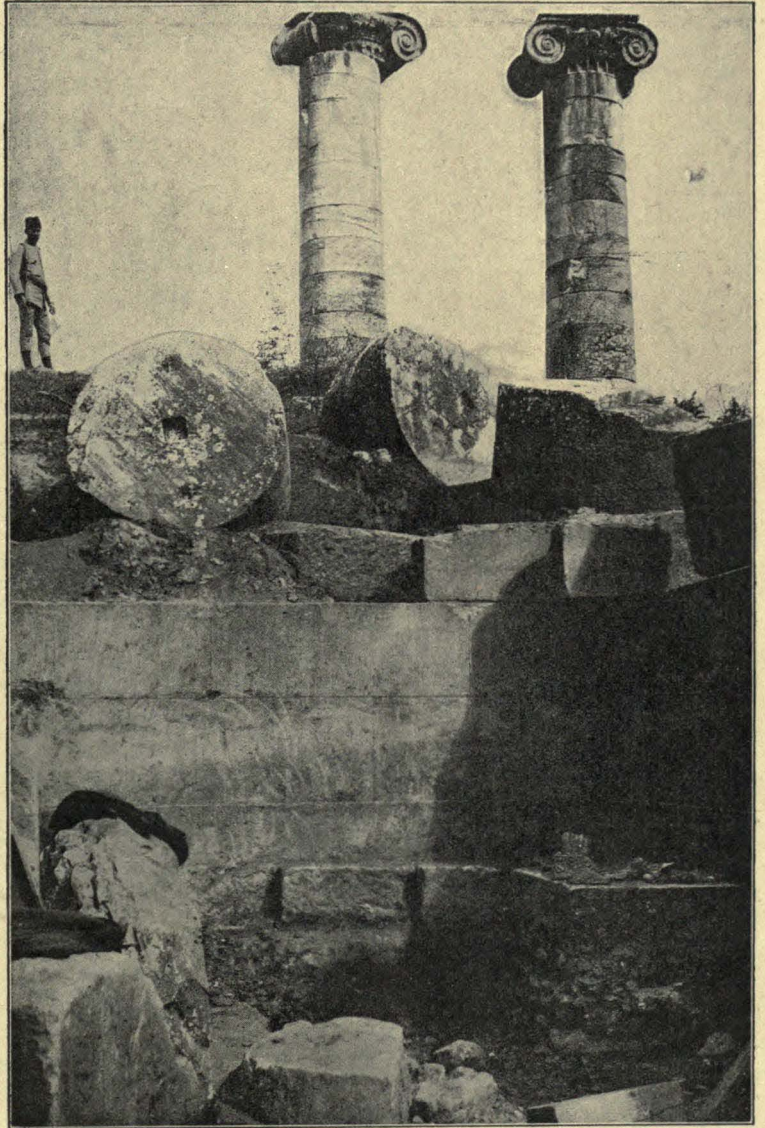
the stones are not strictly rectangular in plan, often having one side longer than the other, though the ends are always parallel so that the blocks roughly interlock within the wall. The heights of the courses are not always equal on both sides.

The inner face of the walls of the cult-chamber is perfectly smooth, with almost invisible joints, and no orthostate appears (Ill. 26). In the treasury chamber on the other hand we find the interior surface of the wall treated like the outer face (Ill. 27), with a slightly projecting course 51 cm. high, a moulded course 58 cm. high, the unfinished torus of which is 23.5 cm. wide, and an orthostate, 88 cm. high with fillet and apophyge. The outer line of the side walls showed a distinct curvature. The long base moulding of the north side has an outward and upward curve (Ill. 28) the plotting of which is to be published elsewhere.<sup>1</sup>

### 3. STEPS.

The remains of steps near the west end of the south side of the temple have been described on page 19; these are the only evidence for the existence of steps

found anywhere outside of the peristyle. The manner in which the foundation piers of the peristyle were reinforced with concrete, and the entire absence of any stylobate make the question as to the purpose of exterior steps difficult to answer. At the east end of the temple, and in places along the flanks, the concrete seems to have been poured into trenches excavated along the front of the column piers and between them, and projects at uneven distances from the outer line of the columns on the level of



Ill. 26. Southeast Angle of the Cella; from the Northwest.

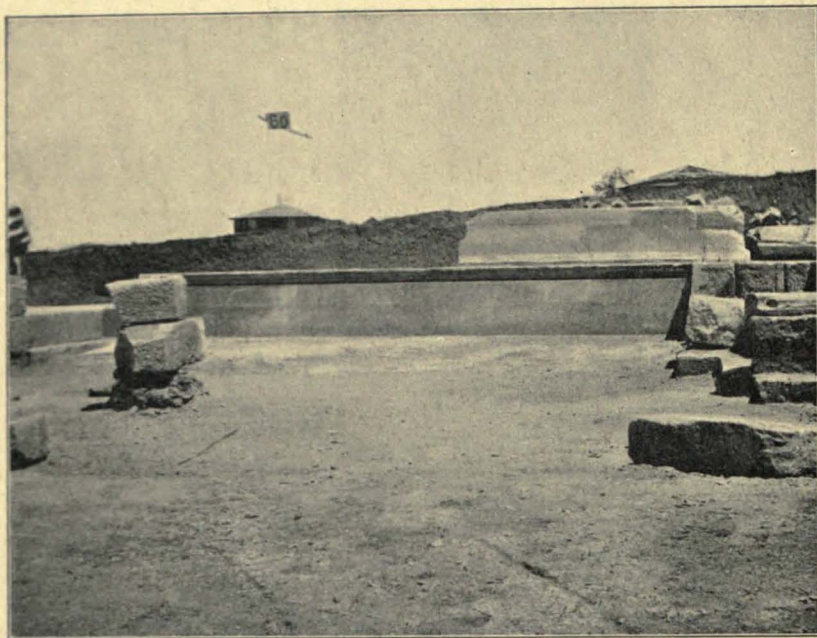
<sup>1</sup> The notes and measurements made upon this and other curves in the Temple of Artemis were left at Sardis in 1914. It has been impossible to recover them since. They will be published at some future time.



the pteroma pavement (Plate I, Atlas). There is no slope in the upper surface of the concrete, except at the west and on the south where there are remains of a step. If there were steps elsewhere it would have been necessary for them to terminate in a

sort of platform, a metre or more wide, directly outside the line of the columns.

The steps within the north peristyle at the west end (Ill. 29) are quite another matter. As I have shown in the last chapter, it is difficult to explain the function of these steps in the temple as we find it today, with its outer peristyle and with the foundations of its columns encased in solid concrete. It might be suggested that the columns of the peristyle

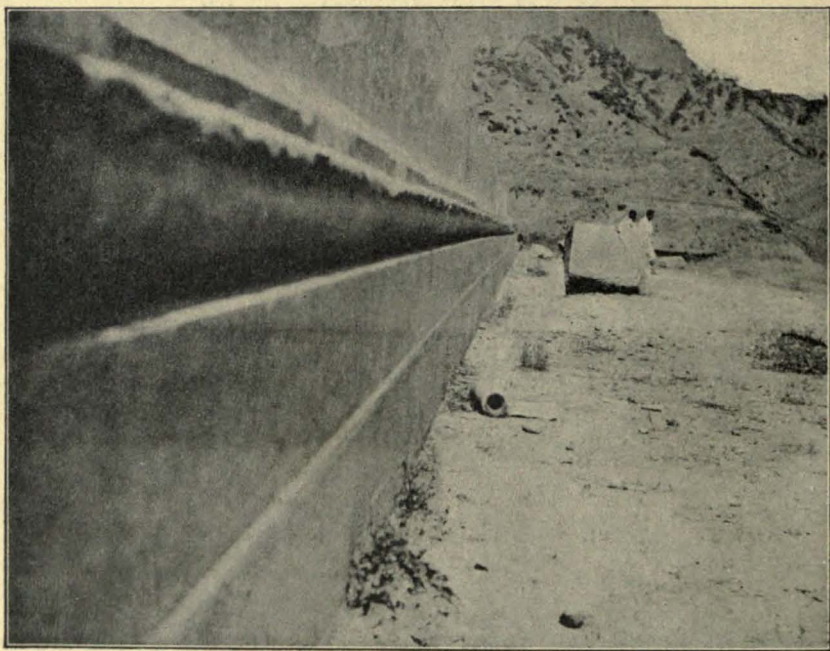


Ill. 27. Interior of Treasury Chamber. View from South.

opposite to the steps were raised upon high pedestals, somewhat like those suggested

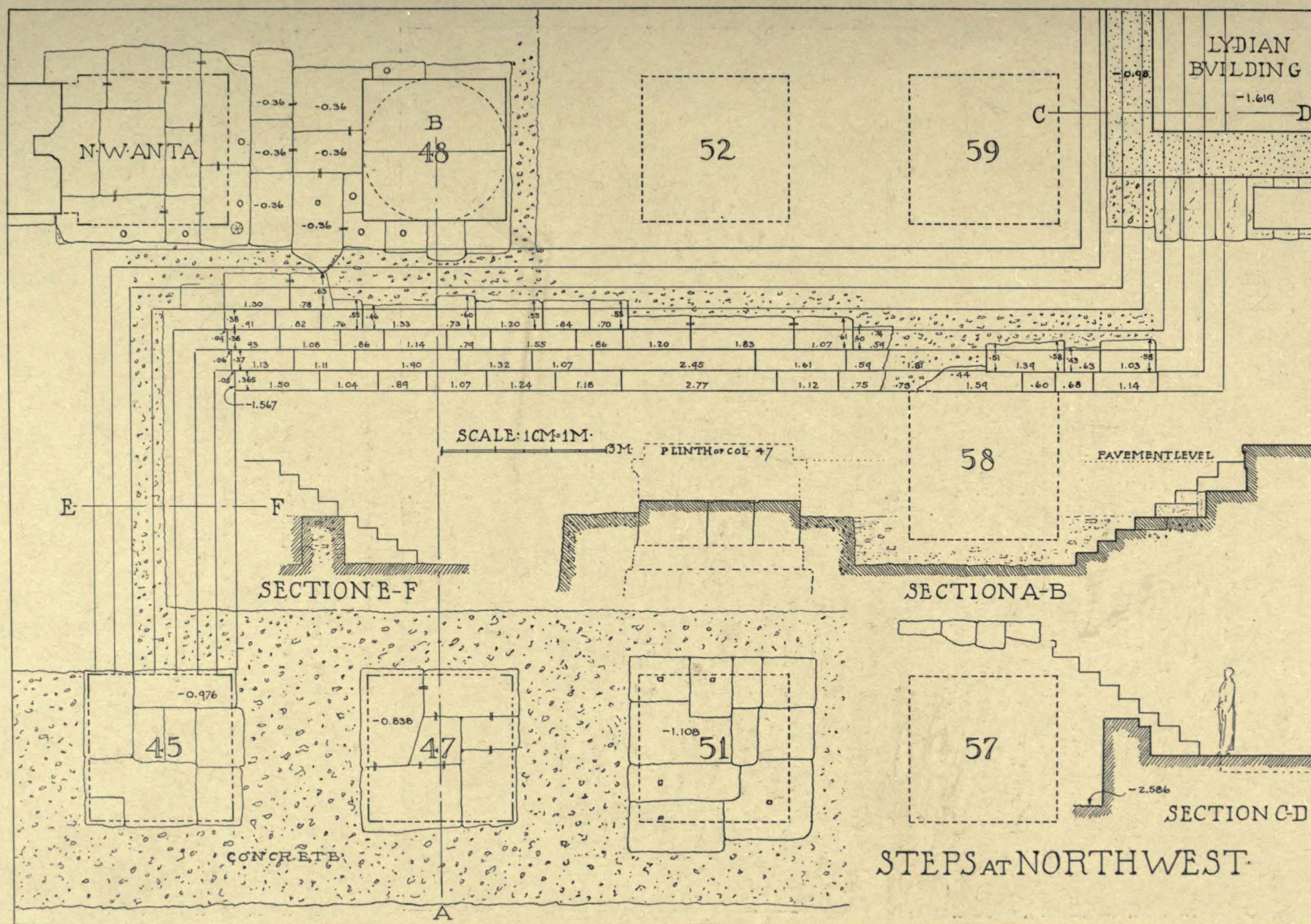
in the restorations of the Temple of Artemis at Ephesos, which were also provided for the columns at the end of the west front, but the steps project so far to the west that they must have been returned in front of the middle four columns of the outer row so that high pedestals here could not have corresponded to those at the ends. I suggest in the last chapter (p. 17) that these steps might have been built before the temple was made pseudo-ipteral, that is, before the columns on the flanks were erected. In this case they

would have approached a tetrastyle porch with two columns on the return on either



Ill. 28. North Wall showing Curvature.

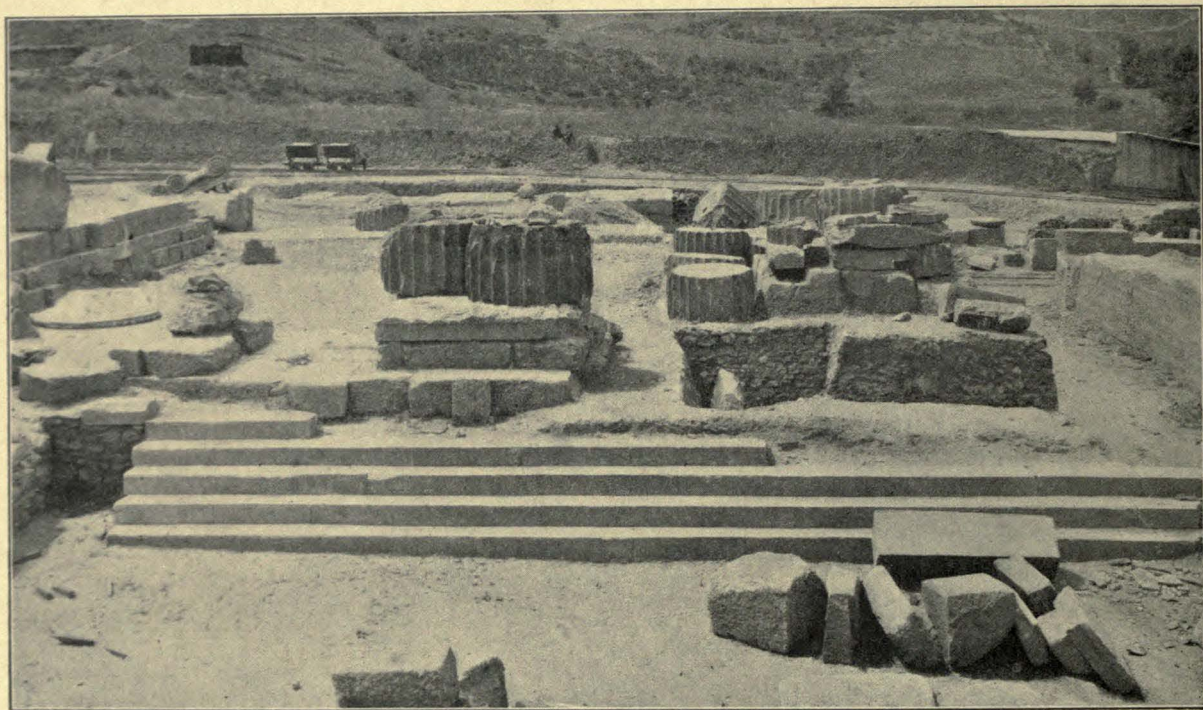




Ill. 29. Plan of Steps within North Peristyle at West End.



side. In any event they bear traces of having been used for some time, although it would seem that they must have been covered up as soon as the outer row of column piers was erected. It is somewhat difficult to accept the theory of an original amphiprostyle temple, unless we imagine that the steps were carried along the side of the walls of the cella, and the only evidence for this is that the steps, at their east ends, are not flush, the upper ones projecting beyond the lower by four or five centimetres. But it is impossible to imagine why their continuation toward the east should have been removed while the rest were permitted to remain. It seems more probable that they were returned toward the north, and terminated against one of the pedestals. There are no remains of similar steps at the three other corresponding points on the plan; but this signifies little or nothing, because they might have been removed. The steps themselves are interesting (Ill. 30). There must have been seven originally, not



Ill. 30. Steps inside Peristyle at Northwest. View from North.

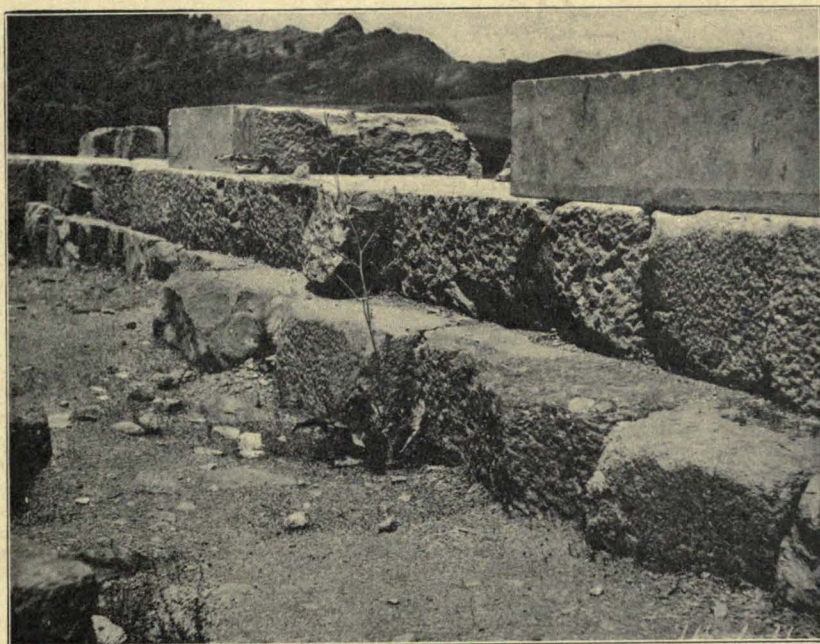
counting the eighth riser, which was the edge of the pteroma; there are parts of five still in place, and the two at the bottom must be very nearly complete in their original length. The risers are from 21 to 23 cm. high and the treaders, 36, 37 and 38 cm. wide. The vertical joints have extremely narrow rounded projections on either side so carefully executed and so highly finished that one cannot believe they were intended to be cut away. In this detail the steps resemble those of a pyramid tomb on the western shoulder of the Akropolis Hill, which is certainly a Lydian or a Persian building. (Vol. I, pp. 155, 167—170).



## 4. PAVEMENT.

There can be no doubt that the pteroma was once paved, though there is now no remnant of a paving slab. But marks at the bottom of the cella wall and on the plinths of some of the columns show that a floor of slabs 11 cm. thick rested upon the projecting foundations of walls and columns and was fitted tightly against the socles. The spaces between the foundations were filled with hard earth over which the slabs were laid.

The pavement of the cult-chamber is preserved in a fragment at the southeast angle (Ill. 26). That its slabs were also 11 cm. thick is shown by marks on the walls (Ill. 31) and by the height of the inward projection of the great door-sill. The pavement of the treasury was similar to the others. The pink cement flooring reported by DENNIS during his excavations<sup>1</sup> was the bottom of the Byzantine cistern made in the cella, and was several centimetres higher than the original marble.



ILL. 31. North Wall of Cella. Interior View from Southeast.

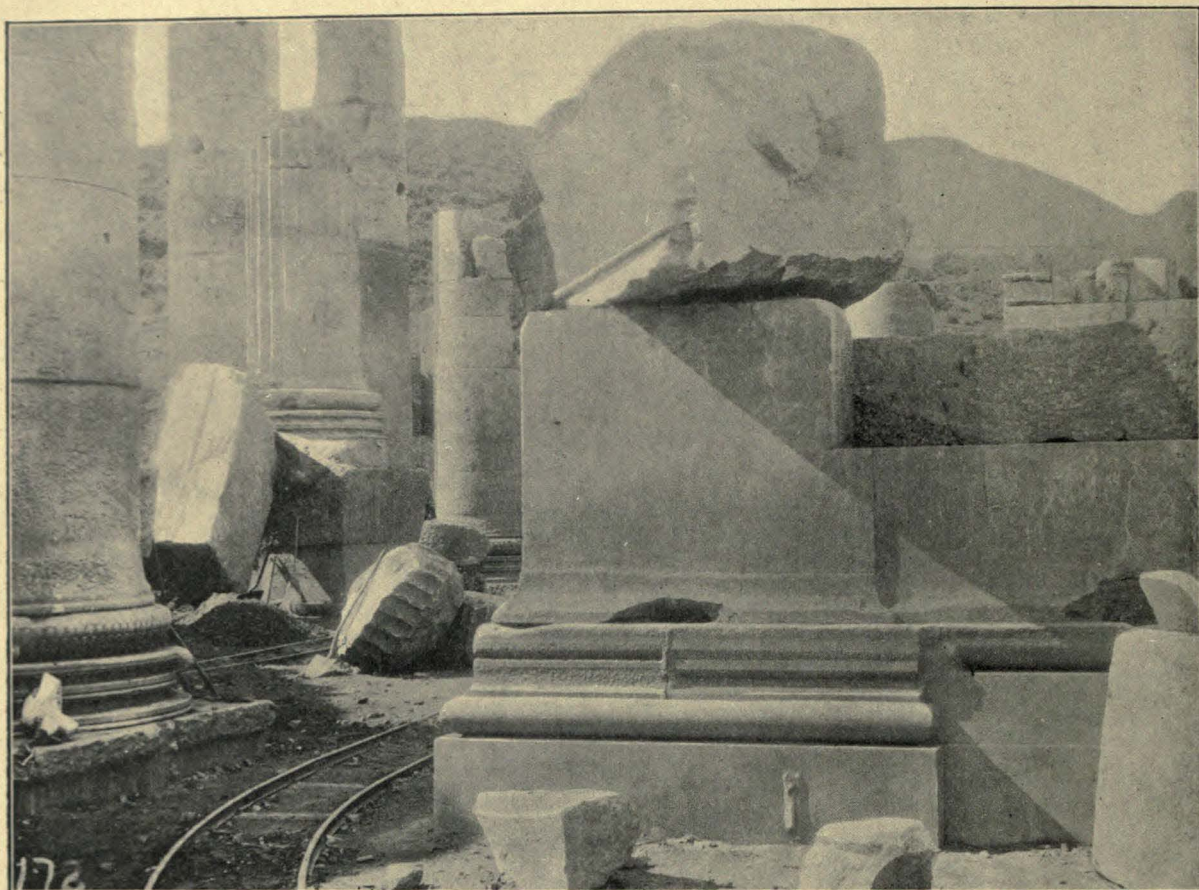
## 5. ANTAE.

The antae at the east end of the building, which are the only ones preserved, are treated as three-sided pilasters of equal width, with bases of different profile from

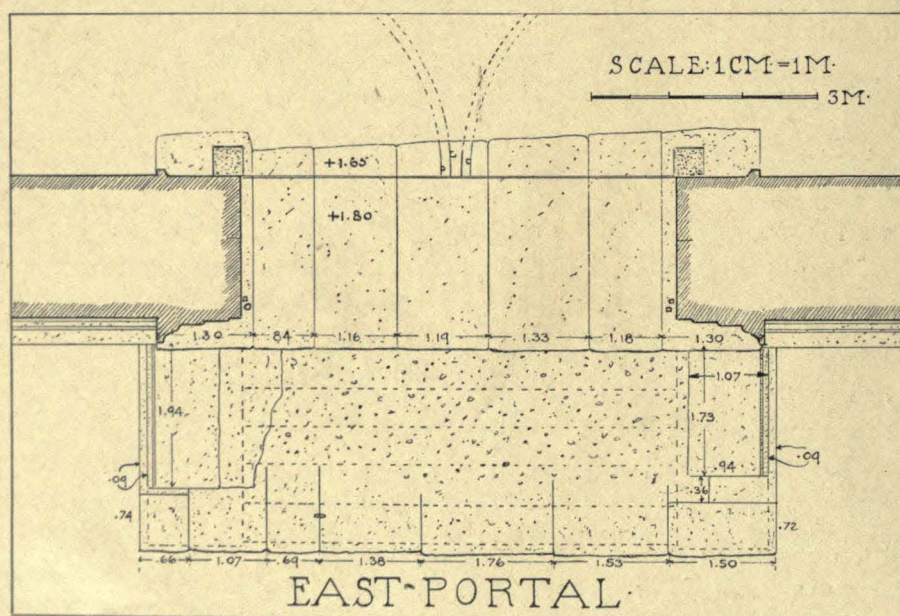
that of the wall base, plain shafts and highly ornamental caps. The bottom course, or socle, is of equal height and similar finish to that of the wall adjoining (Ills. 25 and 32). The next, though corresponding to the wall course in height, is treated in a totally different manner, being carved with two torus mouldings separated by a scotia (Pl. II, Atlas). Of these mouldings only the lower torus is finished and, in the south anta, this moulding still has its lifting bosses. The vertical joints between the stones are marked by rough projecting edges which were for the protection of the joints in building, and have not been carved away. The shaft, or body, of each of the three sides, rises from a fillet and a roughly blocked out apophyge of considerable salience. The anta wall is 1.93 m. thick and the front face of the anta is 1.98 m. wide, so that the projection of the anta from the walls on either side is only 2.50 cm.

<sup>1</sup> Cf. *Sardis* Vol. I, pp. 52, 64.





Ill. 32. Northeast Anta. View from North.



Ill. 33. Plan of East Portal.

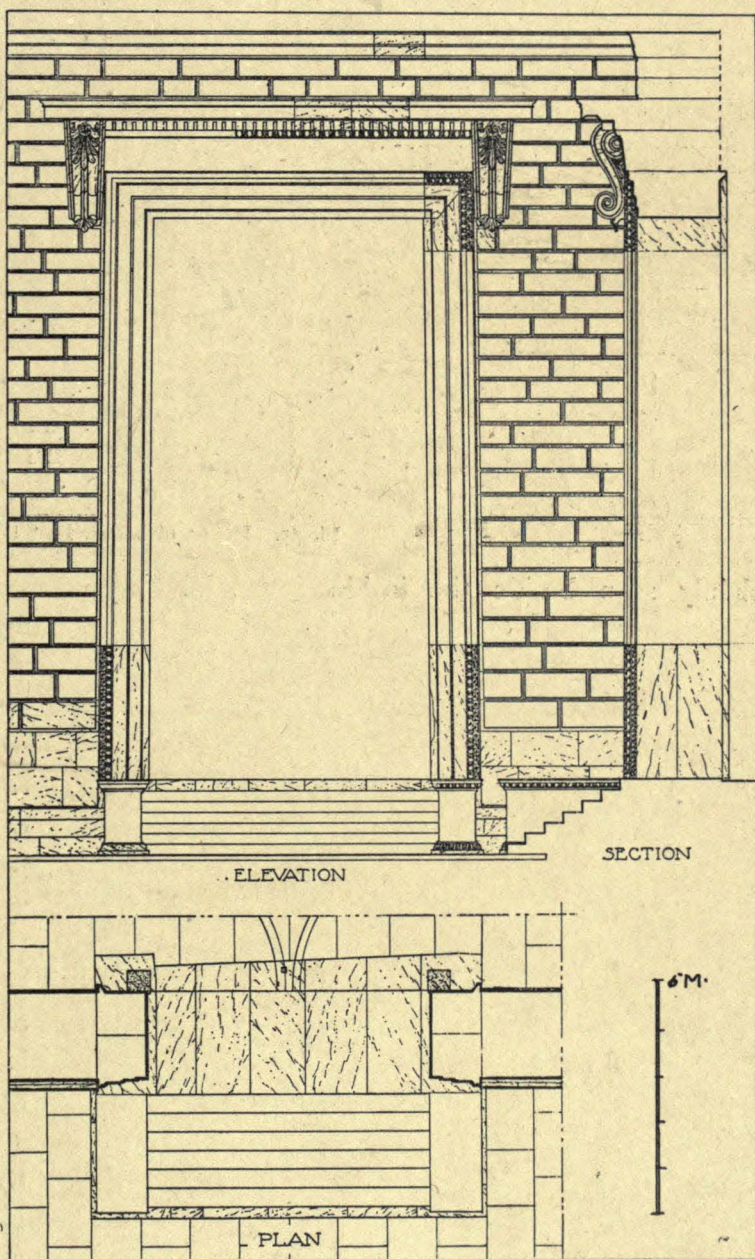


The courses of the anta correspond exactly in height to those of the wall, and the blocks composing the three faces of the anta are joined with extraordinary skill, of course without draughting, so that the effect is almost monolithic (Ill. 32).

## 6. DOORWAY.

The east portal was approached by a flight of steps which were placed between parotids. The marble foundations of the steps, set in concrete, are still to be seen (Ill. 33), and the bottom mouldings of the sides of the parotids are in position. The top of the great threshold, which is composed of seven stones laid side by side, is 1.80 m. above the pteroma level. The mouldings of the walls are stopped on each side of the doorway, the stones below the opening are unfinished, and the marks of the profiles of the parotids are plainly visible upon them. The plan and elevation of the steps, as fixed by the remains, show that there must have been six steps with risers of 22 cm. and treaders of 40 cm., which correspond to the dimensions of the steps at the northwest angle of the cella. The entrance is 6.10 m. wide, the reveals of the jambs 1.80 m. deep in two equal vertical divisions (Ill. 52). The ornamental face, or frame, of the jambs is 1.12 m. wide, and its projection from the wall measures 24 cm. The inside faces of the jambs are quite plain and flat, but for a simple right-lined frame moulding on the outside.

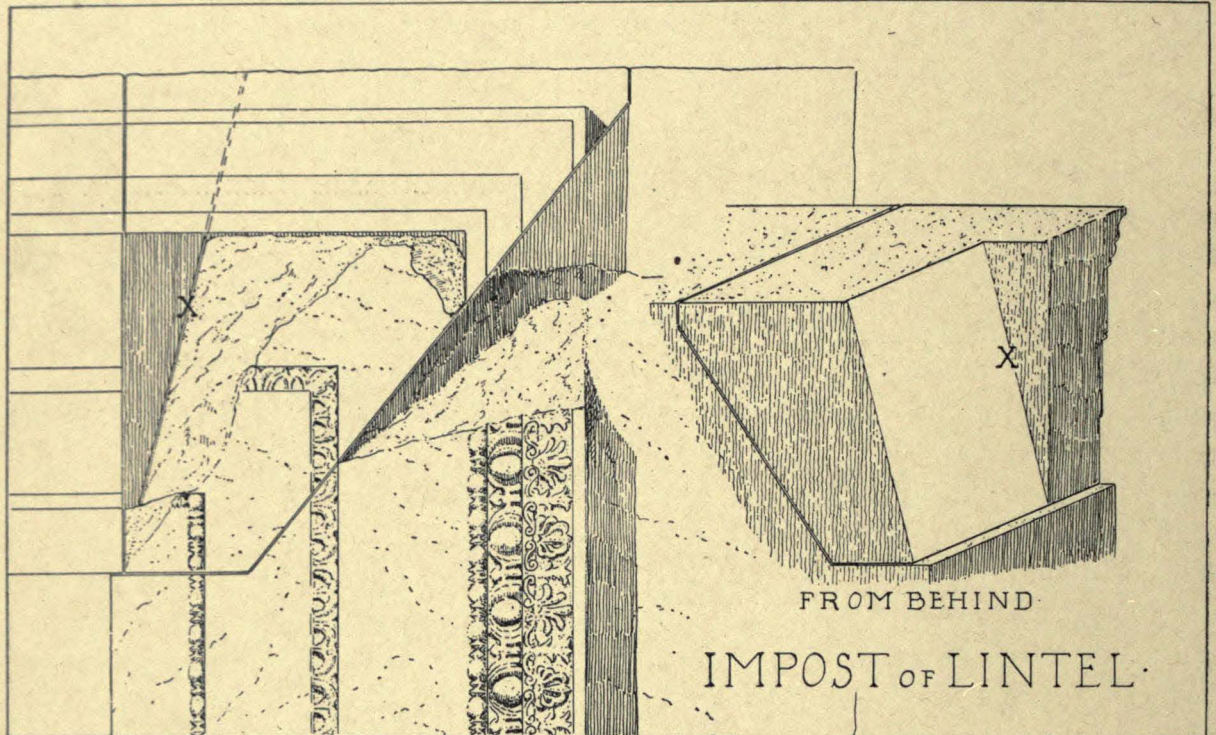
The jambs incline inward (Ill. 18) so that the opening, which is 6.10 m. wide at the bottom, would have been 5.79 m. at the top, if the doorway was 12 m. high, as it was approximately (Ill. 34). Inside the portal, the inward projection of the middle



ILL. 34. Portal of Temple, as restored.

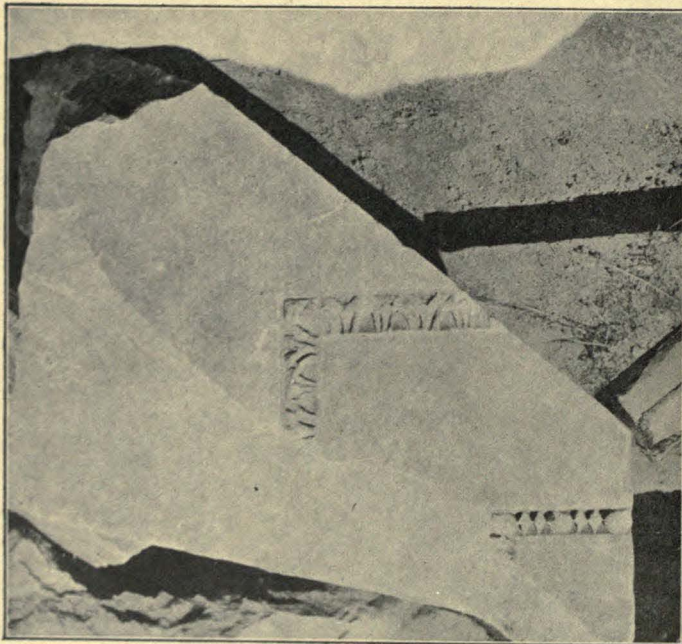


blocks of the threshold shows the beginnings of the quadrant grooves (Ill. 33) on which the rollers of the great doors moved, and sinkings for the metal hinges are



Ill. 35. Impost of Lintel. East Portal.

plainly seen beside the inside face of both jambs. Though their edges were much



Ill. 35a. Stone from Right End of Lintel.

mutilated when the lead and bronze were cut out, these sinkings were about 40 cm. square and 10 cm. deep. In the upper face of the threshold, just beside the reveal of the jambs, and about 20 cm. from the outer face, there are on each side two carefully cut holes (Ill. 33); on the right both are rectangular, being 4.5 cm. square and 2.5 cm. deep; on the left there is one square hole exactly like the others, and also one circular hole 12 cm. in diameter and 4 cm. deep. In the reveal of the jambs directly above the innermost of these holes, at a height of 1.86 m. is a hole on either side, 1.5 cm. square and 3 cm. deep. All these holes were

undoubtedly connected with a low barrier, perhaps a grille or a pair of openwork gates, which were closed when the great doors of the portal were open.



The most interesting details of this doorway, from the point of view of construction, were two stones from the end of the great lintel. These will more easily be understood by reference to Plate III of the Atlas. They show that the bearing of the lintel upon the jambs was not the ordinary horizontal bed, but a sort of flat arch construction (Ills. 35 and 35*a*). The impost had a horizontal bearing of 27 cm. on the jamb, and the joint was there mitred upward at an angle of about 45°. The horizontal bearing of the lintel on the jamb was but 2 cm., the joint between the lintel and impost being vertical on the face. This, however, was a false joint, the true bearing of these latter stones being at an acute angle with the vertical (X in Ill. 35). One would infer from this that the whole lintel was a flat arch composed of numerous voussoirs; but if we accept as true the early references to it as a gigantic single block, we must conclude that the main portion of the lintel was a single block, 5.83 m. long at the bottom and 6.21 m. long at the top, set like a huge voussoir, with only 4 cm. of horizontal bearing upon the jambs, and finding its principal support on the oblique bearing above this. This construction, however, seems so improbable that one is inclined to believe that the lintel was composed of several voussoirs the joints of which the early observers failed to see.

#### 7. COLUMNS.

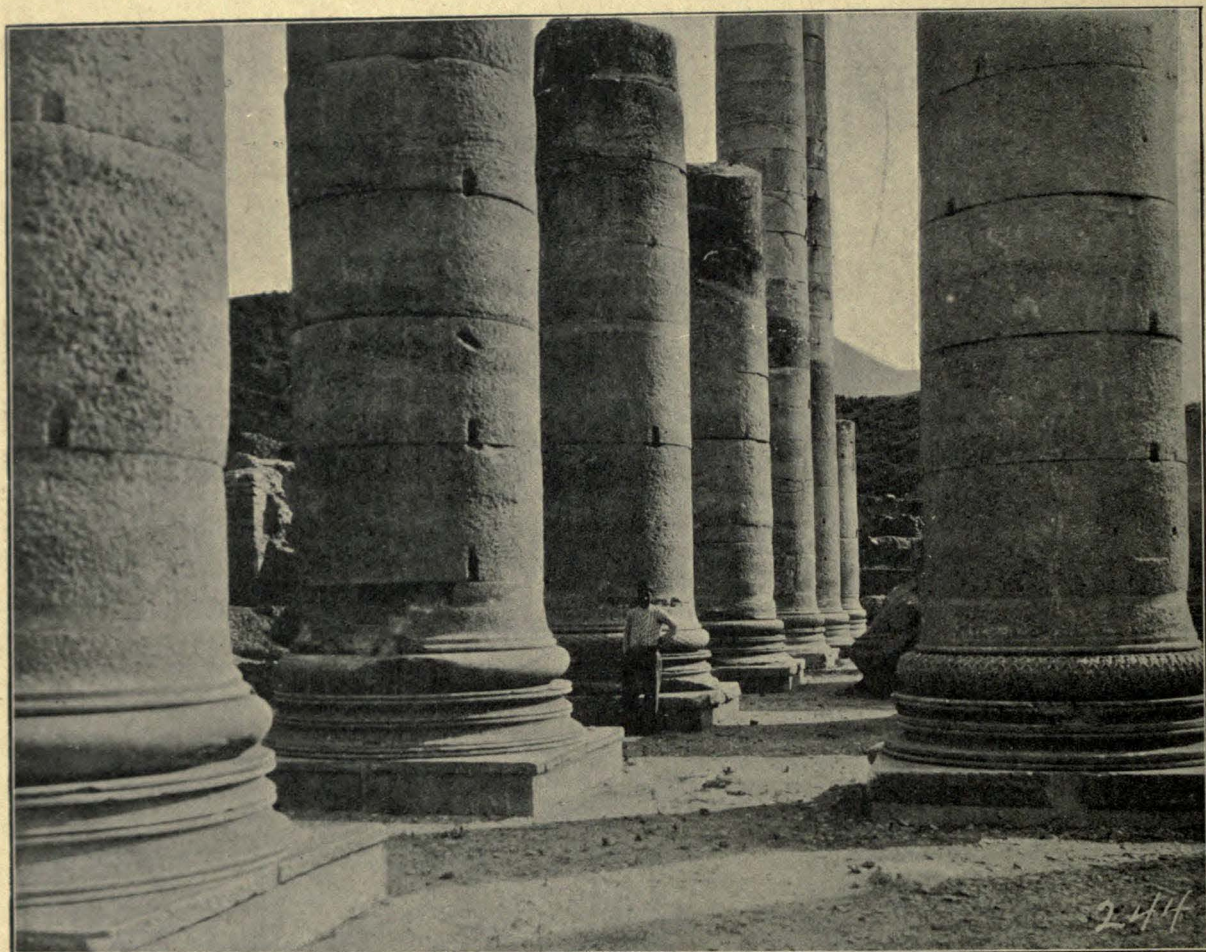
Fifteen columns, two entire and thirteen in truncated form, are standing at the east end of the temple (Ill. 11). These, as explained elsewhere, are the eight of the front row Nos. 1—8, (Pl. A, and Pl. I Atlas), four which stand two and two in front of the antae, (Nos. 10, 13, 16, 17), two raised on pedestals on either side of the main axis (Nos. 11, 12), and one on the south flank, the third from the angle (No. 18). Columns 6 and 7 are the two complete ones, but are unfinished. Only two of the group, those standing on the high pedestals, are in a finished state; all the others have unfluted and crudely dressed shafts, and bases in various states of incompleteness. The two standing columns, according to numerous observations with the surveying instrument, are 17.81 m. high, including their plinths which are 40 cm. high. All the columns, complete or truncated, when classified according to their diameters, fall into three classes. The whole question of the dating of these bases and capitals will be taken up in the chapters dealing with the restoration and history of the temple; it is intended now only to describe their construction. The columns were all, of course, of equal height, in that their capitals were all on one level; but the eight columns of the front row have the greatest lower diameter, 2.06—2.11 m., or seven Greek feet<sup>1</sup> for the end columns (Nos. 1 and 8), and 1.98 m. for those on either side of the main axis (Nos. 4 and 5). The two columns directly in front of the antae (Nos. 16 and 17) have a lower diameter of 1.88 m. or six and one half Greek feet, and those in front of them (Nos. 10 and 13) a diameter of 1.84 m. All these diameters of unfinished columns are taken from the circumference of the smoothly finished band on each column, a little above the astragal where the straight part of the shaft begins above the apophyge, *i. e.* the band on which are often marked the lines of the intended arrises. The columns upon the two pedestals are on a scale altogether smaller, as would be necessary; their diameter is 1.61 m.

<sup>1</sup> The Greek foot was determined by Dr. DÖRPFELD as 295.7 mm. *Ath. Mitt.* VII, 1882, pp. 277—312.



## 8. PLINTHS.

The plinths, or socles, are monolithic in one or two cases; usually they are composed of two or three stones, laid lengthwise. Only those of the two elevated columns and two plinths which are still in place but have no bases on them (Nos. 15 and 20), are finished; the others are all in a half finished state. In some, the lower half only of each side has been brought to a smooth finish (Ill. 36, at right) the upper half being rough and having a projection of from 4 to 8 cm. The tops of the



Ill. 36. The East Porch. View from the North.

plinths are always smooth, and incised lines are usually to be found upon them showing the intended limits of the squares when finished. In other examples (Ill. 36, at left) the unfinished portion of the plinth is hardly more than a rough overhanging edge projecting not more than 3 cm. and hardly 5 cm. wide. These parts were left in the rough to prevent the chipping of the finished edges while building operations were in progress. There is a crudely carved inscription in Greek letters upon the rough face of one of the plinths (Ill. 37). This may be the name of the workman, or the name of the donor of the column, which was to have been more carefully engraved upon the finished plinth. The bottom edge of the plinths of Nos. 1—8 is slightly bevelled above the foundations, which do not protrude.



## 9. PEDESTALS.

The two pedestals supporting columns on either side of the main axis of the temple, just behind the middle intercolumniation of the eastern front row of columns, are, so far as specimens found *in situ* are concerned, unique in temple architecture (Ill. 38 and 39). They are composed, at the bottom, of a plinth similar in size and height to the plinths of the columns near by and, like them, have unfinished edges; above that are two smooth courses, the lower 32.5 cm., the upper 44.3 cm. high. The uppermost course is very roughly faced; 1 m. high, only a little wider than the course below at its bottom (2.36 m.), and 2.80 m. wide at the top. Each face shows the ends of three stones, more than one of which in its remains of flutings bears evidence of having been cut from an old column-drum. There can be no doubt that the inverted pyramid form of the pedestals, with their overhanging courses and the great outward flare of their top, indicates that they were to be sculptured. Notwithstanding the rough finish of the faces in the upper course, the joints between the stones are absolutely true, like those of the two courses below. It will be recalled that the sculptures of the Pergamene Altar were executed upon separate blocks of marble well fitted together, and that the sculptured pedestals at Ephesos were not monolithic. It seems probable therefore that here also the lower courses were to bear the lower parts, such as feet and legs, of sculptured figures like those on the drum from the Artemision at Ephesos, since these would not be in high relief. On the upper course were probably to be carved the arms, the shoulders and the heads, which would naturally be in higher relief, while on the upper edge there would be a salient moulding. The plinths of the columns upon these pedestals are completely finished, as are the bases and sections of shafts above them. The plinths, which are 2.40 m. square, were set 7 cm. off centre with the pedestals, on their east and west axes (Ill. 39).

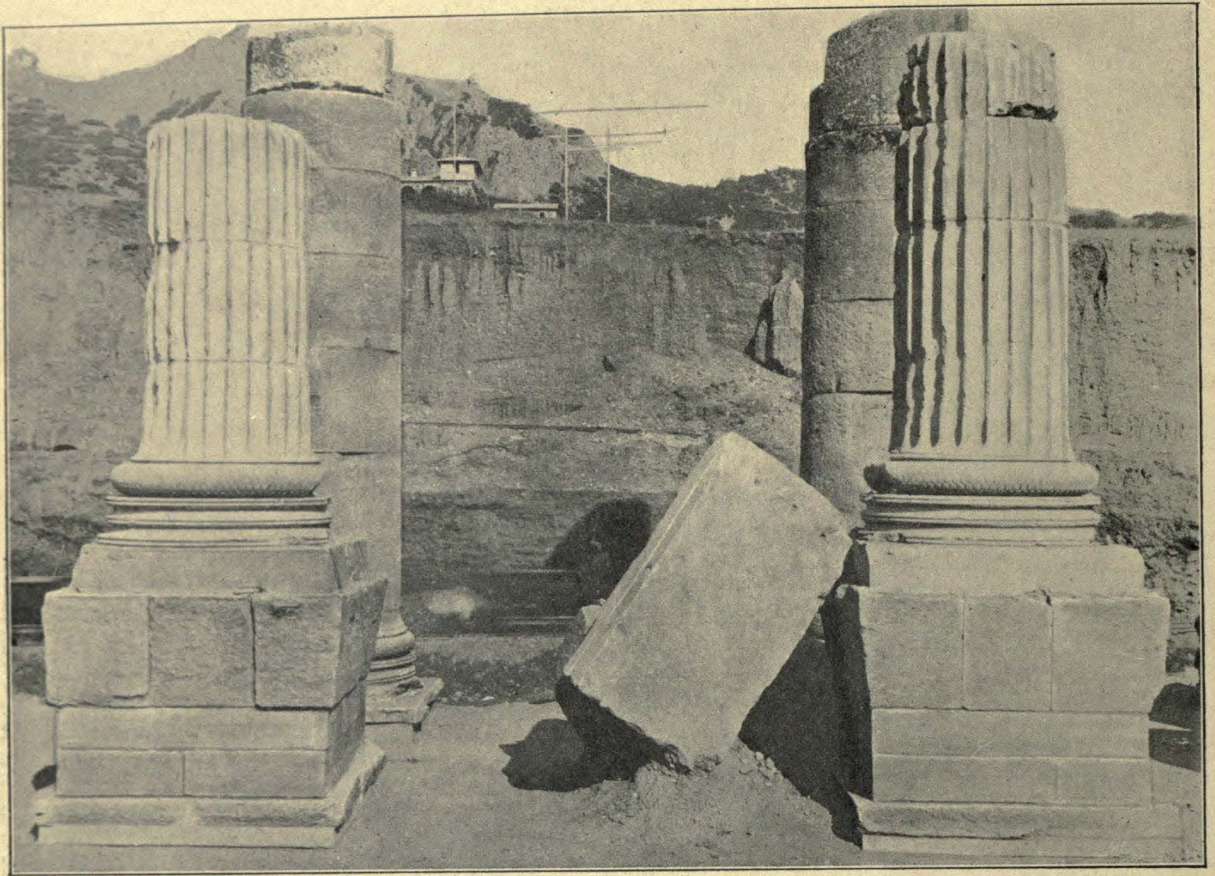


Ill. 37. Inscription on an unfinished Plinth.

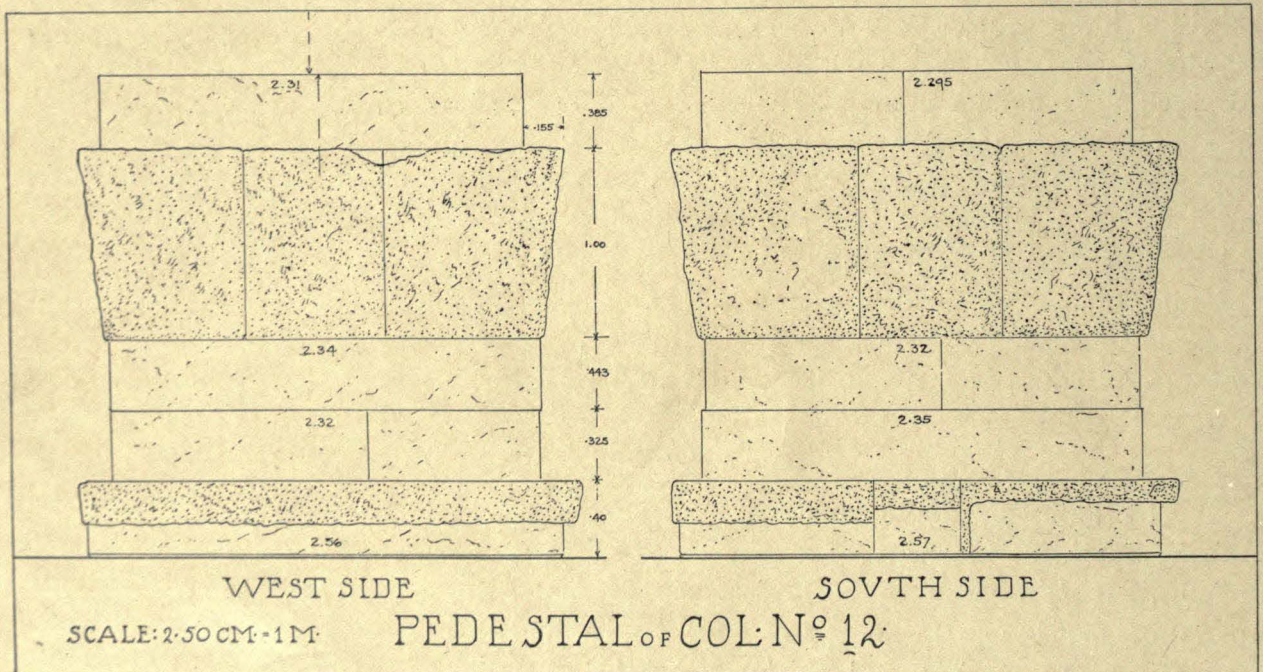
## 10. BASES AND SHAFTS.

The bases of the columns are all of the same general type, the Asiatic form of the Ionic, and consist of two scotias below a heavy torus; all are raised upon plinths. It is difficult in some instance to detect the joints between the different parts of the base. In most cases the scotias and their reeds are of one stone and the toruses of another, and a joint comes between the torus and the astragal at the bottom of the shaft; but in column No. 6 the joint is found to be just above the





Ill. 38. The Elevated Columns in the East Porch. View from West.



Ill. 39. Pedestal of Column No. 12.



astragal, between it and the fillet at the bottom of the apophyge. It is possible that the base of No. 4 includes the lower part of the first drum in a single piece of marble, and it is certain that the plinth of No. 6 and the entire base above it are all of one block — a very unusual arrangement almost impossible to understand in a detail of such enormous scale.

The shafts were built up of many drums of irregular height (Ill. 40), but the irregularities would not have been visible in the finished fluted columns. Some of the drums are of very large dimensions; they measure 2 m. in diameter in the lower part



Ill. 40. The East Porch. View from the South.

of the column and some of them are more than 1.50 m. high. The drums were held in place by pins or tenons and by sockets of bronze set in lead, about 2.50 cm. square and 6 cm. deep. In the majority of cases observed two sockets were fixed in the upper surface of a drum, about 40 cm. from the circumference. Corresponding exactly in position with these were the bronze pins set into the bottom of the drum next above. Apparently the pin and socket were mates; for, in the examples which we have, the pins fit perfectly into the sockets belonging to them, but are often too large or too small for others. In short, the parts were not easily interchangeable. In the centre of the bearing surfaces of each drum is a circular picked surface slightly depressed and in the middle of this a square hole about 10 cm. each way. Each drum has, at the bottom of its periphery, two incisions directly opposite each



other. These show plainly in the photographs (Ill. 36 and 40). Near the top and bottom of many drums there are at intervals carefully incised vertical lines with letters inscribed beside them, corresponding to the lines and letters carved upon the drum next in order. All the bottom drums have a finished astragal and fillet at the foot. Many columns have on some of their drums smoothly finished bands (Ill. 36 and 40), upon which were incised the guide-lines for the carving of the arrises. These invariably occur on either side of the incisions for lifting. The uppermost drums of the two standing columns are fluted, and the apophyge and ornamented astragal are entirely finished (Ill. 26). Other top drums found in the excavations are similarly finished (Ill. 16) showing that the practice was quite general. But in the two standing columns the top drums are not exactly alike in this respect. In one the flutings are carried down to the next drum, in the other they are stopped a few centimetres above the drum below. The probable significance of this will appear later.

All the drums of columns lying at the west end of the temple are fluted, as I have remarked above. There are sixteen of these drums in nearly perfect condition (Ill. 17) and fragments large and small of several others. Most of these have diameters ranging from 1.40 m. to 1.52 m., and must have belonged to the two columns raised upon pedestals, like those at the east end. There are however six larger drums, measuring from 1.62 m. to 1.89 m. in diameter, which probably belonged to the columns of the porch within the peristyle. There is also a top drum which with its carved astragal measures 1.78 m. in diameter, and certainly belonged to one of the columns in front of the antae, probably to that of which the plinth still remains.

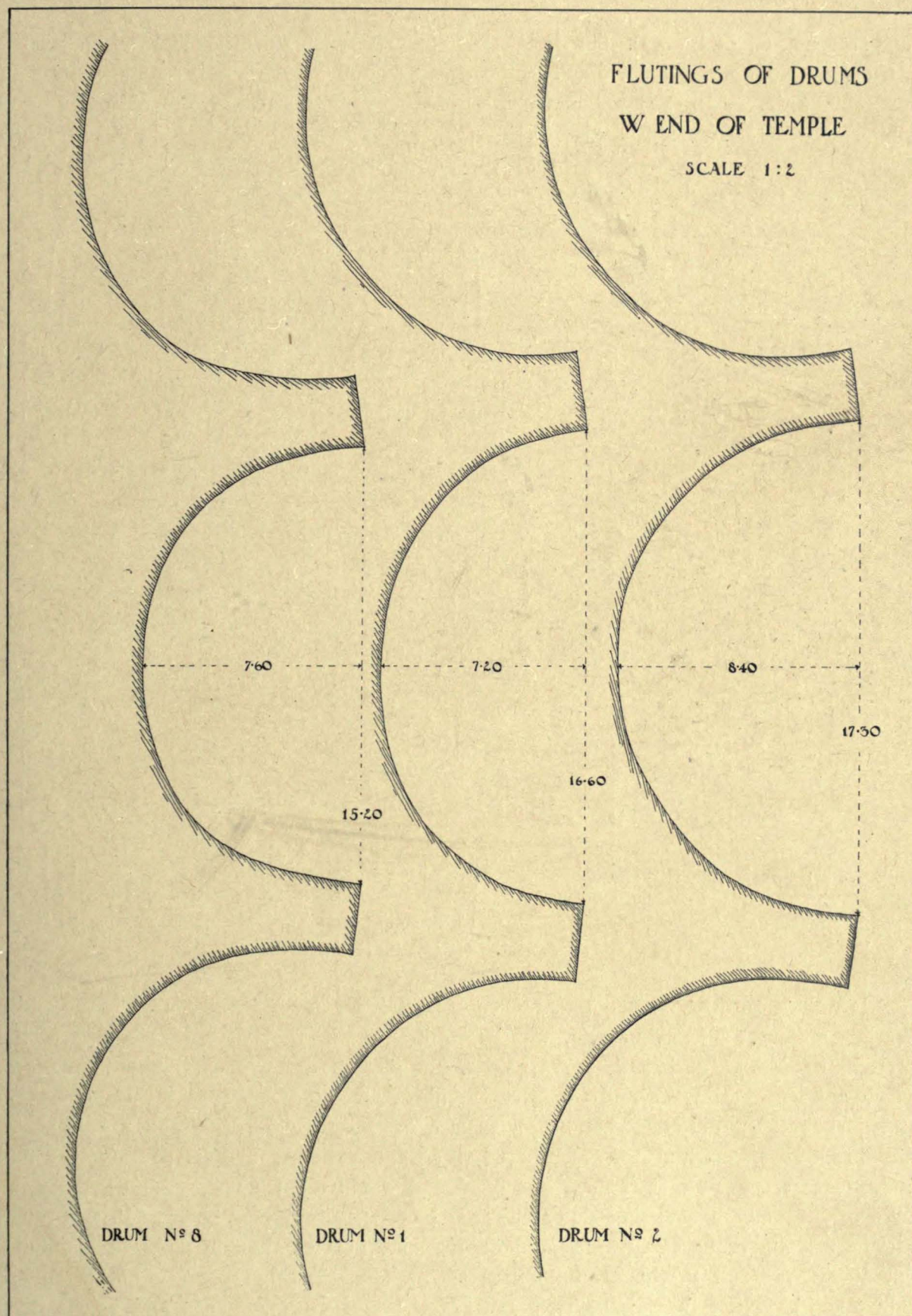
The bottom drums of the columns of the peristyle have diameters of 1.98 to 2.11 m. their upper diameter is estimated at 1.68 m.; the columns were therefore 8.75 diameters high without their plinths. The columns of the porches, within the peristyle, have a lower diameter of 1.88 m. measured directly above the lower apophyge, and an upper diameter of 1.58 m. taken just below the upper apophyge; they were 9.25 diameters high. The lower diameter of the elevated columns which were 15.65 m. high, is 1.61 m. and the upper 1.36 m., so that they were 9.48, or nearly nine and one half, diameters high.

The arrises of most of the fluted drums at the west end of the temple measure 2.5 to 2.7 cm. The flutings of three examples are 15.2 cm. wide and 7.6 cm. deep; 16.6 cm. wide and 7.2 cm. deep, and 17.3 cm. wide and 8.4 cm. deep, all measured on the chord. Not one of them is segmental in section (Ill. 41).

#### II. CAPITALS.

The uppermost drum, as I have said, usually terminates in a narrow fillet above the apophyge, and in a bead-and-reel upon which the echinus of the capital, with its huge egg-and-dart ornament, directly rested. One top drum, however, was found with a plain astragal in place of the bead-and-reel. There is one much mutilated capital and also a fragment of another which show these features, ordinarily belonging to the shaft, cut upon the lower part of the capital; that is, the capital and the upper part of the shaft are made of one piece. In these two cases the echinus overhangs the

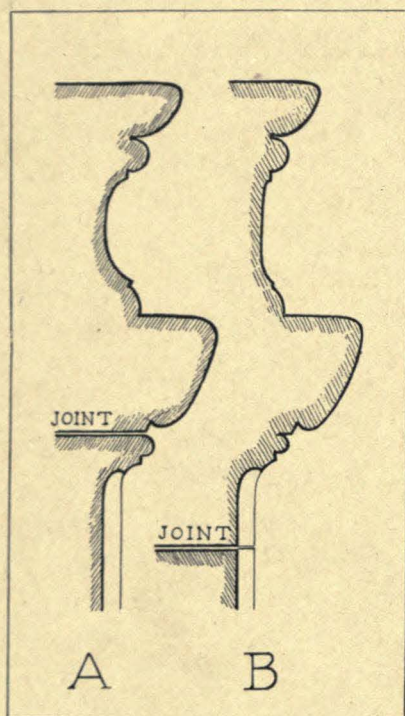




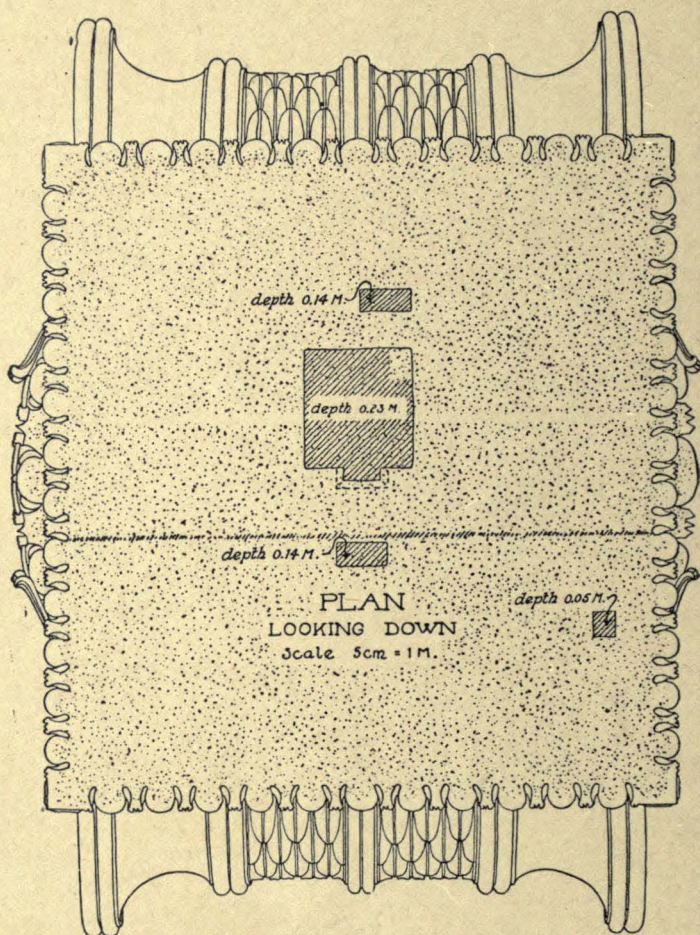
Ill. 41. Profile of Flutings of Drums at West End.



bead-and-reel (B in Ill. 42), but in the capitals of the standing columns the reverse is true; for, in both, the bead-and-reel of the astragal projects beyond the bottom of the echinus (A in Ill. 42). The capitals of the columns between the antae and the outer row were set at right angles to those of the front row, if the drawing of PEYSSONEL is to be taken at its face value in this particular. The decorative details of the capitals and the various differences among them will be discussed later.



Ill. 42. Profile of Capitals of the Standing Columns (A); and of two fragmentary Capitals (B).



Ill. 43. Top view of Capital C.

It was astonishing to find that in every capital the upper surface, that is the entire bearing surface, for the epistyle, was left quite rough. This is true not only of the capitals unearthed during the excavations, but also of the two capitals still in place, which almost certainly carried the great architrave block discovered by us near them and just below ground. This rough surface extends a centimetre and a half above the line of the finished top of the eggs of the echinus, and its irregularities and unevenness are such that the top of any capital would seem a very unsafe bed for the ends of the smooth soffits of the architrave blocks resting upon them. In this rough surface are numerous small holes and depressions, not all alike in different examples, but always present. In the example here shown (Ill. 43) the holes are not symmetrically placed. Near the middle is a depression about 30 cm. square and 23 cm. deep which was probably made for a lewis; there are also two smaller holes of rectangular



shape, about 14 by 6 cm., and a little hole at one side about 5 cm. square, of various depths. Across the middle of the abacus, from face to face, extends a band 30 cm. wide depressed to an appreciable amount (*cf.* Pl. VIII, Atlas), approximately half a centimetre below the general surface. All these details had some definite use; some may have served in connexion with the lewis and the tackling for raising the capital to its place upon the shaft; others, especially the roughened surface, are not so easily understood, yet I venture to offer at least a tentative explanation. One cannot believe that the architraves were allowed to rest directly upon this uneven surface; for the slightest projection or unevenness in the bed of an epistyle of such great weight would almost certainly cause rupture in the lower or the upper member. In view of the enormous difficulty of making the top of one of these huge capitals perfectly smooth, I suggest that it was intentionally left in the rough, and that a bed of molten lead was run over the entire surface, so that the architrave beam, as it came to rest there, made its own smooth bed. Whatever excess of lead was pressed out beyond the edge of the capital would have been trimmed off. Since this would have had to be done for each half of the top separately, the wide depression was probably made to facilitate the bringing together of the two sections of lead. There are many traditions and at least one reputed reference<sup>1</sup> as to the great amounts of lead taken in Mediaeval times from the Temple at Sardis. The lead used to secure the ordinary clamps would come to a fairly large amount; but lead used as I have indicated would, in times when that metal was very costly, have made it worth while to overthrow great columns.

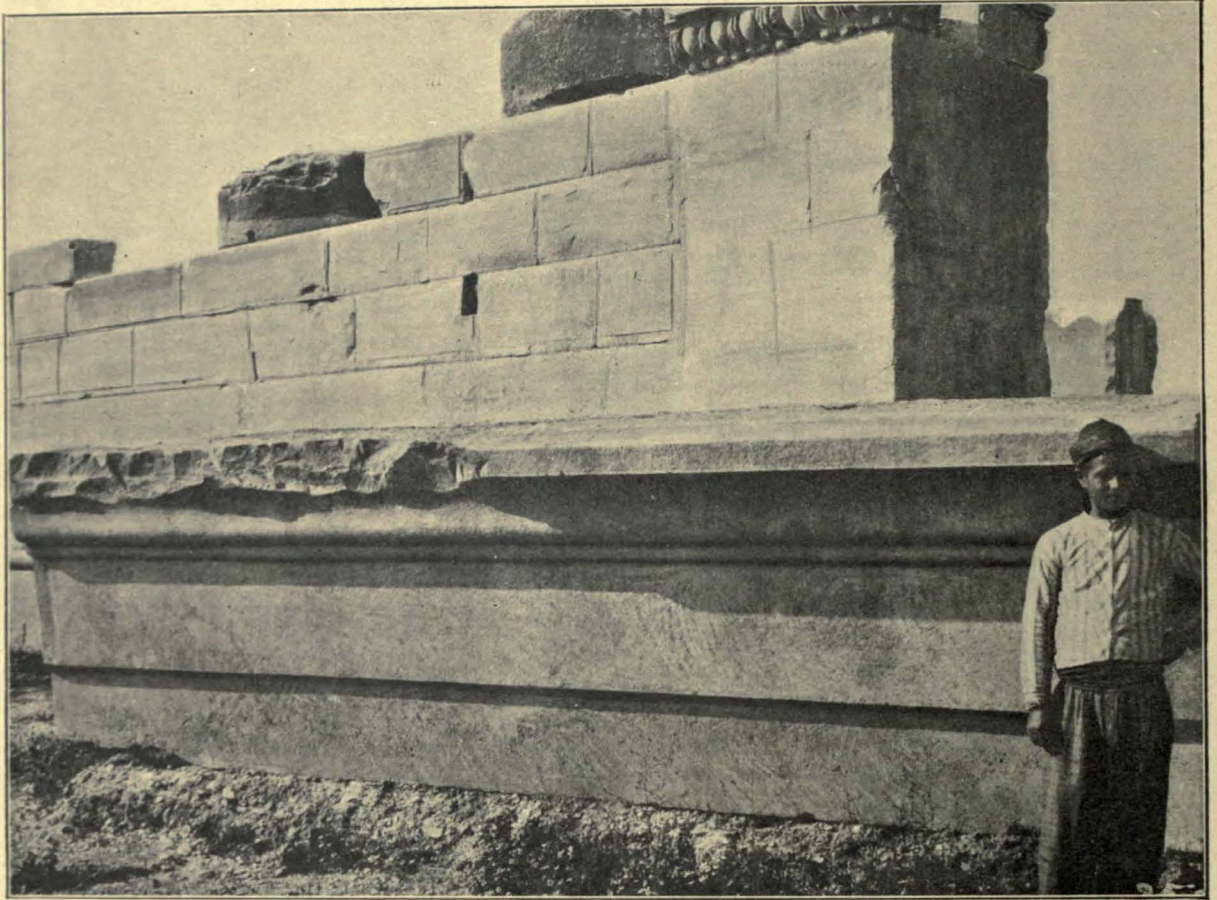
## 12. ARCHITRAVE.

The epistyle of the temple is to be studied from one complete block of architrave now lying near the southeast anta, one very large and one smaller fragment between the pedestals of the east portico, and a huge fragment now resting upon the remains of the northeast anta. The first of these (Ill. 44), found very near the surface of the ground at the time of excavation, is probably the block seen by COCKERELL upon the two standing columns, as described on page 9. Since it is unfinished on one side, it shows very plainly that the architrave was, as he says, "of two stones" side by side. It is 5.52 m. long, 1.04 m. thick at the bottom, and about 1.54 m. high; the top is very rough. Its face, probably the inner face, is divided into two broad bands separated by a bevelled fillet and surmounted by a cymatium. The soffit is carved with a very simple panel described by a sunken moulding of two bevels. Measurements of the carved panel indicated that the entire architrave was 1.73 m. wide in the soffit, which is as wide as, or a little wider than, the abacus of the capital. The fragments lying between the pedestals in the east porch have the same thickness and the same proportions, and are probably pieces of the architrave which connected the elevated columns. The position in which they were found — exactly where they are at present (Ill. 38) — shows that

<sup>1</sup> We have heard reports of a Turkish inscription at Manissa stating that the lead for the roof of a mediaeval Khan was taken from the pagan Temple in Sardis. An unsuccessful search for the inscription has been made by members of our expedition, and I have thus far sought in vain for literary confirmation.



they had fallen before the platform at this end of the temple had become covered by more than fifty centimetres of earth. In the case of these two fragments, as in that of the complete block near the southeast anta, it is impossible to determine whether the finished face represents the inner or the outer face of the architrave; but if it be the latter, one would naturally have expected a triple-banded architrave in the Ionic order. The large block of architrave now resting upon the remains of the northeast anta was found lying at the bottom of a pit, probably of DENNIS' excavations, not far from its present position. The pit was not as deep as the level

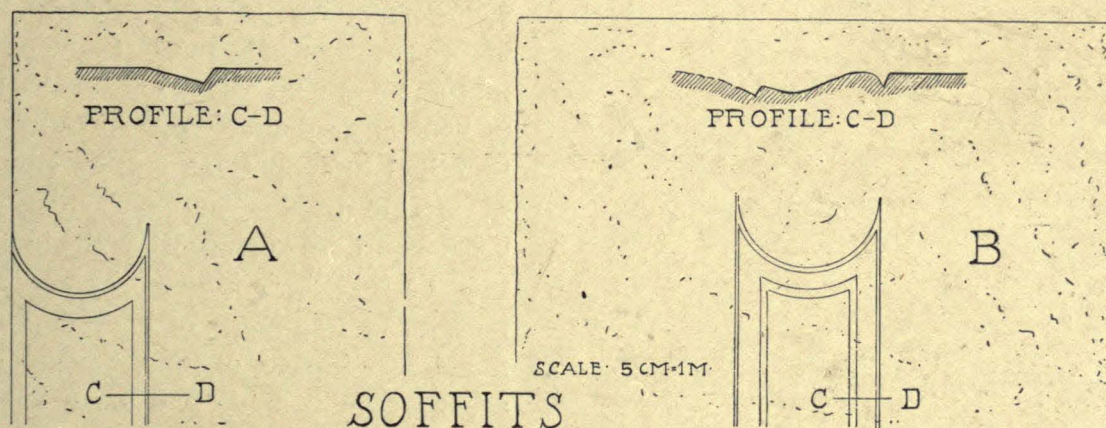


Ill. 44. Architrave Block near Southeast Anta.

upon which the block is found today; and this was moved with comparative ease to the place which it now occupies. It is, I believe, the block shown in PEYSSONEL'S drawing (Ill. 4) as supported by the north anta and the next column. It differs from the other architraves in having both sides finished, a fact showing that in certain positions this detail was made of a single block and not of two blocks side by side. Its width at the bottom is 1.585 m., or 14.5 cm. narrower than the soffit of the architraves that were composed of two blocks. This difference probably corresponds to the difference in diameter between the columns of the outer and the inner rows, and makes the bottom of the architrave 9 cm. narrower than the abacus of the elevated columns. The two faces of this architrave are not precisely alike in profile;



the upper surface has been lowered, cutting away a part of the cymatium. The soffit (Ill. 45) is panelled like the other, but its moulding is a flat cyma reversa in profile, and the panel itself was slightly pulvinated. In the complete architrave the extreme ends of the carved panel come to within 1.07 m. of the end of the lintel; the extreme width of the abacus of the capital is about 1.97 m., so that there might have been at least 17 cm. between the end of the panel and the edge of the abacus. This architrave, however, is 5.52 m. in length; while the intercolumniation between columns Nos. 6 and 7 is 5.45 m. on centres, a fact suggesting that the joints between the architrave blocks were not centred over the columns. This was probably done in order to reduce the great length of the middle architrave, where the intercolumniation measures 7.05 m. on centres.



Ill. 45. Soffit of Complete Architrave Block (A), and of Fragment on Northeast Anta (B).

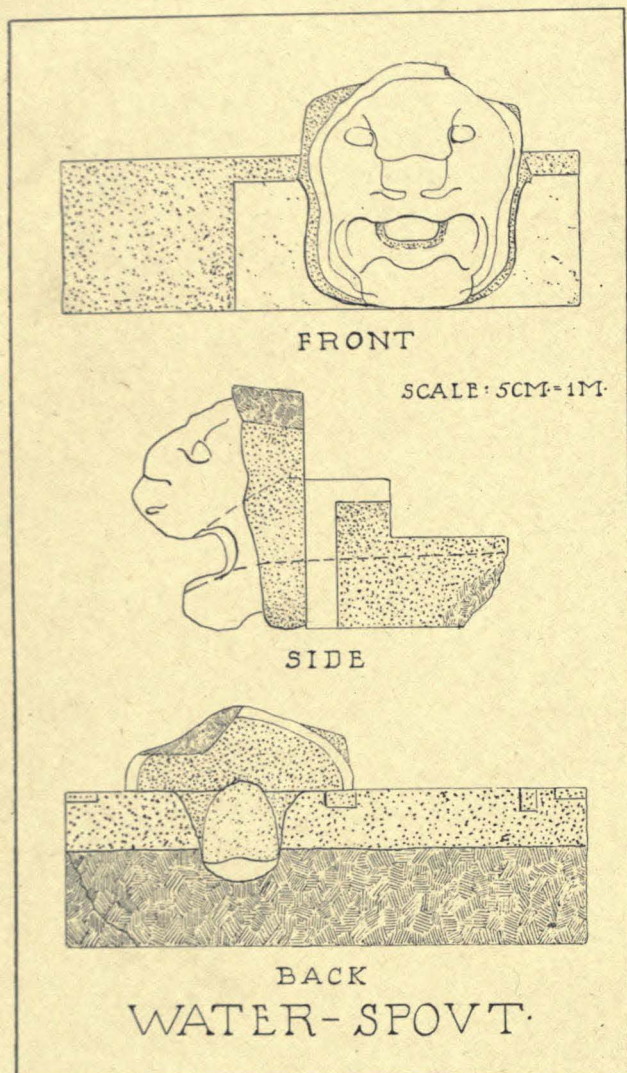
### 13. CORNICE.

It is doubtful if this temple was provided with a frieze; it seems more probable that a heavy denticulated cornice was placed directly above the architrave, thus forming an architrave order. No fragment, however, of the mouldings or dentils of such a cornice came to light in the excavations; the only remnant of this crowning feature of the building being a gigantic lion's head water-spout (Ill. 46). This was found beside the northeast angle column of the peristyle and about 3 m. above the base. It was probably lying exactly where it fell from its original place, after the earth and débris at this angle of the temple had risen two or three metres above the platform level. This lion's head water-spout was a detached piece of sculpture, not executed upon the sima of the cornice, but apparently set in the sima and protruding through it. The drawings (Ill. 46) show how this was done. The face of the lion was carved upon the oblong side of a block of marble of irregular shape; it projects from a flat surface partly smooth, partly picked, and not from the middle of the block, but from near the right end. All about the face is a sort of neck or collar, the surface of which is lightly picked (see side elevation in Ill. 46) and was not intended to be seen. This, as I take it, shows that the head was either set in a hole cut in the sima to fit it, or was placed between two sections of the sima,



each carved with a roughly semicircular cavity at the end. The block is broken off

at the back, but originally extended well behind the face of the sima, where its weight served to balance the ponderous head. The orifice of the mouth grows wider as it extends through the head, and formerly connected with a gutter at the back.



Ill. 46. Lion's Head Water-spout.

#### 14. ROOF.

The roof of this temple was of course composed of wooden beams, some of which, such as those spanning the pteroma 8.50 m. wide, must have been of very large dimensions, especially since they had to support an outside covering of marble tiles. That such tiles were used, and were in place when the building was destroyed, is proved by the large number of fragments of enormous scale found in all parts of the temple. They are beautifully made and some of them nearly complete. The ordinary flat tiles were 85.6 cm. long, 72 cm. wide, and from 4 to 5 cm. thick; they were turned up at both sides and had a roughened projection along the top. The imbrex tiles corresponded in length to the others and were 20 cm. wide, with polished beds. The intricate manner in which

the tiles were made to fit each other, their perfect adaptation and their high finish, will be readily seen by reference to Plate V, Atlas. The great angle-antefix which was unearthed is described further on as an ornamental detail.



## CHAPTER IV.

### ORNAMENTAL DETAILS.

#### 1. WALL MOULDINGS.

The temple had a fine exterior base moulding decorating the outer face of all its walls, and this was repeated in similar form on the interior of the treasury wall. This moulding, wherever it is in a finished state, has the profile of a handsome torus, slightly elliptical, carved upon the upper third of a block 58.5 cm. high which was set upon a slightly projecting course 51.5 cm. high<sup>1</sup>. On the next block above it is a flat fillet, from which the surface of the wall rises in a sweeping upward curve or apophyge. This moulding was finished all along the western half of the north wall of the cella, and to within 14 m. of the east anta of the south wall (Ill. 13); but elsewhere, along the side walls, the anta walls, and the east wall on either side of the portal (Ills. 25 and 32), it is finished below, but left rough above (Ill. 28) forming a sort of uneven ovolo. The fillet above it is finished at almost every point; but there are several places in which the apophyge is only roughly blocked out. The moulding on the north wall of the treasury chamber was left in an unfinished state, although a highly important inscription was carved with great care upon the surface of the wall directly above it. (Ill. 27).

#### 2. ANTA-BASE AND CAP.

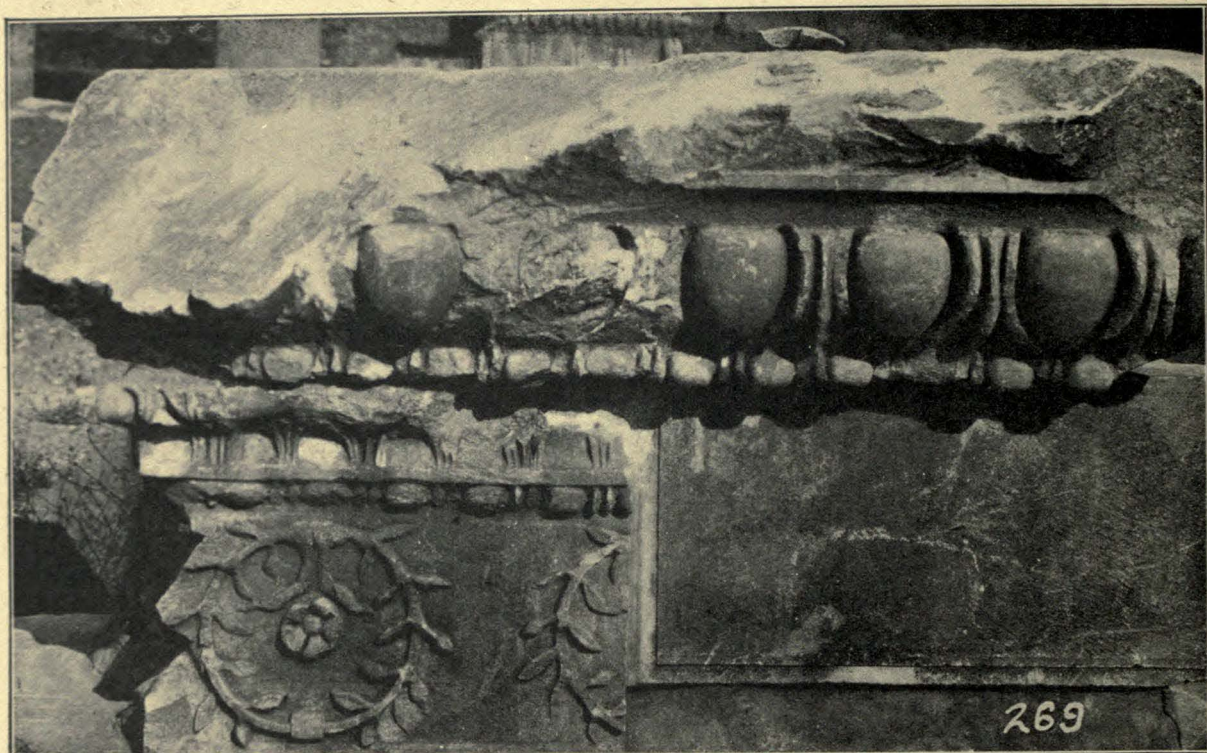
The bases of the two still existing antae are unfinished; but in each there are short sections in which a master workman by showing a complete profile, has indicated the manner in which the mouldings are to be completed, (Plate II, Atlas). The lower course is a high socle, or plinth, above which is a profile similar to that of an Attic base. The lower torus, slightly elliptical, is finished, and the fillets of the scotia are carefully carved; but the scotia itself is only rudely blocked out with occasional short completed sections, and the upper torus is in the same state, as the unbroken and dotted lines in Plate II show. The bottom of the plain shaft of the anta is brought out in a salient apophyge, below which the fillet is perfect all around; whereas the curved surface above it is finished only at intervals.

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<sup>1</sup> These two courses vary in height from 57 to 58.5 cm. and from 50 to 51.5 cm. respectively.



The anta-cap, the details of which were found just below the surface near the southeast anta, is composed of two parts, carved on two separate courses of marble (Plate II, Atlas). The upper half is a fine cornice-like feature of bold profile having at the bottom a bead-and-reel below a heavy egg-and-tongue, and above this a deep cove with a fillet, an overhanging fascia slightly undercut in its soffit, and a narrow right-lined cymatium (Ill. 47). The lower half is a sort of frieze, consisting of a broad band with a fillet below and simply carved laurel wreaths, four on each side, each



Ill. 47. Fragments of Anta-cap set up on South Side.

with a rosette in the centre, and over these a cyma reversa richly wrought with Lesbian leaf decoration above a narrow fillet and a bead-and-reel (Ill. 48). This is one of the most interesting and beautiful anta-caps yet discovered; the lower part of its design reminds one of the pilaster cap found by Professor DONALDSON at Halikarnassos<sup>1</sup>, which he seems to have identified as a detail of the Mausoleum. The leaf ornament above the frieze, carved upon a cyma reversa, does not show well in the photographs; it is carefully restored in the Plate, from fragments in a better state of preservation. The carving is extremely free and graceful, and the undercutting very deep though the borer was not used. The photograph shows that the decoration of the whole cap has suffered from fire. The wreaths of the frieze were simply designed and are plainly executed; the relief is high though the details are slightly indicated. It is evident that they were thus treated because they were to be seen from a distance and chiefly by reflected light, that is, under conditions in which intricate detail would be lost and would only confuse the design. One large piece of the cornice member

<sup>1</sup> *Antiquities of Athens*, Supplementary Volume, pl. IV.

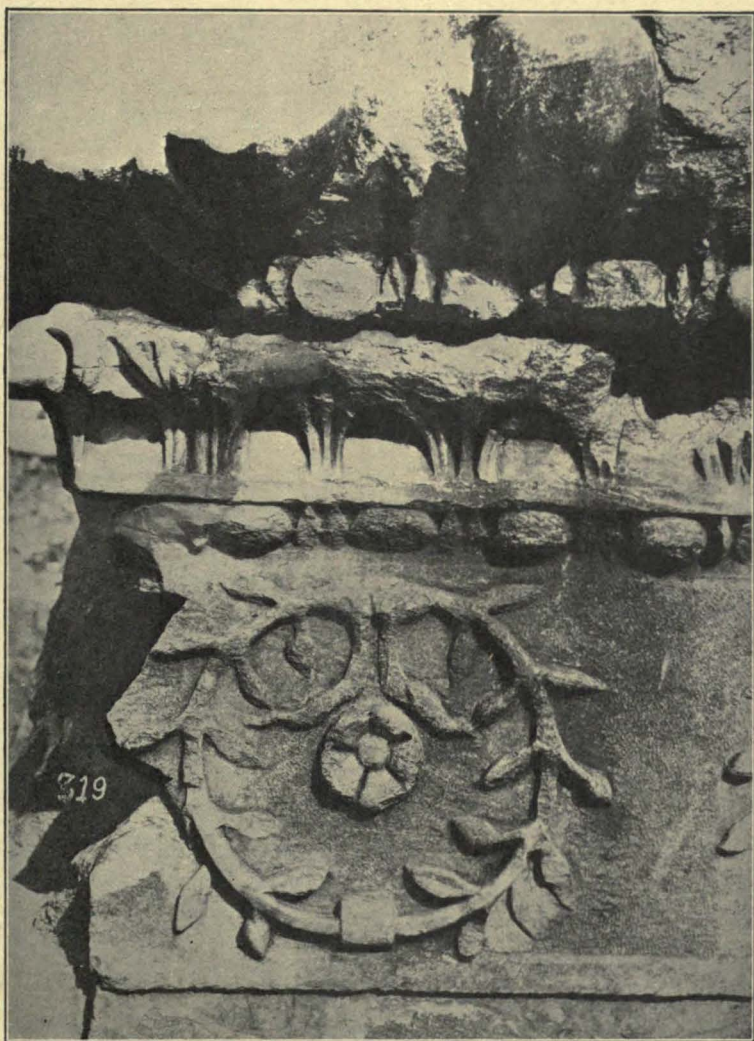


of this cap and one of the frieze were placed for safety upon the remains of the south anta, and were moved to their present resting place while the earth was still at that level and they were lying close by. The other fragments, as shown in Ill. 47, were set up in the south pteroma.

### 3. ORNAMENTS OF THE PORTAL.

The two sections of the jambs of the east portal still in place give an idea of the delicate beauty of the carved ornament. This is illustrated in Plate III of the Atlas and in Ills. 49 and 50. Here are three recessed bands increasing in width toward the outside; the first and second are separated by a slender bead-and-reel, the second and third by a Lesbian leaf. The whole is framed in a set of richly carved mouldings consisting of a bead-and-reel, an egg-and-tongue of peculiar character and a deep cavetto carved with rich and delicate palmettes and anthemions inside a narrow fillet (Ill. 50).

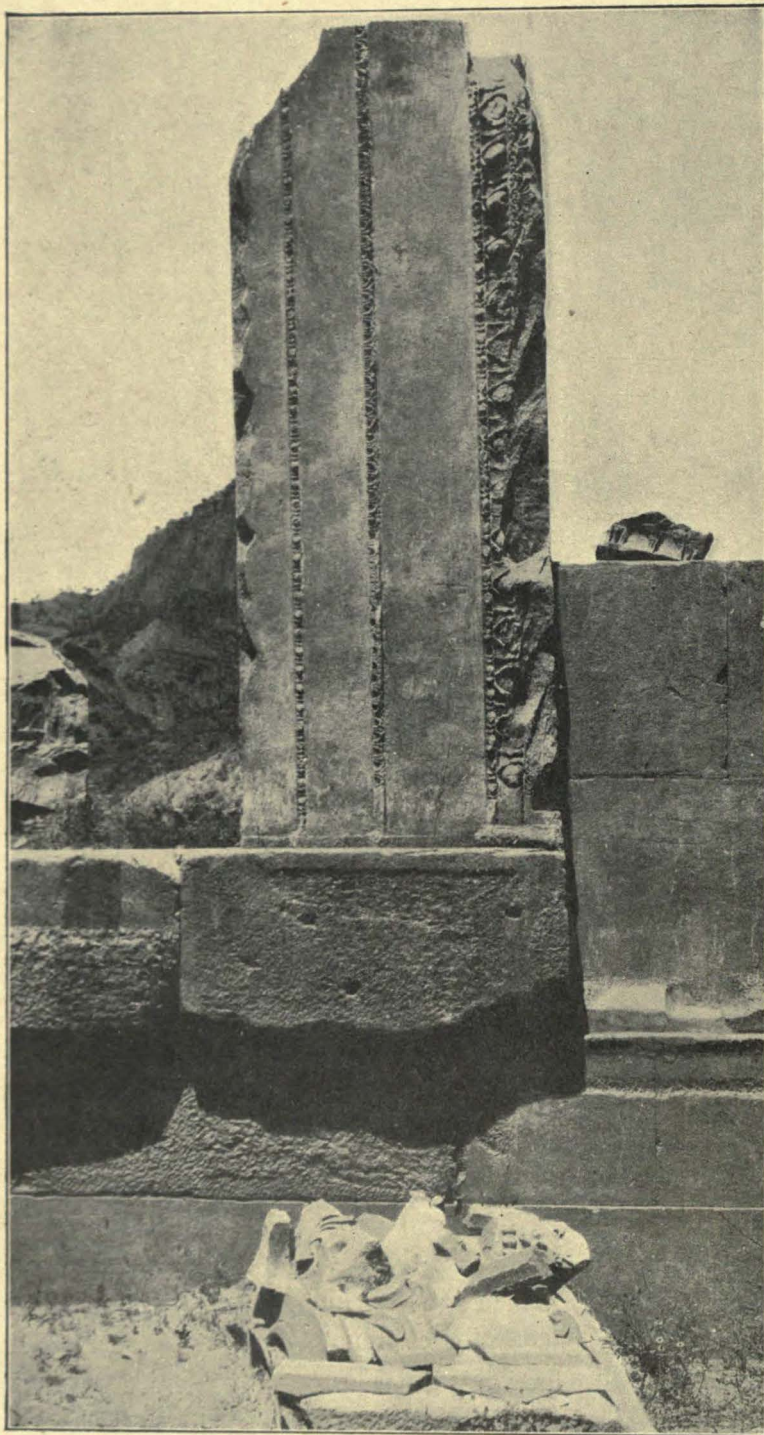
The restored elevation (Ill. 34) shows by light shading the parts of the portal recovered in the excavations. It will be observed that the great lintel stone seen by travellers over a hundred years ago, is lost, but two stones from the top of the jamb (Ills. 35, 35*a* and 50) show how that gigantic block was supported like a flat arch by a clever device, described on page 41, and how there was a false joint visible on the face of the portal and a true joint concealed behind it, all carved from a single block of stone. The second stone, which comprises a portion of the wall surface as well as the jamb, has a short length of false draught alongside the jamb, corresponding to the regular draughted coursing of the wall (Pl. III, Atlas), and suggesting that the consoles extended down to the point where this is discontinued. No piece corresponding to a frieze member was found; but markings on the side of one of the consoles show that its top extended 70 cm. above that of the lintel and that a space of 70 cm. thus remained for a frieze. As the lines of the marking are irregular,



Ill. 48. Details of Anta-cap.



and suggest the outline of a human figure, it seems probable that the frieze was sculptured. It seems to have terminated above in an ovolo, which was perhaps carved with egg-and-tongue, as shown in the restoration.



Ill. 49. North Jamb of East Portal.

The cornice consists of a dentil band, an overhanging corona and a narrow cymatium too much broken to give its complete profile (Ills. 51 and 18).

The discovery of both of the huge consoles was a singular piece of good fortune; both were found on rather deep levels a little below the threshold. One has been set up, with other details of the portal, in a construction of marble blocks and concrete in front of the entrance (Ill. 18), the other lies just within the south jamb (Ill. 52). Ill. 53 shows one of them near its place of finding, and the long tenon by which it was secured in the wall. The upper two-thirds of both consoles are almost perfectly preserved, their lower volutes were probably broken off long before they themselves fell. The face (Ill. 54) is composed of two deep channels of graceful profile separated by a pair of narrow reeds flanked by bevelled fillets and bounded on either hand by a single reed between narrow fillets, also bevelled, which when viewed from the side are the outer member of the double scroll (Plate IV, Atlas). At

the top of the console a huge inverted palmette of nine long lanceolate leaves covers the upper part of the face. The side view (Ill. 55) reveals a helix of remarkable

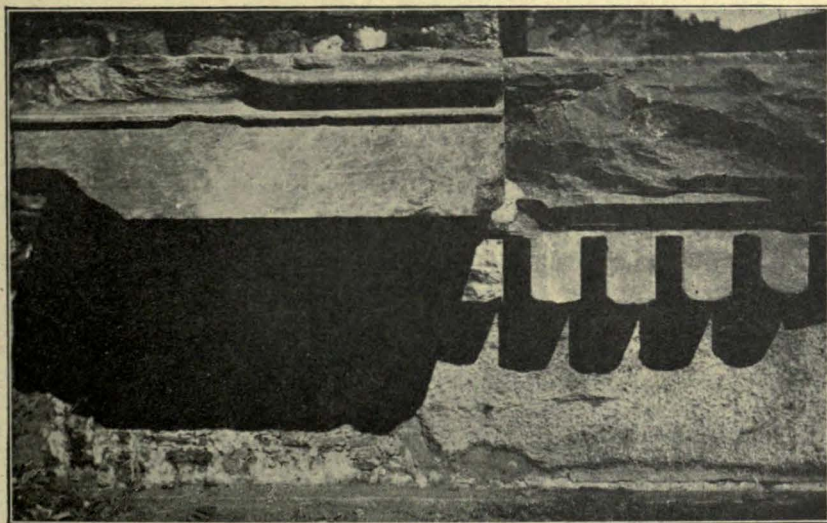


grace winding thrice around the eye; the channels are deep and of gracefully curved section, and the triangular space between the volutes is filled with a spray of finely wrought leaves of acanthus issuing from a three-leaved half palmette in the angle. The restoration of this detail is discussed in the next chapter. The interior treatment of the jambs is exceedingly plain, the only decoration being a right-lined frame moulding (Ill. 56).

#### 4. THE COLUMNS.

**Bases:** The bases of the columns which are in place fall into three groups if classified according to their diameters; but when we observe the more minute details, such as their profile, their different stages of completion and the treatment of their unfinished parts, we may divide them into four classes.

1. Only two are completely finished, those of columns 11 and 12, the pair on pedestals (Ills. 57 and 38). Their deep, gracefully carved scotias, the delicate double



Ill. 51. Fragments of Cornice of East Portal.

reeds, and the chaste foliate carving of their toruses are illustrated in a measured drawing in Plate VI of the Atlas, and a photograph of one of them is given in Ill. 57. Upon the apophyge at the foot of No. 12, directly above the fillet over the astragal, is a fragmentary inscription in Lydian characters giving in part the name presumably of the donor. A name in similar script appears in the Lydian half of a Lydian-Greek bilin-

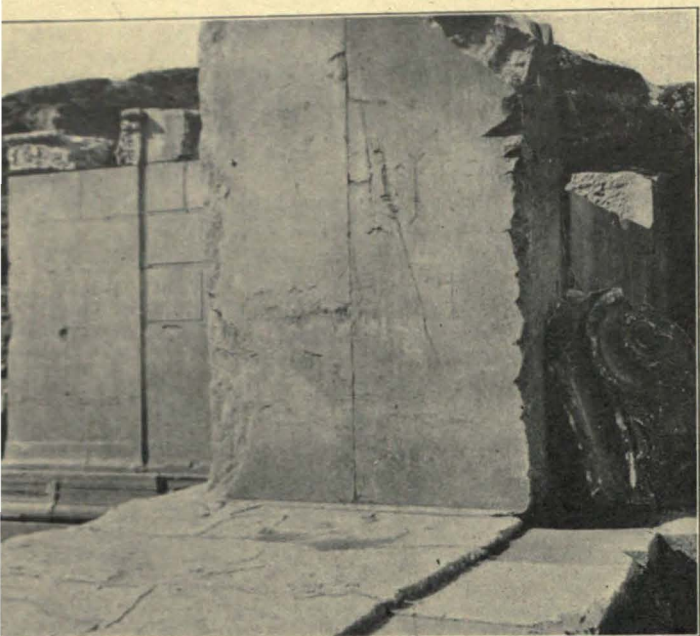
gual inscription<sup>1</sup> which Greek epigraphical authorities date about the end of the fourth century B. C.

2. The next group of bases would be those of columns 10, 13, 16 and 17, the

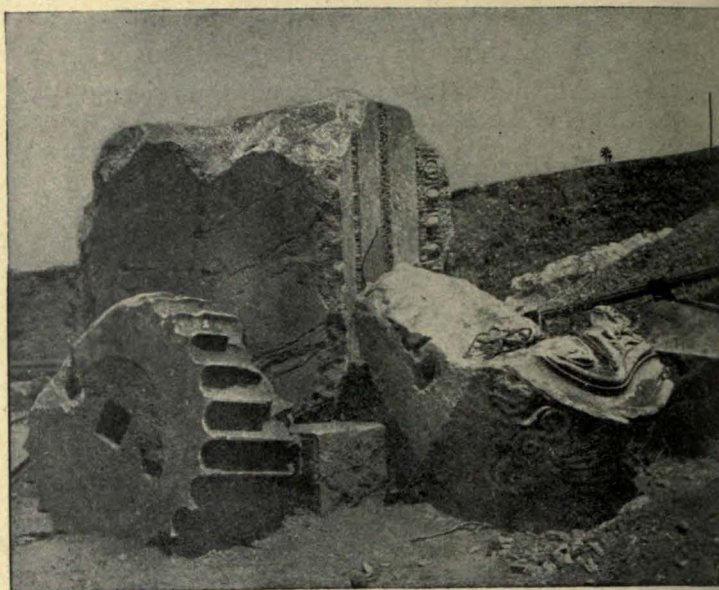
<sup>1</sup> See *Sardis*, VI. I. p. 38.

*Sardis Expedition II.*





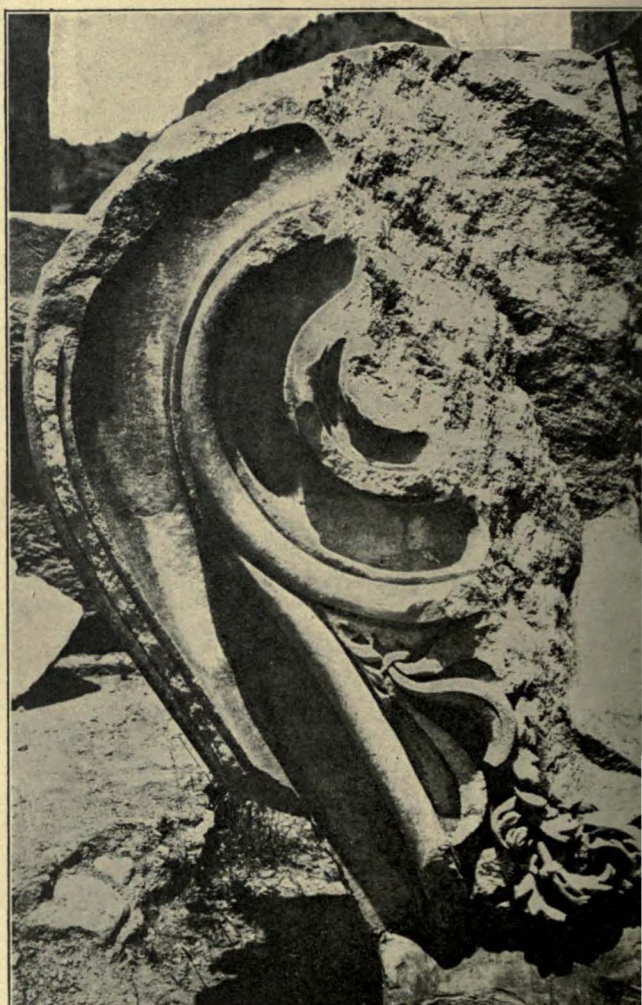
Ill. 52. Console lying inside South Jamb.



Ill. 53. Console from North Side of Portal.



Ill. 54. Face of Console.



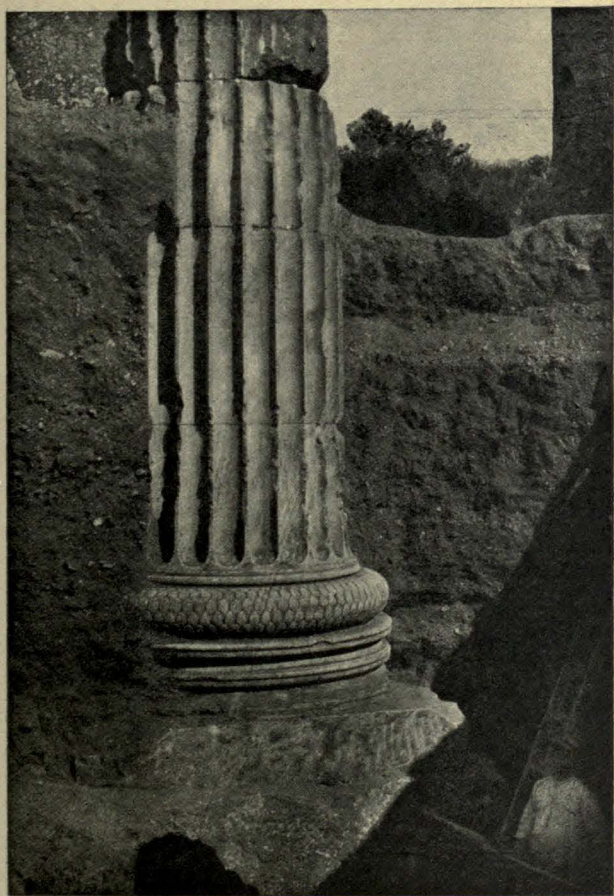
Ill. 55. Side of Console.



remaining ones in the interior of the east porch (Ills. 58, 59, 60, 61). These are arranged with two patterns symmetrically placed on either side, Nos. 10 and 13 having a deeply cut guilloche, and Nos. 16 and 17 upright water-leaves with rounded ends in low relief. All the four toruses have lifting-bosses which were to have been cut away. The lower parts of these bases also have lifting-bosses, but they represent different stages on the way toward completion. None of the scotias are entirely finished, though their final profile is well indicated. In No. 10 only the lower reeds are complete, the others being merely



Ill. 56. Inside Moulding of Portal.



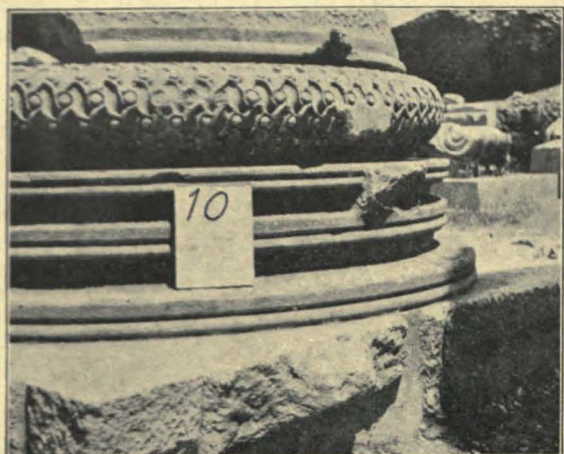
Ill. 57. Column No. 12.

blocked out (Ill. 58). The base of No. 13 is practically finished but for its lifting-bosses (Ill. 59); its profile and ornament are shown in Plate VII of the Atlas. The lower parts of Nos. 16 and 17 are in a similar state of incompleteness, not quite so far advanced as No. 10. They have their lifting-bosses, their scotias are only roughly blocked out and the upper member of each pair of reeds is carefully squared (Ills. 60 and 61).

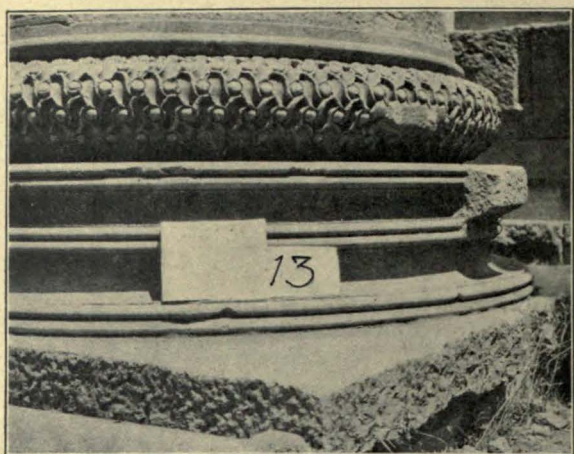
3. As the third group we may take the four middle columns of the outer row, Nos. 3, 4, 5 and 6. Three of these have carved toruses and the fourth, No. 3, was certainly intended to be ornamented (Ill. 62). The torus of No. 4 is carved with overlapping pointed leaves running horizontally (Ill. 63), but is manifestly unfinished as the surface of each leaf is perfectly flat. No. 5 has upon the torus upright pointed leaves, the surface of which are slightly modelled, but the edges seem hard and unfinished (Ill. 64). In No. 6 again the leaves run horizon-

tally and are pointed; but they have been worked up with the use of a borer into

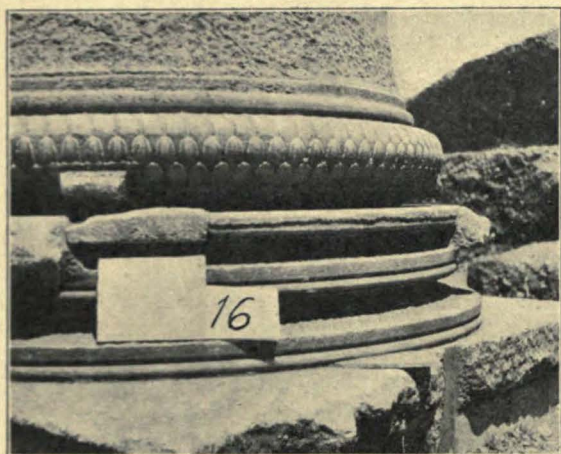




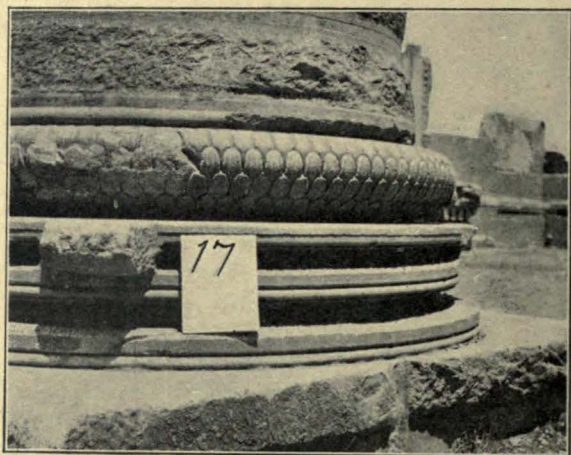
Ill. 58. Base of Column No. 10.



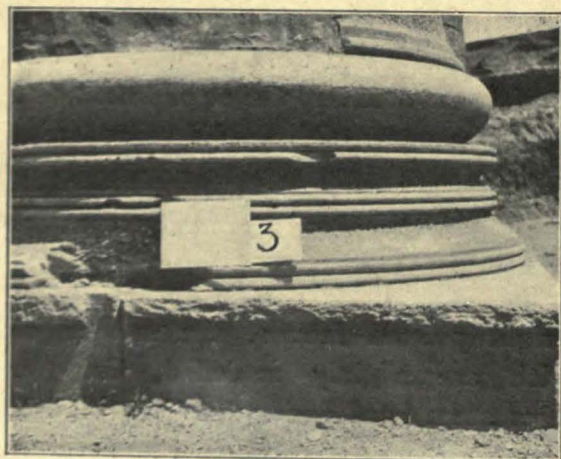
Ill. 59. Base of Column No. 13.



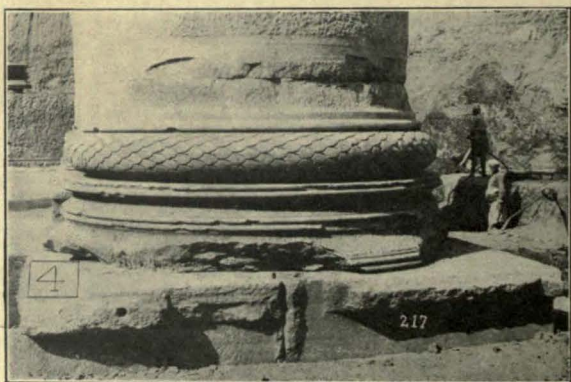
Ill. 60. Base of Column No. 16.



Ill. 61. Base of Column No. 17.



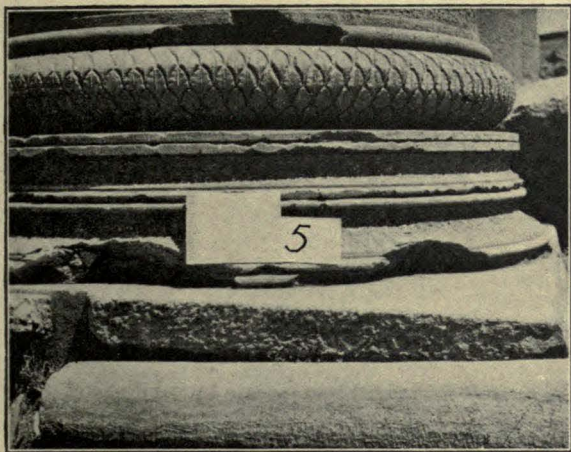
Ill. 62. Base of Column No. 3.



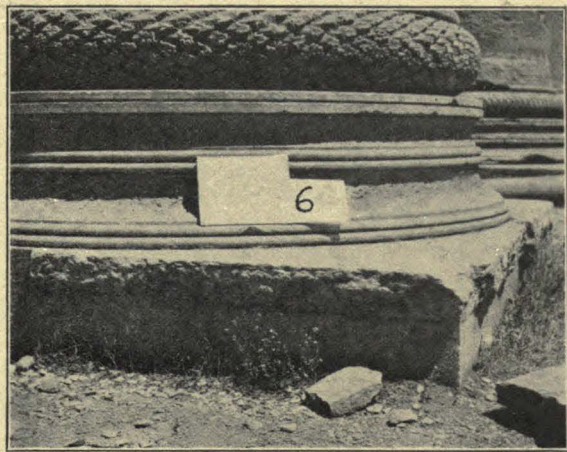
Ill. 63. Base of Column No. 4.



crisply modelled oak leaves (Ill. 65) on the faces of some of which are carved, not only acorns, but little animals of various sorts, lizards, scorpions, snails, slugs, etc. so deftly executed that one may look at the carving for some time without observing



Ill. 64 Base of Column No. 5.



Ill. 65. Base of Column No. 6.

them (Ill. 66). In this torus we have, I believe, a finished example of what the other three in this group were intended to be. The arrangement was to have been alternating; Nos. 6 and 4 have horizontal leaves, Nos. 5 and 3 were both to have had upright leaves, but work on the latter was never undertaken. I have no doubt that all were eventually to have been worked to the state of No. 6, and that all were to have had oak leaves, two with the leaves upright and two with the leaves horizontal in an alternating scheme. The scotias of these four bases are in an almost similar state, and are roughly cut with little approach to a completed profile. Neither toruses nor scotias, however, have any lifting-bosses. The reeds of Nos. 3 and 4 are almost finished (Ill. 62 and 63). In Nos. 5 and 6 the lower and middle reeds are finished, but the upper ones are merely roughly squared (Ills. 64 and 65).

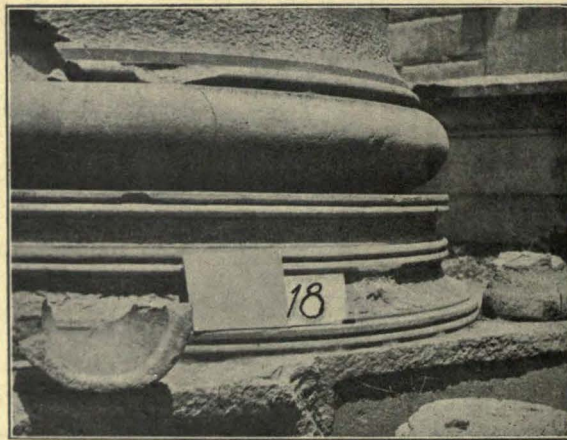
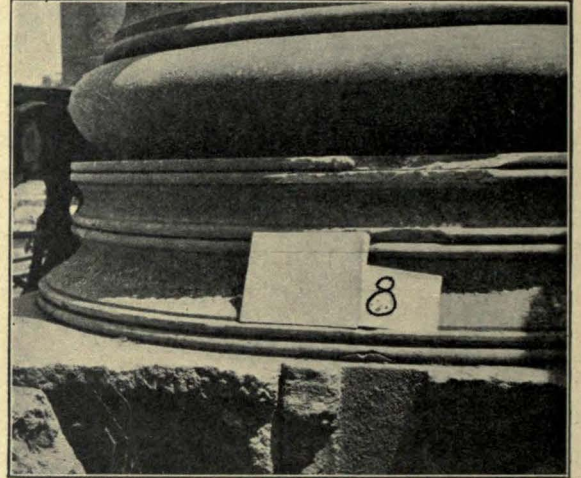
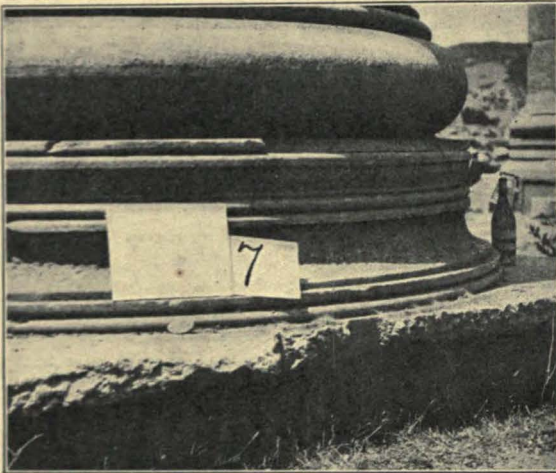
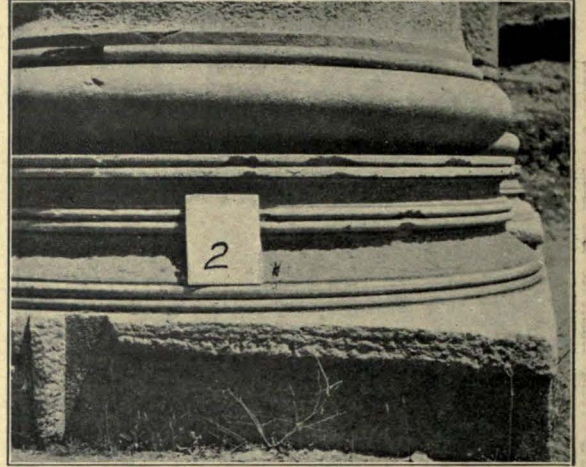
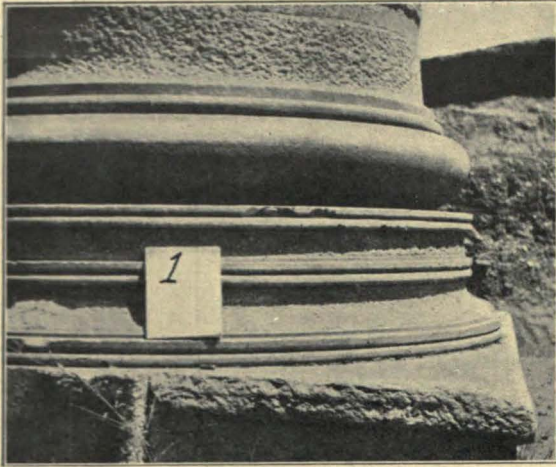


Ill. 66. Detail of Torus. Column No. 6.

4. The five remaining bases, Nos. 1, 2, 7, 8 and 18, the two at either end in the south flank of the peristyle and that of the column on the south flank, may, as it were, be dissociated from the others, if we think of the temple as having at first been simply prostyle instead of pseudo-dipteral. All have plain, but highly finished,



toruses of elliptical outline, and none has any lifting-boss. The lower portions, i. e. the scotias and reeds, of all five are precisely similar in form and in state of finish



Ill. 67. Bases of Columns Nos. 1, 2, 7, 8 and 18.

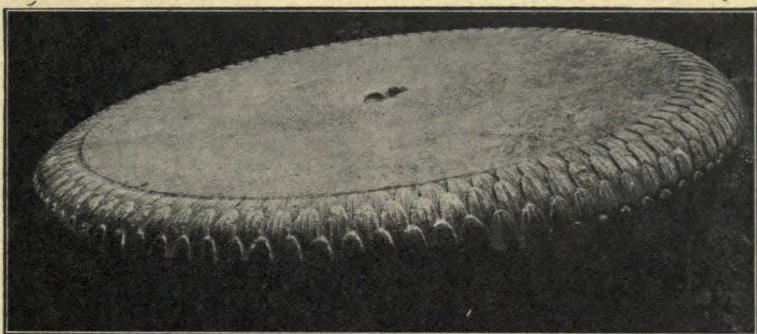
(Ill. 67), and have no lifting-bosses; the lower reeds stand out well beyond the two upper pairs, which both have the same projection. The scotias are roughly cut, without



finished sections as guides for the completion of the work. In all five the bottom reeds are finished, and in Nos. 2, 8 and 18 both the middle reeds are complete, the others being almost square at the top. The uppermost pairs of reeds in all the bases are unfinished in one way or another. It is plain that some of these reeds were to be left as they are till the scotias were finally carved; but there seems to have been no rule or preference as to which should be so left.

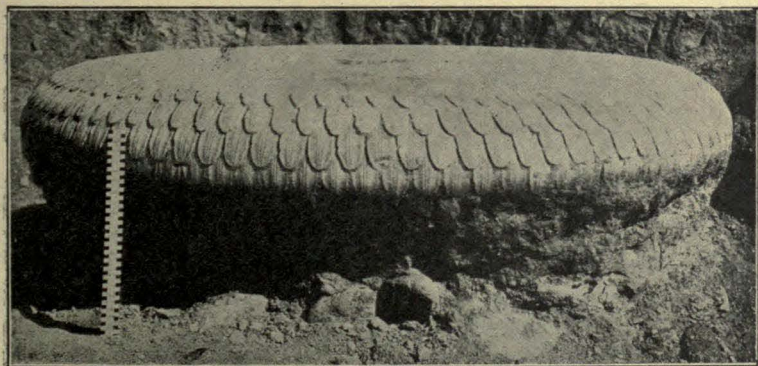
Among the detached remains of other bases are the two perfectly preserved and highly finished toruses, two huge lentoid discs, lying the one at the southeast angle of the temple, the other at the northwest. The former (Ill. 68) is 6.595 m., the latter (Ill. 69) 6.622 m., in circumference; and, since the diameters differ by less than 2 cm.

we may assume that they belonged to a pair of similar columns. The carving of both is precisely similar; upright water leaves with slightly rounded tips and modelled surfaces, overlapping in a scale-like pattern not unlike that of the bases of the two raised columns, Nos. 11 and 12. The diameter of the torus of No. 12 is about



Ill. 68. Torus at Southeast Angle of the Temple.

2.06 m., while that of the smaller of these two toruses is 2.09 m.; probably therefore these two belonged to columns of about the same scale as Nos. 11 and 12, and consequently to Nos. 53 and 54, both of which were also elevated. The torus at the



Ill. 69. Torus at Northwest Angle of the Temple.

northwest angle lay sufficiently near the foundations of Nos. 53 and 54 to have belonged to one of these columns; whereas the other was found rather too far away to have belonged to either of them; and since Nos. 11 and 12 are provided with torus bases, it is difficult to know whence the second loose-lying torus can have come.

At the west end of the temple there are fragments of carved torus bases of at least three of the varieties found *in situ* at the east end, namely that with the guilloche, that with the upright leaves, and that with the horizontal leaves; these must be parts of bases from inner and outer columns, if we assume that the arrangement of the decorative carving was the same at both ends of the temple.

Capitals. The two standing columns furnish us with two capitals, one almost intact and one fairly complete though lacking one of its four volutes. The excavations provided five more capitals: two in very good condition, a third more than half



preserved in the sense that only two of its volutes and their connecting bolster are broken off, a fourth half preserved in the sense that one of its faces is missing, and a fifth rather badly mutilated all around<sup>1</sup>. In addition to these seven, there are three large fragments from different capitals, one of which shows parts of an abacus and bolster, another a nearly complete volute and a third a complete abacus unevenly

broken off from the other parts of the capital (Ill. 21). Numerous smaller fragments are also extant.

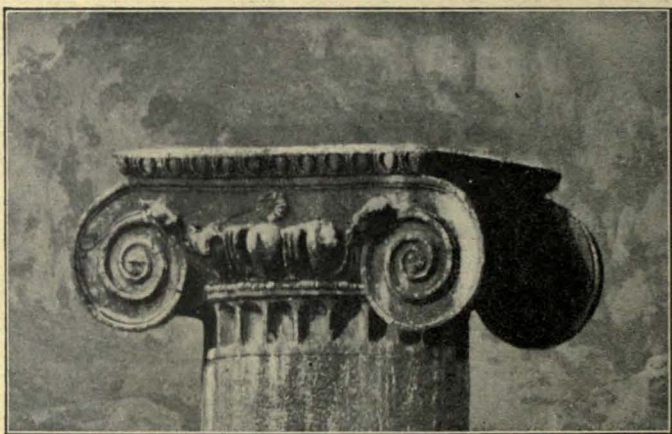
As has been remarked before, the capitals of the two standing columns are in several features not alike. One which we shall call A, seems to be much older than the other, capital B. A (Ill. 70) has an open egg-and-tongue in its abacus, while the egg-and-tongue ornament of B (Ill. 71) is closed at the top with a flat band. The abacus of A is oblong, having twelve oves in front and eleven on a side, that



Ill. 70. Capital A; Column No. 6.

of B is square having twelve oves on front and sides; A has a deeply curved channel in its volutes, while the channel of B is nearly flat in section. In all these details A follows early models, while B conforms to what may be considered Roman precedent.

A has rich carving in high relief extending across its volute band on the front face and a simple rosette in the middle of the band at the back; B has the rosette on both faces. The bolster in both capitals is equally divided into four deep channels by pairs of slender reed mouldings with bevelled fillets which reproduce the double reeds at the sides forming the volutes. The lower thirds of the four channels of the bolsters in both capitals are adorned with carved palmettes; but the upper two-thirds of the two middle channels of A are also carved with overlapping leaves



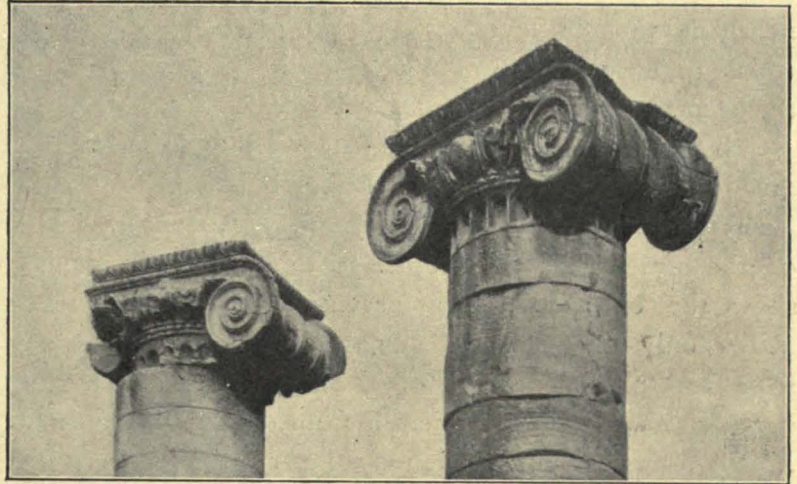
Ill. 71. Capital B; Column No. 7.

<sup>1</sup> Of these capitals only one had been finally measured and drawn for publication in 1914, and this unfortunately is the only one which can be adequately published with this volume. We had planned to make during the season of 1915 complete measurements and casts of the two capitals still in place, and at the same time to finish the drawings of the newly discovered capitals; but the war intervened. I publish now the measured drawings which I have, and depend upon photographs and descriptions of such capitals as have not yet been accurately measured, hoping in time to furnish drawings of these in plates which may be added to the Atlas. It seems hardly worth while to delay the publication of this volume longer than six years for the sake of including these plates which can easily be added later on. (See the Appendix at the end of this Volume).



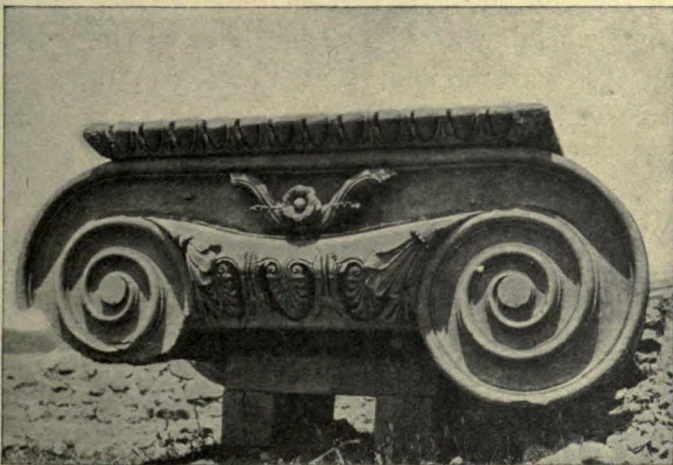
(Ill. 72). As stated elsewhere<sup>1</sup>, I believe A to be an original Greek or Lydian work set up a second time on a shaft of later date in connexion with extensive repairs at this end of the temple, and B to be a Roman copy made at the time of these repairs. Their comparative dates are discussed in the chapter of this volume dealing with the history of the temple.

Three of the capitals recovered in the excavations are to be classed certainly with A, the two others and many of the large fragments may almost without doubt be regarded as in the same class; only two small pieces were found bearing features similar to B: a bit of egg-and-dart ornament with fillet above, and a fragment of volute with shallow, nearly



Ill. 72. Capitals A and B; Columns Nos. 6 and 7, from S. W.

flat, channels. All the three capitals first mentioned have foliate relief carving on the volute band; what is probably the rear face of the fourth is precisely like the rear faces of the rest, and the fifth capital, though badly mutilated, still preserves enough of its features intact to be classed with the first rather than the second of our types.



Ill. 73. Capital C, found in the Excavations.

Among these five capitals is one which, although classified with the rest, is to be considered apart from them for two reasons; first, because it is slightly smaller than the others, and second, because it has additional ornament, namely relief carving on the eggs of its echinus (Ill. 73). That new feature in decoration of the Ionic order is fully described below. Its dimensions showed that this capital, which we shall call C, had belonged to one of the columns on pedestals in the porches of the temple or to one of those inside the cella. Its face measures 2.40 m. across the volutes, which equals the width of the plinth of columns 11 and 12. This capital, which I am able to publish with a complete set of drawings, is designated in the titles of Plates VIII—XI as belonging to columns 11 and 12, the pair on pedestals at the east end still preserved to about one-third of their original height; but it might equally well have been labelled as the capital of Nos. 53 and

<sup>1</sup> Vol. I, 1, pp. 28—29.

Sardis Expedition II.



54 at the west end, which were certainly elevated on similar pedestals. C was unearthed at a point rather nearer to the foundations of that west end pair, namely just outside the foundations of column 42, about 27 m. from the foundations of No. 54 (Pl. A, and Pl. I, Atlas). The possibility of its having belonged to one of the columns of the cult-chamber is more remote; for although these were set at nearly the same level as those on the pedestals, we have no data whatever upon which to base an estimate of their height, which would have depended entirely upon the structure above them.

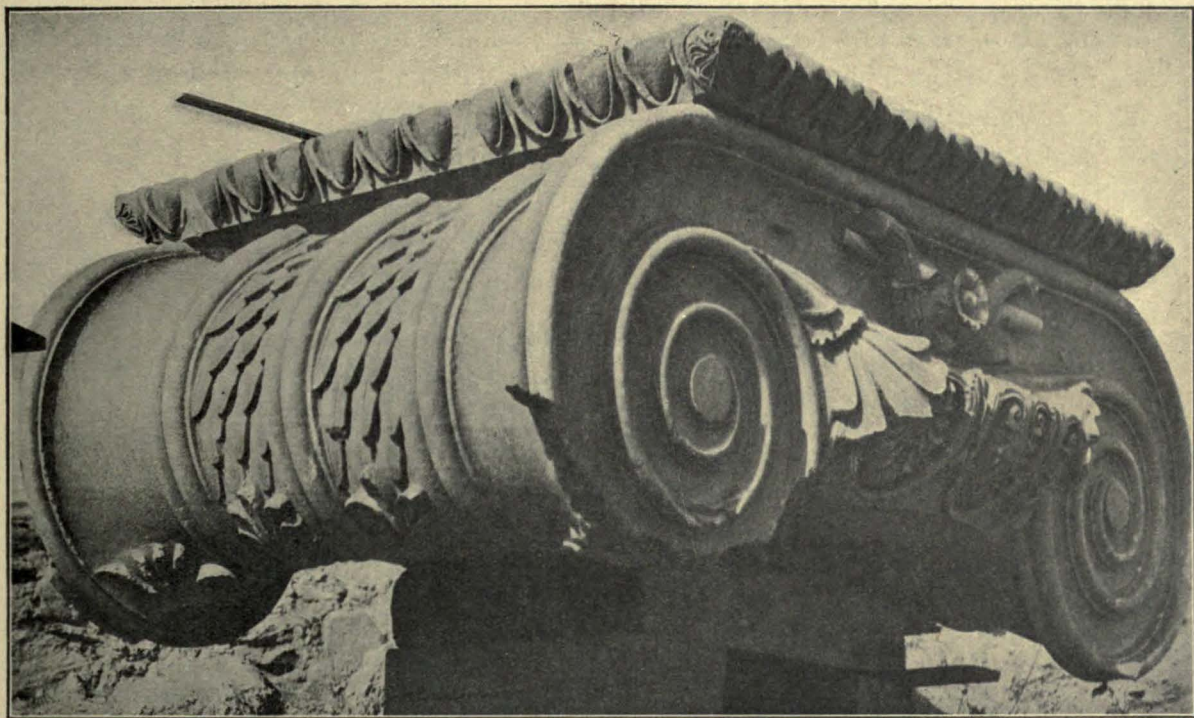
Two plates in this volume (Pls. B and C), and four in the Atlas (Pls. VIII—XI) are devoted to this capital C. Plates B and C were drawn and rendered by Mr. BELKNAP from the measured drawings of Mr. READ shown in the Atlas, which are reproductions on the scale of 1 : 4 from Mr. READ's full size originals. The photographs (Ills. 73—76) show the extraordinary preservation of this unique capital when discovered. In the plates only one feature, namely the carving on the volute band, has been restored, from careful observation of the marks on the face of the band, showing where the carving was broken off, and from a study of our other less damaged specimens. In all other respects C may be considered as practically intact. The abacus is slightly oblong, 1.74 m. by 1.67 m. showing fourteen eggs in front, and thirteen on the sides; the eggs at the angles are adorned with inverted palmettes. The volutes are described by a simple reed moulding of delicate proportions diminishing toward the eye. On the under side of this moulding, as it extends across the top of the volute band and describes its first circumference of the volute, is an extremely slender fillet very slightly bevelled, and this same feature appears also on the other side of the reed after the first circumference has been described, and extends across the bottom of the volute band in a graceful downward sweep. The curving reed sweeps exactly three times around the eye and terminates at the top of the eye. The channel of the volute has a deep curved section which dips slightly toward the eye (see Pl. IX, Atlas). The echinus shows only three eggs on the face and three on the reverse; the upper surface of the eggs is perfectly flat. The leaf ornament adorning the angle of the volute consists of five crisp lanceolate leaves which spring from a slender stem and a delicate sheath, and cover part of the nearest egg. The eyes of the volutes are circular and quite flat.

The most interesting feature of the face, as illustrated in Plate B and Plate VIII of the Atlas, is the carved ornament in relief on the eggs of the echinus and on the volute band. The former is unique, and was probably suggested by a similar ornament applied to the corner eggs of the abacus on a number of Ionic capitals in various parts of the Greek world. The ornament consists of an inverted palmette of eleven leaves springing on either side from a delicate little scroll, which in turn rises from a pair of slender sheath-like leaves at the top of stalks which take the place of the ordinary sharp rims flanking the eggs in an Ionic echinus. The tongue gives place to a delicate inverted flower at the end of a slender stem. All the carving is in high relief, in some places deeply undercut, and the incisions about the eggs are very deep though the borer was not employed.

The photographs (Ills. 73 and 74) serve to show how much of the relief carving



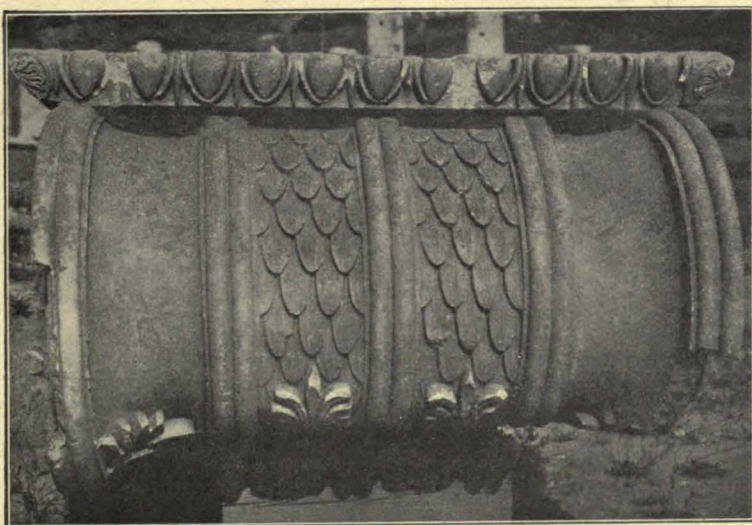
on the volute band of C has been preserved. Another photograph (Ill. 70) exhibits an example of such carving in an even more perfect state, but it is evident that the



Ill. 74. Capital C. View from Angle.

two were not exactly alike. Other specimens are seen in later photographs, all of which tend to show that there was considerable diversity in the designs, although, at first glance, they all look alike. These illustrations make it plain that this relief carving is hardly to be classed as relief, because the undercutting was so deep that the scrolls of stem and leaf and flower stand almost free, being attached to the background at few and very small points.

A side view of C (Ill. 75) shows the resemblance of its bolster to that of the older of the two capitals still in place. A section through this detail (Plate X, Atlas) calls attention to the bevel directly below the abacus, and to the graceful outward and downward curve of the bolster. One of the most interesting features (Plate C and Plates X and XI, Atlas) is the marked inward slant of the volutes from top to



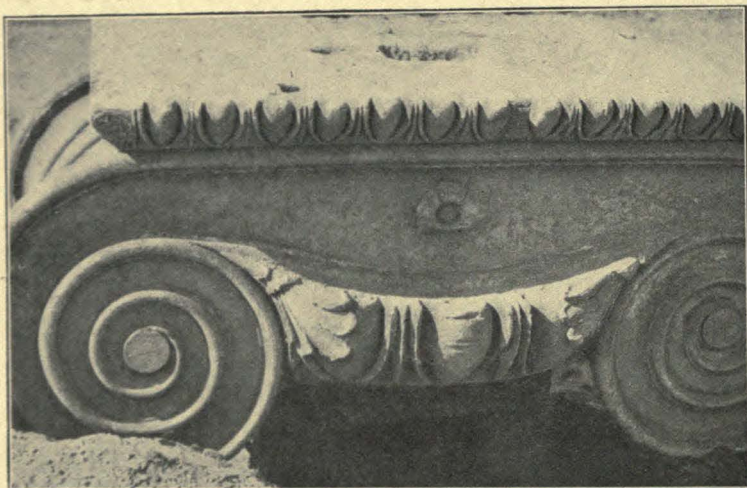
Ill. 75. Capital C, Bolster.



bottom, which gives such firmness and compactness in design, and undoubtedly added much to the effect of the volute scrolls when seen from below. The scale pattern of overlapping lanceolate leaves ornamenting the two middle channels is essentially like the ornament of the torus of the bases of columns 11 and 12 (Plate B), and is another reason for assuming that this capital was designed to match those bases.

The bottom view of capital C (Plate C, and Plate XI, Atlas) shows that the impost was not circular, but slightly elongated in the direction of the major axis of the capital. No eggs are visible, even in part, at the sides; the four channels of the bolster curving in tightly to embrace the top of the shaft. The pairs of reeds dividing the channels separate at their lower ends and are curled up into scrolls which provide springing points for the nine-leaved palmettes decorating the lower parts of the two middle channels. The reeds at the sides separate into double scrolls, one of which has a sheath from which springs a half palmette in the outer channels.

Next in importance, from the point of view of preservation, is Capital D (Ills. 77—79), also found on the south side near the foundation of column 36. Only a few of



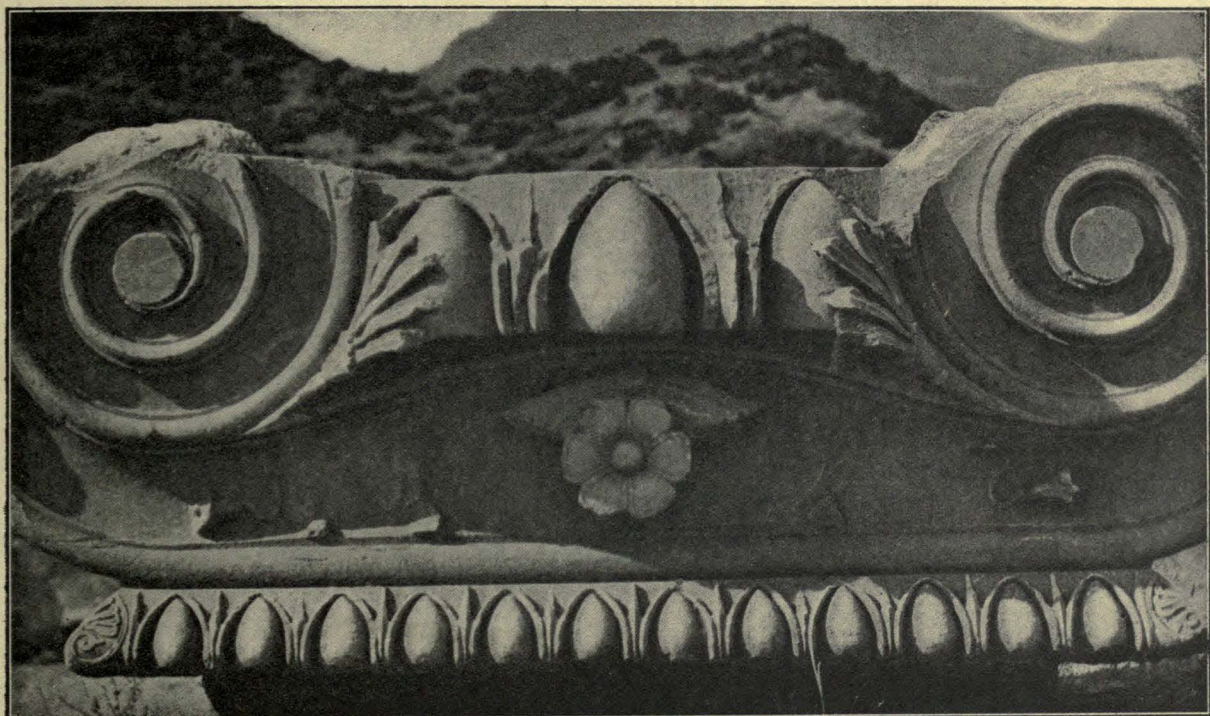
Ill. 76. Capital C, Reverse.

its more important measurements were taken; these show that the minor diameter of its oval impost is 6 cm. greater than the corresponding measurement in capital C. This increased diameter gives to D a bottom proportion suitable to the columns next in size to the elevated ones, namely Nos. 16 and 17 at the east end and Nos. 48 and 49 at the west. The other measurements available are not materially greater than those of capital C which we have assigned to the elevated

columns. The heights of C and D are about the same, their faces are nearly equal, and their abaci are of similar dimensions and have the same number of eggs, the only essential difference being that in D the oves of the echinus are unornamented. This similarity in dimensions, aside from those of the impost which seem to connect D with one of the columns next to the antae, suggests that the builders tried to make the capitals of the elevated columns and of those in front of the antae, which were near one another and could be seen at the same time, nearly equal in size. And the discrepancies could not be easily detected; for if the diminution in columns 16 and 17 was proportionate to that of Nos. 11 and 12, the line of the upper diameter of the latter, which when produced lies well inside the eye of the volute, would in the former lie directly on the centre of the eye. The egg-and-tongue of the abacus of D is precisely like the other (Ill. 77), the reed moulding and the volutes are the same, the echinus is similar but for the decoration of the oves. The leaf ornament



in the volute angle however, is somewhat differently treated; the leaves, instead of being crisply turned outward at the ends, cling closely to the oves, and the sheath from which they spring is a minute curled acanthus leaf. These differences can be plainly seen in comparing Ills. 77 and 78 with Ill. 76. The carved decoration of the volute band was of a design somewhat different from that of C. The rosette in the middle, which appears quite the same in the photographs, was in reality quite different; for that in C originally had an outer row of leaves, as is shown in the restoration in Plate B, and Plate VIII of the Atlas. The stalks of twisted acanthus started from below the rosette at a different angle, and the foliage terminated in small bell-flowers in relief, two on either side of the volute band (Ill. 77). The reverse of D is hardly



Ill. 77. Capital D, Front Face.

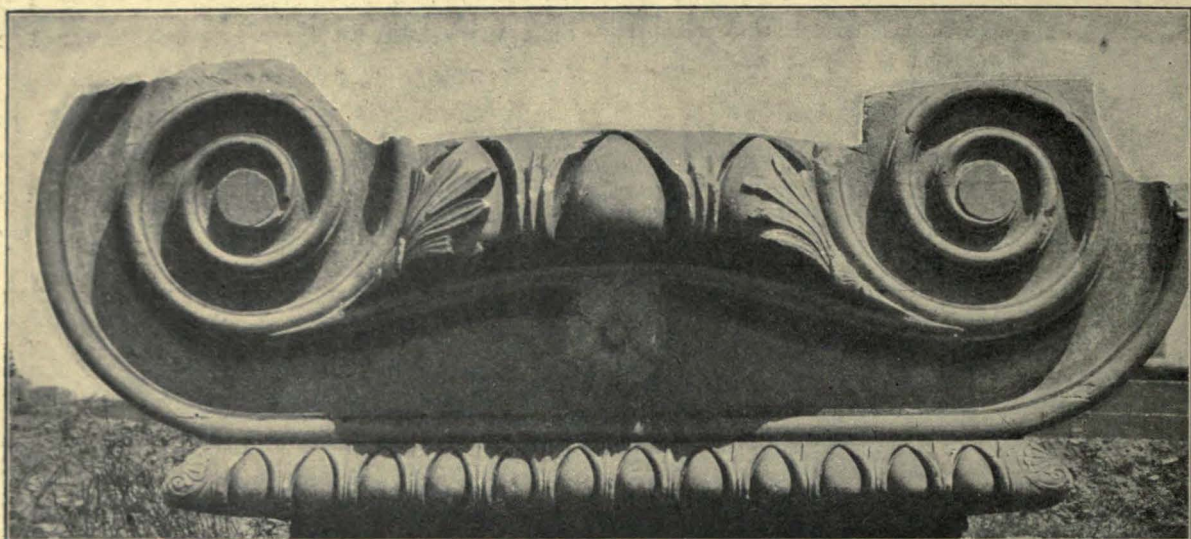
distinguishable from that of C (Ill. 78), except in the leaf ornament of the volute angle, and the bolster is similar to that of C, but for the omission of the scale ornament (Ill. 79). If we are to assume that D belonged to a column directly in front of an anta, and if we accept PEYSSONEL's drawing (Ill. 4) as correct in showing the capital of such a column set at right angles to those of the front row, we must imagine corner capitals, with their two volute faces at right angles, occupying the tops of the columns next to D, or else reckon with a very curious and ugly effect in the porches; for the capitals of the two elevated columns must certainly have had their major axes parallel with those of the capitals of the outer row.

The third of these detached capitals, E, found among the débris in the southern part of the east porch, was set up in 1912, with a top drum below it<sup>1</sup>, upon the

<sup>1</sup> This is probably not the drum for which it was made.

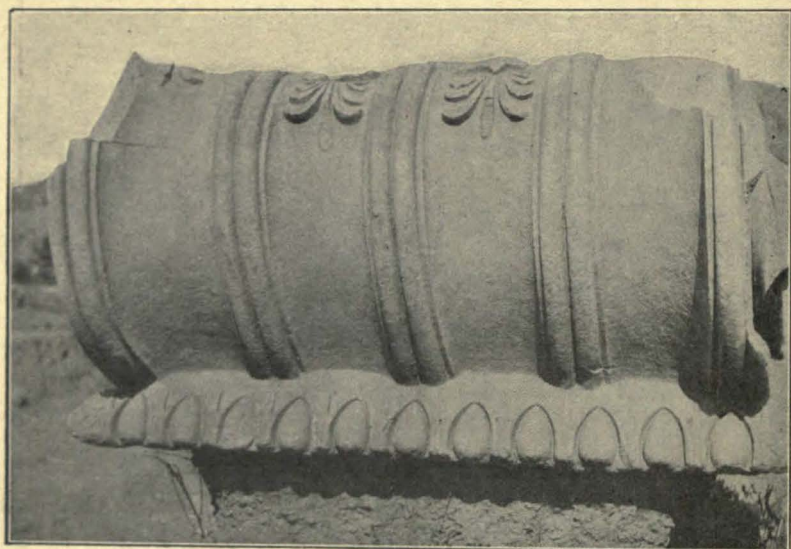


foundations of column 22 on the south flank (Ill. 80). The left hand volute has been entirely broken away, and the reverse is badly mutilated, leaving only one volute and one bolster and the middle part of the face intact, though the echinus on the outer



Ill. 78. Capital D, Reverse.

face and the carving of the volute band are all in a fair state of preservation. My measurements indicate that E is sufficiently large in scale to have occupied a place

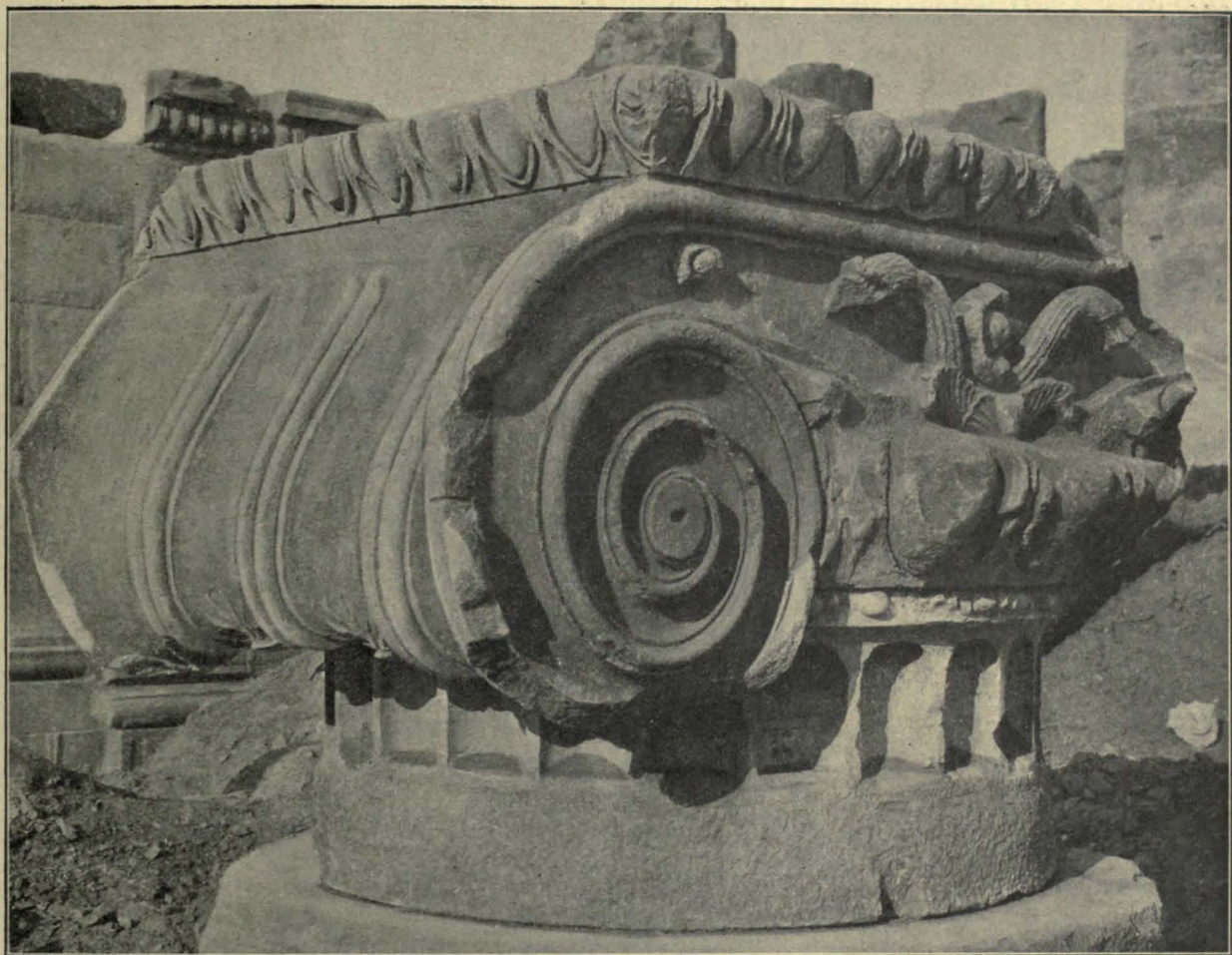


Ill. 79. Capital D, Bolster.

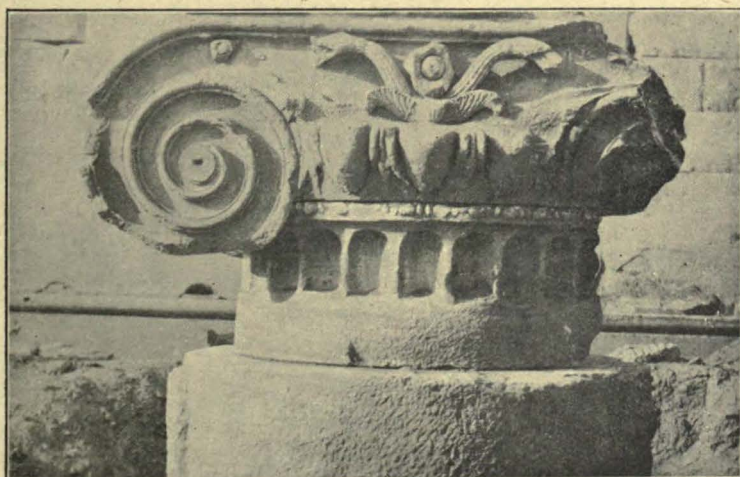
in the outer row. Its abacus measured 1.70 by 1.97 m., and is 4 cm. higher than that of the other capitals. It is similar to that of capital C illustrated in the Atlas, but on a slightly larger scale and with 12 eggs in front and 11 on a side. The volute has the same form as the others, though its horizontal axis, measuring 0.815 m., is longer than that in C. The entire face was 2.60 m. wide or the width of the plinth, as opposed to 2.40 m.

in capital C. The carving on the volute band presents a slight variant from the two forms already described (Ill. 81). The curve of the bolster, if represented by a measured profile, would show a totally different section; there is no outward curve at the top, and the line falls quite straight and at a steep angle almost to the level of the top of the echinus, where it begins a curve curling quickly below the bolster





Ill. 80. Capital E, View from Angle.

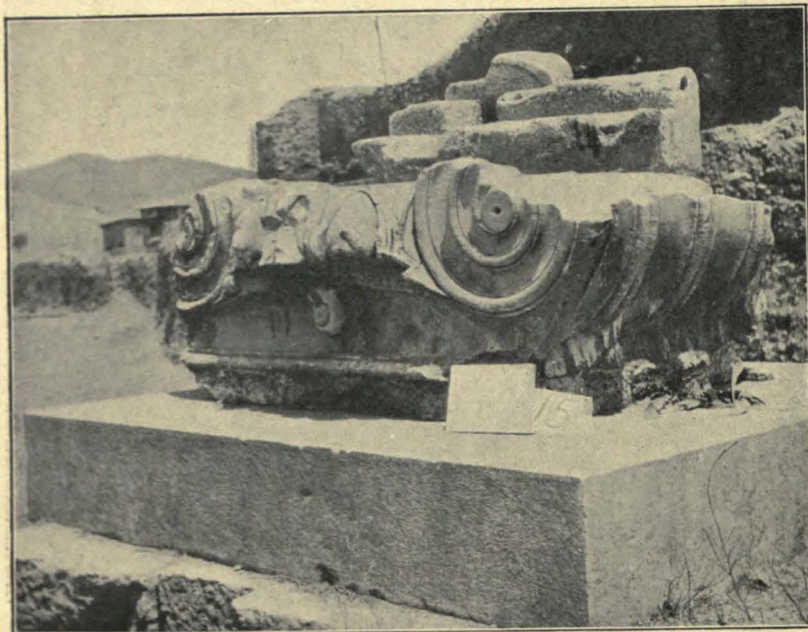


Ill. 81. Capital E.



to the bottom of the echinus. There is therefore a great difference between the curve of the volutes and that of the three double reeds dividing the bolster. In these details this capital is unlike those still in place, and presumably belonged to a column in the flank of the temple, perhaps to column 18 which still preserves one half its height.

The fourth capital, F, was found under the débris above ground at the northeast angle of the temple. It was finally placed by us on the well preserved and highly finished plinth of column 15 in the north flank (Ill. 82). I have no measurements whatever of F; but, from the position in which it was found, I assume that it belonged to one of the columns of the front row. Though very badly damaged, as the



Ill. 82. Capital F.

photograph shows, certain features are plainly seen which class it with the three preceding capitals. The coved volute face with its single rosette would indicate that this, the better preserved of the two faces, was the reverse. The opposite face shows remains of carving. The egg-and-tongue of the abacus has been entirely destroyed, and the echinus with its flanking leaf ornament is all but completely defaced; yet from this mutilated mass it would not be impossible to restore the whole.

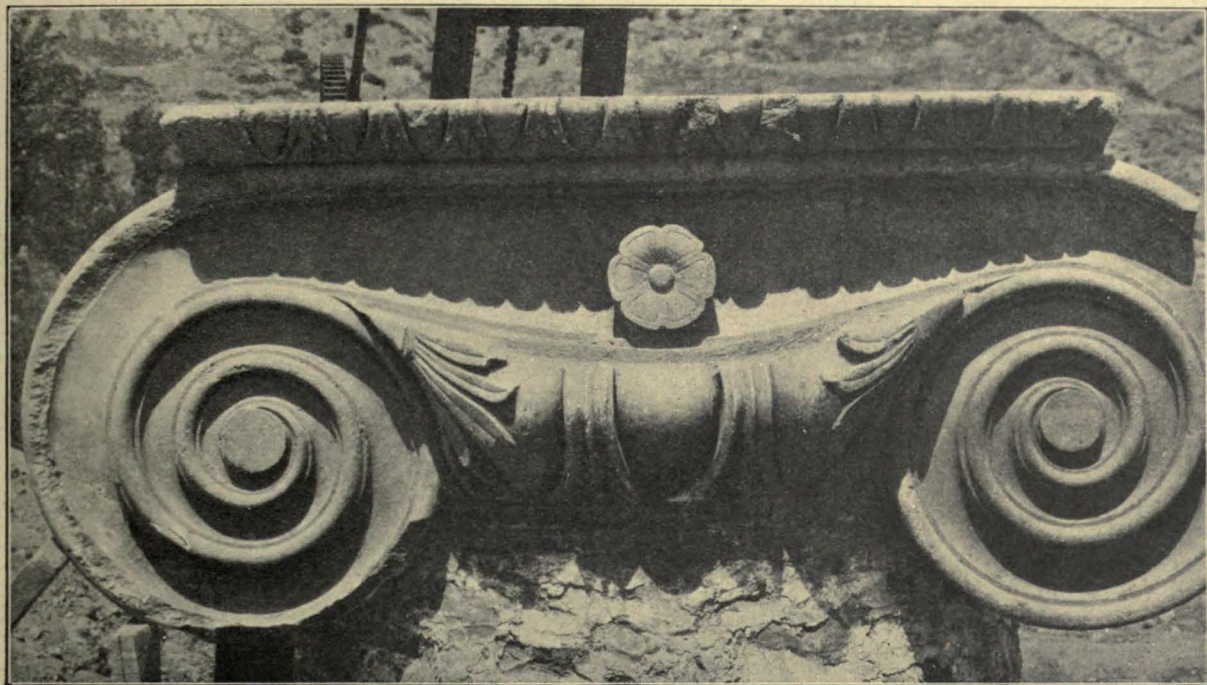
The fifth of the detached capitals, G, was unearthed well beyond the northwest angle of the peristyle, not deeply buried; we placed it for safety upon a low base of concrete. The face here shown in a photograph (Ill. 83), undoubtedly the reverse, is almost perfectly preserved; the other half of the capital is entirely broken away. I have no measurements of G and am unable to suggest its original position, whether inside the porch or in the peristyle. If Ill. 83 be compared with Ill. 78, the resemblance between G and D will be obvious, the only noticeable difference being that the abacus of G has thirteen oves while the other has fourteen; in G an egg is centred upon the axis, but in D a tongue. The workmanship of G is in every respect inferior.

##### 5. LION'S HEAD FROM THE CORNICE.

The architrave, having been fully described in the chapter on Construction, and illustrated in Ill. 44, need not be discussed here. There are no fragments suggesting

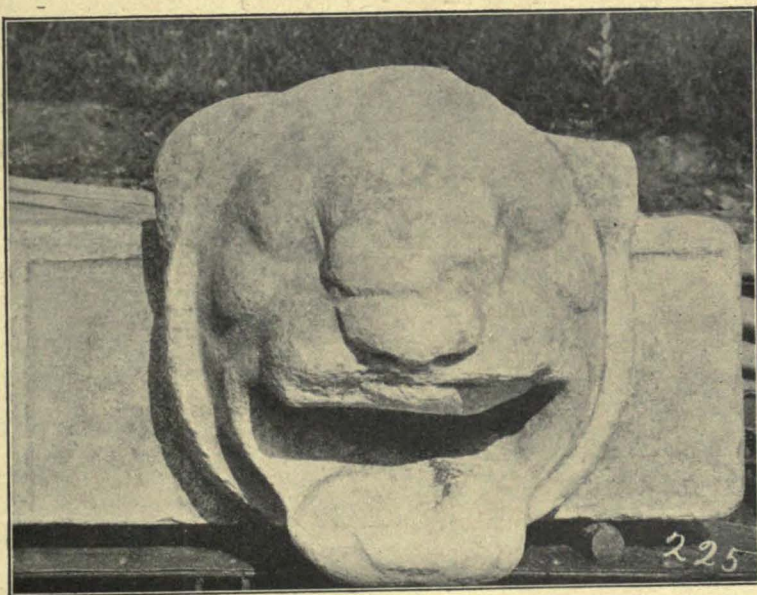


that the temple ever had a frieze, and none from the cornice save a water-spout in the usual lion's head form, which has been described as a structural detail on



Ill. 83. Capital G, Reverse.

pages 51, 52 (Ill. 46). It remains only to deal with that head as a feature of the carved decoration. This, as has been shown in an earlier chapter, is the mere face of the lion, without ears and mane, surrounded by a roughly finished collar of considerable depth which, as I believe, was set in the cornice, — probably a cyma recta in profile. On the cornice were perhaps carved the mane and ears, together with the foliate decoration almost inseparable from the Ionic sima. The face itself is boldly modelled (Ills. 84 and 85) with little attention to minute details. The type represented is that of the Assyrian lion with small eyes, broad snub nose and small nostrils. The mouth is very large, the tongue protrudes, but the teeth have been broken from both jaws. The bony structure of the face and the wrinkled nose are plainly indicated, and it is



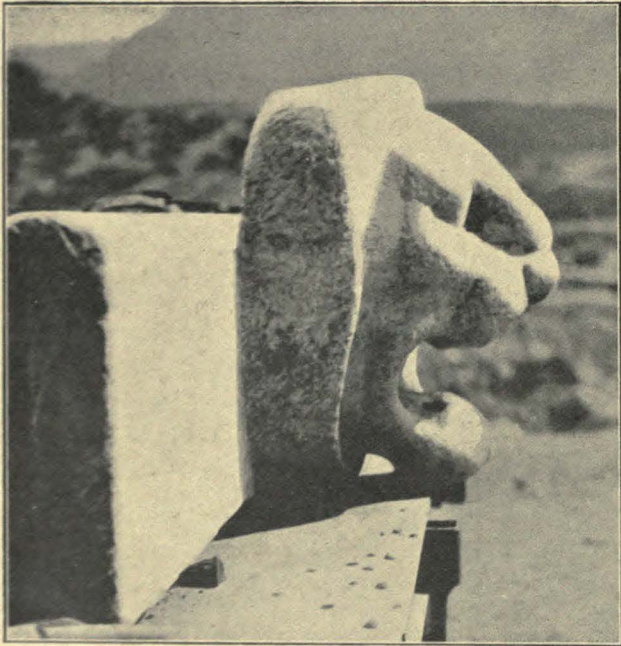
Ill. 84. Lion's Head from the Cornice, Face.



evident that the sculptor had in mind the fact that the head was to be seen only from a distance of twenty five metres or more.

#### 6. ANGLE-ANTEFIX.

The only ornamental detail remaining of the marble roof is a huge antefix which, from its shape, must have stood at the corner facing both to the front and sideways. The drawing in Plate V of the Atlas is in considerable part a restoration; but from the intact portion (Ills. 86 and 87), from fragments, and from somewhat similar details of scroll work to be seen in the capitals, it has been possible to compose a restoration probably correct in its main features. The more important lines of the antefix are given by the finely grooved stalks of acanthus forming the base from which springs a seven-leaved palmette; the outward curve of these leaves at the top is suggested by the fragment, but is not certain. The scroll with



Ill. 85. Lion's Head from the Cornice, Side View.



Ill. 86. Angle-Antefix, Front View.

its rosette and the half palmette to the left in the drawing were taken from somewhat similar features in the carving of the volute bands of the capitals. The entire face of the antefix is perfectly preserved.



## 7. FRAGMENTS.

Several fragments of architectural ornament were found in the process of excavating the temple, a few of them within its actual limits, others at some distance from it. There are no means of knowing whether any of these fragments belonged to the temple structure; most of them certainly did not; but all are interesting as examples of carved decoration found in Sardis, and two or three are of particular importance as specimens of Lydian ornament<sup>1</sup>. One of these fragments, which was found underneath the cement floor of the cistern built inside the cella, consists of a badly broken egg-and-tongue of large scale surmounted by a tall shallow cavetto with relief decoration on its face, and, above this, a narrow fillet forming the lower part of a large concave moulding. The interesting feature here is the carving of the cavetto (Ills. 88 and 89); for it gives us the two principal units of a continuous ornamental design. One of these is a seven-leaved palmette the springing point of which is a female face with neck, bust and arms. The incurving leaves of the palmette are in effect a huge head-dress for the little figure. The drapery below the bust spreads out into curling leaves from which scrolls arise on either side held together by the outstretched arms of the figure. The other unit consists of another female face crowned by a head-dress of two large outcurving, sharp-pointed leaves with a simple acanthus leaf between them. The drapery below the neck is formed by two inverted acanthus leaves. The whole design is quaint and

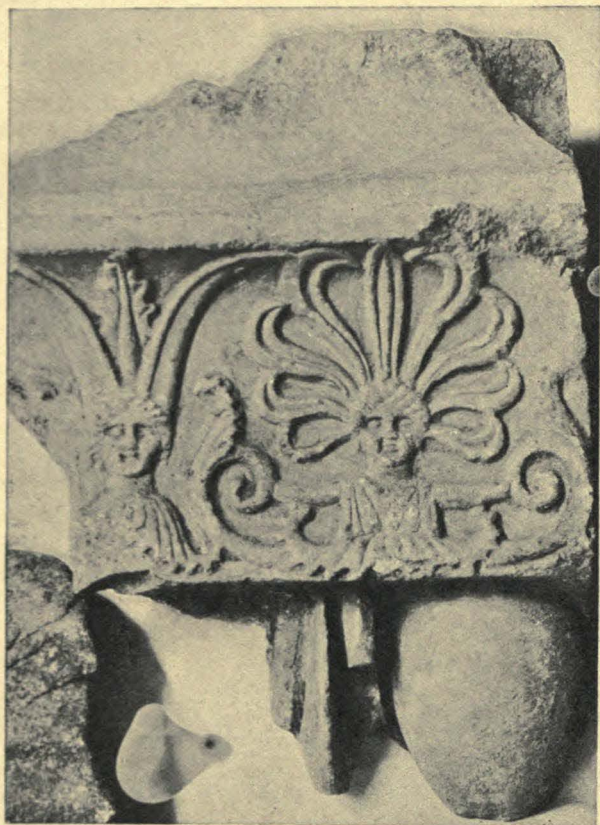


Ill. 87. Angle-Antefix, Side View.

<sup>1</sup> Unfortunately measurements of only a few of these fragments had been made in 1914: if they are still in existence, they will be re-published in measured drawings later.



not without beauty. It is also interesting as an example of anthropomorphic forms worked into conventional foliate decoration, and in connexion with the animal forms wrought into the leaf ornament of the torus of column No. 6 (Ill. 66). The fragment is in all probability comparatively late. The fact that it was found inside the cella is no proof that it belonged there originally; for much material from the outside was brought in to compose the filling below the cistern floor; but it may have once belonged to the pedestal of a later cult statue of Artemis, or to the screen or partition dividing the cella at the point indicated by the light marble foundations which are still preserved.

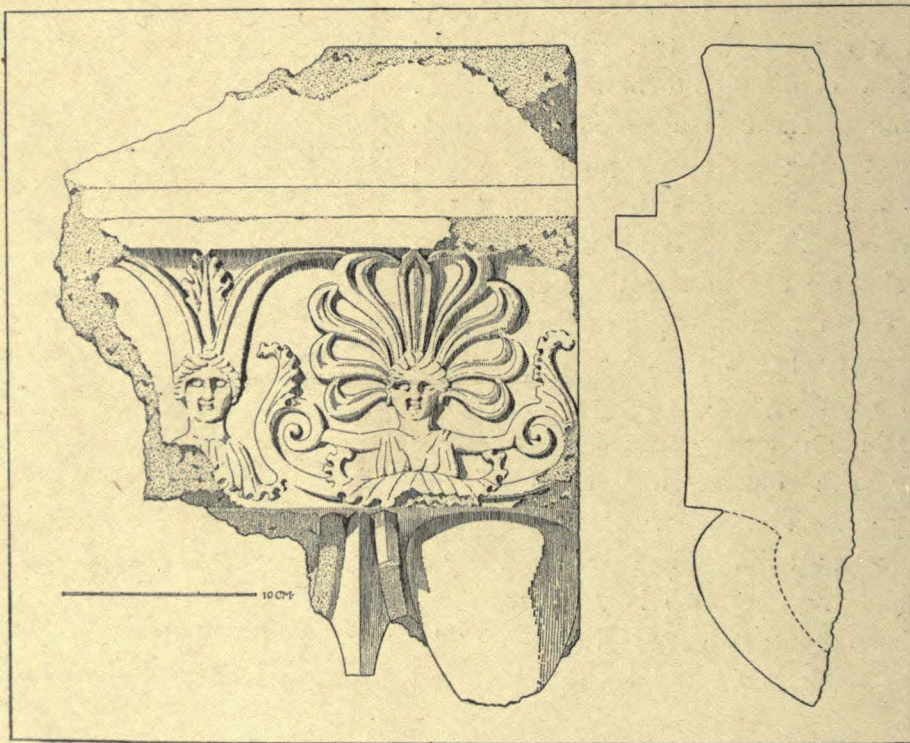


Ill. 88. Fragment of Carving found in the Cella.

scroll is delicately modelled and the leaves of the palmette are gracefully designed and carefully executed. Two small flowers, one growing out from the lower angle of one of the scrolls, the other projecting from above, remind one of some of the flower ornaments in the volute bands of the temple capitals. (Ill. 81).

Before discussing two more fragments which appear

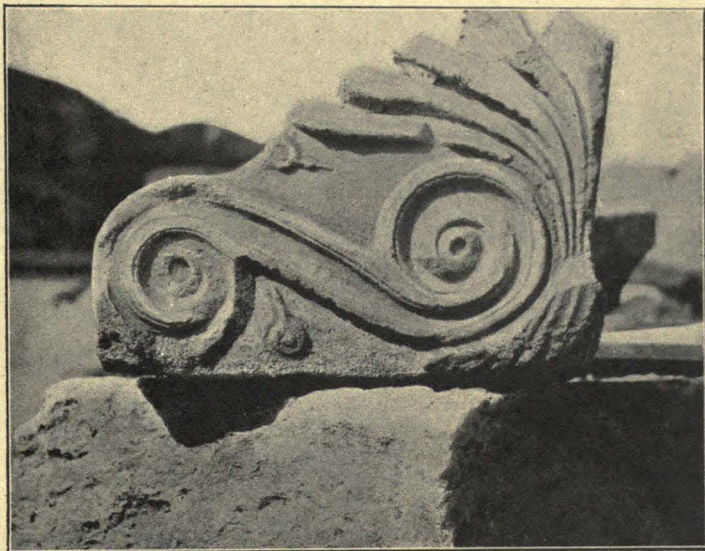
Another decorative fragment is a small angle antefix, discovered in deep earth directly south of the Lydian Building. Its two faces, which are at right angles, are practically identical; each shows a double scroll (Ill. 90) and one half of the lower part of a nine-leaved palmette. The round moulding which describes the



Ill. 89. Fragment shown in Ill. 88, drawn to scale.



to be of Lydian origin we may mention two stele-caps known to be Lydian from the inscriptions below them. The first of these is the cap of the stele bearing the famous Lydian-Aramaic bilingual inscription dated in the tenth year of the first or second King ARTAXERXES, i. e. in 445 or 394 B. C. The sides of the cap rise on a slight curve from the straight band at the top of the stele proper, and terminate above in a tall oval. This ovoid cap is ornamented with carving in relief within a narrow raised frame (Ill. 91). In the lower angles of the frame, on either side, are acanthus leaves shaped like little angle antefixes, from which spring two bands, with concave faces and narrow flat edges, rising on a gentle curve and meeting at the middle of the cap where they curl over into two scrolls like the volutes of an Ionic capital. The triangular field below the bands is partly filled by three bell-shaped flowers pendant from the juncture of the scrolls, each lower flower being telescoped into the flower above it. Above the two scrolls rises a tall nine-leaved palmette with outcurving leaves, and on either side of the mid-leaf is a long bud or slender stalk of grain. Angle palmettes like those of the ordinary Ionic capital, spring from the angles of the scrolls, or volutes, on each side, and, in the space on either hand are unattached bell-flowers showing their tongues in the oval mouths of the bells. It may be said that many of the elements of this design are found in Greek ornament; but the composition is undoubtedly a local product, and there is a close relationship between the forms of some of these ornaments such as the palmette, and those of various details in the temple, while the little bells are reproduced



Ill. 90. Fragment found in Excavations.



Ill. 91. Cap of Stele bearing Bilingual Inscription.

mette, and those of various details in the temple, while the little bells are reproduced



almost exactly on the under side of the bolsters of some of the capitals, as may be seen from Plate XI of the Atlas.

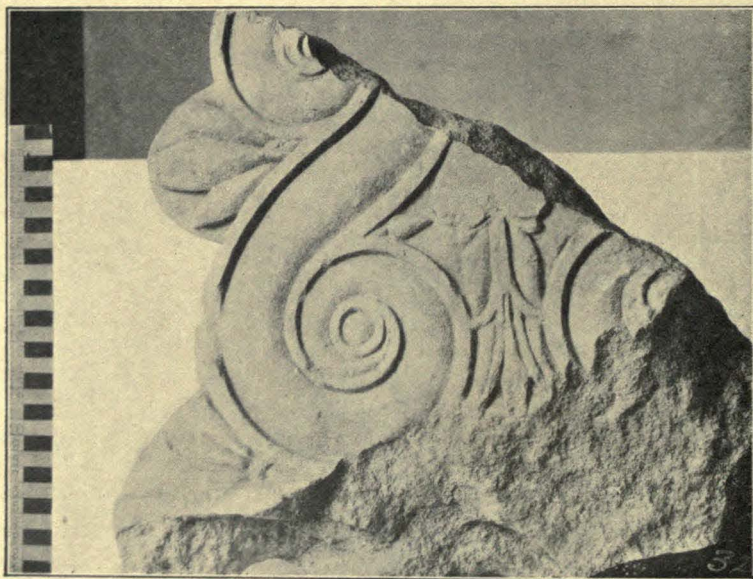
The other cap from an inscribed Lydian stele (Ill. 92), probably much older than the one described above, was not found in the temple excavations. This also



Ill. 92. Cap of Lydian Stele.

is oval in outline but has no raised frame. All along the bottom extends a poorly executed, or much defaced, design of low, flat, leafage. Above this in the middle is a large fruit, perhaps a pomegranate, on either side of which rounded mouldings curve upwards describing a series of involved scrolls, three on either side, which practically cover the face of the cap. It is interesting to observe that the palmette and the half palmette do not appear, and that the angles at which the various scrolls meet are filled with bell-flowers and acanthus buds. Three of the bell-flowers are precisely like those noticed on the stele-cap described above. Two of these are at the top of the cap on the main

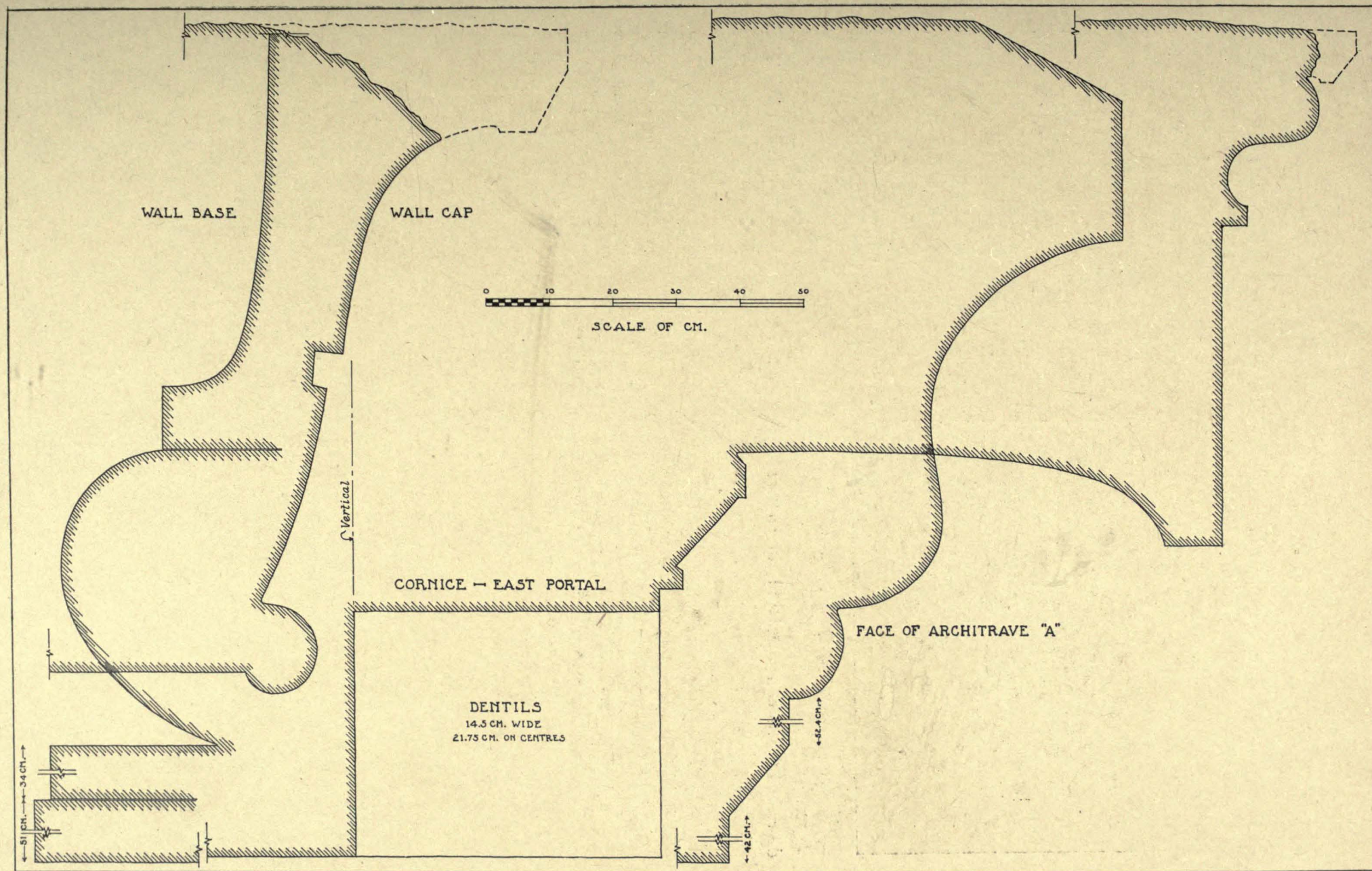
axis, one is at the left of the central pomegranate; its mate on the opposite side is defaced. Two larger inverted bell flowers with curling lips are to be seen at the



Ill. 93. Fragment of Lydian Stele-cap.

sides, and four small acanthus buds appear, two above and two in the bottom angles of the cap. These two designs and the two which follow are interestingly reminiscent



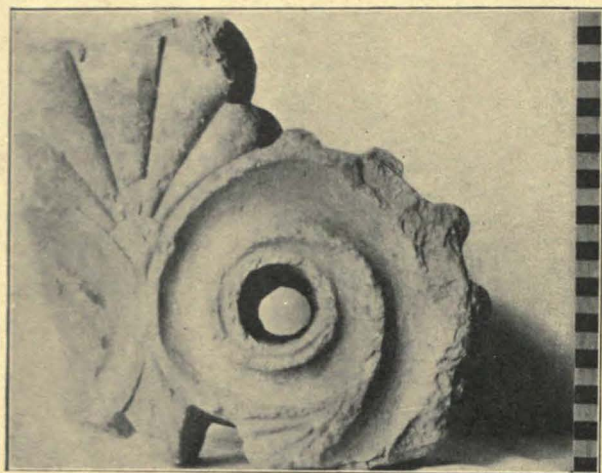


Ill. 94a. Miscellaneous Profiles.



of Etruscan terra-cotta ornament in some of which anthropomorphic forms also appear.<sup>1</sup>

A fragment which I take to be the remnant of a Lydian stele is shown in Ill. 93. In this it is plain that two double reversed scrolls, set upright on either side of the



Ill. 94. Fragment of Lydian Ornament.

middle axis, carried some crowning feature like a palmette. The scrolls were described by pulvinated bands with raised flat edges, the larger angles were filled by triple leaves of convex surface, the smaller ones by slender buds. The middle, or axial, feature is much mutilated, but we may trace here a feature recalling the telescoped bell-flowers of the first Lydian stele (Ill. 91). The other fragment (Ill. 94) is smaller, but of larger scale. It represents probably the upper-right hand volute of a design based on four scrolls, like the one just described, but in which their position is reversed. In this example the scrolls were

described by a concave band, in contrast to the one above, which is pulvinated. The palmette leaves, on the other hand, are convex in section. Much of this design was pierced; the outer edge has curious projecting knobs. It is not impossible that this fragment is a part of an antefix of the earlier temple. The design is almost precisely like that of a fragment of ornament at the top of a stele from Dorylaion, now in the Imperial Ottoman Museum, to which the date 560 B. C. has been assigned.<sup>2</sup>

<sup>1</sup> cf. HAMLIN, *History of Ornament*, New York, 1916, p. 128, Fig. 156.

<sup>2</sup> cf. RADET and OUVRE, *B. C. H.* XVIII, 1894, pp. 129—136, Pl. IV bis.



## CHAPTER V.

### I. RESTORATIONS.

When we come to the point of discussing the restoration of the Temple of Artemis at Sardis we are confronted by a curious combination of certainty and doubt. The plan of the building is so nearly complete in its more important features that little need be left to conjecture. In respect of the superstructure the ruins and the excavations have furnished a great mass of details in an unusual state of preservation, details in far more perfect condition than those which were found in the ruins and excavations of the Temple of Athena Polias at Priene, in the Mausoleum at Halikarnassos, and in many other ancient buildings in Greece and in Asia Minor which have been restored with a notable degree of accuracy. It is true that certain important details are entirely wanting at Sardis, but these, in several instances, are supplemented by others that are missing elsewhere. The great difficulty in making complete restorations here arises out of the vicissitudes of the temple's history. There was an old Lydian building on this site, as is proved by the finding of coins of CROESUS in parts of its substructure which still remain. The foundations of this early structure were built of an inferior sort of stone — the purple sandstone of the bed of the Paktolos. It was succeeded, after its destruction at the time of the Ionian Revolt of 499 B. C., by a temple which was of marble even to its foundations; but we may only conjecture the date at which this new temple was begun, and it is difficult to determine which of its parts are the earliest, owing to various remodellings and extensive repairs to the temple probably undertaken as the result of repeated earthquakes. In this chapter an attempt will be made to suggest restorations of the whole building as it was in its final completed state, and of its details as we find them. The next chapter is devoted to the history of the temple and the various changes to which it was subjected.

No restoration of the Lydian temple is possible; the foundations of three columns (Ill. 15) and the basis of the great cult-statue, with scattered bits of foundation walls incorporated with later walls of marble, are the only remnants of that early structure. It is probable that the lines of the present building coincided so nearly with those of its predecessor or predecessors that most of the older sandstone foundations were destroyed to make place for the new ones of marble. The great temple of Artemis at Ephesos, begun in the middle of the fourth century or earlier, was planned on almost exactly the same lines, and coincided most precisely in its foundations, with the older



Artemision to which CROESUS, King of Lydia, had contributed many columns and perhaps other ornaments, if indeed he did not build the whole edifice. The foundations of its columns were built of small marble blocks roughly laid<sup>1</sup>, enclosing the bases of the columns of the older temple; the foundations of the columns at Sardis are all composed of large blocks well fitted together. We cannot believe that the earlier temple of Artemis at Sardis was built entirely of the inferior material which constitutes its foundations that are in evidence. If it had been made of sandstone covered with stucco, we should almost certainly have found some remnant of its architectural details. But if its superstructure was of limestone or of marble, as it may well have been, it is not astonishing that no fragments remain, owing to the rapacity of the ancients for material which is readily converted into lime, and to the peculiar lack at Sardis of good building materials near at hand, which made all second-hand material valuable. But, aside from the analogy of the Artemision at Ephesos, we have no means of knowing the dimensions of the older temple, or of determining how far it extended to the east of the ancient basis or westward from the ancient column foundations which are now in the treasury of the later temple. We cannot even say with assurance that it was oriented in the same manner as the later temple, nor that it faced toward the east, as does the present structure, or toward the west, as the situation would have rendered more suitable, and as the archaic temple at Ephesos seems to have faced.

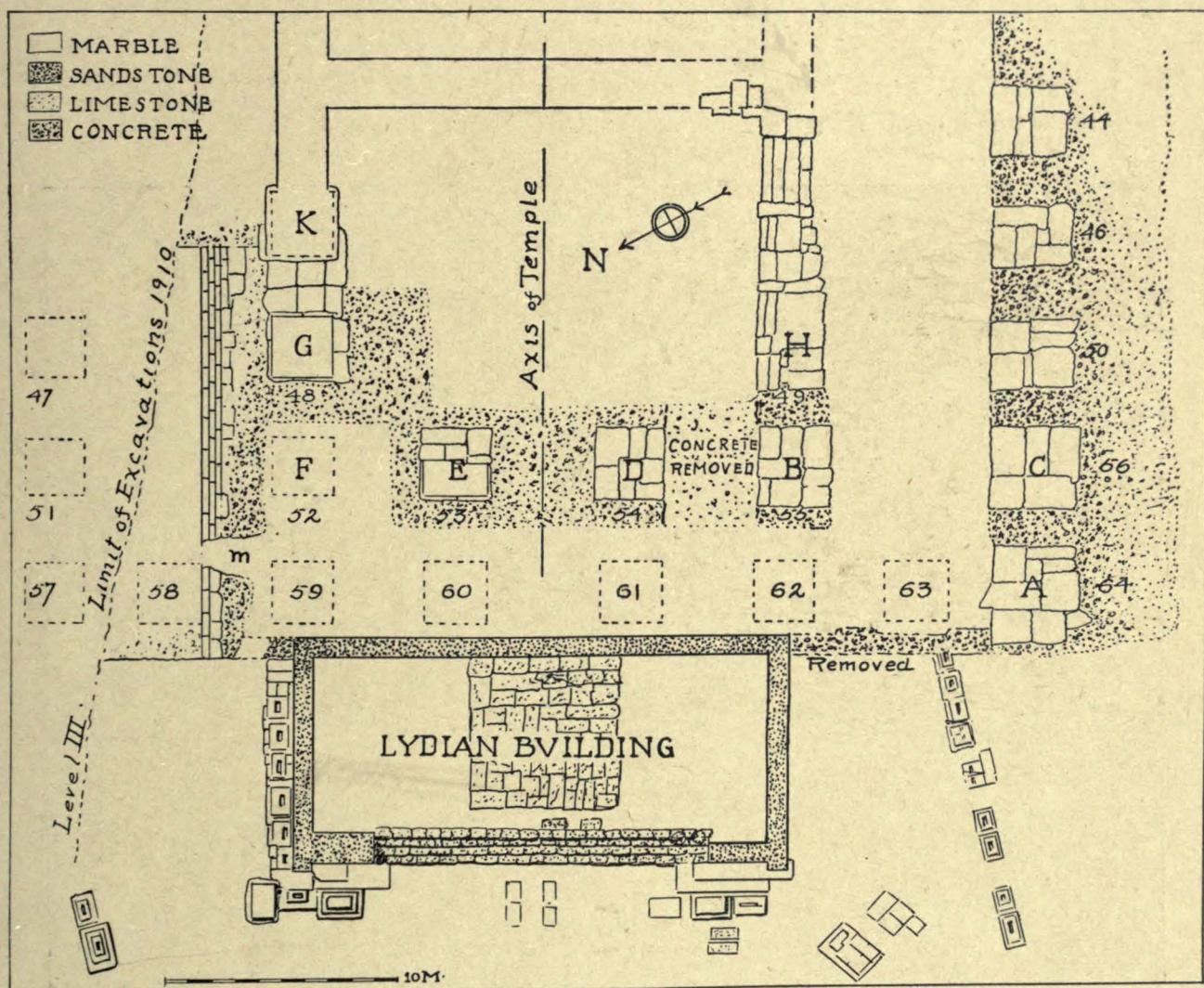
There is, however, to the west of the present temple structure, a building which is unquestionably a contemporary of the older temple and was very certainly connected with it. This is the structure called by us the Lydian Building, to which various references were made in the first volume<sup>2</sup> of these publications, and which is briefly described on pages 3—4 of the present volume. Here we have a building of purple sandstone covered with stucco, with finished walls rising about two metres above the surrounding levels. Its plan is oblong, with a flight of seven steps occupying the greater part of one long side — the side toward the west (Ill. 95 & Pl. I, Atlas). All the steps, excepting the two lower ones, are set inside the front line of the walls. The middle third of the building is occupied by a massive square basis of limestone in four courses the top one of which appears as the pavement of the building, on a level with the top step. It is not easy to imagine a restoration of this building as a structure with high walls and a roof, since there are no foundations for columns or other supports on the steps, and supports at the top of the steps would be out of line with the returned end-walls of the building. Nevertheless the walls at one point are preserved to a height of nearly a metre above the floor, and are very thick, as if intended to be much higher. It is not possible that a single beam for the support of the roof could have spanned the entire width of the steps, a distance of fourteen metres. There is also some difficulty in harmonizing this building, in its present position, with the temple which stood directly to the east of it; for its solid unbroken rear wall would have stood directly opposite to the west end of the temple. One solution is to make the Lydian Building an altar; but there is some objection

<sup>1</sup> *Forschungen in Ephesos*, 1906 I, Fig. 190.

<sup>2</sup> Cf. Vol. I pp. 41—44.



to this, unless we admit that the temple faced westward, or reconcile ourselves to a temple with its great altar in the rear. This solution seems however more probable when we remember that the pronaos of the archaic Artemision at Ephesos faced the west, where a prolongation of the platform, called by HOGARTH a "perron"<sup>1</sup>, occupies, as in this case, a space equal to the width of the temple cella. The sandstone



Ill. 95. Plan of Lydian Building, and Foundations at West End of Temple.

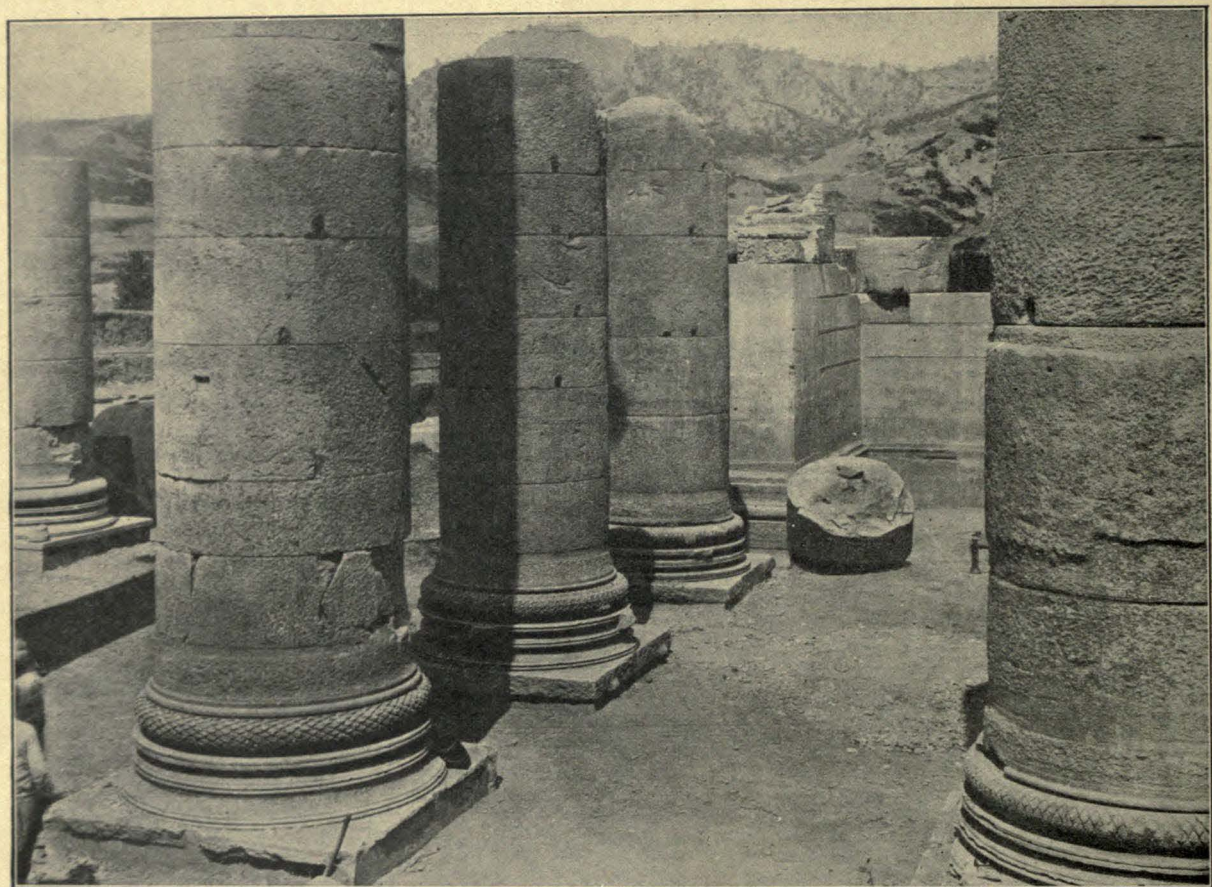
steps were only foundation for steps of marble, the ends of the two lower marble steps being still in place beside the returned end-walls (Ill. 2). It is worthy of note that this building, although centred exactly with the later temple, is not directly on axis with it, but is three or four degrees off, and that the two rows of stele-bases on either side of it, though parallel to each other and equally spaced on either hand, are not parallel to the building itself, but are turned a little toward the south of the main axis (Pl. A, and Pl. I, Atlas).

<sup>1</sup> D. G. HOGARTH, *Excavations at Ephesus*, p. 249.



## 2. RESTORATION OF THE PLAN.

The restoration of the temple plan from the data provided in the foundations is in the main a simple task, as it is shown in Plate A of this volume. We know beyond possibility of doubt, that the temple was a pseudo-dipteros, octastyle, with twenty columns on a side. We know that the only columns inside the peristyle were two in front of each of the four antae (Ill. 96) and two in both porches, elevated on pedestals on either side of the main axis, just inside the outer row and in line with the second column in front of each anta (Ills. 11 and 38). We know that the



Ill. 96. View in East Porch, looking West; showing Bases of Columns Nos. 5, 6, 17 and 13.

floor of the cult-chamber was elevated above the pavement of the pteroma; that this chamber was divided longitudinally by two rows of six columns each, and transversely by a light wall, or screen, near the west end; that the treasury chamber at the west, the floor of which was on the pteroma level, was provided with two interior columns; all these features are plainly shown in the foundations. We even know beyond question that the front portal was approached by a flight of steps between parotids (*cf.* p. 39) and that there was a massive base, probably for the support of a great cult-statue, in the middle of the cella. And yet there are several

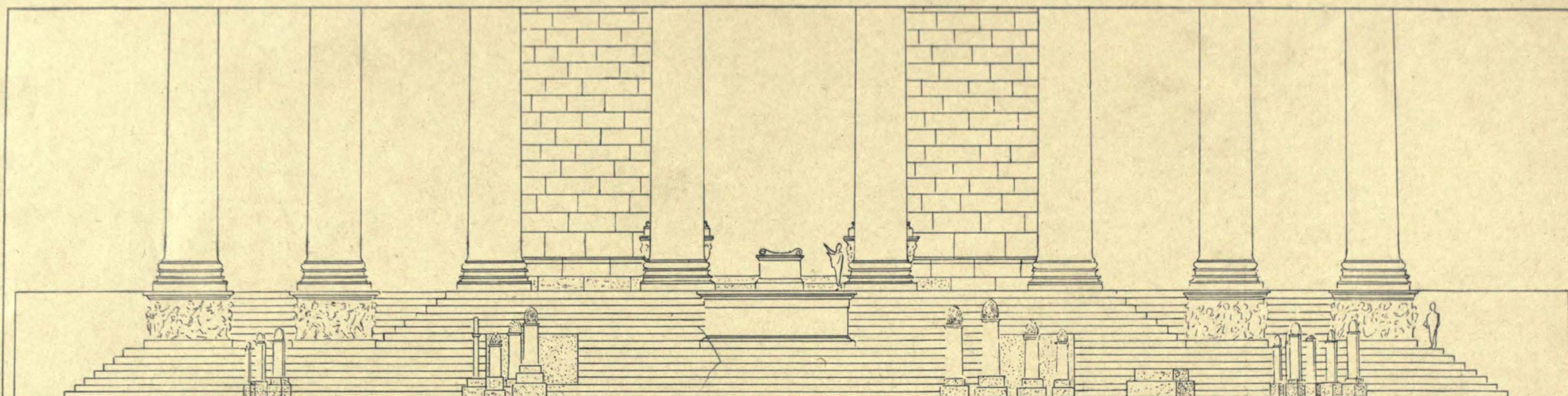


perplexing questions not answered by the remains. Directly outside the end walls of the cella is a great open space devoid of any kind of supports for a roof; inside the peristyle on the north side of the cella at its west end there is a flight of steps which seems entirely out of place in a peripteral structure (*cf.* p. 17, 33—36); and there is no means of knowing how the entrance to the treasury chamber was placed in the west wall, or whether there was direct communication between the cult-chamber and the treasury. These three problems must be discussed in connection with any attempt to make a complete restoration of the plan, and I am forced to admit that they have not yet been solved to my entire satisfaction.

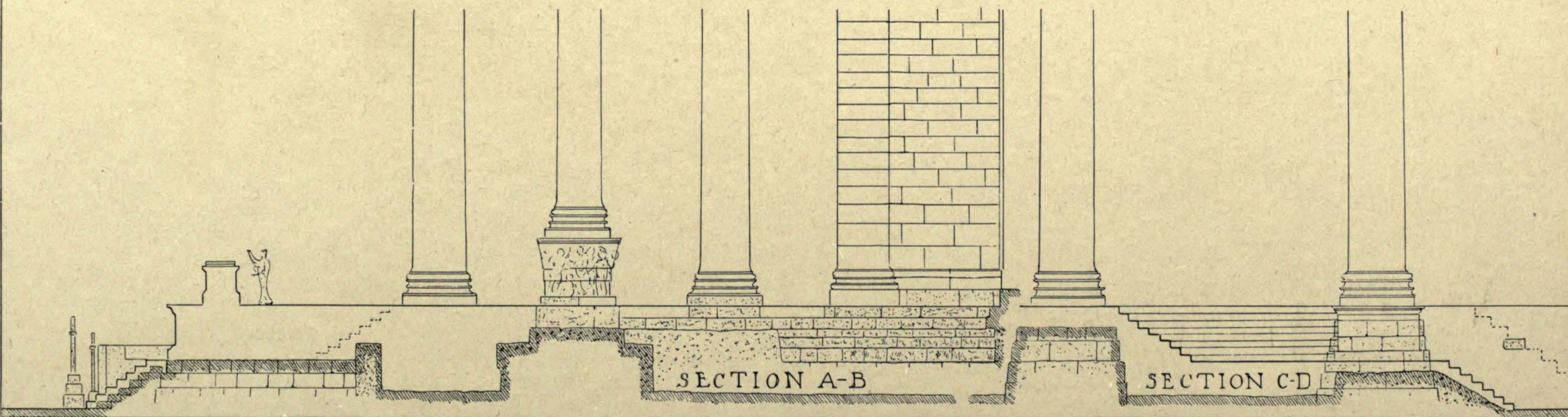
Let us take up first the question of the free spaces at both ends of the cella. These spaces are the same at both ends, and each is bounded by the end wall of the cella, the two antae, the columns in front of them, and the two elevated columns. The space measures in each case 20.30 m. from anta to anta, and 14 m. from the end of the cella to the elevated columns — a space too broad to be spanned by roof-timbers of any dimensions known to have been employed in Greek antiquity. This raises the much canvassed problem of the hypaethral opening in the temple roof, a problem properly belonging to the discussion of the superstructure, and which will be taken up later, but cannot be omitted from a description of the restored plan.

The problem of the steps is of another sort. They are perfectly represented in the remains, and it is quite possible that if less of them were *in situ* they could more easily be accounted for. As it is, there is more evidence than can be easily explained, as may be seen in Ill. 30 and by reference to Plate I in the Atlas. When mentioning this problem in another part of this volume (page 34) I suggested that the steps may have been built before the temple was made pseudo-dipteral, when it had porches at the ends only, and that they were covered up under the pteroma pavement when the peristyle was added. This last suggestion, however, seems untenable, first, because the foundations of the peristyle appear to be older than those of the cella, and second, because inscriptions of comparatively late date were found between the steps and the column foundations in front of them. Another hypothesis which may be brought forward in connexion with the restoration of the plan, is as follows. If these steps inside the peristyle are to be retained as having been in use in the completed plan of the temple, it is necessary to provide free access to them from the outside. This can be had only by placing the three columns of the peristyle which stand in front of them upon pedestals (Plate A) or upon a long continuous pedestal. At present there is a solid marble foundation for each column here, below the pteroma level, encased in concrete which fills the spaces between them. Enough of this concrete casing has been removed to demonstrate that the faces of these marble piers are not finished; but it is possible to imagine that the present rough faces were to have been sculptured eventually, and that it was necessary, owing to some unrecorded earthquake, to insert the concrete casing before the cubical masses of marble were carved into sculptured pedestals. But this plan involves an unusual arrangement at the end of the temple; for this inside flight of steps protrudes westward beyond the outside line of the eight columns of the west porch (*cf.* Ill. 29) and must have been returned and carried across the west front; so that the four middle columns would





ELEVATION  
SUGGESTION  
FOR  
RESTORATION OF STEPS AT WEST.



Ill. 97. Restoration of West End of Temple, incorporating the Lydian Building.



have stood at the top of the steps, without pedestals, while two outside columns at both ends and the two on the return on either side would have to be elevated on pedestals (Ill. 97). If this were true on the north side of the west porch, the scheme would, of course, have been repeated on the south also; but a simpler arrangement might have been employed in the east porch of the temple.

In this same connexion it is possible to imagine the Lydian Building as an altar at the rear of the new temple; for there seems to be no doubt that the later temple faced the east, even though the earlier one may have faced west, and no remains of an altar were found in the 55 m. excavated at the east end. The steps in question, when restored, would descend from the pteroma level, in front of the four middle columns, to the altar; or a high altar may have been set on the Lydian basis in front of the middle intercolumniation with steps on either side of it, and in that case, the altar steps descended, as now (Ill. 2), to the ancient level of the rows of stele-bases, where an open square would have extended to the riverside. If this restoration of the Lydian Building and the side-steps be accepted, it is not necessary to bury either of these features in the reconstruction of the perfected plan (Plate A, and Ill. 97).

The remains of steps outside the peristyle near the west end of the south flank call for (see pp. 19, 33) a suggestion, at least, of some restoration by which they may be accommodated to the scheme outlined above. The restorations of the fourth-century temple at Ephesos which have met with the most general acceptance, from a restudy of Wood's material<sup>1</sup> and from the more recent Austrian survey<sup>2</sup>, provide no continuous marble stylobate for the peristyle, and substitute a platform, or landing, outside the columns, which was approached by a continuous flight of steps. A somewhat similar restoration of the outer steps must be made at Sardis; for the masonry in front of the peristyle, except at the west end, extended outward in a flat surface, level with the bottoms of the plinths of the columns (Plate I, Atlas). This flat platform was not straight, but presents a very uneven outside line. At the east end it is widest near the ends, where it protrudes 2.40 m. and narrowest in front of the three middle columns where it is only 96 cm. wide (Ill. 98). Generally on the flanks it projects from a metre and a half to two metres.

The marble step, outside of columns Nos. 44 and 46, consists of seven blocks which are in place and two near by at the west which have been disturbed. There is also a large loose block lying at the east end of the row. The blocks are from 60 to 65 cm. wide and are about 38 cm. high, they are set in concrete and bear no marks or notches to indicate how the blocks next above them were set. Their outer face is 3.85 m. from the outside line of the plinths, and their upper surface is 1.04 m. lower than the pavement. Three risers, each 38 cm. high, would be sufficient to reach the level of the pteroma pavement, and steps with treaders 60 cm. wide would allow for a platform 2.10 m. wide at the top (Ill. 97). But the question arises, how can this arrangement be made to agree with that suggested for the steps inside the peristyle? The outside steps just described as a possible scheme of restoration are to

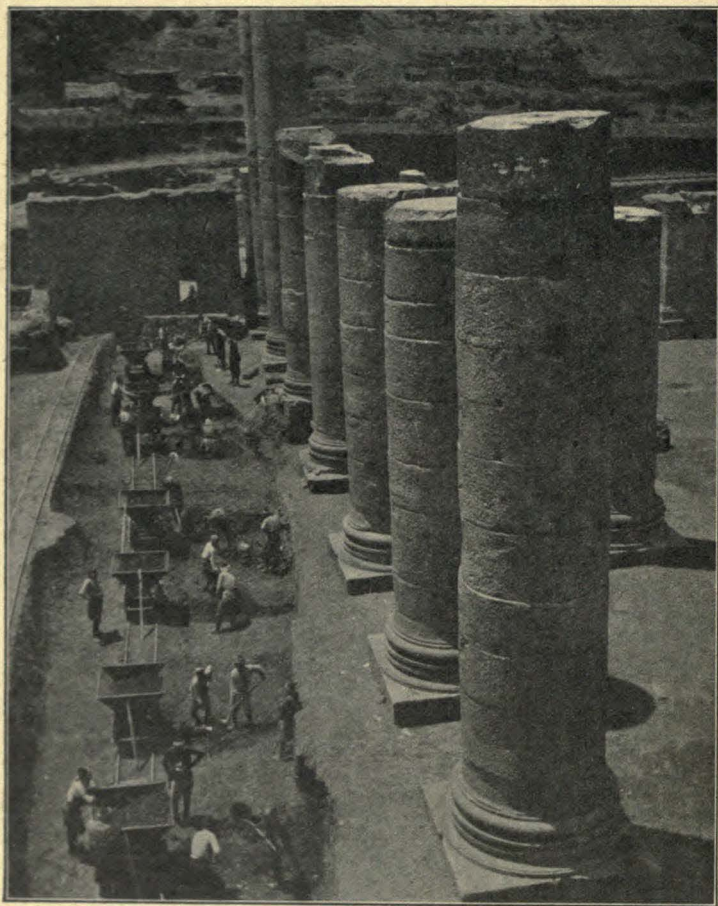
<sup>1</sup> LETHABY: *Greek Buildings represented by Fragments in the Brit. Mus.*, London, 1908 pp. 4—6, 9, 14, 17.

<sup>2</sup> *Forschungen in Ephesos*, I, pp. 221—236.



be thought of only as architectural features proportioned to the scale of the building; the inside steps, on the other hand, are practicable steps of easy ascent. At the east end it would be necessary to restore practicable steps opposite to the three middle intercolumniations, leading up to a narrow platform at this place where the masonry is narrow (Pl. A) and flanked by parotids like those which occupy corresponding positions in the Didymaion. On either side, where the masonry projects farther out, there would be steps of larger proportions which would be returned and carried down the flanks.

At the opposite end of the temple, where we find steps of the smaller scale within the peristyle, the arrangement must have been more complicated. As I have explained, these steps within the outer columns on the north side must have been returned and carried across the west end of the temple directly in front of the four middle columns, allowing for a possible break for an altar at a high level, and this requires that the two outer columns at the ends shall have been elevated upon



Ill. 98. The Columns of the Front Row. View from the North.

pedestals. These steps were seven in number. In front of the three, or perhaps only two, of the middle intercolumniations they descended to the pavement level of the Lydian Building. At their east ends on either side they were probably returned across the ends of the pteroma and terminated against the pedestal of the fourth column from the west end (Pl. A. and Ill. 29). Then, if the Lydian Building is to be restored as an altar, and the original level in front of that structure and at its ends is to be preserved, instead of being buried, it becomes necessary to add six more steps outside the twelve columns of the peristyle — eight in front and two on either side — in some such manner as I have suggested in Ill. 97. These outside steps would terminate on the flanks against a parotid at the fourth column from the end on

either side, beyond which steps of the larger scale, leading up to a wider platform, would have to be restored in order to make use of one of these steps which is still in place on the south flank, as I have shown above. The large loose-lying block may have capped



such a parotid. By such an arrangement only six of the Lydian stelae would have to be sacrificed and these, as a matter of fact, are the ones which exist only in foundations; while those beyond the line of the proposed steps preserve their bases entire, each with the dowel hole for receiving the tenon at the bottom of a stele.

The problem of the approaches, or entrances, to the treasury chamber is even more involved. Here we have a considerable part of the north wall perfectly well preserved on the interior from end to end, showing a highly finished surface down to the level of the pavement (Ills. 15 and 27). The south wall has been entirely destroyed above its foundations, but the west and east walls, though sufficiently well preserved to afford data for a complete restoration under ordinary circumstances, present obstacles to the making of a simple and logical reconstruction on the lines of similar features known in Greek temples. In the west wall we find on the outside a single course above the pteroma level extending almost from end to end (Ills. 19 and 20). For a distance of 6 m. from the ends this course is highly finished and shows the marks where the pavement of the porch joined on to the wall, while in the middle third of the wall, for another 6 m., it is left only partly finished; and this although the floor level of the chamber within is even with that of the pavement outside, so that steps at least one course high would have been necessary below the portal. The rough finish of the middle blocks suggests steps, and the lack of foundations below them suggests a doorway. On top of this course there is no suggestion of a threshold, though there are standing upright two large blocks, one smaller than the other and both much mutilated (Ill. 20), which might have been set in the jambs of a portal. The inside face of the wall presents more difficulties. As has been said above, the north wall of the chamber is highly finished from end to end (Ill. 15). The line of the inside face of the west wall is to be almost exactly determined by the finished end of the block at the corner of the north wall, and by the probable thickness of the west wall itself. But this east side is not only very roughly dressed on the inside (Ill. 99), but is so unevenly laid that some of its blocks project well outside the line of its inner face as determined above, as may be seen by a dotted line in Plate I of the Atlas. This wall could not have been faced with finished blocks because there is no foundation for such a structure, nor could the blocks have been cut back and finished smoothly as they stand, because some of their faces lie within the line of the inner face as determined. Another part of this wall, with its roughly finished and projecting blocks in the course above the pavement level, is to be seen in Ill. 100. It is plain, in any case, that, if there was a portal in the west wall, its threshold was elevated at least one course above the pavement of the porch, that it was approached by two or more steps, and that it was necessary to descend by steps on the inside to reach the pavement level of the chamber within. The unfinished state of the inner face of this wall is perhaps to be explained, as Mr. READ has suggested, by the former existence of a low platform, intended possibly for the placing of ex-votos or documents in stone, all along the wall on either side of the steps, the latter being only as wide as the portal.

The east wall of the treasury is preserved at the north end. Here a metre or more of highly finished wall joins on to the finished wall of the north end of the



chamber (Ill. 15). There is nothing to prevent the continuation of this wall to the opposite end; but this gives no clue to the means of approach from the cult-chamber,

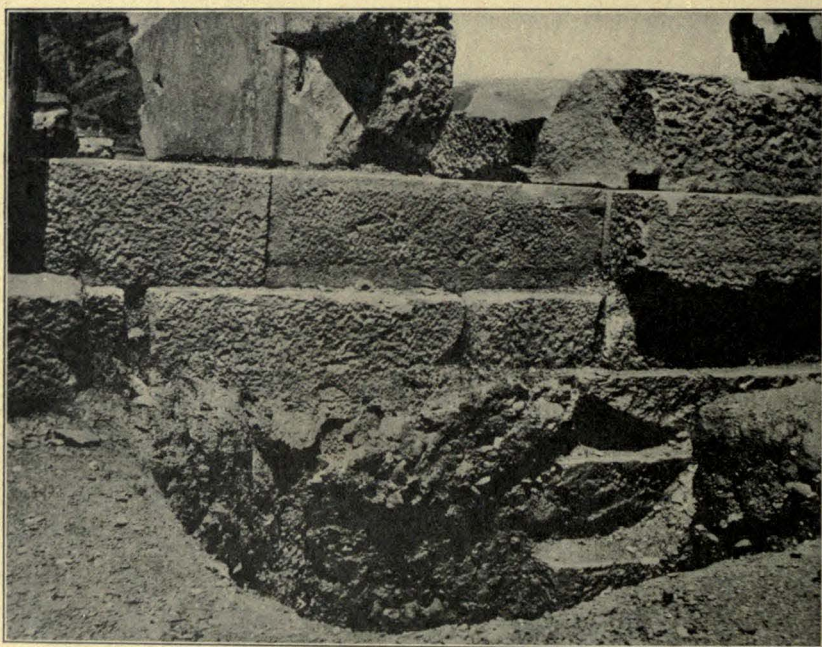


Ill. 99. Interior Angle of Treasury Chamber at N.W.

if there was communication between the two. To the east of a line drawn to complete the finished part of the east wall is a mass of stonework which constitutes the lower part of the west wall of the cult-chamber. This wall, the only one in the temple consisting of a conglomeration of quadrated marble blocks and roughly hewn blocks of limestone and sandstone, is unusually thick; and since the pavement of the cult-chamber was over a metre higher than that of the treasury, it is

in a sense a foundation. Had there been any doorway or doorways between the two chambers, steps would have had to be provided; but this wall, though preserved to the height of the pavement level of the cult-chamber, shows no evidence of a provision for steps. It is necessary therefore in any restored plan of the temple in early Hellenistic times to leave unsolved the question of direct communication between the two chambers of the cella.

But certain curious modifications of the interior appear to have been introduced at a later time. Two crudely



Ill. 100. Interior of West Wall of Treasury.

constructed masses of masonry like foundations for piers or columns, built of blocks



of uneven size and of different materials, and containing much second-hand material, were erected partly upon the foundations of the west wall of the cult-chamber and partly to the east of it, in a position to stand midway between the end columns of the cult-chamber and those of the treasury. It would appear that, at this time, a large part of the wall was removed to its foundations, and that the treasury was converted into a sort of ante-room to the cult-chamber. Of course this would mean that a broad flight of steps was erected upon the foundations of the old wall to provide approach from the lower to the higher level. The columns of the treasury are not in line with those of the cult-chamber, and were of a slightly larger order, unless they were raised on pedestals. Therefore the supports referred to above would necessarily have been in the nature of piers to receive the epistyles which were not in line, so as to make the transition from the larger to the smaller order.

Now let us observe the great basis, composed of concrete, directly west of the light dividing wall of the cult-chamber (Pl. I, Atlas, Pl. A, text, and Ill. 14) and recall the fact that it was in this part of the cella that DENNIS discovered the colossal female head<sup>1</sup>, as determined by the remains of his trenches shown in Map II of Vol. I. This head has now been identified as a portrait of the Empress FAUSTINA. It is my belief that the great concrete basis was made to hold the pedestal of the statue of FAUSTINA represented as Artemis which stood back to back with the old cult statue of Artemis on the other side of the light dividing wall, that the empress' statue faced westward, and that the old west wall of the cult-chamber was removed, entirely or in part, in order to convert the cella into a double sanctuary hall, like that of the temple of Venus and Roma; the shrine of the Divine FAUSTINA having two floor levels separated by steps.

A restoration of the light dividing wall is of course impossible, and belongs properly to the discussion of the superstructure; but while mentioning the double cult-chamber it may be interesting to note that a coin of ELAGABALUS<sup>2</sup>, illustrated later in this volume (Ill. 105), depicts the *xoanon* cult statue of Artemis standing between two pairs of columns, under the arch of an arcuated middle intercolumniation. This is manifestly a late, oriental, device of the late Roman period, but it probably gives a hint as to the manner in which the wall behind the cult statue appeared in the beginning of the third century after CHRIST. This coin, according to HEAD, represents two temples and two divinities, one being Artemis, the other a male deity. Two octastyle temple fronts are shown set at an angle to each other, the statues are shown in tetrastyle aediculae above them, and by this means the exterior and interior views of the shrines were represented. It seems not absolutely certain that the little figure at the left represents a male, and I would suggest that the coin shows, not two temples, but opposite ends of a single temple with a double function, one the old cult of ARTEMIS, the other the new cult of the Divine FAUSTINA or FAUSTINA-KORE.

<sup>1</sup> Cf. Vol. I, 1, pp. 7 and 8.

<sup>2</sup> *B. M. Cat. Lydia* p. 265, No. 171, Pl. XXVI, fig. 10.



## 3. RESTORATION OF THE SUPERSTRUCTURE.

The walls of the temple, its columns exterior and interior, and other important features of the superstructure have been described in the chapter on Construction. Very little need be left to conjecture in laying out restorations in this connexion, with the material at hand, so far as the general arrangement of the building is concerned. And indeed many of the less important details may be restored without recourse to conjecture. We know the height and form of the columns, the height of the walls and their treatment, the fashion of the great doorway, and even the arrangement of the steps in front of it. Above the columns, however, conjecture must be brought to bear upon our restorations. We have sections of architrave; but we may imagine the entablature with or without a frieze, since we have no remnant of such a feature. The actual form of the cornice and gutter must be conjectural, although we have one of the waterspouts from the cornice in the form of a lion's head (*cf.* p. 51). As in all other Greek temples, we can only restore the structure of the roof, its timber-work and other details of construction, from the little that the texts have to tell us about such features, from analogous remains and from common sense. We do not know, in the present case, even the angle of the slope of the roof; for no remains of a raking cornice have come to light, and we shall be obliged to determine this detail by following the restorations of other temples in which some data for this particular feature have survived. We may be sure, however, that the temple was roofed over: we might assume this from the fact that an inscription carved upon its walls shows the building to have been in use, and we also have a quantity of marble roof-tiles, described on page 52, which were found scattered over the whole area of the temple, of such dimensions that they could have belonged only to this building.

The discussion of the restoration of the roof of our temple forces upon our attention the question, already touched upon in our review of the plan, as to the large spaces in front of the east and west ends of the cella which have no foundations for the supports of a roof. These spaces, as I have said, are too large to have been spanned by a wooden roof, and we can therefore consider their roofing without entering into a general discussion of hypaethral lighting in Greek temples. I have never been able to bring myself to accept the theory, so often brilliantly defended, that there were skylights in the roofs of Greek temple cellas. No real necessity for such a means of lighting appears to me to exist, since the light admitted through one of those huge portals, which often occupied almost a third of the wall space at the end, was sufficient for every purpose to which we believe these temples were put. The presence of such an opening, on the other hand, would have laid open the interior unnecessarily to the inclemency of the weather, and would have exposed the treasures of the temples, such as gold and ivory statues, to great danger from the elements and at the hands of man. At Sardis however we are confronted with a purely practical problem, not that of providing light for the cella, but that of roofing a broad open space within the temple structure. We are in my opinion forced to assume that this space was not roofed, because, with the data on hand, and according to our

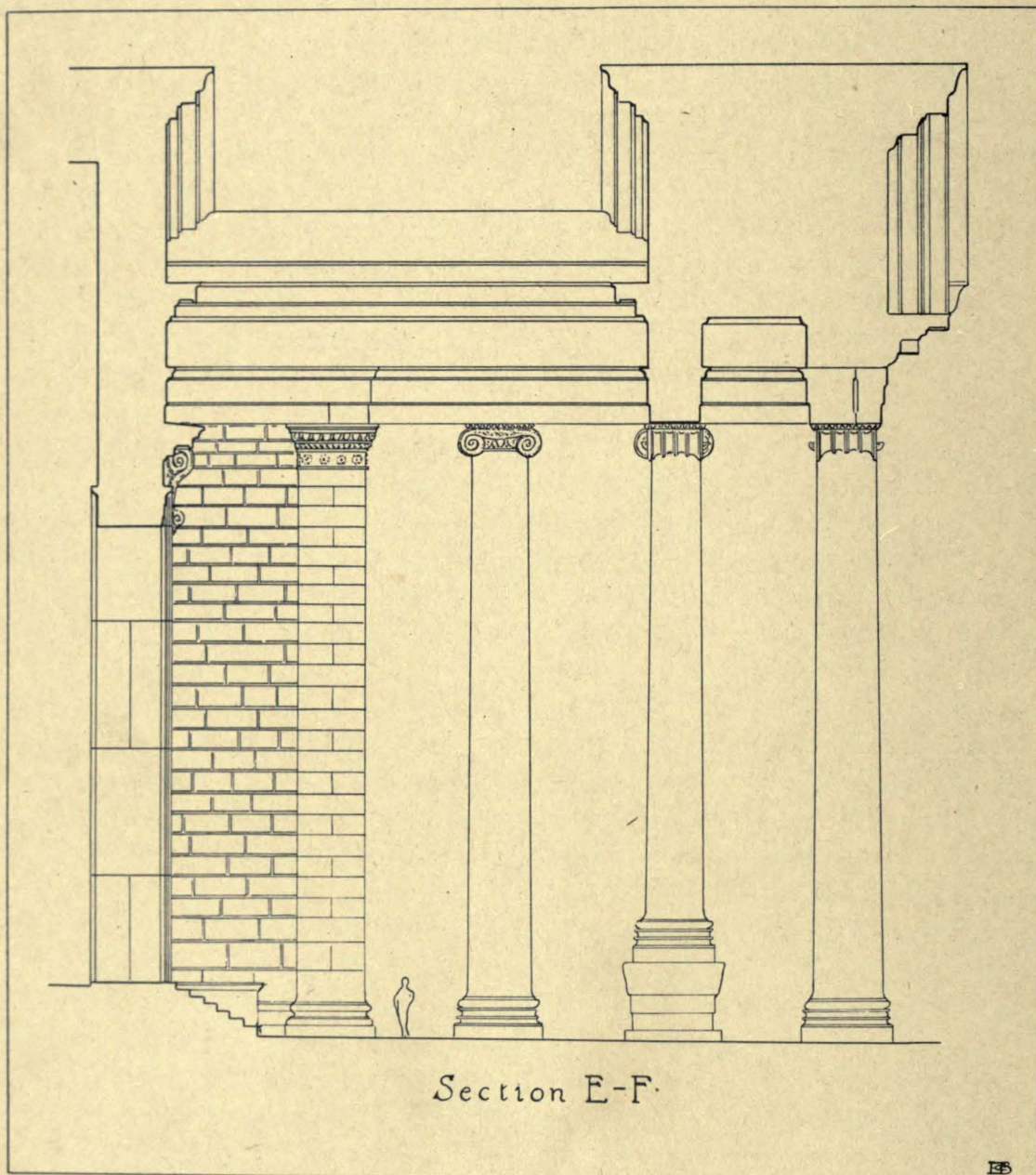


knowledge of beam-construction among the ancients, it could not be roofed. If we accept this position, it then remains for us to discuss the probable, or possible, construction of such an opening in connexion with the rest of the structure. PEYSSONEL's drawing (Ill. 4), made a hundred and seventy years ago when two columns on the north side of this space at the east end were still standing, suggests that the capitals of these columns, and of those corresponding to them on the other side, were set with their longer axes parallel to the major axis of the temple, and at right angles to the capitals of the columns of the front row, so that their volute-faces were turned toward the open space and were parallel to the capitals on the flanks. We must also assume that the capitals of the two elevated columns, which bounded the open space on the side opposite the portal, were turned at right angles to those on the flanks and also faced upon the open court. This compels us to provide, for the second columns in front of the antae, corner capitals with their volute-faces turned outward in both cases, since these columns occupy the angle of the open space. Otherwise we should have a capital with its volute-face under the soffit of the architrave and facing the bolster of the capital of the next column. The question is one of using a corner capital at the interior angle of an open space instead of at the exterior angle of a roofed construction. PEYSSONEL's drawing also shows the architrave carried by the two columns on the north extending to the outer face of the capital. Above the columns, the architrave member would have been carried all around the open space; above this would probably have been a frieze, even if the exterior order had none, and then a cornice (Ill. 101*a* and *b*). The employment of a frieze member here, if no frieze existed in the outer order, would raise the cornice almost to the level at which the angle of the roof of the pteroma would strike the opening in the roof. Otherwise in the restoration a wall of some sort would have to be devised to fill this space between the top of the architrave and the rafters of the pteroma roof. In either case a gable, or pediment, would have to be restored above the doorway (Ill. 101*b*) and another, facing the first, over the two elevated columns and the spaces on either side of them. These gable ends could not terminate at the ends in sharp angles, but would have to be cut off, unless, as in the restoration, a double-pitched roof be substituted for a roof of one slope over the pteroma on either side of the open court.

Another feature preserved at Sardis, but known in only one other Greek temple, is the column raised upon a cubical pedestal. These pedestals call for no restoration other than the supplying of imaginary sculpture where sculpture is now lacking but was manifestly intended to be; of the two which are in place each has a third of its original column standing upon it (Ills. 102 and 103) and two more are to be supplied at the west by analogy, and from unmistakable evidence as described on page 16. We cannot observe these strange features without being reminded of the fragments of sculptured pedestals which were discovered in the excavations of the Artemision at Ephesos, and are now in the British Museum. The pedestals in the temple at Sardis, which plainly were to have been sculptured, may, it seems, shed light upon the much disputed question of the placing of the sculptured pedestals at Ephesos. The fragments of those from Ephesos were not found *in situ*, and their relation to the sculp-



tured drums has vexed archaeologists ever since they were discovered, because PLINY, who mentions the sculptured drums, says nothing about the pedestals. Restorations have been proposed by several authorities, of which that by the late Dr. MURRAY is probably the most widely known and the most generally accepted<sup>1</sup>. Dr. MURRAY's restoration has been criticised by W. R. LETHABY<sup>2</sup> who has suggested numerous



Ill. 101a. Restoration of East End.

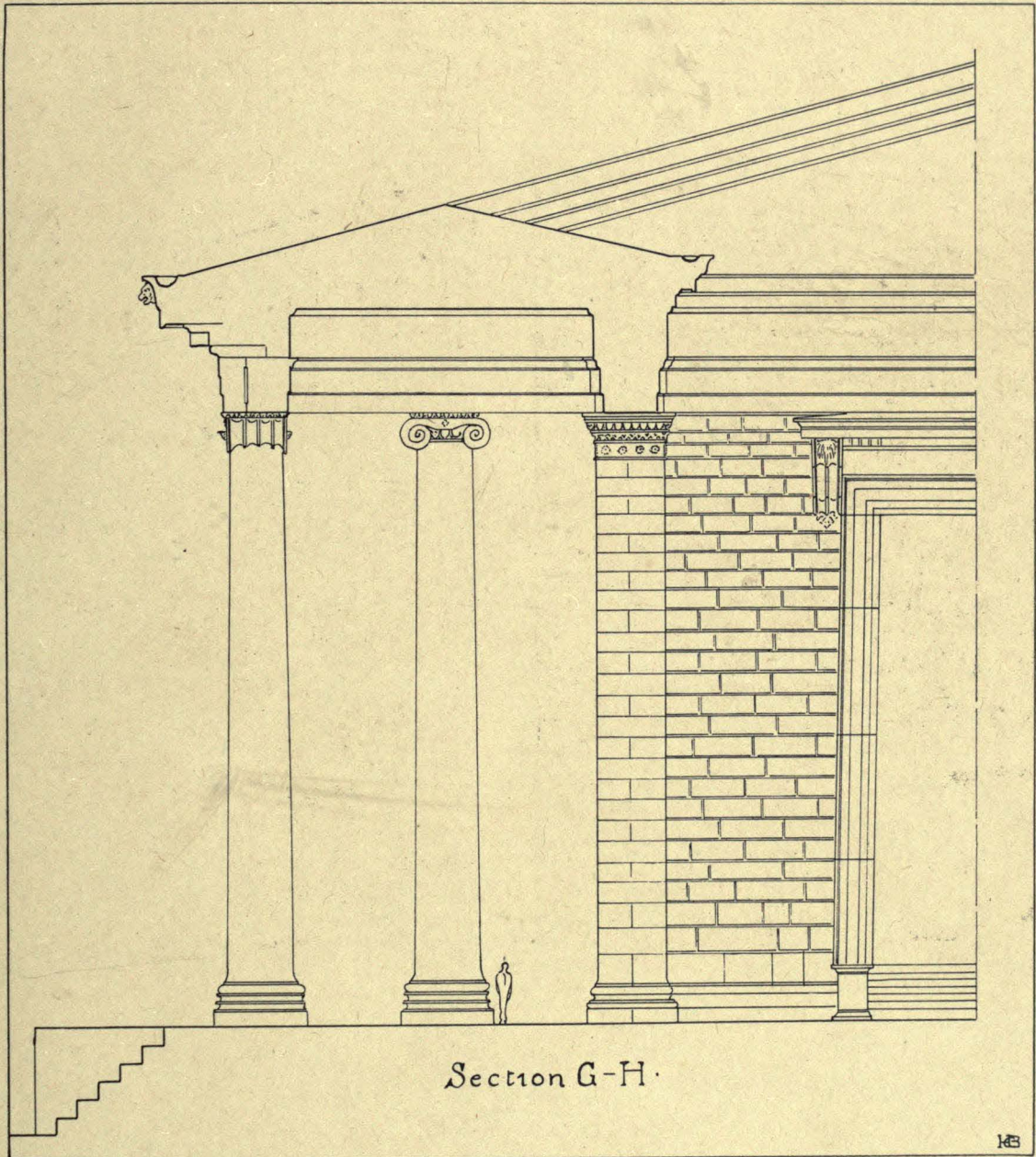
changes. All of the studies for these restorations were made before the excavations at Sardis were undertaken. Dr. MURRAY would not have the pedestals set on the pteroma level and provided a place for them in front of the steps, placing the

<sup>1</sup> Cf. A. CHOISY, *Histoire de l'Architecture*, Paris, p. 344.

<sup>2</sup> *op. cit.*, pp. 6-25.



sculptured drums above them; LETHABY places them both on the platform in separate rows. Neither of these authorities places the sculptured drums upon the ordinary bases, as was certainly the case in the columns of the archaic Artemision, and as they are shown in WOOD's restoration; MURRAY preferring to place them directly upon the platform, and LETHABY to set a plinth under each. It has occurred to none of the



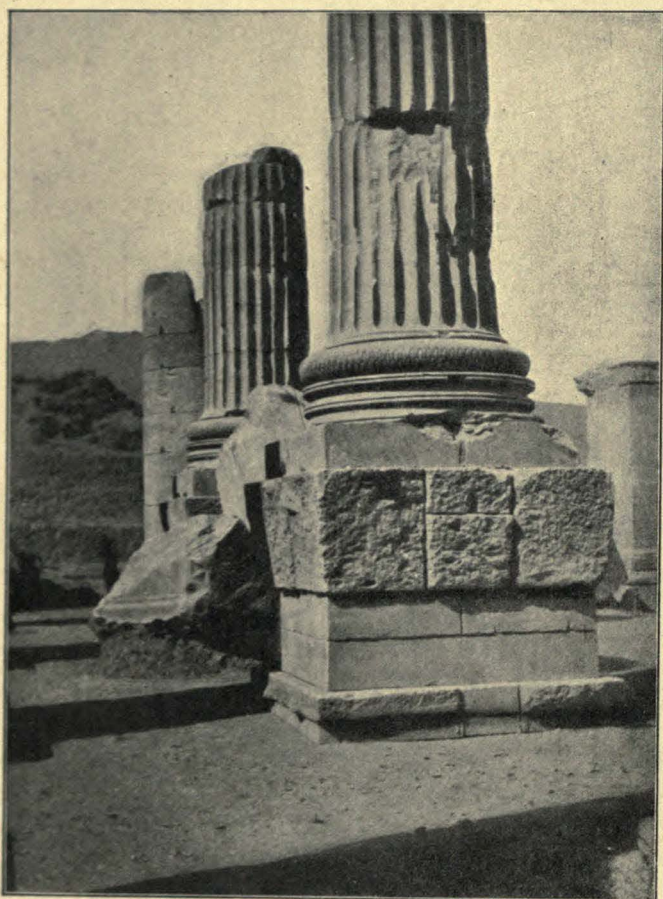
Ill. 101b. Restoration of East End.

restorers to introduce columns of a smaller order upon the sculptured pedestals; for there has until now been no precedent for using columns of two different scales in the same row or in a single portico. This precedent is offered by the discovery at Sardis. 2

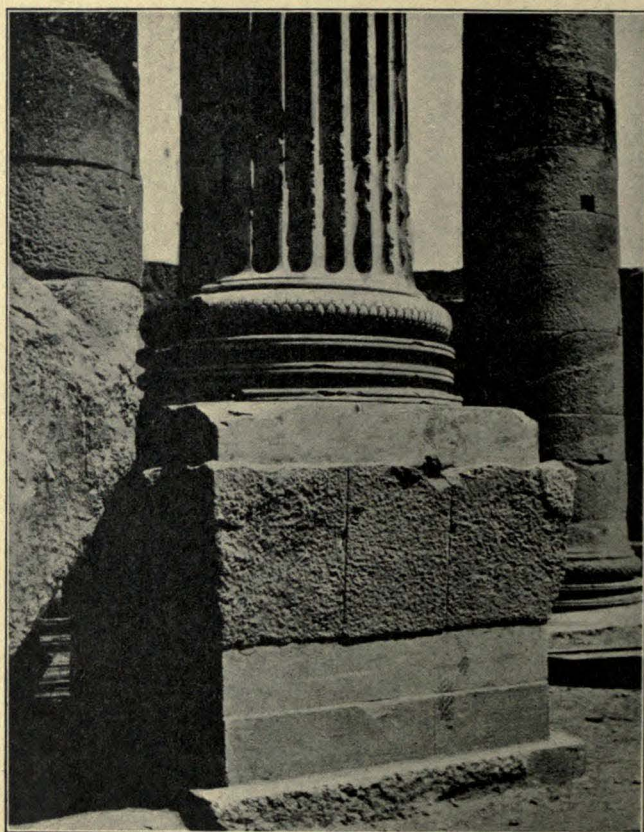
LETHABY states that "the bottoms of the fluted drums are exactly the same size



as the sculptured drums"; it should be possible therefore to place the sculptured drums upon the ordinary Ionic bases, and to avoid the very ugly effect produced when the astragal at the foot of the drum rests either upon the pavement or upon a plinth; for the bottom of the sculptured drum like that of any other Ionic shaft is provided with an apophyge, fillet and astragal. The circular markings found by Dr. MURRAY at the top of the pedestal do not necessarily give the actual bottom diameter of the member set upon it, for the mouldings at the foot of the bottom drum were often much larger than the bearing surface under them, as may be seen by referring to Plate VII of the Atlas. The lower drums of the columns at Sardis



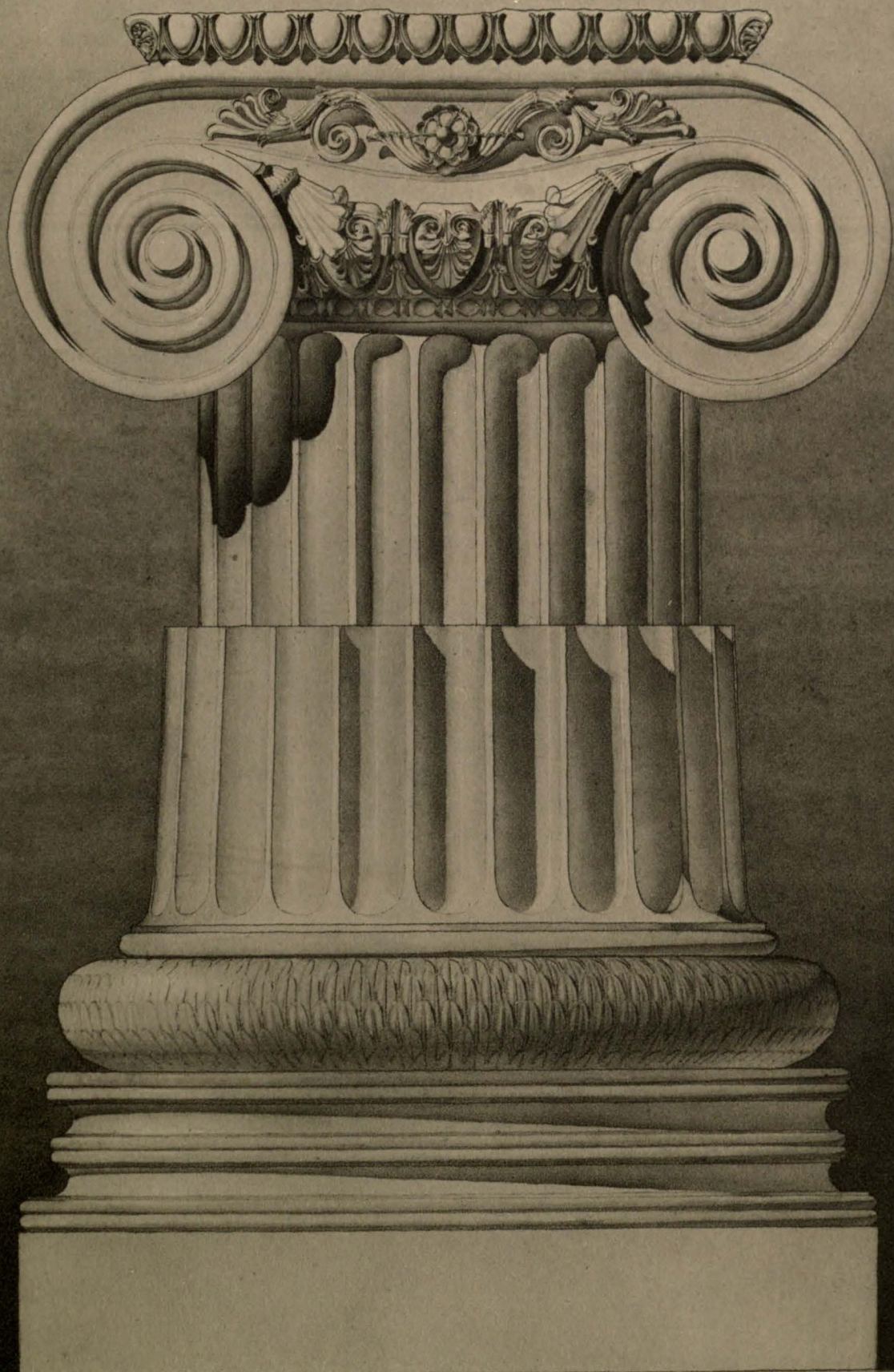
Ill. 102. Column No. 11. From the Northeast.



Ill. 103. Column No. 12. From the Northwest.

are neither sculptured, nor fluted; for the present shafts do not belong to the original construction but to a comparatively late restoration, yet it is not impossible that they too were intended to receive a sculptured decoration, provided the apophyge were made as great as it is in the two fluted columns standing on the pedestals. The fragments of pedestals found at Ephesos are comparatively few; and it is not necessary to assume that the pedestals were numerous. For that reason I should be inclined to place two of the Ephesos pedestals in positions corresponding, as nearly as possible, to those of the pedestals at Sardis, perhaps between the antae, to provide them with columns of smaller scale than the rest, and to place the thirty six sculptured drums —





ONE METER

MATTHEW BELMONT

DETAILS OF COLUMNS 11 AND 12.







the number required to conform to the ancient descriptions — upon ordinary bases in front of the pedestals and elsewhere in the portico as well as in the front row.

The Temple at Sardis, as we see it today, and as we may conjecture it in restorations, to whatever date it may belong, was probably strongly influenced by its predecessor, a Lydian structure built under King CROESUS or before his time. As yet we have discovered at Sardis but few remains of Lydian architecture and practically none that may be recognised as those of any Lydian temple; hence it is difficult, from the few fragments that we have, to form any notion of what Lydian temple architecture was like. When however we come upon a feature so unusual, so foreign to anything known in the whole range of Hellenic architecture, as these columns raised on pedestals, we may well ask whether they were not possibly taken over from purely Lydian sources. From the earliest times we note in the architecture of the peoples of Nearer Asia a tendency to give special significance to two columns flanking the entrance to a holy or a particularly important place; we find this feature in the Biblical descriptions of the work of HIRAM king of Tyre on the temple of JEHOVAH<sup>1</sup>, in the architecture of the Hittites<sup>2</sup>, where the columns are elevated upon sculptured sphinxes as pedestals, and also a somewhat similar treatment in the Assyrian reliefs which depict shrines with distyle porches<sup>3</sup>. It is customary to assume that the archaic Artemision at Ephesos is an expression of purely Ionian culture, although the name of CROESUS is the only one that has been found carved upon its fragments. We do not know how far the influence of CROESUS extended to the design and construction of the early Artemision, whether his connexion with the edifice was limited to the erection of most of the columns, as HERODOTUS states, or whether he was chiefly responsible for the entire structure. At the time of the erection of the temple, Ephesos was a part of his kingdom of Lydia, so that this last supposition is not improbable. In that case one may think of the Artemision as perhaps a Lydian building, and of the famous order which seems to have set the fashion for future Ionian buildings as being possibly a product of Lydian, rather than Ionian, art. The influence of CROESUS extended, as we know, even so far as Delphi, where the gifts of the Lydian monarch were conspicuous among the treasures of the shrine of Apollo, and it is Delphi which gives us one of the earliest examples of an Ionic capital in Europe, the capital of the Naxian column which is not unlike those of the Artemision. There are among the finds at Ephesos fragments of carved pedestals in the archaic style, as well as fragments of sculptured drums; this fact implies that the later pedestals were simply reproductions, in later style, of the more ancient ones, and if we admit that Lydian influence was an important factor in the design and construction of the archaic Artemision, we would naturally single out these pedestals as features peculiarly Lydian, since they do not appear in Greek architecture elsewhere. The discovery of pedestals at Sardis, in a temple which was a successor of an old Lydian structure, tends to support such a theory.

<sup>1</sup> I KINGS, VII. 21.

<sup>2</sup> Cf. JOHN GARSTANG. *The Land of the Hittites*, London, 1910. Pls. LXXVIII and LXXXII.

<sup>3</sup> Cf. F. BENOIT, *L'Architecture*, Vol. I, *Antiquité*, pp. 141, 145, 153, 157.

Sardis Expedition II.



As has been said above, we have no fragments of architectural details in stone which are known to have belonged to the archaic, Lydian, temple upon this site; but outside the temple area numerous bits of detail in terra-cotta have been discovered which unquestionably belong to the archaic period. These fragments, (Ill. 104) which in some cases still preserve much of their colour, are to be published elsewhere with measured drawings and probably in colour. They are introduced in the present chapter only to call attention to their striking resemblance to some of the details



Ill. 104. Terra-cotta Fragments from Various Parts of Sardis.

unearthed by HOGARTH at Ephesos, and published as fragments of the sixth-century Artemision<sup>1</sup>; for the egg-and-dart ornament of both is identical. In one of these fragments we have the palmette and anthemion in their simplest forms, illustrating their derivation from the lotus types of the Orient.

#### 4. RESTORATION OF THE DETAILS.

The restoration of the architectural details of the temple, as presented in the plates of the Atlas, calls for brief comment. In the first place it should be noted that these details were accurately drawn in full size and have been reduced carefully

<sup>1</sup> HOGARTH, *Excavations at Ephesus*. Pls. V, IX, X.



to the scale of one quarter of the actual size. For this reason it was deemed wise to omit writing in the measurements which often tend to blur the lines of a drawing, and to present the Plates in such a form that precise measurements could be obtained by applying either the centimetre or the inch scale.

The restorations in Plate II were all made from the evidence of the details themselves. The photographs of the fragments of the anta-cap (Ills. 47 and 48) show all the elements excepting the uppermost member, and that is preserved in the fragment of the cap which now rests upon the top of the southeast anta. The profile of the anta base was drawn from the sections of this member which were finished; the dotted lines give the general outline of the unfinished parts. In Plate III the large detail was drawn entirely from pieces of the lintel and jambs of the doorway which are well preserved, like that shown in Ill. 50, the carving being drawn in actual projection, as are all the ornamental details of these plates. The small scale restoration of the doorway in the same plate is composed from parts that are *in situ* and from the disjointed parts of the portal decoration which were recovered in the excavations. The lower sections of the jambs are in place, the height of the opening is conjectured, the mitred mouldings were restored from the original blocks which were found near the threshold, and the consoles were set by marks of the lintel upon their sides and upon the mitred blocks of the impost. Only the upper parts of both consoles were found, the lower third is restored in both cases. The frieze is inserted from marks on the sides of the consoles which indicate a sculptured frieze capped by an ovolo bed-mould. This bed-mould has been represented in the restoration as an egg-and-tongue. The restored position of the cornice in its relation to the console is not absolutely certain, although all the elements of the restored cornice were found in the excavations; these are shown in a photograph (Ill. 51). The tops of the consoles show that the cornice probably rested upon them. The console presented in Plate IV was drawn from two broken consoles, one shown in Ill. 52, the other in two photographs (Ills. 54 and 55). As I have said above, the lower volute is conjectural, drawn from suggestions given by other details and from similar details found elsewhere.

The roof-tiles depicted in Plate V were drawn from numerous originals found in the excavations, of which no restoration was necessary. The angle antefix, photographs of which are shown in Ills. 86 and 87, is about half conjectural, the upper out-curving end of the great anthemion and the scrolls on the left being added with the aid of suggestions given by other somewhat similar details and by fragments.

Plate VI involves no restoration whatever. In Plate VII the scotias and double reeds of the base are drawn completely from sections of the parts which were finished. In Plate VIII the only details restored are the foliate designs on either side of the rosette on the volute band, and these were studied from similar details which are well preserved in the capital of one of the standing columns (see Ill. 70). In Plates IX, X, and XI no restorations were necessary. Plates B and C of this volume were reduced from Plates VIII—XI in the Atlas.

The restored sections (Ills. 101 *a* and *b*) which were drawn as suggestions for the restoration of hypaethral openings in the porches of the temple, in so far as they



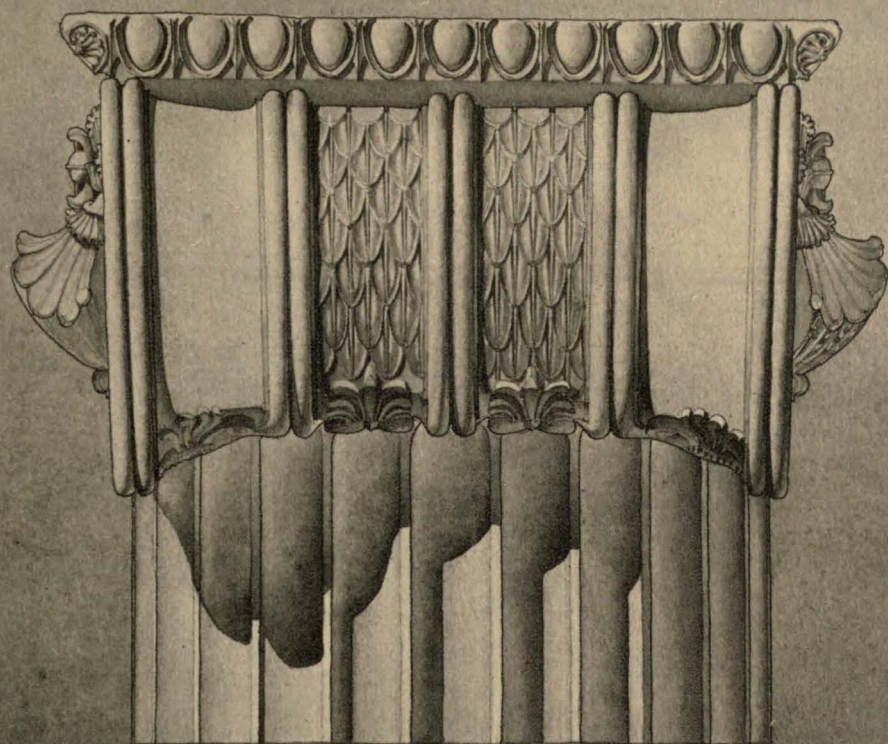
include restorations of details not presented in the plates, are purely hypothetical and are not to be taken as carefully studied suggestions for the restoration of the entablatures<sup>1</sup>. There can be no doubt as to the form of one face of the architrave; but whether it is the outside or inside face must be left to conjecture. The omission of the frieze from the exterior order and its inclusion in the order of the hypaethron is based entirely upon theory. But the general scheme of the outside cornice is based upon the most recent studies of this detail in the later Artemision at Ephesos<sup>2</sup>, employing the lion's head water-spout, which we have, as a basis for the scale of the sima or gutter. The minor details shown in these restorations, such as the stelae at the west end, are restored from their bases which are in place and from stelae found in the immediate vicinity.

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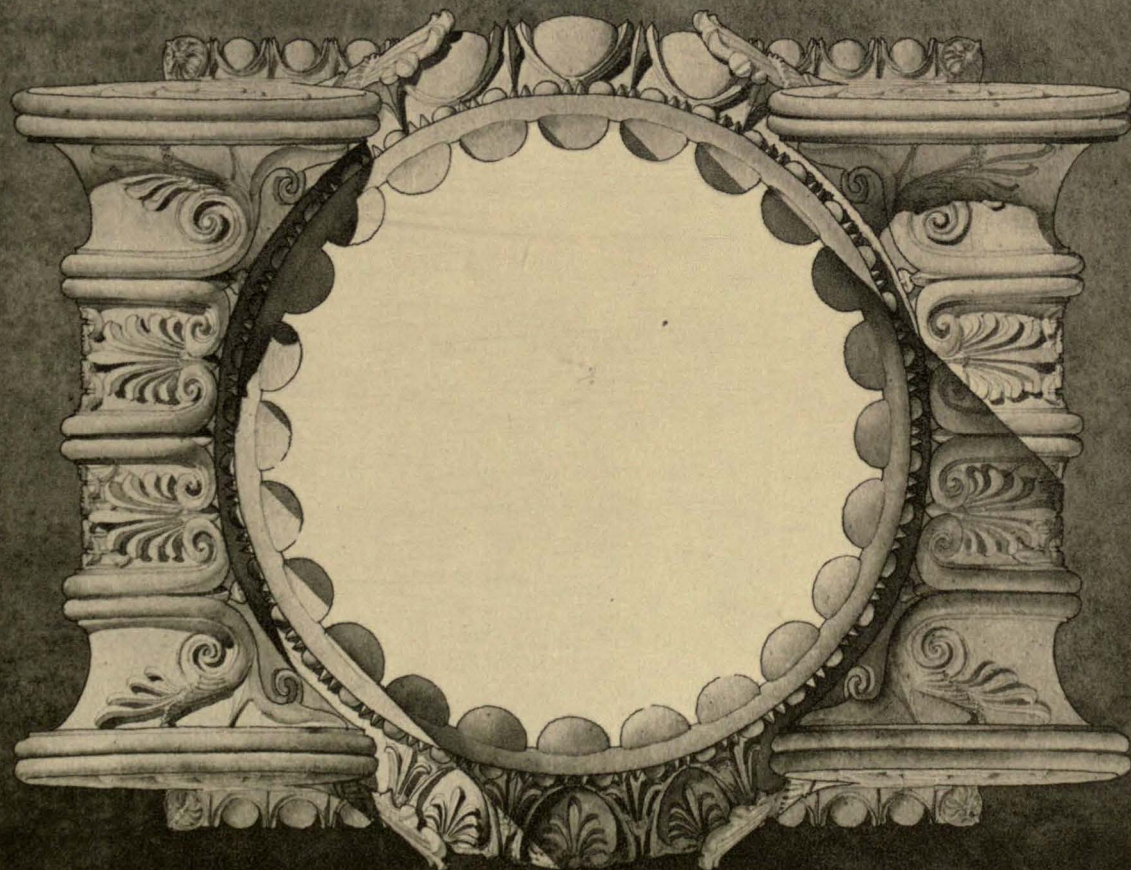
<sup>1</sup> Note that the restoration of the portal head does not entirely agree with that shown in Ill. 34. The latter is probably more nearly correct.

<sup>2</sup> LETHABY, *op. cit.* p. 23.





ONE METER.



DETAILS OF CAPITALS N<sup>os</sup> 11 AND 12.







## CHAPTER VI.

### HISTORY AND DATING OF THE TEMPLE.

Repeated references have been made in the foregoing chapters to an ancient Lydian temple which stood upon this site. This temple, like the archaic Artemision at Ephesos, may have been the successor of a series of older structures; but of these no remnants have yet been discovered in the ruins, although numerous deep pits have been sunk below the foundations of the present building. The historical account of the sack and burning of Sardis in 499 B. C., on the occasion of the Ionian Revolt, makes it seem certain that this early temple was destroyed at that time. Whether it was built by King CROESUS or by one of his predecessors we cannot tell; but a coin of that monarch was discovered in the foundations of the cult statue. It would seem that so important a shrine in so great a city could not have remained long in ruins. But it is impossible to state definitely, from the evidence now at our disposal, that the rebuilding was begun within a century after the destruction of the older temple. The older building, if built in the time of CROESUS, was probably of marble, like the Croesean Artemision at Ephesos, even if its foundations, which may have belonged to a still older structure, were of sandstone, and the building which succeeded the one destroyed in 499 was certainly of marble, and was the temple of which some of the foundations are still in place. It is difficult to conceive of a temple in some other material being erected, destroyed, and replaced before the middle of the fourth century, when parts of the present structure certainly had been constructed. The details of the present building which are the most helpful in tracing its history, when compared with those of other Ionic buildings in Asia Minor, suggest that the earliest columns were erected not much before the middle of the fifth century and not later than the beginning of the fourth. They further indicate that some of the columns were erected in the latter part of the fourth century, and others at the end of the third or the beginning of the second, as will be shown later; it is also quite certain that much rebuilding was done at the east end of the temple during the first century after CHRIST, and perhaps even later.

35  
45  
400  
4  
450 - 400



## I. CHRONOLOGY.

There are, in the writings of the Greek and Roman historians, few references to Sardis giving any definite data which would lead us to regard certain periods in the city's history as eras of building energy sufficiently pronounced to have planned or inaugurated the erection of this colossal temple, or to have inspired the repeated efforts to finish it. The reign of CROESUS, 561—546 B. C., must however have been a period of great building activity at his capital; for we find the Lydian monarch extending his interest in architecture to his subject city of Ephesos. Indeed some authorities<sup>1</sup> consider that the old Artemision at Ephesos may have been begun as early as 580 B. C. under one of CROESUS' predecessors. The fall of CROESUS and the capture of Sardis in 546 brought Lydia under the sway of Persia; but it is evident from history, from the almost complete absence of any Persian influence in the art of Sardis as hitherto discovered, and from the scarcity of Persian coins<sup>2</sup>, that the influence of the conquerors upon the life of the city was not strong. That even their political rule was weak is apparent from such instances as the exploit of XENOPHON in 402, and from the fact that the Greeks of Asia formed a league of defence against Persia. Sardis flourished during this period of subjection between 546 and 334, and it is far from improbable that the Lydians of this time undertook the rebuilding of the temple, which we assume to have been destroyed in 499, at the time of the Ionian Revolt. Moreover, we have it on good authority<sup>3</sup> that ARTAPHERNES, satrap of Lydia, busied himself with effacing the traces of the recent war. In 493 he initiated various forms of restoration in Ionia, and RADET<sup>4</sup> believes that these were extended to Sardis. He also believes that the old temple was rebuilt at this time. About 460 B. C. THEMISTOKLES, returning from the court of the Great King, found the statue of the Hydrophoros, which he had had made for Athens and which XERXES had carried away, set up in the Metrôon — ἐν Μητροῦς ἱερῷ<sup>5</sup> —, which probably refers to our temple. According to Berosus, ARTAXERXES II (404—362 B. C.) introduced the cult of the Persian Artemis into his dominions<sup>6</sup>, and set up statues of this goddess in several temples including that at Sardis. RADET<sup>7</sup> shows quite conclusively that the altar of ARTEMIS, before which CYRUS the younger and ORONTAS solemnized their reconciliation, as recorded by XENOPHON<sup>8</sup>, was connected with our temple at Sardis. The only work of art that certainly belongs to this period in Sardis, and which may be taken as a specimen of architectural ornament, is the Lydian stele (Ill. 91) found in the Nekropolis, — to be dated either 445 or 394, as described on page 77, — and this indicates a high state of native art.

<sup>1</sup> LETHABY, *op. cit.* p. 33.

<sup>2</sup> Only one Persian coin has been found in the excavations.

<sup>3</sup> HERODOTUS, VI, 42.

<sup>4</sup> *Cybébé*. Bibliothèque des Universités du Midi, Fascicule XIII. Bordeaux, 1909 p. 62.

<sup>5</sup> PLUTARCH. *Themistokles*. XXXI 1.

<sup>6</sup> *Frag. hist. gr.*, éd. MULLER-DIDOT, t. II, p. 508—9, fr. 16. This passage is fully discussed by RADET, *op. cit.* pp. 49, 63, 64, 66, 98.

<sup>7</sup> *op. cit.* pp. 53—58.

<sup>8</sup> *Anabasis*, I, 6, 7.



In his brilliant study, often quoted in this chapter, of the cult of the chief divinity of the Lydians, RADET discovers that the goddess wore at least three different aspects during the historical period, and perhaps bore three different titles; first as the purely Lydian deity Cybebe of HERODOTUS; second, as the Persian Artemis Anaitis, or Great Mother, of the Persian period, and finally as the Artemis of Hellenistic times. He further suggests the existence of three different temples, or at least two or more temples on the same site, which may be styled the "Cybebeion" of CROESUS existing 550 B. C., the "Metrôon" visited by THEMISTOKLES about 460, and the Artemision of ALEXANDER's time, 334, and later. The remains discovered in the excavations partly support this suggestion; for we have the foundation of the pre-Persian temple, the foundations of a marble temple which possibly may have been complete as early as the middle of the fifth century, and the present Hellenistic building. It may also be noted that the goddess is referred to as Artemis in the Lydian inscriptions of the Persian period during the fourth and fifth centuries. But for our present purposes the most important of RADET's deductions — made before the excavations at Sardis were begun, — is that which shows the goddess to have been one throughout all these changes in cult, and the site of her temples to have been one and the same. We may well assume, with RADET, that the rebuilding of the ancient and much revered shrine of the Lydians was begun by ARTAPHERNES; for, if we accept the passage from HERODOTUS<sup>1</sup> as implying that the temples of Ionia were restored, it is natural to suppose that the Persian satrap would also have restored the great temple in his capital city of Sardis.

In parts of Asia Minor outside of Sardis a very important era of building had begun during the later years of Persian rule in Lydia. It has been suggested<sup>2</sup> that the later temple at Ephesos was begun as early as 395, and not after the birth of ALEXANDER the Great, as the old tradition had it. In any event it must have been begun before the middle of the fourth century. By 353 the Mausoleum at Halikarnassos, and by 345 the temple of Athene Polias at Priene were under construction<sup>3</sup>. We thus know certainly of three very important buildings in the Ionic style which were completed, or nearing completion, when ALEXANDER took over Asia Minor.

ALEXANDER's visit to Sardis, as recorded by ARRIAN<sup>4</sup>, would seem to have inaugurated a building programme in connexion with his order for a temple to Olympian Zeus on the site of the palace of the Lydian kings. Nothing is said, in this account, of the building which was certainly the most important centre of Sardian worship, and one may almost assume that nothing was said or done about it at this time because it was already — that is before 334 B. C. — a completed building.

After ALEXANDER's death in 323 Sardis changed hands several times. In 319 ANTIGONOS I assumed the sovereignty of Asia, and his name appears in an inscription of a century later carved on the wall of the temple. CLEOPATRA, the widowed sister

<sup>1</sup> VI, 42.

<sup>2</sup> LETHBRIDGE, *op. cit.* p. 35.

<sup>3</sup> *Ibid.*

<sup>4</sup> ARRIAN, I, 17, 6.



of ALEXANDER, made Sardis her residence, after her brother's death, until she was assassinated in 308. For a while Lydia seems to have been a part of the Syrian kingdom of SELEUKOS I (301—281) who married STRATONIKE, the daughter of DEMETRIOS POLIORKETES and granddaughter of ANTIGONOS. SELEUKOS restored the great Temple of Apollo at Didyma about 295. An inscription found on the site of the temple at Sardis and described below (p. 107) is believed to have recorded a gift by his wife STRATONIKE. Some of the details of the temple in Sardis bear a strong resemblance to corresponding details at Didyma, and it may be that SELEUKOS I had a share in continuing or restoring our temple.

In the middle of the third century, under ANTIOCHOS II (THEOS), an era of peace prevailed in Asia Minor which well may have seen progress on the temple if it was still unfinished at this time. An inscription<sup>1</sup> was found at Didyma recording a deed of sale, in 253, by ANTIOCHOS II in favour of his wife LAODIKE, and it is stipulated therein that five copies of the document should be engraved on five stelae to be set up at Ephesos, Didyma, Ilion, Samothrake, and in the sanctuary of Artemis at Sardis. About 235 the power of Pergamon, under ATTALOS I, was extended over Sardis; this was relaxed under ACHAIOS, a cousin of ANTIOCHOS III the Great, who repressed for a time the influence of Pergamon, and also gallantly defended Sardis against his royal cousin. It is possible that ACHAIOS was responsible for work on the temple during his brief reign (*circ.* 220—214) while HERMOGENES, the great architect of the day, then engaged on the temple at Magnesia ad Maeandrum, was perhaps available. Under EUMENES II (197—159) the power and influence of Pergamon were restored and extended over most of Asia Minor, and this king, who was a great building monarch in his own capital, may have interested himself in architectural projects at Sardis. He also may have employed the services of the famous HERMOGENES.

After the battle of Magnesia, in 190 B. C., when ANTIOCHOS the Great was defeated by the Romans, the rule of the Syrian kings in Lydia was forever broken, and the Pergamene reigned in their stead. In 187 Sardis surrendered to the two SCIPIOS.

Under the Romans the history of Sardis begins a chequered career of change and disaster interspersed with periods of peace and prosperity. For a time Lydia was a part of the domain of ANTONY and CLEOPATRA. AUGUSTUS interested himself in the affairs of Sardis, as is attested by the MENOGENES inscription<sup>2</sup> found in front of the temple. Under TIBERIUS, in A. D. 17, came the great earthquake working havoc in the town, which the emperor helped to alleviate. It is highly probable that the extensive repairs at the east end of the temple were undertaken as the result of this catastrophe, and it may be that these repairs extended over a considerable period. In any event, there is plain evidence that a new variety of marble was introduced at the temple about the beginning of the 1st century. An inscription on one of the columns of the front row is believed to date from a subsequent period, as will be shown later in this chapter.

There is little in the history of the city in the later periods of Roman rule to suggest any unusual opportunity for great building operations. The city's first neocorate

<sup>1</sup> HAUSSOULLIER, *Études sur l'histoire de Milet et du Didymeion*, p. 77 l. 29.

<sup>2</sup> *A. J. A.* XVIII, 1914, pp. 321 ff.



was bestowed before the time of HADRIAN, as we learn from a coin of ANTINÖS. About 141 a colossal statue of the empress FAUSTINA was erected in the temple. The second neocorate was conferred upon the city about 197 A.D., as a coin of ALBINUS shows; this honour came for the third time under ELAGABALUS. The second and third neocorates were probably local, and may have been connected with the restoration of the temple of Artemis on a grand scale. Sardis received the title of Metropolis of Asia in the time of SEPTIMIUS SEVERUS, and the title 'Ἀσίας Λυδίας Ἑλλάδος Ἀ' Μητρόπολις under ELAGABALUS, upon whose coins<sup>1</sup> the temple is shown as a completed building (Ill. 105).

A table of the more important dates and events which may in any way be associated with the temple follows below:



Ill. 105. Coin of Sardis.

DATE	EVENT	AUTHORITY
B. C.		
561—546	Reign of CROESUS. "Cybebeion" in existence.	HERODOTUS.
499	"Cybebeion" burnt by the Ionians.	HERODOTUS V, 102, 1.
493	ARTAPHERNES undertakes restorations in Ionia.	HERODOTUS VI, 42.
c. 460	THEMISTOKLES visits the "Metroon".	PLUTARCH. <i>Them</i> , XXXI, 1.
c. 402	CYRUS the younger and ORONTAS at the altar of Artemis.	XENOPHON. <i>Anab</i> , I, 6, 7.
c. 387	ARTAXERXES II consecrates a statue of Anahita.	BEROSUS, Frag. 16.
c. 333	Visit of ALEXANDER the Great.	ARRIAN. I, 17, 6.
312—281	STRATONIKE, wife of SELEUKOS I, dedicates a globe.	Inscription at Sardis. s.p.107.
253	ANTIOCHOS II sets up inscription.	Inscription from Didyma.
c. 235	ATTALOS II. Pergamene influence in Sardis.	
220—214	ACHAIOI king in Sardis. Pergamene influence relaxed.	POLYBIUS. V, 77, 1.
c. 200	Mortgage inscription set up in the temple.	Inscription at Sardis.
c. 200	HERMOGENES the architect at Magnesia and Teos.	
197—159	EUMENES II. Influence of Pergamon restored in Sardis.	
c. 189	Rescript on the right of asylum.	Insc. from Sare-Tcham.
100—1	IOLLAS statue set up in temple.	Inscription at Sardis.
5—1	MENOGENES inscription, under AUGUSTUS.	Inscription at Sardis.
A. D.		
17	Great earthquake under TIBERIUS.	TACITUS. <i>Annales</i> II, 47.
22	Right of asylum investigated by Roman Senate.	TACITUS. <i>Annales</i> III, 63.
before 119	1st. Neocorate of Sardis.	Coins, <i>B. M. Cat. Lydia</i> CVI—CIX
127	Inscriptions on blocks of restored temple.	Inscriptions at Sardis.
c. 141	Colossal statue of FAUSTINA the Elder as CYBELE.	
197	2nd. Neocorate.	
193—211	SEPTIMIUS SEVERUS. Sardis "Metropolis of Asia".	Coins, <i>B. M. Cat. Lydia</i> .
218—222	ELAGABALUS. Sardis "Metropolis of Asia Lydia and Greece".	Coins, <i>B. M. Cat. Lydia</i> .
? 3rd.		
Century.	Inscription carved upon base of column of temple.	Inscription at Sardis.

<sup>1</sup> Cf. *B. M. Cat. Lydia*, 1901, Pl. XXVII, 10.

Sardis Expedition II.

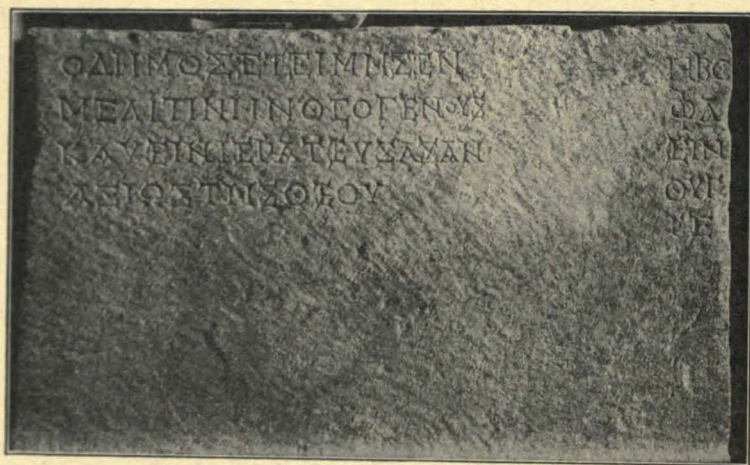


## 2. BUILDING INSCRIPTIONS.

The Greek inscription on the walls of the treasury was engraved about the year 200 B. C.<sup>1</sup> This evidence gives us only a *terminus post quem*, but it is on a part of the building which certainly has not been rebuilt. The Lydian inscription on one of the elevated columns in the east porch is believed to date from the latter part of the fourth century<sup>2</sup>; but this column has been taken down and rebuilt, as the patched-up arrises would indicate, and as old column drums, squared and re-used in the pedestal, testify. The only remaining building-inscription is a late one in Greek, inscribed upon the fillet of the astragal of column No. 4 in the outer row, which refers to the temple as "rising again". This inscription was, I believe, engraved upon an old base which was being reset.

There are other inscriptions in Greek, found in the excavations, which, though not *in situ*, are upon stones which were probably once parts of the temple structure or bases of statues set up in the porticoes. The most important, as throwing light upon the history of the building of the temple, are four inscriptions two of which are upon quadrate blocks found with others, not inscribed, at the foot of the flight of steps near the northwest anta, between the steps and the column foundations in front of

them. The blocks were originally parts of a wall, and the inscriptions extended from one block to another. The marble of these blocks is of a bluish grey and is not the same as that used in the cella walls and other parts of the temple; the surface finish (Ill. 106) is not as smooth and perfect as that of the blocks in the temple walls, and the edges show no draughting. The surface is lightly tooled, like that of blocks known to have belonged to buildings of the



Ill. 106. Inscribed Block from the Northwest Angle of the Temple.

Roman period. The inscriptions were set up in honour of priestesses of Artemis, one of them is dated in the year 127 A. D., the others are believed to have been inscribed late in the first or early in the second century of our era<sup>3</sup>. Considering the place at which these blocks were found, it seems very probable that they had not been moved far from their original position, and I believe that they were parts of a marble facing applied to the inner face of the concrete casing of two of the column foundations in front of the steps, this part of the concrete with its marble facing

<sup>1</sup> Cf. Vol. I, p. 52.

<sup>2</sup> This inscription was perhaps added at the time of the re-erection of the column.

<sup>3</sup> *A. J. A.* Vol. XVII (1913) p. 355.



having been added to the structure after the earthquake of the year 17 A. D. in connexion with other extensive repairs.

Lying with these wall blocks was a tall rectangular stele, or high pedestal for a statue (Ill. 107) with another inscription in honour of a priestess. This monument is also to be dated late in the first century or early in the second<sup>1</sup>. The marble is of the same quality as that of the blocks described above; its surface finish with its light tooling, and its base mouldings, are typical of work of the Roman imperial period.

Two inscribed stones were found upon or near the steps of the Lydian building, at levels well above the surrounding pavement, and in such positions that it was quite apparent that they had rolled down from the temple platform. One of these is a globe, in marble like the marble of the temple, bearing the name of STRATONIKE daughter of DEMETRIOS; the inscription is believed to refer to the daughter of DEMETRIOS POLIORKETES<sup>2</sup>, and must therefore have been set up soon after 300 B. C. The other stone is a cylindrical die of a pedestal for a statue. It is in the blue-grey marble of the blocks described above, and has the same lightly tooled surface. The inscription records the erection of statues of one IOLLAS, and is to be dated in the first century B. C. These various inscriptions are important for the history of the building of the temple only in that they indicate that an inferior grade of marble was being used at Sardis in the first century before and after CHRIST, and that a rougher method of surface finishing was in vogue at the time. The evidence of the inscriptions discovered to date seems



Ill. 107. Stele found near Steps at the Northwest.

to be as follows: first, the Lydian inscription on the foot of a marble column indicates that there was here a temple, with finished and fluted columns, which was rebuilt about the end of the fourth century; second, the marble globe of STRATONIKE suggests that offerings were being made at the temple about the year 300 B. C.; third, the "mortgage" inscription shows that the present cella walls were erected before the year 200 B. C.; fourth, the inscribed wall blocks and the pedestals for statues show that a new and different material was being used in repairs to the temple, and in accessories, in the

<sup>1</sup> *A. J. A.* Vol. XVII, 1913, p. 338.

<sup>2</sup> Vol. I, p. 43.



first century B. C.—A. D.; fifth, the inscription upon the foot of a column in the outer row proves that extensive repairs were in progress at the east end of the temple as late as the second century after Christ, and perhaps even later. ✓

### 3. COINS.

The coins discovered in the excavation of the temple, especially those found in the statue "basis" in the midst of the temple, may be studied with a view to obtaining light upon its history. The "basis hoard", as the collection of coins from the basis is called<sup>1</sup>, contains fifty-six silver and seventy-two bronze coins. The silver coins — excluding one of CROESUS which was discovered in the lower part of the "basis" — were found in the vertical joints of the stones forming the northeastern front of the basis, and those of bronze in similar positions on the north side, as has been explained in Volume I, p. 74—76. The silver coins, mostly tetradrachms, though differing widely in date, are so very well preserved that one must believe them to have been placed in the "basis" while comparatively new. And there can be little doubt that they were placed there intentionally since the metals are carefully separated. Nevertheless it is quite conceivable that coins were deposited at the foot of the statue from time to time, the silver in one place and the bronze in another, and that those found in the crevices had accidentally slipped down between the pavement and the actual base of the cult statue. One may see similar gifts of coins — though not so far as I know, separated according to their metals — deposited on certain festivals at the feet of the statues of saints in European churches.

✓ The earliest of the silver coins are six tetradrachms of ALEXANDER the Great which certainly were struck before 323 B. C. and one of PHILIP III struck between 323 and 316. Most of these are perfectly fresh, having seen little or no circulation. The latest tetradrachms, those of EUMENES II, must have been struck soon after ✓ 197 B. C., or more than 125 years after the earliest silver coins found in the "basis".

• Of the bronze coins the earliest of approximately certain date are four of Colophon which the B. M. Catalogue places between 400 and 350 B. C. There are four coins of Ephesos which may be dated between 305 and 288. Eleven out of the 72 bronzes belong definitely to the fourth century. The latest are not later than 197 B. C. The general period of the majority of the coins, both silver and bronze, is the third century. From these observations it would appear that the depositing or losing of coins at the basis of the cult-statue began some time before 350 and continued a few years after 200 B. C., for it is incredible that early in the second century a single deposit of coins, including antique bronzes of the middle of the fourth, could possibly have been made.

The coins found outside the temple, but in the immediate vicinity, are less trustworthy as indices of building or other activity about the temple. But it may be interesting to record that 134 coins dating between ALEXANDER the Great and AUGUSTUS were found near the temple, and a very much larger number of bronzes which could be identified by their size and form as belonging to the period before

<sup>1</sup> *Sardis. Coins.* Vol. XI, p. V.



133 B. C., but which were illegible. Of the coins struck under the Roman empire there are fifty dating from the first century, fifty from the second, and ten from the third.

#### 4. COMPARISONS.

There are, as we have seen, few references in the ancient texts which throw light upon this temple. Apart from the scanty epigraphical evidence referred to above, we must, in order to piece out the history of its erection and various rebuildings, depend entirely upon the evidence embodied in the structure itself, and upon comparison of its details with those of other buildings in Asia Minor. If we begin by considering the plan of the building and its foundations as we see them today, we are at once tempted to challenge the reputation for accuracy of a famous writer of antiquity. For should we assume that the present foundations follow the plan of an earlier Lydian structure, and insist that certain details bearing Lydian inscriptions date from the end of the fourth century, we must take issue with VITRUVIUS, who says that the architect HERMOGENES was "the first to devise the principle of the pseudo-dipteral octastyle"<sup>1</sup>. This architect, who was long believed to have flourished in the fourth or early third century, is now known to have worked on the temples at Magnesia and Teos about the year 200 B. C.<sup>2</sup>. Many writers have called attention to the existence of archaic pseudo-dipteral octastyle temples of the Doric order in Sicily, while others have pointed out numerous inaccuracies of statement on the part of VITRUVIUS. One cannot but wonder that this author makes no mention of the Artemision at Sardis which was the third largest temple in Asia Minor; for he mentions the "house of CROESUS" in Sardis which he says was set apart as a "Gerousia" for the guild of the Elders<sup>3</sup>. It is not unlikely that HERMOGENES derived his pseudo-dipteral plan from the temple at Sardis, and that VITRUVIUS meant that he was the first since very ancient times to employ that plan,

There are three buildings of the Ionic order in Asia Minor, enumerated above (p. 103) which can be shown to belong to the period before the conquest of ALEXANDER: namely, the later Artemision at Ephesos, begun 395—356<sup>4</sup>; the Mausoleum<sup>5</sup>, begun about 353; and the Temple of Athene Polias at Priene<sup>6</sup> which is generally believed to have been begun about 345 and finished by 334. There are columns in the Didymaion<sup>7</sup> belonging to the period of SELEUKOS' building operations, about 295, and certain details of columns of the Ptolemaion at Samothrake<sup>8</sup> can be dated between 285 and 247, while others from the Smintheion<sup>9</sup> in the Troad also probably date from the middle of the third century B. C.

<sup>1</sup> Bk. III, 8; M. H. MORGAN'S Translation, Harvard Univ. Press, 1914, p. 82.

<sup>2</sup> *Antiquities of Ionia* Part V, London, 1915, p. 10.

<sup>3</sup> *op. cit.* VIII, 10.

<sup>4</sup> For date, cf. *Austrian Survey*. Appendix.

<sup>5</sup> *Antiquities of Ionia*, V. p. 27., NEWTON. *Halikarnassus, Cnidus and Branchidae*.

DINSMOOR, *A. J. A.*, XII, 1908, p. 3 ff., LETHABY. *op. cit.*, pp. 37—70.

<sup>6</sup> *Ant. of Ionia* I, IV, and V. p. 27, LETHABY, *op. cit.*, pp. 185—189. WIEGAND and SCHRADER, *Priene*, Berlin, 1904.

<sup>7</sup> TEXIER. *The Principal Ruins of Asia Minor*, London 1866. *Ant. of Ionia* I, HAUSSOULLIER and PONTREMOLI, *Didymes*.

<sup>8</sup> CONZE, HAUSER and NIEMANN, *Archaeologische Untersuchungen auf Samothrake*, Wien, 1875.

<sup>9</sup> *Ant. of Ionia*, IV, Pl. XXIX, p. 46, *Ibid.* V. p. 14.



Remains of HERMOGENES' temples, one at Magnesia<sup>1</sup> and one at Teos,<sup>2</sup> are quite definitely dated between 220 and 190, and the Great Altar of Pergamon,<sup>3</sup> of which we have important details, was erected between 187 and 177. The Propylaea at Priene,<sup>4</sup> the Zeus Temple at Magnesia, and the Temple of Aphrodite at Aphrodisias<sup>5</sup> are believed to have been erected in the first century B. C., and the Temple of Zeus at Aizani<sup>6</sup> in the first or early in the second century of our era. The date of the temple at Messa on the island of Lesbos, is a subject of dispute among archaeologists, some<sup>7</sup> placing it in the fifth or early in the fourth, others<sup>8</sup> in the first or second century B. C. I have excluded from this group the buildings on the Greek mainland, because they have less direct connexion, both geographical and political, with the subject under discussion than have those of Asia Minor and the islands. Among these examples we should be able to find analogies for every separate detail of the temple at Sardis. For convenience a list is here given of these buildings with their approximate dates.

Ionic Buildings erected in Asia Minor; VI<sup>th</sup> Century B. C. to II<sup>d</sup> Century A. D.

DATE	BUILDING
B. C.	
580	Archaic Artemision at Ephesos begun.
560—546	" " " " carried on under CROESUS.
550—500	Magnesia, old temple.
395	New Artemision begun.
Early 4th. cent.	Temple at Messa on the island of Lesbos.
353	Mausoleum at Halikarnassos begun by architect PYTHEUS.
345	Temple of Athena Polias at Priene begun by architect PYTHEUS.
333	New Didymaion near Miletus begun by PAIONIOS and DAPHNIS.
333	New Artemision at Ephesus carried on by PAIONIOS.
333	Temple of Zeus at Sardis ordered by ALEXANDER.
ca 295	New Didymaion carried on under SELEUKOS I.
285—247	Ptolemaion at Samothrake erected.
Mid. 3rd. cent.	Smintheion in the Troad erected.
220	Temple of Artemis at Magnesia begun by HERMOGENES.
190	" " Dionysos at Teos built " "
187—177	Altar of Pergamon erected under EUMENES II.
1st. cent.	Propylaea at Priene.
" "	Temple at Aphrodisias.
A. D.	
1st. or 2nd. cent.	Temple of Zeus at Aizani.
" " " "	" " " " Magnesia.

<sup>1</sup> *Ant. of Ionia* I and V, HUMANN, *Magnesia am Macander*.

<sup>2</sup> *Ant. of Ionia* IV, Pl. XXV, *Ibid.* V, p. 28.

<sup>3</sup> *Altertümer von Pergamon*, III. COLLIGNON et PONTREMOLI, *Pergame*. BOHN, *Ergebnisse v. d. Ausgrabungen zu Pergamon*.

<sup>4</sup> WIEGAND, *Priene*, pp. 133 ff.

<sup>5</sup> TEXIER, *The Principal Ruins of Asia Minor*, London, 1865, Pl. 29.

<sup>6</sup> *Ibid.* Pl. 15.

<sup>7</sup> R. KOLDEWEY, *Die antiken Baureste der Insel Lesbos*, Berlin, 1890.

<sup>8</sup> *Ant. of Ionia* V, p. 15.



Of the four or five known temples of the archaic period on the eastern side of the Aegean sea, three were of colossal size, the Heraion of Samos, the Artemision at Ephesos and the Didymaion near Miletos. The last two were rebuilt at a later period, the Artemision certainly, the Didymaion probably, on the lines of an older structure which had preceded it. Colossal temples of the Ionic order seem not to have been built after the archaic period, except in instances in which new buildings were erected to replace old ones. The temple at Sardis was built to replace an older structure, and there is little doubt, first, that it was designed on a colossal scale because the older building had been colossal, and second, that its lines, like those of the temple at Ephesos, were determined by the lines of the older temple.

In the study of the plan of our temple there is no basis for comparison with that of the Heraion at Samos of which we know very little, or with that of the Didymaion, because of the unique features which characterize that building. But the analogies between the general scheme of our temple and that at Ephesos are so remarkable that we must give them particular attention. In the first place the size of the two temples is almost identical. It has been somewhat difficult to obtain precise measurements of the Artemision at Ephesos; but WILBERG, in the Austrian Survey, gives 5.19 m. as the width of the lateral intercolumniation; the nineteen intercolumniations plus the width of one plinth (2.64 m.) amount to the length of 101.25 m., which was that of the temple measured along the edge of the plinths. The corresponding length in the Sardis temple is 97.94 m. The sum of WILBERG's measurements for the intercolumniations of the front, plus one plinth, amounts to 50.42 m. and the corresponding measurement at Sardis is 45.51 m.; so that the temple at Sardis is only 3.31 m. shorter and 4.91 m. narrower than that at Ephesos. The lateral intercolumniation of the later Artemision at Ephesos measures 5.19 m., or 2.82 diameters of 1.84 m.; that of the archaic Artemision was 5.23 m., or 3.50 diameters of 1.50 m.,<sup>1</sup> and the later intercolumniation was undoubtedly influenced by the earlier. At Sardis the intercolumniation is 5.02 m., probably also fixed by that of the early older temple. But the greater scale of the present Sardinian columns, if we take the mean diameter of the larger ones at 2.06 m., gives an intercolumniation of only 2.50 diameters as against 2.82 in the Ephesos temple; if, however, we take the diameter of the more slender of the columns in front of the antae at Sardis which is exactly equal to that of the measured column at Ephesos, (1.84 m.) we have an intercolumniation of 2.70 d. which is not far from that at Ephesos. Here we have to remember that the measured column from Ephesos may have been one of the interior columns of the porch, and that the thickest columns of the peristyle may have been equal in diameter to those of Sardis. But we have two columns in the temple which, as I hope to prove, belong to an earlier period, namely the two elevated columns. These, as I believe, or columns like them, originally stood in the peristyle and elsewhere. When these are set upon foundation piers with the intercolumniation of 5.02, the space becomes one of 3.12 diameters and thus places them next in order after the archaic Artemision. At this point it is important to mention

<sup>1</sup> The bottom diameters of the archaic columns at Ephesos differ; but the average is about 1.50 m.



that the right angles and crosses which appear upon the lower courses of some of the column foundations in the south side, indicate squares of 2.38 to 2.40 m. (p. 18) which exactly accommodate the plinths of the elevated columns, but are too small for the later plinths measuring 2.65 to 2.70 m.; consequently the plinths of the standing columns at the east end overlap their foundations by several centimetres.

The foundations of our temple, like those of the archaic Artemision at Ephesos, the Heraion at Olympia, and several other temples of the archaic period, consist, not of a solid platform, or crepidoma, like that in most of the later temples of Asia Minor, including even the gigantic Didymaion, but of masses of stone-work placed only, as has been remarked above, beneath the walls and individual columns. Like the earlier and the later temples at Ephesos, that at Sardis had, not a continuous stylobate such as we find in most of the later temples, with steps descending directly from the plinths of the columns, but in front of the columns a wide paved platform from which steps descended, built upon a substructure of solid masonry. This substructure is of concrete, and appears to have been inserted at a date later than that of the marble foundations; but if so, it unquestionably replaced a similar construction so far as the plan and arrangement of the steps are concerned. Concrete, is as old as the Mykenaian<sup>1</sup> age, and the employment of it here may date from any period after the laying of the massive marble foundations. To the west the presence of the ancient Lydian Building, upon which the steps at that end descended, must have produced an extension of the middle part of the foundations, and possibly formed a platform, or "perron", like that at the west end of the Artemision at Ephesos.

It remains now for us to examine the separate details of the superstructure, to compare them with those of other Ionic temples in Asia Minor, to discover, if we can, a direct line of development in form from those known to be early to those known to be late, and then to see where according to their forms the details of our temple take their place. The draughted masonry of the walls gives us no basis of comparison for dating the building; since this kind of draughting existed in Greek architecture of many periods, as well as in that of the Persians and the Etruscans. It is important, however, to note that the Austrian Survey<sup>2</sup> found blocks of marble with draughted edges in the cella walls of the archaic Artemision at Ephesos, and that the walls of the later temple there were also draughted.<sup>3</sup>

### 5a. *The Columns.*

It seems to be generally accepted that the development of the Ionic order may be traced by the comparative proportion of the heights of the columns in terms of their lower diameter, and that, inversely, the comparative dates of Ionic temples may be approximately fixed according to their place in the scale of proportions. In this connexion it will be observed that the heights of the columns of the temples enumerated above, so far as these measurements are obtainable, are as follows: Temple of Athena

<sup>1</sup> ALLAN MARQUAND, *Greek Architecture*, New York, 1909, p. 19.

<sup>2</sup> *Op. cit.* I, p. 228.

<sup>3</sup> *Ant. of Ionia* V, p. 14.

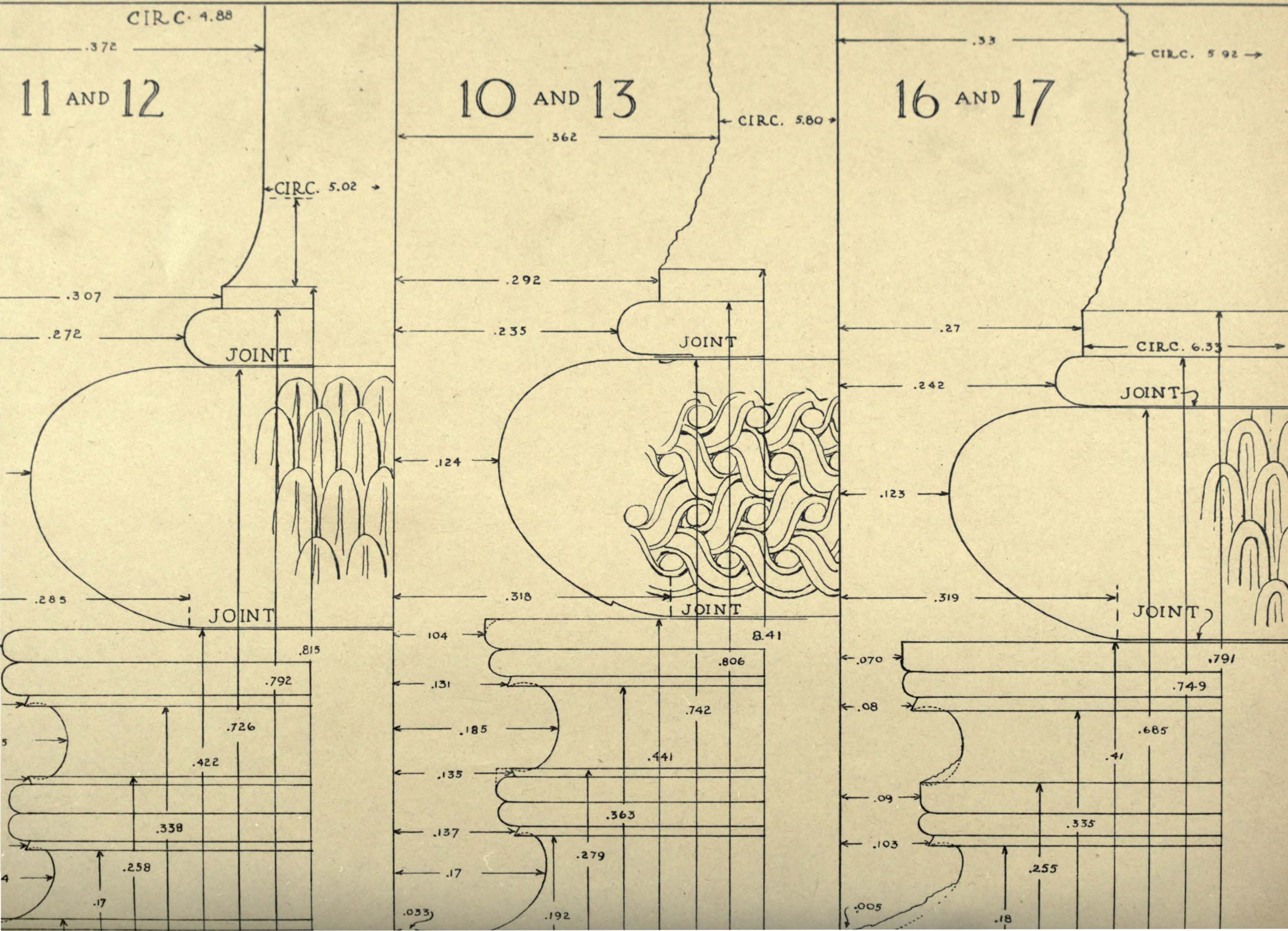






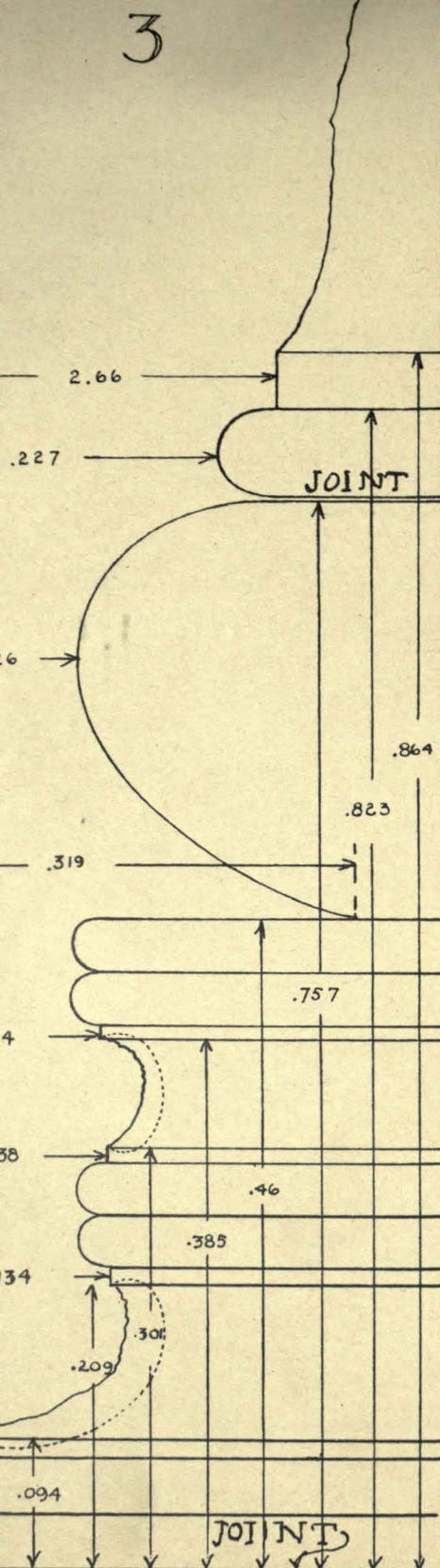
# BASES

MEASUREMENTS IN METRES



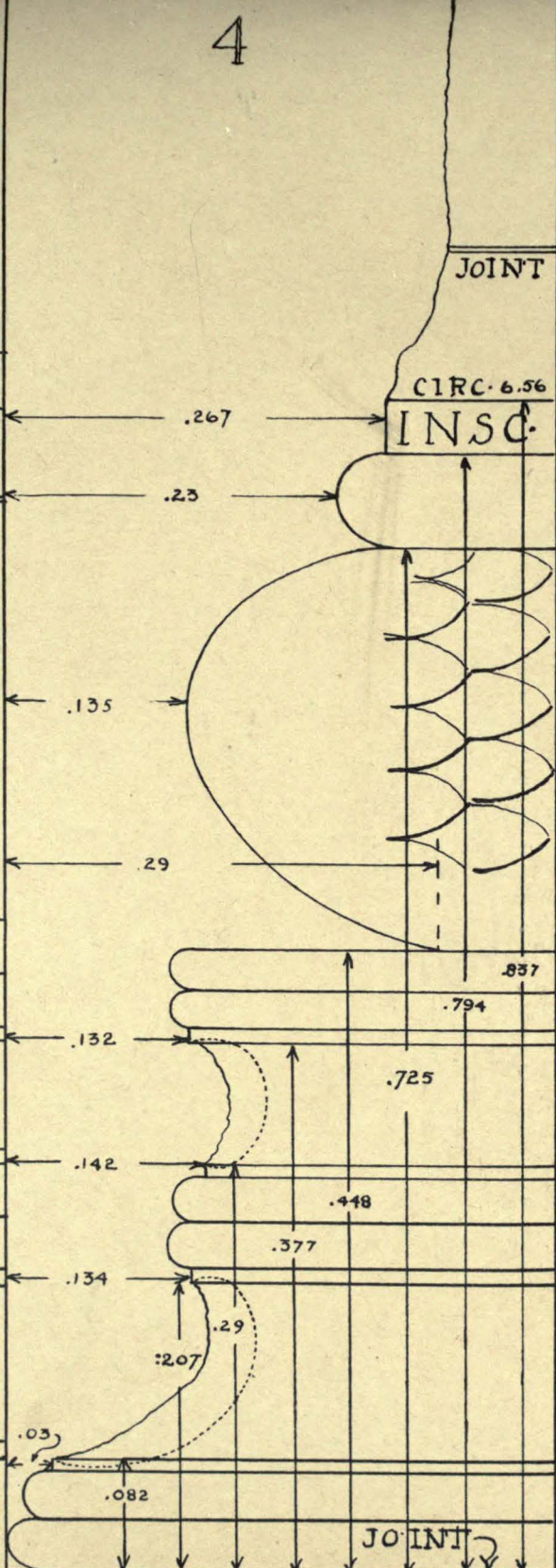


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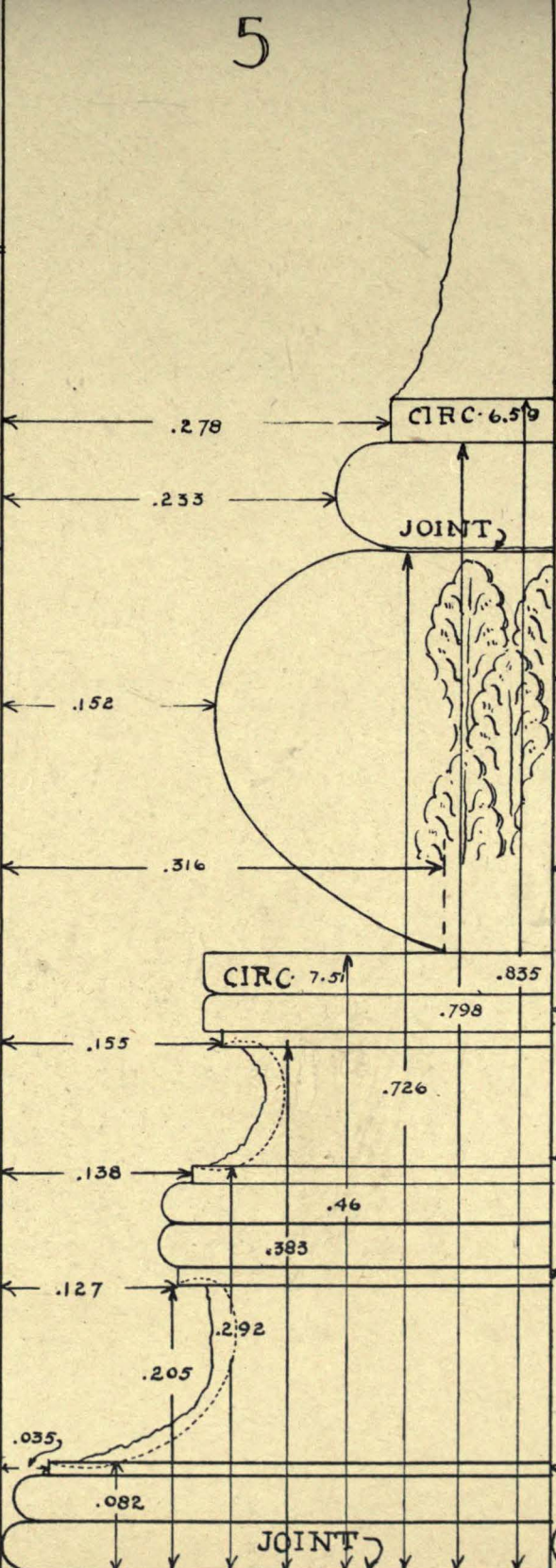
PLINTH 2.695 sq. .44 H.

4



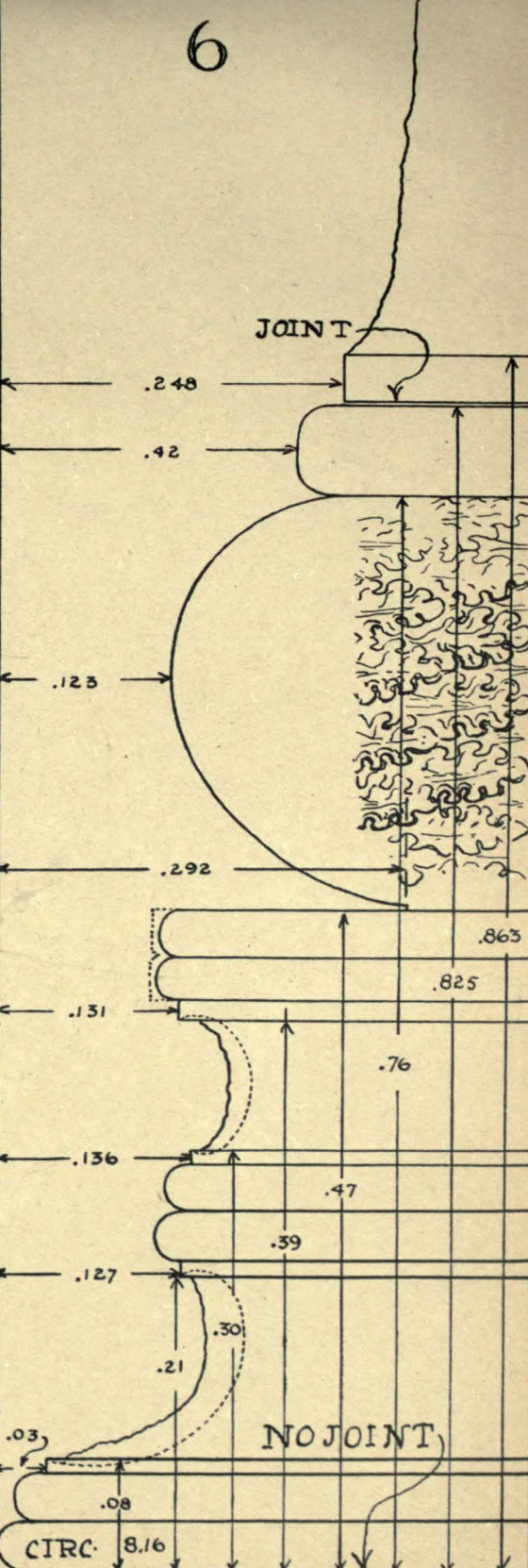
PLINTH 2.66 sq. .40 H.

5



PLINTH 2.685 sq. .434 H.

6



PLINTH 2.645 sq. .425 H.





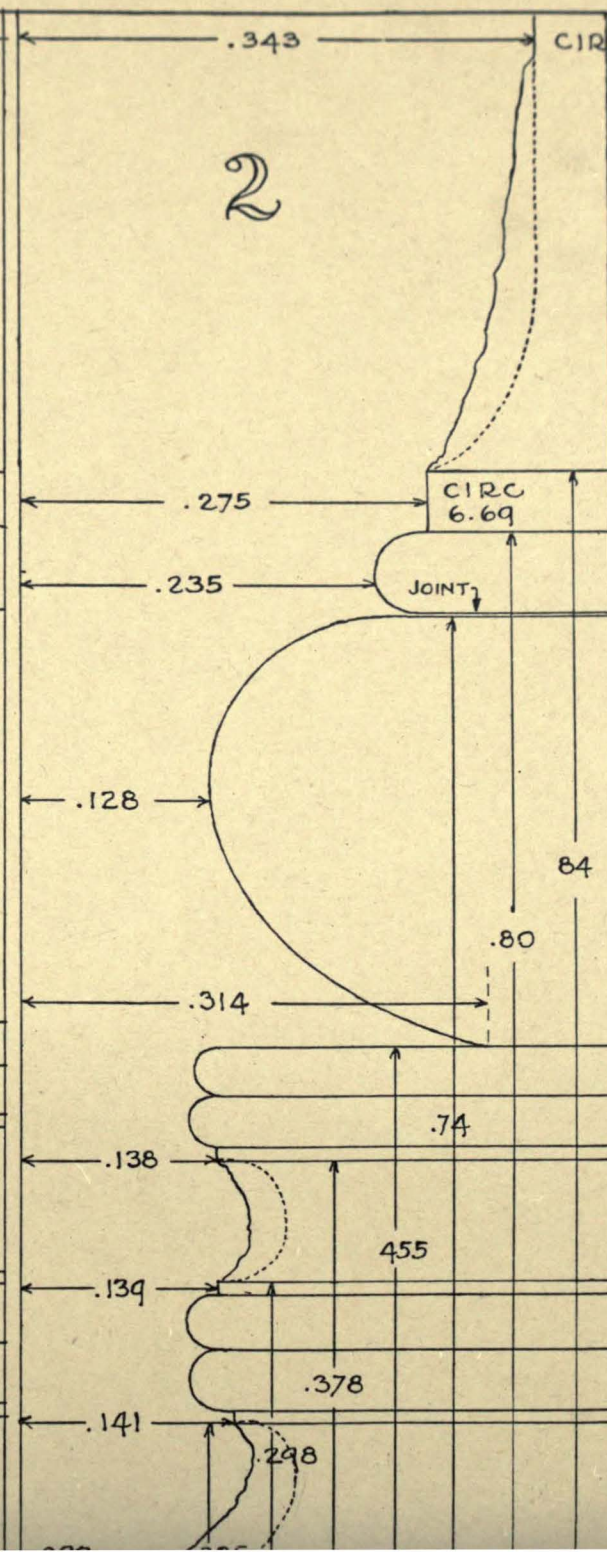
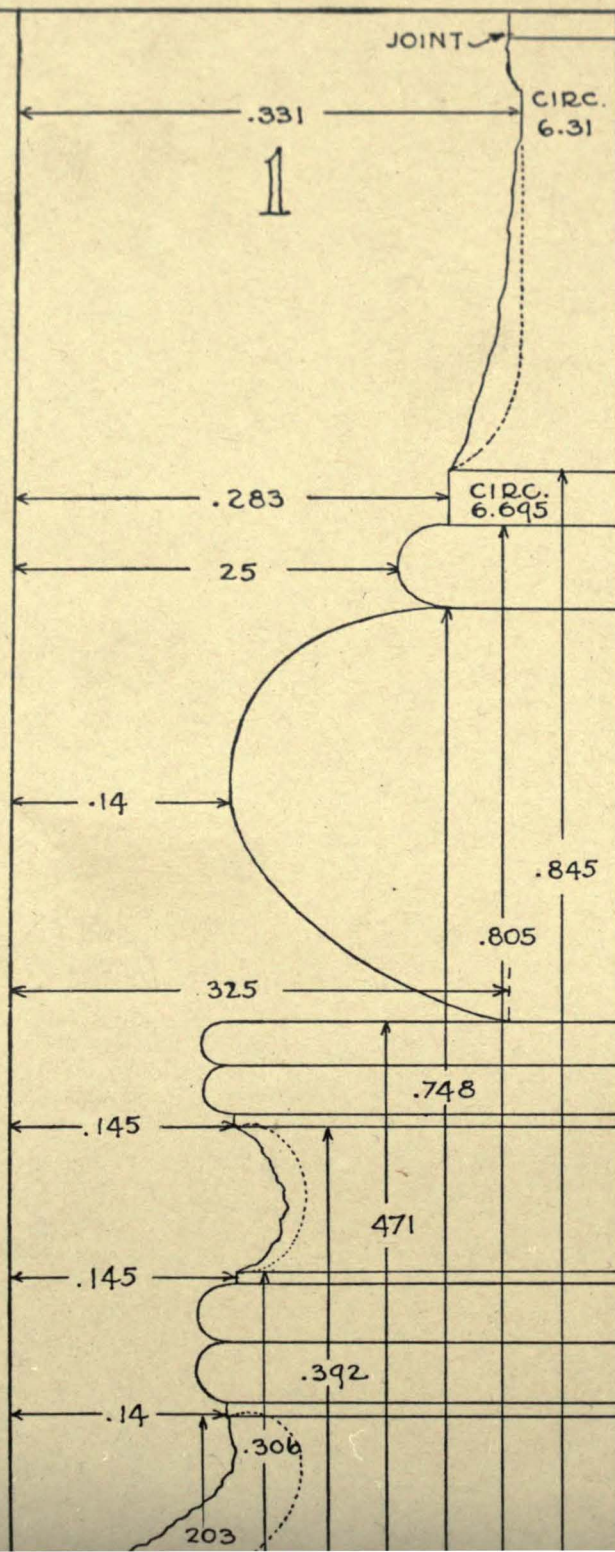




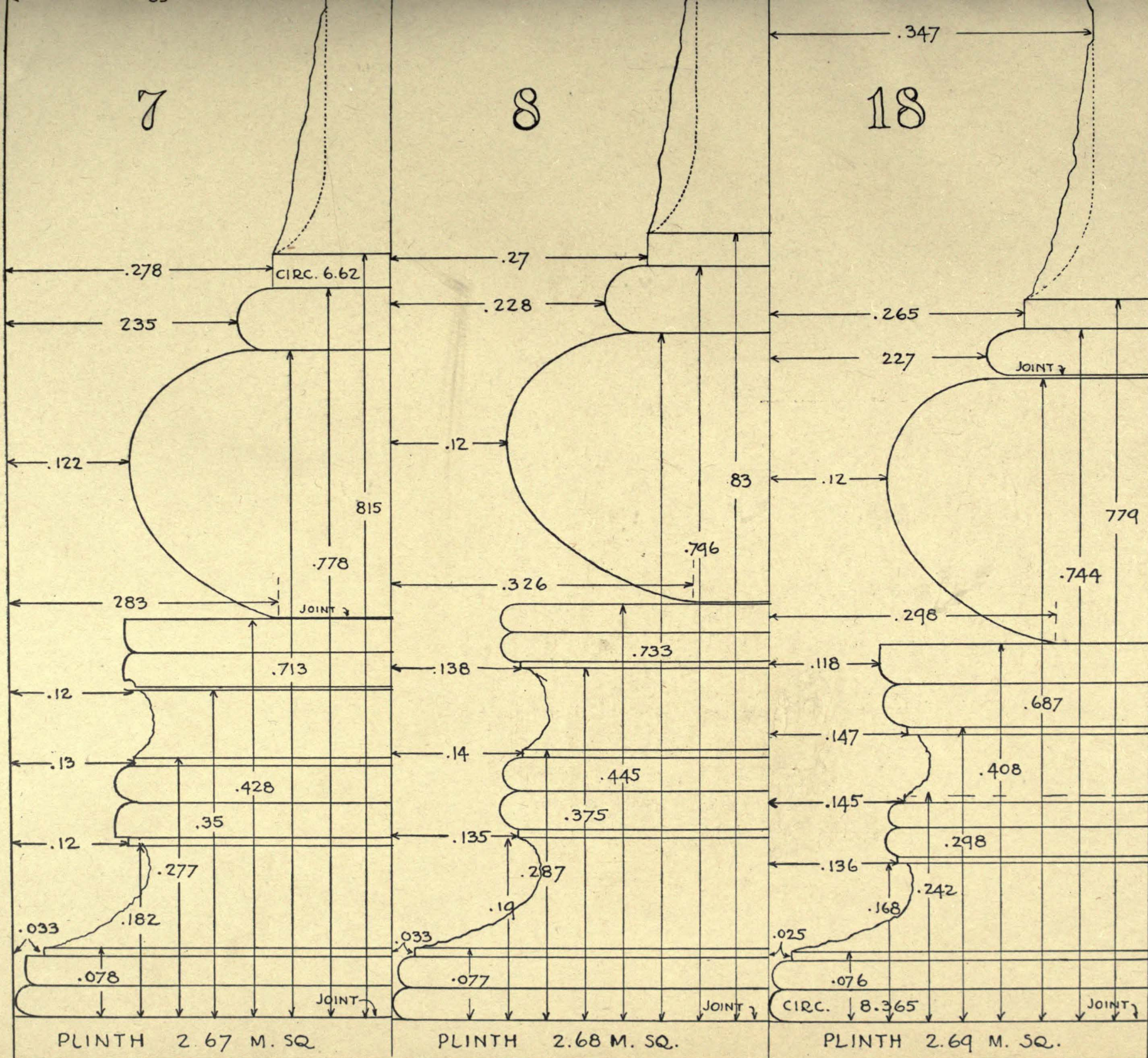


# BASES

MEASUREMENTS IN METRES







Ill. 109. Details of Bases of Columns.







at Priene 8.81 diameters, later Artemision at Ephesos 9.60, Didymaion 9.75, Smintheion almost 10, and Aizani 9.83 diameters. The principal columns of the temple at Sardis, i. e. those of the front row, are 8.75 diameters high; the columns of the porches are 9.25 and the elevated columns 9.48 diameters high. The first of these heights comes before that of Priene, the others fall between those of Priene and Ephesos. The scale of the columns at Sardis is the largest of any found in the buildings quoted in the list, the lower diameter of the largest measuring 2.06 m. or 7 Greek feet, as compared with  $6\frac{1}{4}$  at Ephesos, and  $6\frac{3}{4}$  in the Didymaion.

Tracing the same line of development we find that from the earliest times until the second century B. C., there was a tendency to reduce the space between the columns as they became more slender. The intercolumniations of the temples cited above, as quoted by W. B. DINSMOOR,<sup>1</sup> measured on centres are as follows: Messa 2.86 diameters, Priene 2.72 d., Ephesos 2.82 d., Didymaion 2.74 d., Smintheion 2.52 d., Magnesia 2.80 d., Teos 3.14 d., Aphrodisias 2.37 and Aizani 2.59 diameters. HERMOGENES, at the beginning of the second century, would seem to have returned to the more archaic proportions, as shown in the measurements of his temple at Teos,<sup>2</sup> while the later and Roman temples in the Ionic order follow or exceed his proportions. I take it for granted that these figures relate to the lateral intercolumniations, since the spacing at the ends is irregular in several of these temples. The lateral intercolumniation at Sardis, measured in terms of the standing columns, is exactly 2.50 diameters, which would place our temple next to the Smintheion. But if we measure the intercolumniation by the diameter of the older and smaller columns, such as the foundations were manifestly built to carry, as explained on pp. 111—112, we have an intercolumniation of 3.118 diameters which takes its place at the top of the list. At Ephesos the plinths measure 2.64 m. and the spaces between them on the flanks of the temple 2.58 m.; the plinths and the spaces are therefore not alternate squares as WOOD supposed. The plinths of the present peristyle at Sardis vary from 2.65 m. to 2.70 m., and the spaces on the flanks measure 2.33 m., or 25 cm. less than those at Ephesos — an unimportant difference. The plinths of the older columns measured about 2.40 m., which would leave spaces of about 2.60 m. between them. The plinths and spaces of the archaic Artemision at Ephesos measured 2.36 m. and 2.85 m. respectively.

Bases: The bases of the columns are the next important features to compare with similar details in other buildings. The bases at Sardis, as has been shown, are all of the Asiatic Ionic type, i. e. the type with a torus above two scotias. The earliest example of such a base is found in the archaic Artemision at Ephesos which, from the inscription of CROESUS, may be dated about 550 B. C. The earliest base of the so-called Attic type, i. e. having two toruses with a scotia between them, is probably that of the Ionic temple on the Ilissus at Athens, or that of the Temple of Athena Nike, in either case dating not earlier than the middle of the fifth century, or about a century later than the other type. The latest Asiatic base definitely datable within half a century is that of the Temple of Zeus at Aizani,<sup>3</sup> which dates from the first

<sup>1</sup> *A. J. A.* XII, 1908, p. 6.

<sup>3</sup> TEXIER, *Ruins of Asia Minor*, Pl. 15.

Sardis Expedition II.

<sup>2</sup> The temple at Teos was probably erected upon old foundations.



century after CHRIST; but this is a rare case. The Attic base does not appear in Asia Minor until the end of the third century, in the two temples assigned to HERMOGENES; but after that time it is the only type employed in this region, as in the Propylaea at Priene (1st. century B. C.) in the temple at Aphrodisias, and other examples, with the exception of the temple at Aizani and that of Zeus at Magnesia. The middle period would seem to be represented in Asia Minor by the Smintheion; but there has been much discussion as to its probable date, LETHABY<sup>1</sup> having placed it as late as the first century B. C., while others<sup>2</sup> give it a date in the middle of the third century. Its columns probably belong to the earlier, its entablature to the later period. The base at the Smintheion marks a sort of transition; having a torus substituted for a plinth, it is neither of the purely Asiatic nor of the Attic type. I am inclined to place the columns in the middle of the third century and to assign the entablature to a much later period, or periods, in which this temple, like so many others in Asia Minor, was repaired after earthquakes or other catastrophes. Indeed it would seem that most of the studies on the dating of these temples, which have been made from the publications rather than from observation of the ruins, assume that all the details of a single building must date from approximately the same period. The temple at Sardis presents nothing more clearly than the complete refutation of this theory; for not only do its details in themselves suggest that they belong to widely different periods, but this indication is substantiated by the sure evidence of inscriptions engraved upon them. The question of the probable dating of the columns at the Smintheion will be taken up again in the discussion of their capitals.

The bases at Sardis (Ills. 108 and 109), as stated in an earlier chapter (p. 57), present at least three varieties of the same general type, and only two of those which survive are finished. The bases within the peristyle were carved out of two blocks of marble, the toruses being independent. The bases of the columns of the peristyle were not cut in this way, the torus and scotias, in a number of cases, having been cut in a single block of stone. The completely finished bases of the two elevated columns, Nos. 11 and 12, and the drums of the shafts above them appear to belong entirely to one date, even though they bear unmistakable evidence of having been taken down and re-erected.

Some of the bases have carved decorations upon their toruses, which appear in several different designs, as, for instance, the guilloche, upright leaves and horizontal leaves, both applied in a sort of scale pattern, as may be seen by reference to the photographs (Ills. 57 to 66) and to Plates VI and VII of the Atlas. These various designs were arranged symmetrically on opposite sides of the longitudinal axis of the temple within the east porch, but in an alternating system in the four middle columns of the front row (cf. p. 61). The use of carved ornament in a variety of designs upon the torus mouldings of bases is as old as the sixth-century Artemision at Ephesos, and it is not surprising to find the scheme carried out in the temple at Sardis. The early torus mouldings at Ephesos are of two principal varieties,<sup>3</sup> those

<sup>1</sup> *Ant. of Ionia*, V, p. 15.

<sup>2</sup> DINSMOOR, *A. J. A.* XII, 1908, p. 6.

<sup>3</sup> HOGARTH *op. cit.* Atlas, Pls. III, IV.

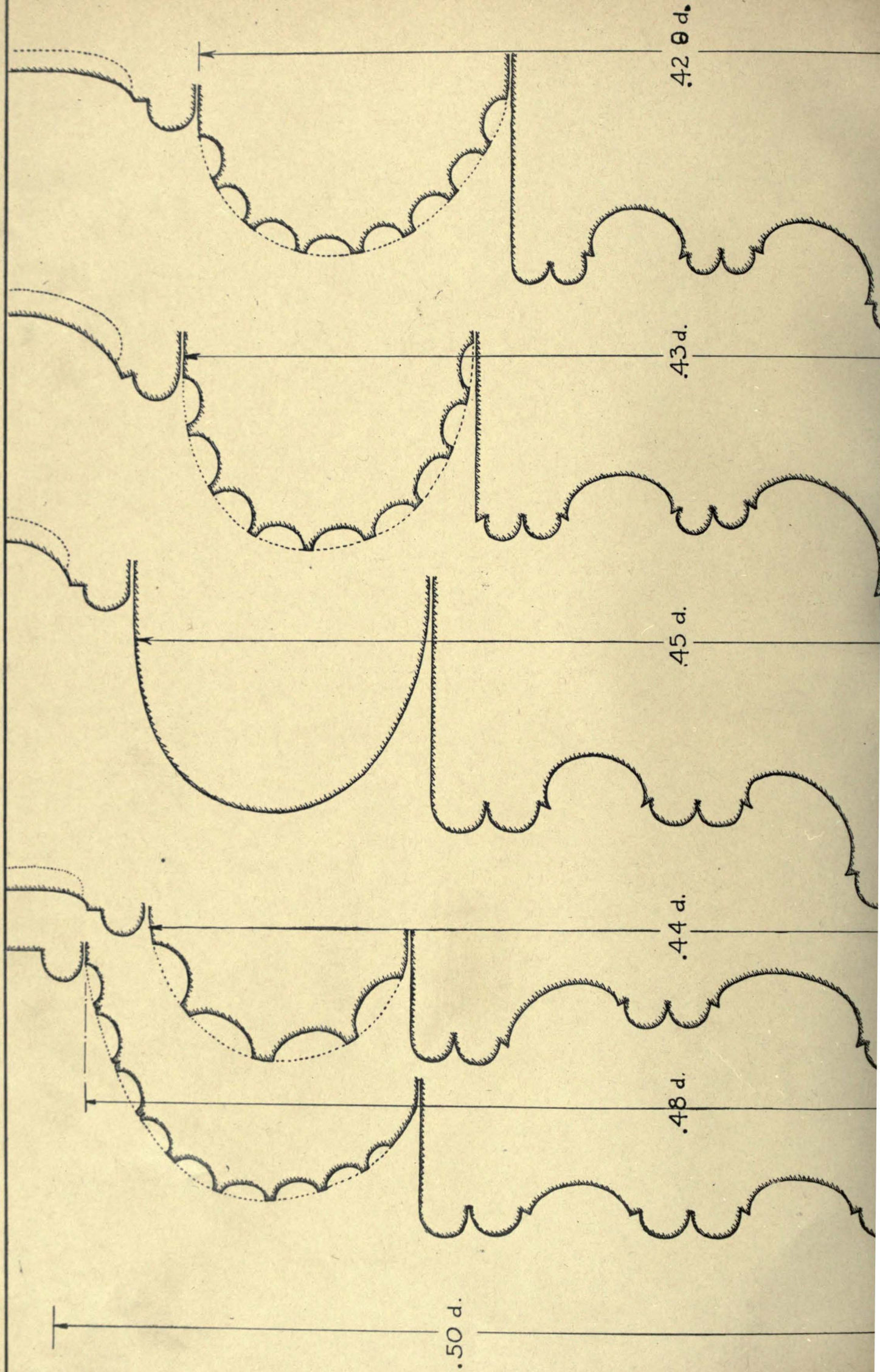




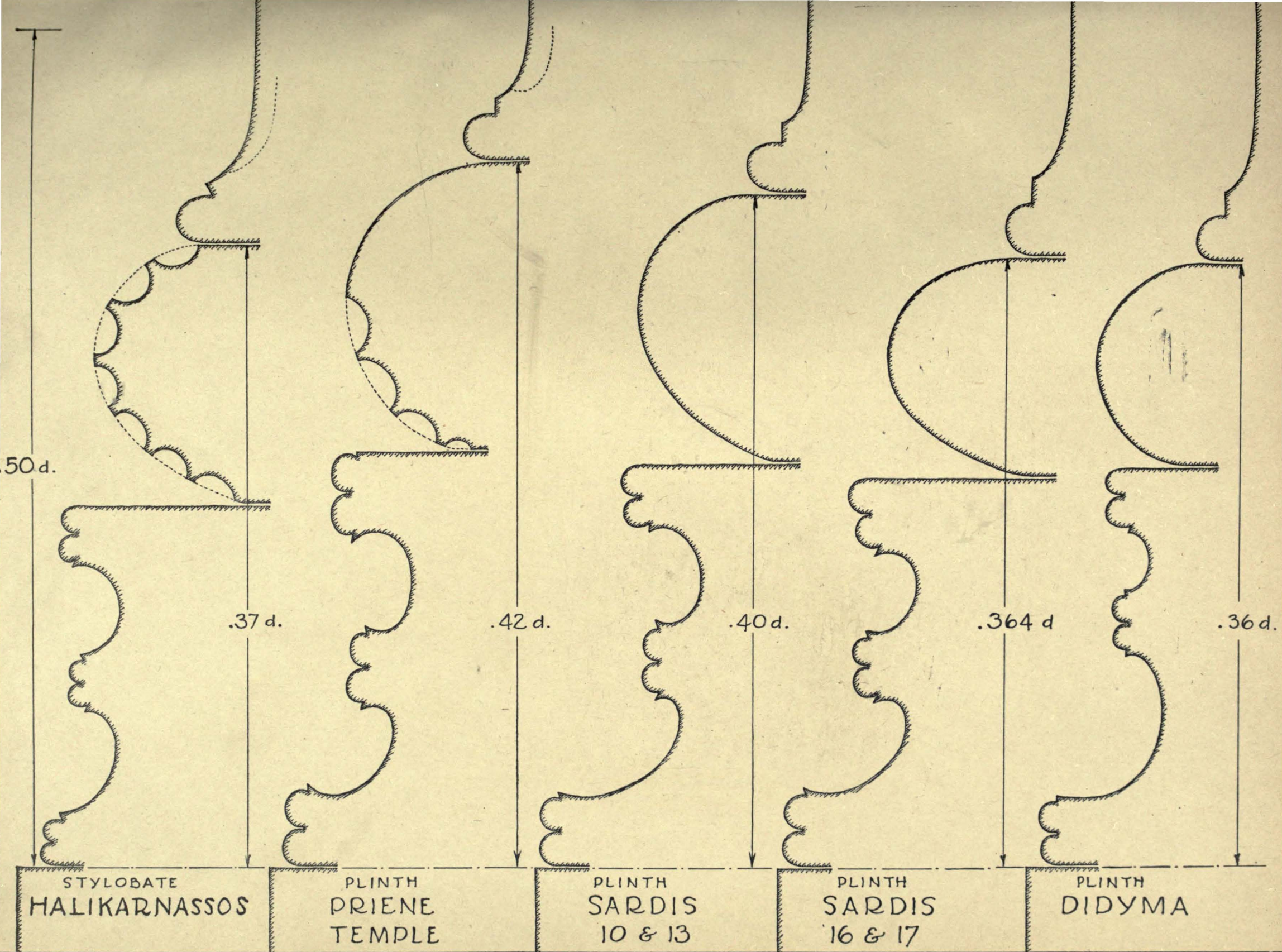


# ▷ COMPARISONS OF BASES ◁

◦ DRAWN TO A COMMON DIAMETER ◦







Ill. 110. Comparison of Bases of Ionic Columns.







which have the horizontal grooves, or flutings, and those with carved designs. The later temples in Asia Minor appear to have followed one or the other of these schemes of decoration; the later Artemision, the Mausoleum, and the temple at Priene taking the horizontal flutings, some of the still later temples, like that at Magnesia, employing the leaf ornament.<sup>1</sup> An early example of the guilloche applied to the torus of a base is found in the Erechtheion at Athens, a later one at Magnesia<sup>2</sup> where the base is also of the Attic type.

The bases of columns 11 and 12, without the plinths, are .45 diameters high, as compared with the height of the base of the archaic Artemision which is .48 d. high, and the other bases follow in order thus; the old temple at Magnesia .44 d., Messa .43 d., Ephesos .428 d., Priene .42 d., Didymaion .36 d. (Ill. 110). The only break in the continuity of the descending scale is found in the Mausoleum which was not a temple, and where the columns were set upon a high podium. The bases of the columns within the east porch, Nos. 10 and 13, are .40 d., those of Nos. 16 and 17 .364 d. high. That of column 18, on the flank of the Sardis temple, is .34 d. high, and the Attic bases of the temple of Artemis at Magnesia are only .31 d. in height. A table of the heights of the Asiatic and Attic bases, in terms of the diameter of the shaft, is given below.

TABLE showing the Heights of Asiatic and Attic Bases measured by the Diameters of their Columns.

ASIATIC IONIC.	ATTIC
Ephesus (archaic) . . . . . .48 d.	Ilissus temple . . . . . .485 d.
Sardis (nos. 11—12) . . . . . .45 d.	Bassai temple . . . . . .475 d.
Magnesia (archaic) . . . . . .44 d.	Athens: T. of Nike . . . . . .47 d.
Messa . . . . . .43 d.	Athens: Propylaia . . . . . .44 d.
Ephesus (new) . . . . . .428 d.	Athens: Erechtheion North Porch .41 d.
Priene: T. of Athene. . . . . .42 d.	Athens: Erechtheion East Porch .38 d.
Priene: T. of Asklepios. . . . . .44 d.	Samothrake: Ptolemaion. . . . . .44 d.
Sardis (nos. 10, 13) . . . . . .40 d.	Priene: Propylaia . . . . . .36 d.
Smintheion . . . . . .40 d.	Teos: T. of Dionysos. . . . . .34 d.
Didyma . . . . . .36 d.	Magnesia: T. of Artemis . . . . . .32 d.
Sardis (nos. 16, 17) . . . . . .364 d.	Aphrodisias . . . . . .318 d.
Sardis (no. 18) . . . . . .34 d.	Magnesia: T. of Zeus. . . . . .31 d.
Aizani . . . . . .375 d.	

The height of the bases from the Mausoleum is .342 d., that of the bases of the Pergamene altar .57 d.

The diagram (Ill. 110) shows very plainly that the proportional height of the torus, in comparison with that of the lower part of the base, tends to decrease with the decreasing height of the entire base. The projection of the lowest reeds also follows in order; in the archaic Artemision, the three sets of reeds are all tangent to

<sup>1</sup> *Magnesia am Maeander*, p. 53.

<sup>2</sup> *Ant. of Ionia* V, Pl. V.



a perpendicular line dropped from the top reed;<sup>1</sup> in the old temple at Magnesia the lowest reeds project very slightly, and the intermediate reeds are set back. In Sardis, Messa, the later Artemision, and Priene, the projection of the bottom reeds is about the same proportionally, and the intermediate reeds are set back a little. In columns 10, 13, 16 and 17 the projection of the lowest reeds is slightly increased. Similar developments are to be observed in the decreasing slenderness of the reeds, in the comparative height of the upper and the lower scotias, and in the profiles of the scotias themselves. It will be observed that in the bases of all the earlier temples, as in the earlier and the later Artemision, the old temple at Magnesia, the temple at Messa, the Mausoleum, and the temple at Priene, the scotias are separated from the reeds by *bevelled* fillets. Similar bevelled fillets appear in the Sardis temple in bases 11 and 12, and in 10, 13, 16 and 17, but in the other bases, and in the bases of other temples later than the end of the fourth century, the bevelled fillet gives way to a perpendicular one (Ill. 111). In all these comparisons the earlier bases at Sardis hold their place between the archaic examples and those of the middle of the fourth century, while the bases of columns 10, 13, 16 and 17 hold a position near the end of the fourth century. The remaining bases, those of the front row, are of unequal heights as may be seen in the diagrams (Ills. 108 and 109), but their average height equals about .37 diameters. They differ from the other bases in this temple, and from those of all earlier temples, in having joints at unusual places, and often no joints where joints are almost universally found. Columns 1, 4, 6, 7 and 8 have no joint at the top of the torus, columns 1—6 and 18 have no joint below the torus, column 6 has no joint below the bottom reeds, so that this entire base, including the plinth and the astragal at the foot of the shaft, is made of one huge block of marble. Bases 1—5 and 18, include both upper and lower members in a single stone, 7 and 8 have the torus and lowest drum of the shaft cut as one piece, and columns 1, 4, 7 and 8 have both parts of the base and the lowest drum of the shafts cut from a single block. These bases have no lifting bosses; they are left unfinished in a manner totally different from that of the other incomplete bases, (cf. ill. 58—61 with ill. 62—67) and must belong to the latest period of rebuilding, in the first century after Christ. They promised to be, when finished, excellent imitations of older work.

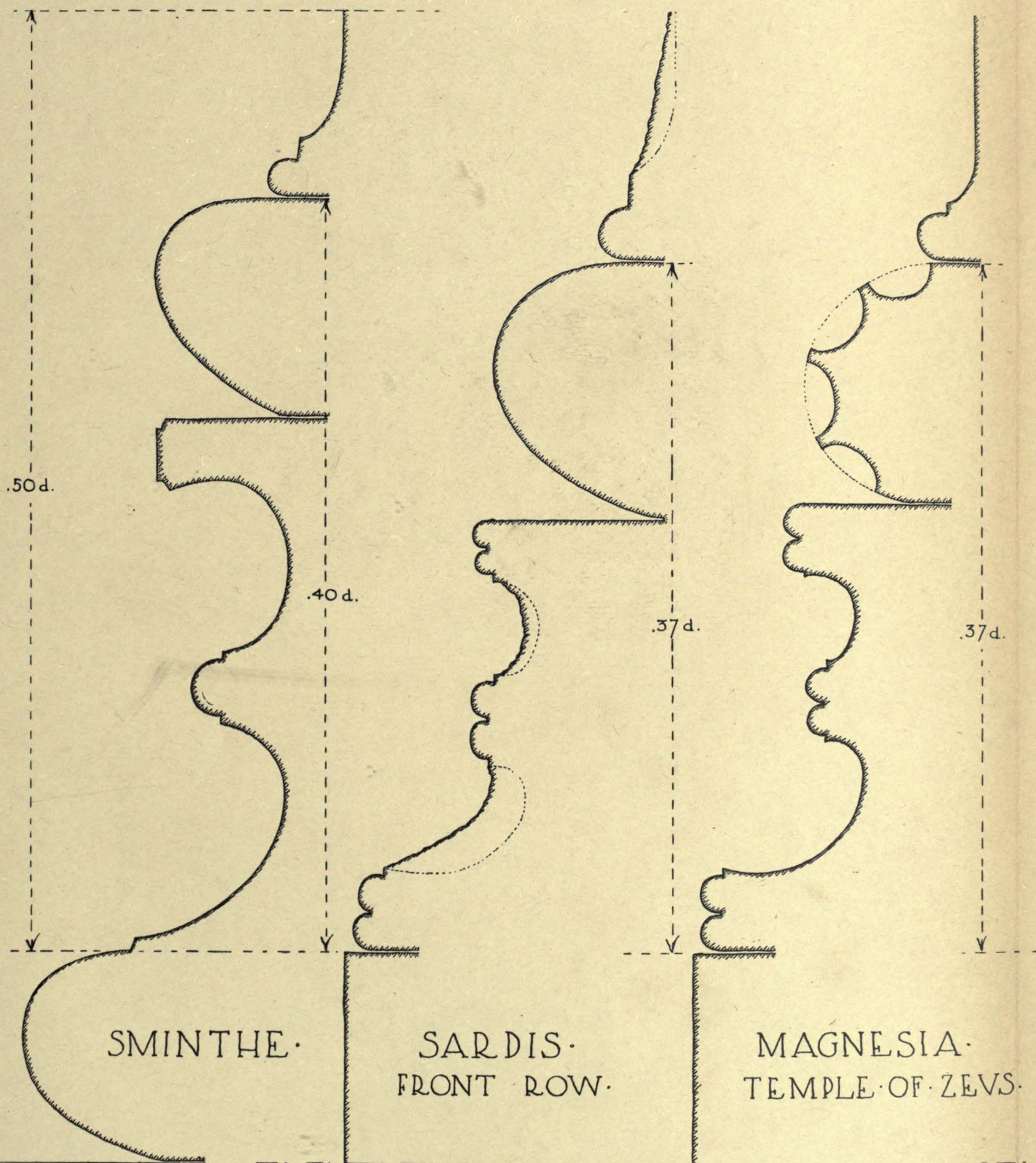
**Shafts.** If one may judge by the fragmentary remains that have been published, the shafts of Ionic columns of the archaic period, like those of subsequent dates in Asia Minor, were cut with an astragal and fillet at the top and bottom, the lower astragal being plain, the upper one beaded. The archaic shafts show also an apophyge at the top and bottom. The flutings in most of the columns of the archaic Artemision at Ephesos number forty-four, and their arrises are sharp; the flutings being extended into the apophyge at either end of the shaft. In the period which followed, embracing the fifth century in Greece and the fourth century in Asia Minor, the apophyge at the ends of the shaft was much accentuated, reaching its most exaggerated form in the Temple at Bassai. In other temples of the period, as in the Erechtheion in Athens, the later Artemision at Ephesos, the Mausoleum, and the temple at Priene, the apophyge rises on a sweeping inward curve which falls into the straight line of

<sup>1</sup> cf. Base from Massiliot treasury at Delphi, as shown by DINSMOOR, *Bull. Cor. Hell.* XXXVII, 1913, p. 20, fig. 4 and p. 51, fig. 9.



# ▷ COMPARISONS OF BASE

◦ DRAWN ◦ TO ◦ A ◦ COMMON ◦ DIAMETER ◦

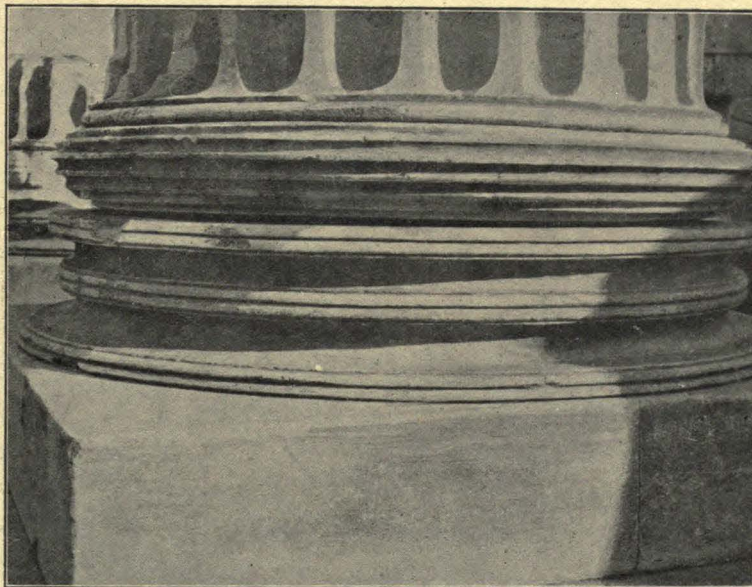








the shaft at about one-quarter of a diameter above the base, and a similar curve begins well below the top of the shaft. The flutings, only twenty-four in number, extend to the curve of the apophyge above and below, and their hollow rounded ends often extend below and above the line of the fillets as at Messa (Ill. 110). In the later examples, like those of the third century, the inward curve of the apophyge is less pronounced, the curve is shorter and falls into the straight line of the shaft at a lower level, as in the Didymaion (Ill. 112) and the Smintheion. In the temples of the second century and those of the Roman period, as in the Pergamon altar and the Temple of Zeus at Aizani, the apophyge is very slight, and the flutings are stopped above the lower and below the upper apophyge. One has only to compare the vertical sections of the uppermost and bottom drums of the columns of temples of the different periods to follow the development in the treatment of the apophyge and the ends of the flutings (Ills. 110 and 114).



Ill. 112. Base of a Column of the Didymaion.

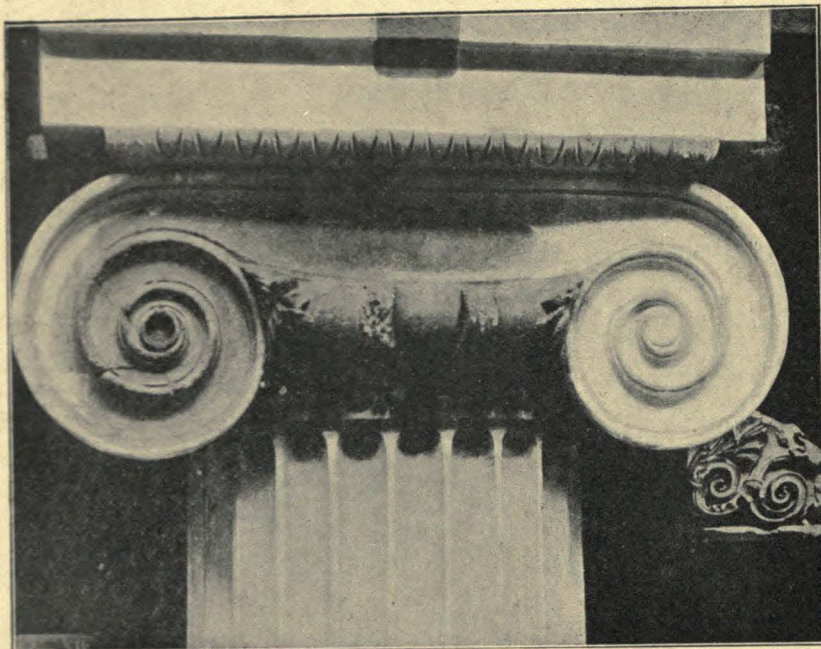
The width of the arrises in comparison with that of the flutings is another important feature of the development. In the archaic shaft at Ephesos the 44 flutings have sharp arrises. The archaic shaft at Magnesia has 32 flutes and its flat arrises are  $\frac{1}{6}$  the width of the flute. In the fifth-century examples of the Ionic shaft in Europe, as in the Propylaia, the Nike temple and the Erechtheion, all in Athens, the flutings number 24 and the flat arris varies from  $\frac{1}{8}$  to  $\frac{1}{7}$  of the width of the hollow fluting. The same proportion holds good for the Mausoleum, at Ephesos (Ill. 113) and at Priene. The arrises at Messa are a little less than  $\frac{1}{8}$  the width of the flute. At Didyma the proportion is  $\frac{1}{7}$  or a little more, (Ill. 112) at Samothrake  $\frac{1}{7}$  to  $\frac{1}{6}$ , at Teos  $\frac{1}{6}$  to  $\frac{1}{5}$  or a little less, at Magnesia  $\frac{1}{6}$  to  $\frac{2}{13}$ . The later proportions in Attica are illustrated in the small Propylaia at Eleusis where this proportion is  $\frac{3}{13}$ .<sup>1</sup>

At Sardis only two fluted columns are standing, and these only in part (Ills. 38 and 102), but there are many separate fluted drums lying at the west end of the temple (Ills. 17 and 41). The bottom drums of the two elevated columns Nos. 11 and 12, the top drums of the two complete columns (Nos. 6 and 7) and two found in the excavations, may all be submitted to the test of comparison. The bottoms of

<sup>1</sup> It is impossible to obtain precise measurements of the flutings and arrises of many of the columns quoted above; the fractions are approximately correct.



the shafts of columns 11 and 12 present an exaggerated apophyge, the curve of which is carried up more than a quarter of a diameter above the base. Its flutings extend well down into the flaring foot. The astragals and fillets of the lower drums of the unfluted shafts still standing at Sardis and the bands above them upon which the spacing for the arrises are marked show that the apophyge could have been only very slight. (Ills. 36, 40 and 63). The top drums of columns 11 and 12 and others found in the excavations show precisely the same peculiarities as the lower drums. The arrises are  $\frac{1}{8}$  the width of the flutes, or a little less in 11 and 12. All these



Ill. 113. Capital from Ephesos; now in British Museum.

features place the shafts of columns 11 and 12, together with their bases, near the top of the list, and within the fifth century. The arrises of the separate drums at the west end of the temple place them with the fourth-century group, and the lower drums of the outer columns with markings for arrises upon them place them at the end of the list, at the time of late restorations. An early form of top drum, though not the earliest form, was used with a later capital in the rebuilding of

column No. 7 (Ill. 71) and the older form of capital was placed upon a new top drum in column No. 6 (Ill. 70). This new top drum has all the earmarks of the very late, even Roman, shafts, the arrises are very wide, the apophyge slight, and the flutes are stopped below the apophyge as may be seen by examining the photographs (Ills. 70 and 72) where it will be observed that in the older form of top drum the carving of the flutings was carried down to within a few centimetres of the drum below, leaving an unfinished rim for the protection of the ends of the arrises until the whole column should be fluted; the later example has its flutings carved all the way down to the drum below. Neither of these top drums is of one piece with the capital. Another top drum of the older variety is shown in the photographs (Ills. 16 and 18); where it was set up with a capital to which it perhaps did not belong. The upper astragal in all these examples is beaded, but we have a fragment with a plain upper astragal. The beaded astragal appears in the columns of the archaic Artemision at Ephesos and generally elsewhere, though this member in the Mausoleum is plain, as it is in some of the earlier and later examples in Greece.



Capitals. It is somewhat difficult to study the capitals of the temple at Sardis in comparison with those from other temples, for two reasons; first, because the two capitals which are still in place have been inaccessible for purposes of accurate measurement, and second, because the capitals found in the excavations are separated from the columns to which they belonged. A general survey of the nine capitals extant, as described above (pp. 63—72), shows that all were of the same general type, and that though some are considerably older than others, the later ones were fairly good copies of the earlier. The three classes within the general type are to be differentiated as follows: first, the original form represented by capitals A, C, D, and E (Ills. 70, 73, 77 and 80) and perhaps also by F and G (Ills. 82 and 83); second, the late imitation represented by capital B (Ill. 71) and a few fragments; and third, a later type preserved only in fragments, but differing from the others in having the top drum of the shaft cut as part of the capital, in the manner of certain capitals at Ephesos and other places in Asia Minor. Most of the latter are to be dated in the second century and later. The capitals of the first class have one variant, E (Ill. 80), in which the side of the bolster descends at a much steeper angle than in the others; and this peculiarity was copied in B. All the others of the group, though differing slightly in size, follow the same general lines. In terms of the lower diameter the capitals of columns 11 and 12, which are represented by C, have the following proportions: height from top of abacus to bottom of echinus, .47 d., height from bottom of volute .63 d., width of abacus 1.08 d., width over all 1.49 d. These proportions when compared with those of other capitals present the following relations in terms of diameters.

	Ht. of Col.	Lateral intercol.	Base Ht.	Cap. Ht.	Cap. Ht. with Volute.	Echinus.	Band.	Abacus.	Cap. wide over all.	Abacus wide.
Ephesos, Archaic Artemision . .	ca. 8 d.	ca. 3.50 d.	.48 d.	.53 d.	.72 d.	.176 d.	.297 d.	.064 d.	1.90 d.	1.30 d.
Sardis, V-cent. Temple . . .	9.48	3.12	.45	(C) .47	.63	.156	.246	.072	1.49	1.08
✓ Magnesia, Archaic Temple . .	?	?	.44	?	?	?	?	?	?	?
250 Messa, Temple . . . . .	9.30	2.86	.43	.41	.58	.156	.196	.058	1.49	1.05
350 Ephesos, New Temple . . . .	9.60	2.82	.428	.446	.55	.167	.22	.059	1.44	1.13
Halikarnassos, Tomb . . . . .	8.19	ca. 2.80	.342	.33	.50	.094	.188	.052	1.35	
✓ Priene, Temple of Athena . . .	8.81	2.72	.42	.387	.54	.143	.17	.07	1.43	1.03
✓ Priene, Temple of Asklepios . .	?	3.29 <sup>1</sup>	.44	.457	?	?	?	?	?	?
Sardis, IV-cent. Temple . . . .	9.25	2.70	.40	(F) .42	.56	.125	.223	.077	1.38	1.03
✓ Didyma, Temple . . . . .	9.75	2.74	.366	.335	.57	.13	.11	.09	1.35	
313 Samothrake, Ptolemaion . . . .	ca. 9	3.28 <sup>1</sup>	Att. .35	.38	.61	.124	.17	.086	1.47	1.08
Smintheion, Temple of Apollo . .	ca. 10	2.52	.40 <sup>2</sup>	.357	.58	.115	.17	.065	1.40	1.02
✓ Magnesia, Temple of Artemis . .	9	2.80	Att. .31	.406	.57	.152	.152	.102	1.37	1.01
Teos, Temple of Dionysos . . . .	8.90	3.14	Att. .34	{ (1) .402 (2) .386	.61 .62	.119 .172	.194 .124	.089 .09	1.39 1.46	1.03 1.05
Pergamon, Altar . . . . .	ca. 7.50	?	.57	.44	.61	?	?	?	1.68	?
147 Sardis, Roman Reconst'n . . . .	8.75	2.50	.37	(B) ?	?	?	?	?	?	?
Aphrodisias, Temple . . . . .	9	2.37	Att. .318	.50	.50	.181	.068	.07	1.33	1.00
Aizani, Temple . . . . .	9.83	2.59	.375	.55	.55	.144	.122	.061	1.39	.90

All measurements are given in diameters.

<sup>1</sup> Exclusive of lower torus substituted for plinth.<sup>2</sup> Not lateral.

The heights of the different parts of the Sardis capital C in terms of the lower



diameter of the column are: echinus .156 d., volute band .246 d., abacus .072 d., and height from bottom of volute .63 d., all of which means that the echinus is nearly one third the height of the capital, the band a little more than half the height, and the abacus less than one seventh.

In the subjoined table or in Ill. 114,<sup>1</sup> it will be observed that the height of the capital measured from the bottom of the echinus, in the archaic Artemision, and in the fifth-century examples from Attica, is somewhat more than half a diameter, in Sardis C and in Ephesos, it is a little less, i. e. .47 d. and .446 d. respectively. In Messa, Priene and Sardis E, it varies between .42 d. and .39 d. In the Mausoleum this proportion is only one third of a diameter; but the columns in this building, as well as those of the Nereid Monument at Xanthos and the altar at Pergamon, were set on high podiums, and hence their proportions are very different from those of the columns of the temples. At Priene, Samothrake and the Smintheion the height ranges from .39 d. to .35 d.; in the Temple of Artemis at Magnesia, and at Teos, it rises to .40 d., suggesting that VITRUVIUS derived this proportion for his Ionic capital from PYTHEUS rather than from HERMOGENES; but in Didyma, in the temple of Zeus

<sup>1</sup> The arrangement of the drawing in Ill. 114 was made with a view to convenience of composition rather than to chronological sequence. It was impossible, of course, to obtain the actual, precise, measurements of every capital here represented. The drawings were made from the most authoritative sources, and from the latest in cases where recent observations have been published. The fractional proportions may not be exact in every case; but they are sufficiently precise to base a general survey upon. If any importance whatever is to be attached to progressive development in the proportional relations of part to part in the Ionic capital, this diagram should prove helpful, not only in fixing the place of the Sardis capitals in the scheme of evolution, but in assigning more nearly approximate dates to such other capitals as have been the subjects of widely differing speculation and controversy. The bolster sections particularly are of such vital importance from the point of view of the architect and the stone-cutter, that they must have considerable influence upon our judgment in the discussion of the probable date of these features. Observing these proportional relations, and comparing the bolster sections, we find that the single example from the sixth century, which does not appear in the illustration, (see table), and the fifth-century Attic group stand by themselves with most of their details in common; the chief difference being that the band of the archaic capital is pulvinated, while that of the others is flat. The next group, embracing the capitals from Sardis, Messa, Ephesos and Priene, is characterized by a height of capital which is only slightly less than that of the former group, by a high volute-band of scotia form rather than pulvinated or flat, and by bolster sections that are very much alike; and in this last the capital from Halikarnassos may be included. According to this schema Sardis C might be assigned to the fifth century, and KOLDEWEY's claim to an early date for the capital from Messa gains support. Some of the leaves in the angle-palmettes curve slightly upward at their ends. The third group would include the capitals from the Ptolemaion at Samothrake and the Smintheion; for in these the entire height is slightly reduced, but the height of the volute-band is still considerable, and the proportional relations are not greatly altered; the volute-band however becomes nearly or quite flat with mouldings above and below, as in the earlier examples. We have no bolster section from the Smintheion, but this feature in the Ptolemaion does not differ greatly from the same detail at Priene. All the leaves of the angle-palmette in these two capitals curl upward at the ends. The capital from Olympia, though of lower proportions, is in other respects more closely related to these two capitals than to those which come before or after. HERMOGENES' capitals from Magnesia retain somewhat the same general proportion of height as the capitals of the second and third groups; but here the volute-band is sacrificed to give height to the echinus, the abacus becomes very heavy by the addition of a fillet at the top, and the leaves of the angle-palmette curl upward still more. The bolster section was probably studied from Halikarnassos or Priene. We have no bolster section of Teos 1, but its other features conform quite closely to HERMOGENES' scheme, although the band returns to more ancient precedents, by its height though not by its section. According to our diagram, the little temple of Zeus Sosipolis at Magnesia should be placed directly after the larger temple in the same place. This study was made from KOHTE's small drawing in *Magnesia am Maeander*; the section through the face of this capital would class it with some of the fourth-century examples, but its height and a section through its bolster indicate a date well advanced in the second century B. C. No bolster section of the capital of the Pergamene Altar has been published, and the capital is not included in this diagram; but its proportions and the section taken through its face are not unlike those of the capital from the temple of Zeus Sosipolis. The remaining capitals shown in the diagram speak for themselves; Didyma, Teos 2, and Aizani, by their proportions, and by their bolster sections, show what may be called the Roman type and form, and cannot be placed earlier than the first century after CHRIST. Aphrodisias shows the same tendencies, although its bolster section presents a unique figure. These same tendencies are shown in the Ionic capitals of the Theatre of MARCELLUS in Rome, which is not included in the diagram, and reach their final stage of decline in the second-century example taken from HADRIAN's Aqueduct in Athens.

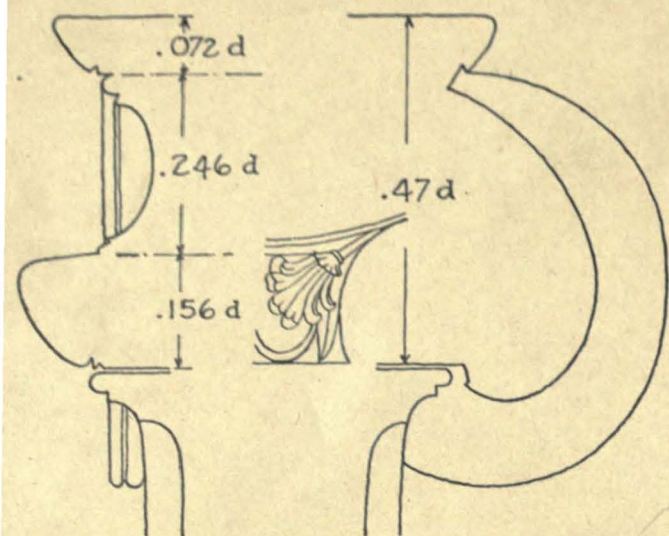




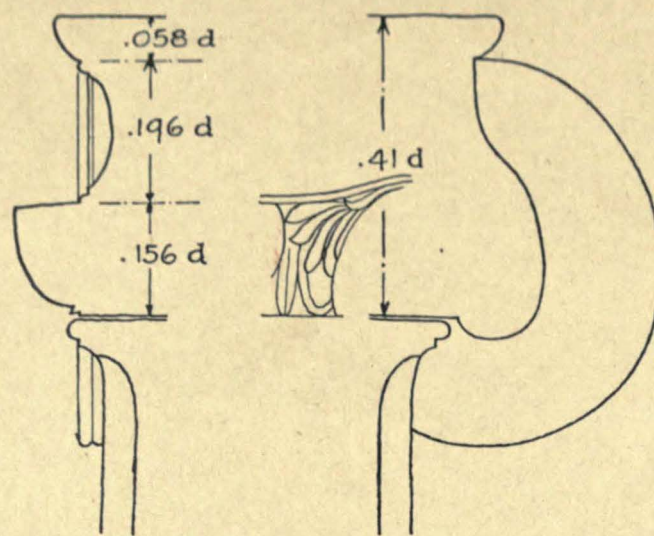


# COMPARISON OF CAPITALS

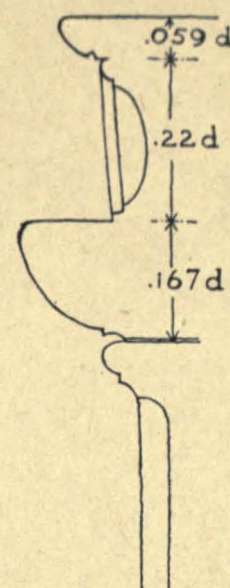
DRAWN TO A COMMON DIAMETER.



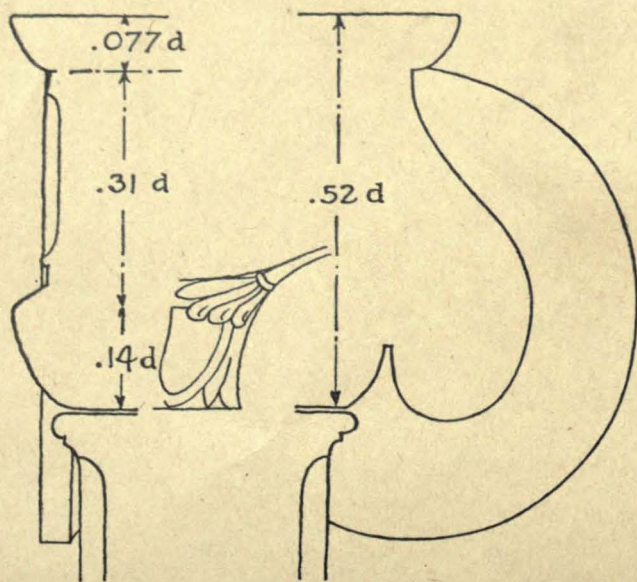
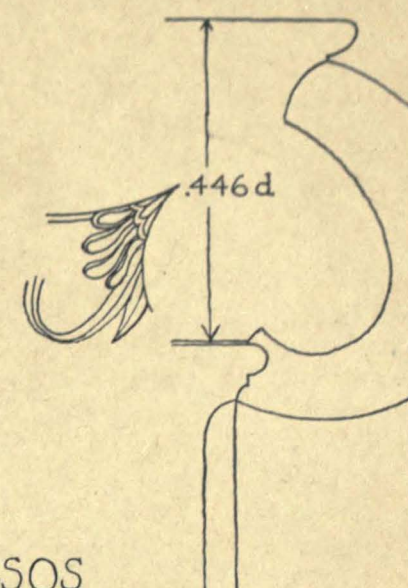
SARDIS · C



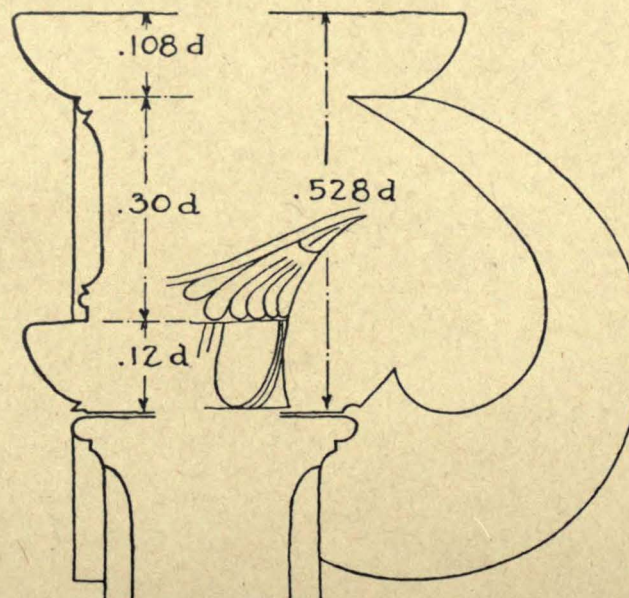
MESSA



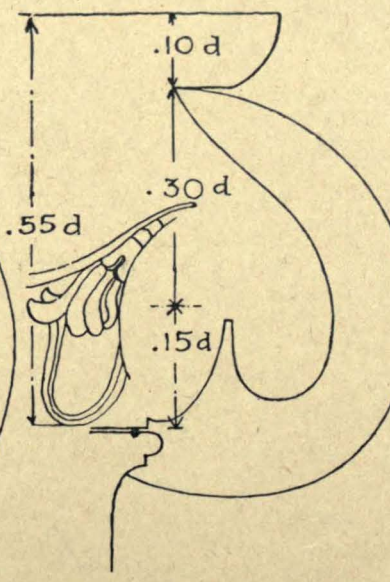
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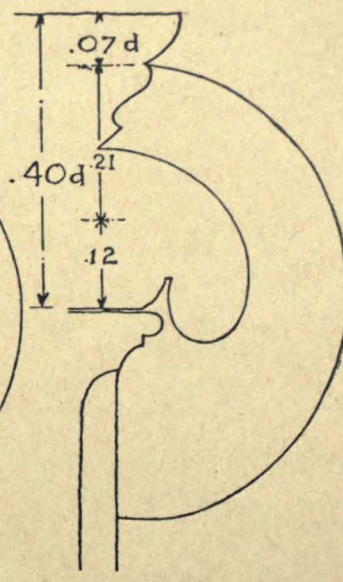
ATHENS  
NIKE



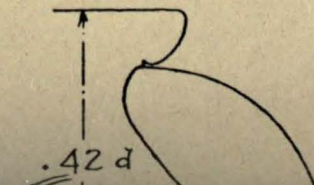
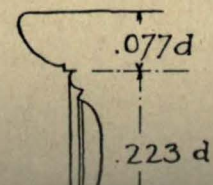
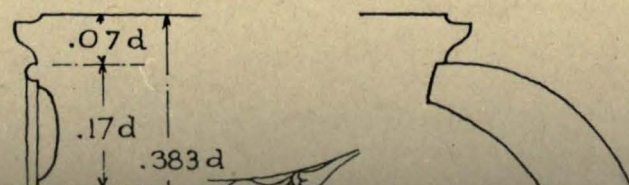
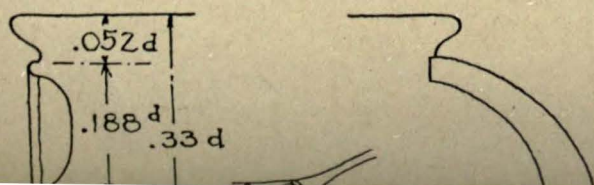
ATHENS  
PROPYLAEA



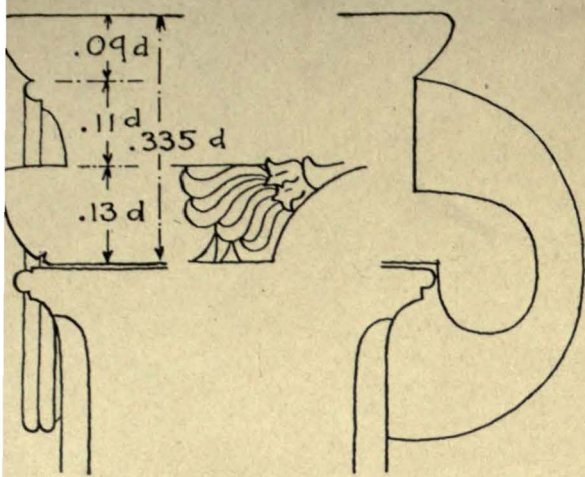
ELEUSIS  
PROPYLAEA I



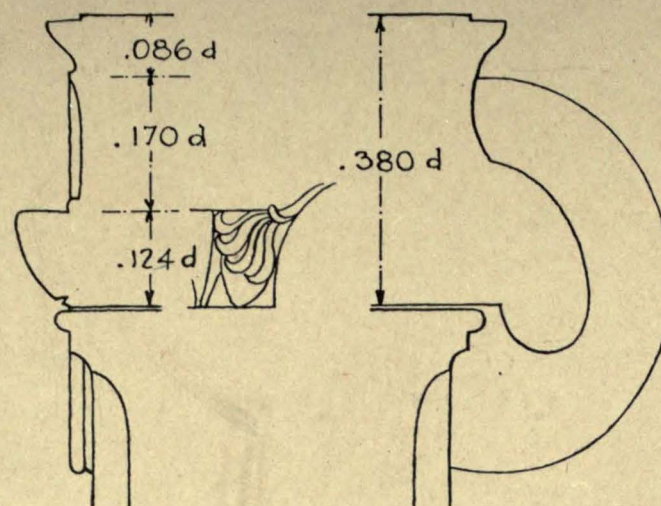
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PROPYLAEA · II



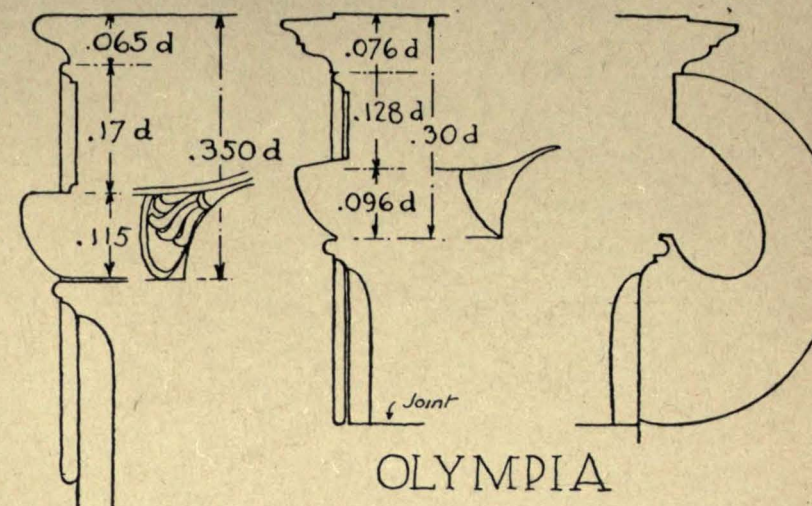




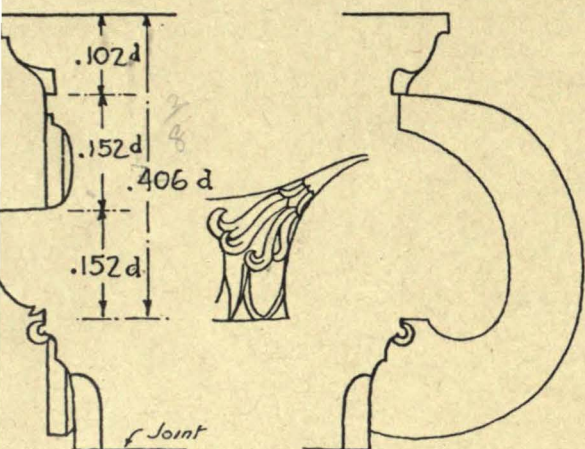
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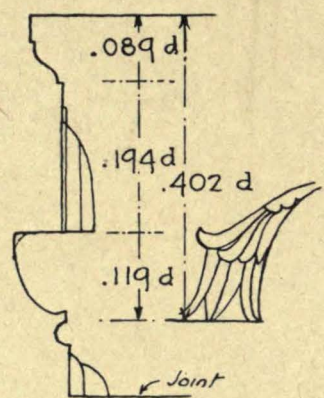
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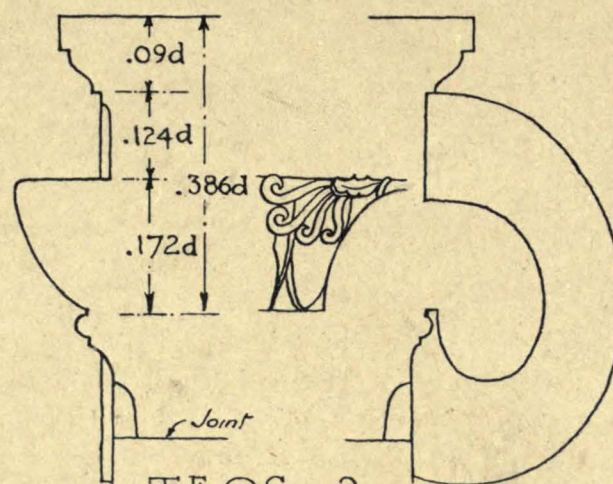
SMYRTHEION PHILIPPEION



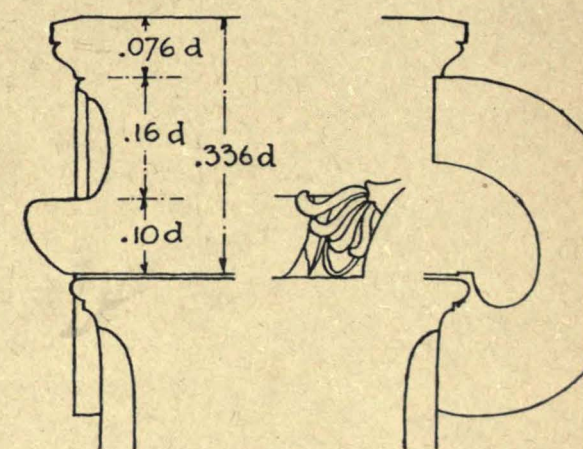
MAGNESIA ARTEMIS



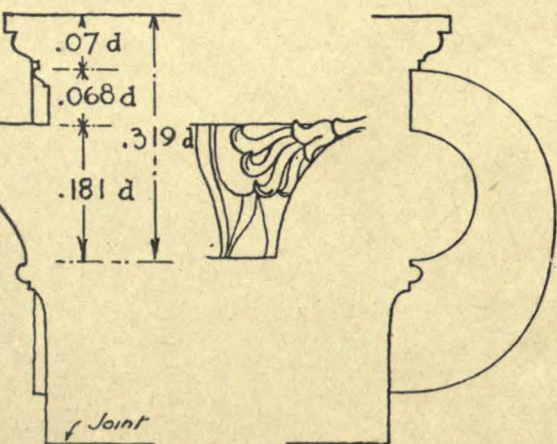
TEOS 1



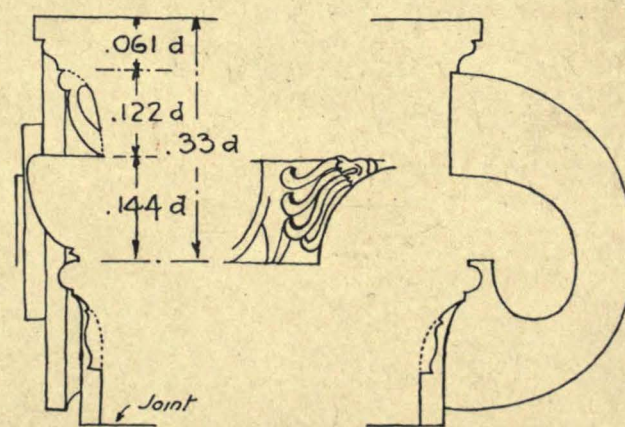
TEOS 2



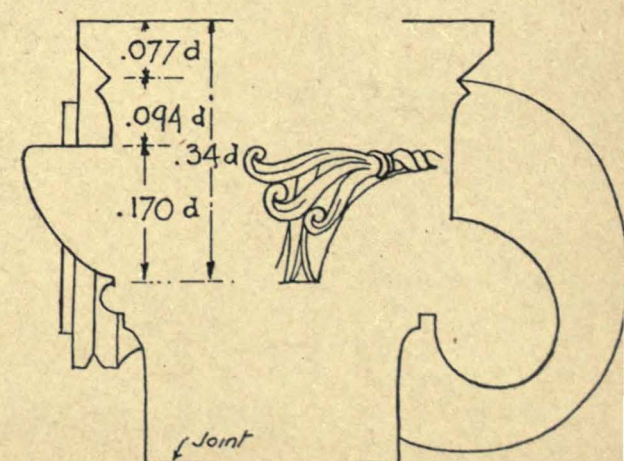
MAGNESIA ZEVS



APHRODISIAS



AIZANI



ATHENS HADRIANIC







Sosipolis at Magnesia, in Aphrodisias, Aizani, and in the example of Hadrian's work in Athens, as well as in most other Roman capitals, the height follows the Vitruvian proportion of about one third of a diameter.

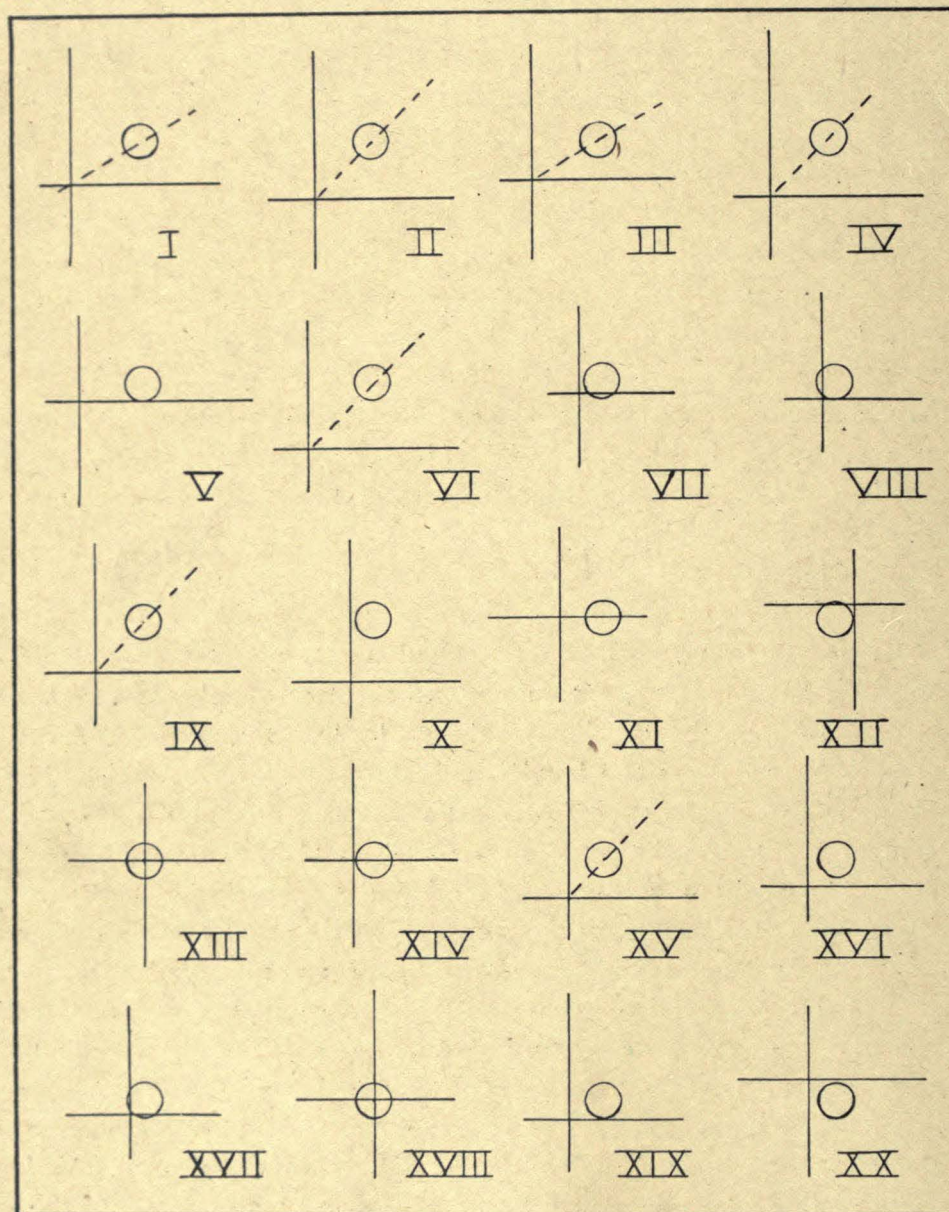
The height of the echinus in the fifth and fourth-century examples before us varies from a little less than a quarter to a little more than a third the height of the capital, but in Teos 2,<sup>1</sup> Aphrodisias, and the Aqueduct of Hadrian at Athens it rises to almost half the height of the capital or even more than half. The proportional height of the volute-band, on the other hand, varies greatly from first to last, ✓ and may be taken as an important index to date. In the sixth-century example and in the fifth-century Attic capitals, as well as in Sardis C, Ephesos and Halikarnassos, it is rather more than one half the height of the capital; while in Messa and Sardis E it is a trifle less. In Priene, Samothrake and the Smintheion it is considerably less than half, in Magnesia (Artemis) a little more than one third. In Didyma this proportion is exactly one third the height of the capital, in Teos 2, and Aizani a little less than one third, and in Aphrodisias and the late Athenian example hardly more than one quarter. In Teos 1 and in Magnesia (Zeus) however, the band rises to about one half. The profile of this feature, in the archaic capital from Ephesos is pulvinated, a true cushion; in the fifth-century Attic examples it is flat; in Sardis, Messa, Ephesos, Halikarnassos and Priene, a deeply curved hollow section, like a flattened scotia, with a moulding at the bottom. In Samothrake and the Smintheion it becomes flat, or nearly so, retaining the moulding below; in the Philippeion, Teos 2, and Aphrodisias, flat without the moulding; in the two temples at Magnesia slightly curved again but without the moulding below. In Didyma, Teos 1, Aizani and the Hadrianic example from Athens the band is a shallow cavetto with no moulding below it.

The volute of the Sardis capital winds three times around the eye, which is set outside the line of the upper diameter of the shaft, and above the line of the bottom of the echinus. The position of the eye in relation to the line of the upper diameter and to the line of the bottom of the echinus in the well known Ionic capitals of buildings in Asia Minor and in Attica is shown in the accompanying diagram (Ill. 115). From this it will be observed that in most of the capitals which are known to be early, such as those of the sixth-century Artemision at Ephesos (I), the fifth-century Propylaia at Athens (VI) and the fourth-century temples at Priene (IX) and Ephesos (IV), the eye stands well outside the perpendicular of the upper diameter of the shaft and above the horizontal line of the bottom of the echinus produced. A line passed through the intersection of these two lines at an angle of about 30° to the horizontal passes through the centre of the eye in the capitals of the old Artemision and of the temple at Messa; this same line at 45° passes through the centre of the eye in the Propylaia, and in the capitals of the later Artemision at Ephesos, and the temples at

<sup>1</sup> Two widely different drawings of capitals from Teos have been published at different times; one by PULLAN which I have labelled Teos 1, and one by REVETT represented in Ill. 114 as Teos 2. These drawings were of course made from two capitals. The first of these may very well belong to the time of HERMOGENES; for its proportions do not differ essentially from those of the capitals of the Temple of Artemis at Magnesia. There is no published section through the bolster of this capital. The other (Teos 2) must date from some late restoration of the temple in Roman times; for its proportions are entirely out of harmony with those of HERMOGENES' capitals, and, together with the section through its bolster, may be classed with the capital from Aizani and with that of HADRIAN'S Aqueduct; although its proportional height was obliged to conform to that of the older capitals in the same building.



Sardis and Priene. At Didyma the eye lies well outside the perpendicular, but the horizontal line bisects the eye as in the Vitruvian capital; in the Smintheion the outside of the eye is tangent to the perpendicular, and the horizontal bisects the eye; at Samothrake the two lines intersect in the centre of the eye as they do in the small



III. 115. Place of Eye in Ionic Volutes.

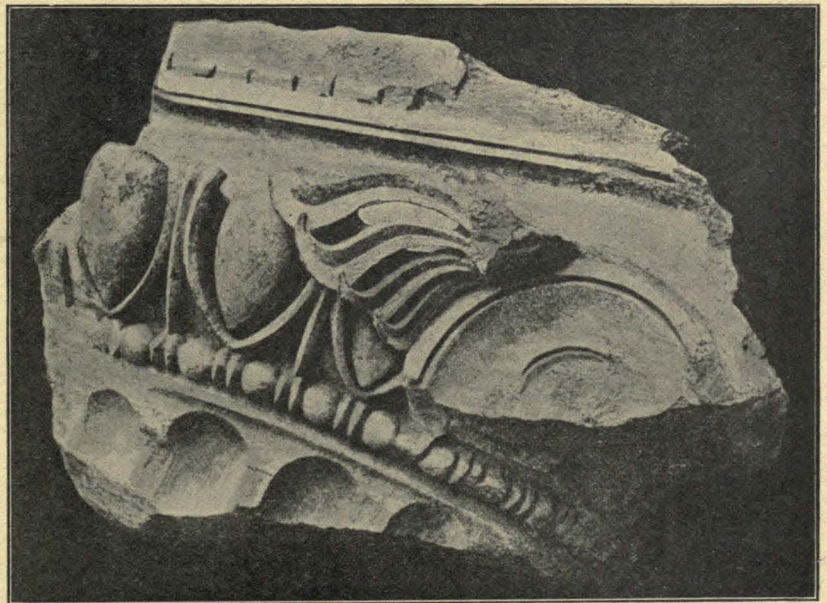
I. Ephesos I. II. Sardis C. III. Messa. IV. Ephesos II. V. Athens, Nike. VI. Propylaia. VII. Ilissos. VIII. Erechtheion. IX. Priene. X. Halikarnassos. XI. Miletos. XII. Olympia, Phil. XIII. Samothrake. XIV. Smintheion. XV. Pergamon. XVI. Magnesia a. M. XVII. Teos. XVIII. Eleusis, Small. Prop. XIX. Aphrodisias. XX. Aizani.

Propylaia at Eleusis. In Pergamon the centre of the eye is on the 45-degree line; but the eye lies very near the perpendicular; in Teos, Magnesia and Aphrodisias the eye is almost tangent to both lines, lying outside the perpendicular and above the horizontal as we find it in some early Attic examples. In other late examples in Asia Minor the eye is tangent to both lines but lies below the horizontal, as in Aizani. In the Philippeion at Olympia the eye lies inside the perpendicular and below the horizontal.



The angle palmette, or half-palmette, between the volute and the echinus, in the Sardis capitals has the form of five lanceolate leaves which spring either from a small sheath of delicate acanthus, or other curly leaf, at the end of a short stalk or cauliculus, or directly from the cauliculus. The leaves cling closely to the first oves, which they almost cover. In capital C the leaves cling to the oves, but their ends are turned crisply outward; in all the others, with the exception of B, the ends lie flat upon the oves (Ills. 76, 77, 78). In capital B the leaves of the palmette are deeply undercut and barely touch the oves on either side. In the archaic capital at Ephesos the leaves are short with rounded ends, and in most fifth-century examples in Europe the angle-palmette is inconspicuous (Ill. 114), hardly reaching the tops of the oves on either side; but in the Nike temple the four leaves have the lanceolate shape and fall over the tops of the oves. The capitals of the later Artemision at Ephesos are badly damaged (Ill. 113), but they show five leaves springing from a plain sheath and lying closely upon the oves, as at Sardis. In the capital of the Mausoleum three small leaves spring directly from the cauliculus; but in those at Priene four long curving leaves spring from a plain sheath and cover the outermost oves to which they cling closely. In the Didymaion capital four long leaves with upward curving ends spring from comparatively large acanthus sheathes, and lie flat across the first oves, quite concealing them, and touching the next oves. At Samothrake and the Smintheion there are four small leaves turned up at the ends, springing from plain sheaths, and partly hiding the first

oves on either side. In the Teos capital according to PULLAN (Ill. 114, Teos 1) the leaves droop in the manner of some of the Attic examples: but according to REVETT (Ill. 114, Teos 2), the four leaves which are sheathed by an acanthus leaf, are double curved, and turn up at the ends in little curls, or volutes; they are deeply undercut.<sup>1</sup> Much of the above information is brought together in PUCHSTEIN'S *Das ionische Capitell*. In the Artemis



Ill. 116. Fragment of a Capital from Magnesia.

capitals at Magnesia,<sup>2</sup> the sheath has the form of a double acanthus leaf, and the ends of the leaves curl up as in the example at Teos. Some of the leaves here have less curl at the ends; but all are deeply undercut and stand almost free from the oves (Ill. 116) as may be seen in the photograph copied from HUMANN'S *Magnesia*

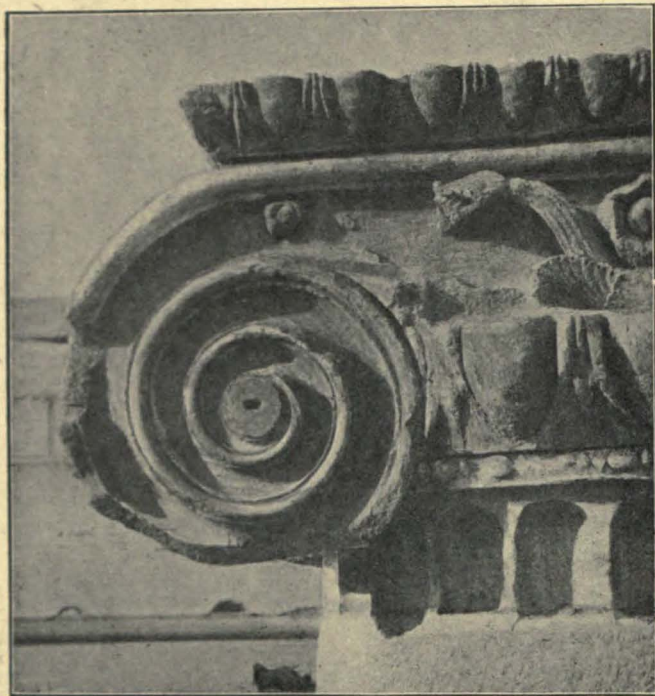
<sup>1</sup> Cf. Note on p. 121.

<sup>2</sup> *Antiquities of Ionia*, V, Pls. VII and VIII.



*am Maeander*.<sup>1</sup> Capital B, of the standing column 7, is the only one preserved at Sardis having its angle palmette deeply undercut and standing almost free from the oves, as at Magnesia. The curl at the end of each leaf and the deep undercutting are characteristic of most of the later Hellenistic and Roman capitals as a large number of datable examples attest.

In the Sardis capital, as I have remarked above, the helix winds three times around the eye (Ill. 117). This is true also of all the earlier capitals down to the



Ill. 117. Face of Capital E.

Smintheion, where the helix is stopped just short of three times. In Teos there are two and three-quarter revolutions, in Magnesia two and one-half, and this becomes common in most of the later examples; the Vitruvian capital calls for only two. The helix of our capital is described by a reed accompanied by a bevelled fillet across the top of the volute band and around the first circumference, after which it is flanked by bevelled fillets on either side. The second bevelled fillet joins the helix after being carried across the capital in a downward curve below the volute band. These features are almost precisely like the corresponding details in the capitals of Messa, Ephesos (later), Priene, and the Mausoleum. At Didyma and the Smintheion the downward curve of the moulding below the volute

band is retained, but the bevelled fillets are replaced by flat ones. At Samothrake there is no moulding below the pulvinus, and the line above the echinus is straight. At Magnesia and Teos, and in all the later examples with the exception of the Pergamene altar, the line below the volute band is straight, and the helix is no longer described by a reed but by a flat member.

The abacus of the Sardis capitals is oblong, not so pronouncedly so as that of the capital of the old Artemision, but a little more so than the abaci of Messa, the later temple at Ephesos and the temple at Priene. It is important to note that the abacus in the capitals of the Mausoleum, and of all the temples later than Priene, is square. This abacus is carved with an open egg-and-tongue and has inverted palmettes applied to the oves at the angles. The archaic capitals at Ephesos have both the egg-and-tongue and the Lesbian leaf, and there is some doubt about the ornament at the angles; but the former kind of carving, inverted palmette and all, occurs in the Erechtheion, at Messa, in capitals of the later temple at Ephesos, and at Didyma. In the capitals of the Pergamene Altar and in those at Aizani the egg-and-tongue

<sup>1</sup> *Magnesia*, pp. 56 and 57.



appears in this position, but in these examples it is closed above by a straight fillet as in Sardis B. The abaci of all other Ionic capitals in Asia Minor are carved with the Lesbian leaf, which is open at the top in the Mausoleum, at Priene, Samothrake and the Smintheion, but closed with a flat fillet at Magnesia, Teos, Aphrodisias and in all the later examples.

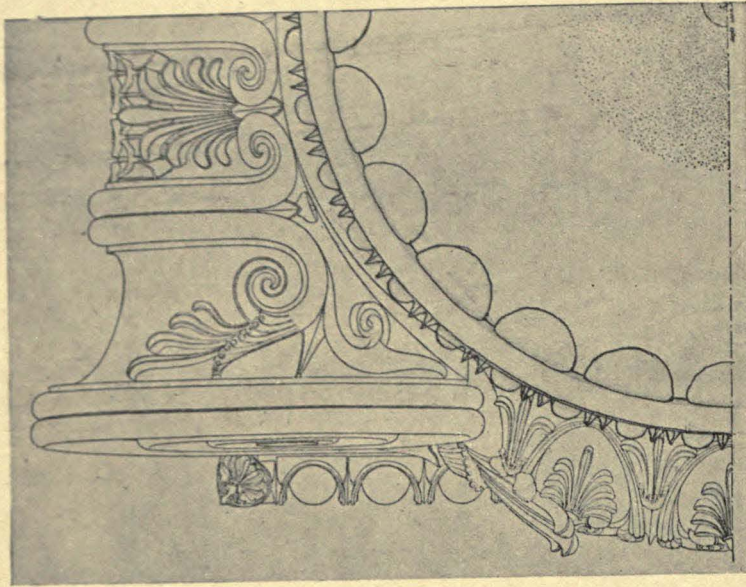
We come now to a discussion of the carved ornament of the volute-band. It is impossible to know where this feature originated. It is found in only three other buildings, the Ptolemaion at Samothrake, the Temple of Apollo Smintheus at Chryse in the Troad, and in the Temple of Zeus at Aizani. It may be of ancient Lydian origin, and, if we had more perfect specimens of the capitals of the archaic Artemision at Ephesos, we might find an early example of it among them, for it is no more bizarre than the huge rosettes which replace the helix of some of the volutes in the capitals of that temple. In Sardis this ornament is executed with extraordinary skill in a variety of rich designs. As I have remarked before, the carving is so deeply undercut that it almost loses the effect of relief (Ill. 70). In the examples at Samothrake and the Smintheion the designs are simpler, weaker and less interesting in every way; moreover they appear to be done quite flatly in plain relief.<sup>1</sup> The example from Aizani is wholly different in design, spirit and execution. It seems probable that in those smaller buildings this detail was copied from the temple of Sardis which was one of the most famous shrines of Asia.

The bolster of the Sardis capital is one of its most interesting features (Ills. 74, 75, 79, 80). We at once notice that its sides, i. e. the volutes of the capital, incline outward from bottom to top. This gives to the side view of the capitals unusual firmness, compactness and vigour (Plate C). This feature, which is first observed in the capitals of the archaic Artemision, and finds its only European counterpart at Phigaleia, is repeated in the capitals of the later Artemision at Ephesos, but does not occur elsewhere in Asia Minor. It is the most significant single characteristic of the Sardis capital, and points to an early date. The bolster itself follows closely the design of that of the archaic Artemision. It is divided by double reeds flanked by bevelled fillets, into four equal, concave, sections, like channels or flutings, the reeds separate at the bottom and curl up into scrolls at the lower ends of the flutings, and small palmettes spring from the points of separation (Ill. 118). The bolster is only slightly concave. The general form, the divisions, the double reeds with their bevelled fillets, all follow the archaic type; other features, including even the large palmettes at the bottom of the channels of some of the capitals, are precisely the same as in the later capitals at Ephesos, except that the double reeds in the Ephesos capital are carried around the bottoms of the flutes in a continuous curve (Ill. 118*a*), the fillets separating from the reeds and curling into scrolls to form spring-points for the palmettes. In Sardis C the double reeds at either end of the bolster do not divide at the bottom, the inner ones disappear at the point where the volutes meet the echinus, and the first<sup>2</sup> palmette is a half-palmette. In the Ephesos capital the inner reeds at the ends separate and curve around the bottoms of the outside flutes, and whole palmettes take the place of the half ones in the Sardis capital; but there are

<sup>1</sup> See photograph of fragment in *Samothrake* Pl. XXV.



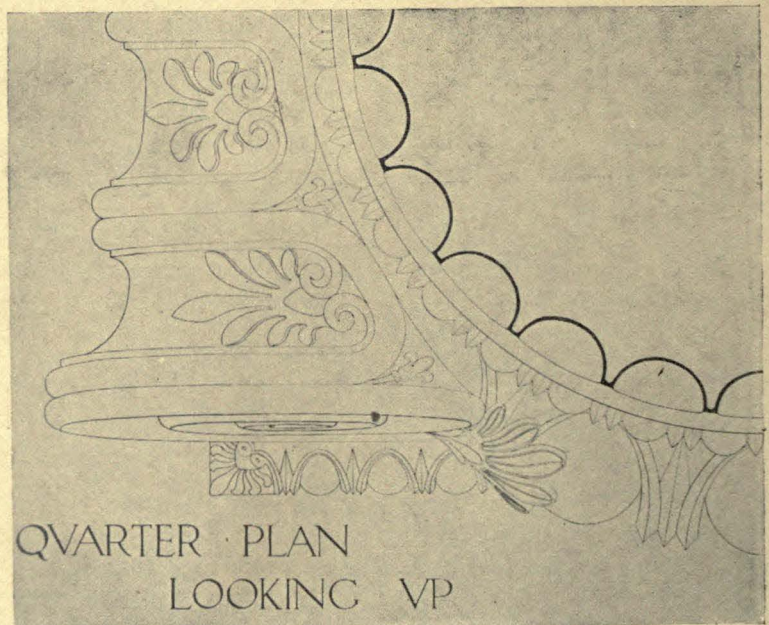
other capitals at Sardis in which the treatment of the bottoms of the flutes of the



Ill. 118. Detail of Capital C at Sardis.

divisions appear. The bolsters of all the fourth-century capitals of Asia Minor conform to wholly different types; one of which is spool-shaped in form bound by a narrow band in the middle, as in the Mausoleum and in the Priene temple; the other shaped like two bells of double curvature placed top to top and joined by an ornamental band, as at Didyma, Aizani and in several other Roman types.

These variations of detail in the bolsters, different as they appear in a side view of a capital, or in an elevation drawing, are revealed in an even more striking manner in sections of capitals taken through the bolster. In Ill.



Ill. 118a. Detail of a Capital from Ephesos.

114 I have brought together the drawings of these sections, so far as I have been able to find them; and have reduced them all to a common diameter for the purpose of more direct comparison. I could find no section of the archaic Artemision; but on examining the plates in the British Museum publication, one will observe that the oves at the sides of the capital all but disappear in the middle of

the bottoms of the flutes of the bolster is similar to that in the example from Ephesos.

These two capitals have indeed so much in common that I should not be surprised if further investigations at Ephesos might reveal fragments of a sculptured volute-band. This early form of bolster, which appears with five divisions in an archaic capital at Delphi, was slightly changed in the fifth-century Ionic capitals in Attica, where the divisions are not equal but rather wider at the ends, except in the capitals of the Erechtheion where seven equal



the side, and that the section would be practically like that of Sardis capital C. In general outline this profile corresponds most closely to the later example at Ephesos, the Propylaia at Athens, the Mausoleum, and Priene, and is followed in form, though not in proportions, by the Temple of Artemis at Magnesia. The more slanting line of the profile of the bolster of the temple of Nike is seen also at Messa and in Sardis E (the first showing the bottoms of the oves, the last two showing none) and appears, with minor modifications, in the greater Propylaia at Eleusis. Olympia and Samothrake show greater modifications of this profile; I could find no section of the bolster of the Smintheion capital. The shape finally takes the form seen in Didyma, Teos 2, Aizani and in HADRIAN's aqueduct in Athens. The profile of the capital from the Didymaion suggests that the example found and published by TEXIER and PULLAN was one of the capitals made at the time of the Roman restorations upon the temple, under the Emperor CLAUDIUS; for it differs hardly at all from the example at Aizani. It is interesting to notice that the lower part of the curve in the middle of the bolsters, as shown by the sections in Ill. 114, does not fall below the line of the top of the shaft in most of the Attic examples of the fifth-century, or in the capitals from Ephesos and Halikarnassos, but that in the Nike<sup>1</sup> temple it drops a trifle below that line, as it does also in Messa. In Sardis, Priene and Magnesia (Artemis) this curve drops to the line of the bottom of the fillet of the astragal at the top of the shaft or a little below it. In the later examples, including Didyma, the bolster falls lower and lower until it reaches the extraordinary depth seen in the capital from the Aqueduct of HADRIAN at Athens. In Aphrodisias, however, the mid-section of the bolster is nearly a semicircle with little projection and no drop below the top of the shaft. The point at which this curved line of the mid-section of the bolster starts from under the abacus in early examples is directly below the abacus, as in the Propylaia, or with at most a very slight downward, inward or vertical, straight or curved, drop, as in Sardis C, Ephesos, the Nike Temple, Halikarnassos and Priene. In Samothrake this line is curved, but extends lower down; in Magnesia (Artemis) there is a deep undercut below the abacus, and a straight perpendicular drop. In all the other later examples the outward curve starts much farther below the abacus, in some cases even below the line of the top of the echinus, and the perpendicular drop is straight, as in Didyma, Teos 2, Magnesia (Zeus), Aphrodisias, Aizani and the Aqueduct of HADRIAN.

There are capitals at Ephesos and fragments of capitals at Sardis, in which the upper part of the shaft is cut as part of the capital. There are unfinished capitals at Ephesos; but every capital found in Sardis was complete and highly finished. Indeed the perfection of technique and the high finish of the Sardis capitals are arguments in favour of their early date, when compared with the capitals of such temples as the Didymaion, the temple at Magnesia, and the Pergamene Altar.

The striking resemblances between the capitals of the Sardis temple and those

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<sup>1</sup> Mr. W. B. DINSMOOR has made some careful studies of the capitals of the Nike temple, and has discovered that there are three varieties of bolster section represented in the seven capitals that were re-erected by ROSS, and the one now in the British Museum, which is shown in Ill. 114. Of the other two varieties, one shows a short vertical line representing a straight fall 5.60 cm. directly below the abacus, the other, a line sloping outward at the bottom, indicating a slanting surface of the same height; the first suggests Halikarnassos, the other Messa. Only Sardis C and Priene have the straight, inward slant at this point.



of the later temple at Ephesos (Ill. 113 and Pls. XII—XIII)<sup>1</sup> — resemblances in proportion, forms and technique — raise two questions; first, whether both were modelled after a common prototype; and second, which of them is the older. In the former case the common prototype might be the capital of the archaic Artemision at Ephesos; but we do not know what the capitals of the archaic predecessor of the Sardis temple were like, or whether the archaic temple at Sardis was older than, or contemporaneous with, the archaic Artemision at Ephesos. If it were older, the capitals of the columns presented to Ephesos by CROESUS might have been modelled upon its capitals; if the two were contemporaneous, the later temples in both places would probably have taken the forms of their capitals from the originals in each city. However this may have been, it is perfectly plain that the later capitals in both places were strongly inspired by archaic traditions. In considering the question which of the two later temples was the older, it is important to discover, so far as possible, the probable date of the Ephesos capitals, and also to ascertain which of the two forms is the stronger in archaic traditions. Most of the older authorities on the subject accept PLUTARCH's story of the burning of the Ephesos temple on the night of the birth of ALEXANDER the Great in 356, and place the date of the rebuilding about the middle of the fourth century. The more recent writers<sup>2</sup> have laid stress upon the reference in the *Chronography* of EUSEBIOS, in which a fire in the temple is mentioned as having taken place in 395 B. C. FALKENER accepts both burnings. LETHABY calls attention to the fact that the order of the Mausoleum, which was begun in 353, seems to be considerably later in style than that of the Artemision, while from this latter the order of the temple at Priene, begun about 345 and finished about 334, is copied directly and wholly. We do not know to what other catastrophes the Ephesos temple may have been subjected after the fire recorded by PLUTARCH (that fire may have taken place without destroying the columns of the peristyle), but it is evident that repairs and restorations were carried on upon the building as late as the end of the fourth century, though some of the capitals were not entirely finished. It seems to me that the earlier date must be accepted, that the columns of the Ephesos temple must be assigned to the period soon after 400 B. C., while the columns of the Sardis temple, as represented in Capital C and columns 11 and 12, as well as their bases and shafts, must be placed at a still earlier date for the reason that they display more of the archaic tradition, as I have endeavored to show by the tables and diagrams presented herewith. The other capitals at Sardis, which are of the same type as those of columns 11 and 12, were used a second or a third time in the rebuilding of the temple and in repairs upon it. As I shall show later, these capitals, when used in

<sup>1</sup> Through the kindness of Mr. BERESFORD PITE, the American Society for the Excavation of Sardis was permitted to defray the expense of having measured drawings made of one of the two capitals from the later Artemision, which are now in the British Museum, under catalogue numbers 1222—1225. These drawings which were made from the better preserved capital, No. 1224, and are reproduced at one quarter scale in Plates XII and XIII in the Atlas of this volume, are the first accurate drawings of these capitals to be published. The capital is illustrated in its restored state in Ill. 113, and seems to be the one represented in a sketch published by WOOD. The other capital from the same temple is composed of two fragments, the larger numbered 1223, the smaller 1225; both set on a piece of an uppermost drum numbered 1222 in the B. M. catalogue. It will be observed in the second capital that the joint was made directly below the echinus and that the carving of the oves was not finished, while in the other, the top drum of the shaft is of one piece with the capital, and the details were all finished.

<sup>2</sup> LETHABY, *Greek Buildings*, p. 33 and the Austrian Survey, Appendix.



rebuilding and in repairs, were too small for the new shafts which were thicker and higher than the old.

#### 5 b. *Entablature and other Details.*

*Entablature.* It is impossible to know whether the few pieces of the entablature which have been spared belong to an early rebuilding or to a late restoration. It is however conceivable that the ponderous blocks of the architrave may have been taken down and lifted again to the tops of new columns. There are minor differences between the details of the extant blocks of architrave, one sort having a plain and the other a pulvinated panel; but neither type of panel has the beading which characterizes many of the later Hellenistic and Roman examples of this detail. All the fragments which are preserved have only fasciae; the blocks which are finished in this way on both sides were certainly from interior architraves of the porch. The great architrave block (Ill. 44) which was one of two in the thickness of the epistyle, is also probably from the inner face. In the temple at Priene, where the architrave was also composed of two stones side by side, the outer block was higher than the other, and had three fasciae; while the inner has but two fasciae under a cymatium<sup>1</sup>: this was probably the manner in which the architrave at Sardis was constructed.

The lion's head water-spout, the only part of the cornice that has survived, is reminiscent of ancient Oriental art. No one who recalls the bronze weight from Assyria now in the Louvre, or the numerous Hittite reliefs discovered at Carchemish, can fail to see the resemblance of our lion's head to those early examples of lion sculpture. It is probable that this water-spout was used in one or more of the rebuildings or restorations, and, in its present state, may represent only a portion of the original detail of which it was a part; but there can be little doubt that it was executed as early as the fourth century and probably earlier.

*Anta-cap.* There seem to have been two principal types of anta-cap employed in the known examples of Ionic buildings; one composed of a series of mouldings, either plain as in the Nike temple, or carved with various designs as in the Erechtheion, the other of roughly trapezoidal shape adorned with anthemions, as in the Priene temple,<sup>2</sup> or sometimes flanked with upright bands terminating in small volutes, as in the Mausoleum.<sup>3</sup> In this last example the band of anthemions is placed above a lower member consisting of a heavy egg-and-tongue over a sort of frieze decorated with large rosettes, or ornamental discs, and cornucopias. In later buildings, as in the temples of Artemis and Zeus at Magnesia,<sup>4</sup> both forms appear in a single cap; the front consisting of carved mouldings, and the sides of scrolls of anthemions. The anta-cap of the temple at Sardis (Pl. II) conforms to neither of these types. I have elsewhere called attention to the resemblance between it and the lower half of the cap from the Mausoleum (p. 54), and it bears some likeness to the anta-cap of the Ptolemaion at Samothrake.<sup>5</sup> In the Sardis cap the rosettes of the frieze

<sup>1</sup> Cf. LETHABY, *op. cit.* p. 186.

<sup>2</sup> *Priene*, p. 96.

<sup>3</sup> LETHABY, *op. cit.* p. 51.

<sup>4</sup> *Magnesia*, pp. 74, 75 and 147.

<sup>5</sup> Cf. *Samothrake*: Taf. XXIX and XXX.



are replaced by very simply executed wreaths; and a cyma reversa carved with the Lesbian leaf and a second bead-and-reel are inserted between the frieze-like member and the large egg-and-tongue which is capped by a light cymatium. The egg-and-tongue of this anta-cap (Ill. 119) is precisely like that of the echinus of the capitals, the corner eggs are carved with inverted palmettes like those in the abaci; the anta-cap is probably to be assigned to approximately the same date as the capitals of the middle period. The Lesbian leaf ornament appears nowhere else in the details at Sardis except on small scale in the doorway; but it is in all respects very like similar carving at Priene,<sup>1</sup> and quite different from the same ornament at Magnesia.<sup>2</sup>

**Doorway.** It is difficult to study the enrichments of the great east portal of the temple in Sardis in comparison with those of other temple doorways, for the reason that hardly any remains have come down to us of portals and their ornaments, between the doorway of the Erechtheion and those of much later temples like the little temple of Zeus



Ill. 119. Anta-cap at Sardis.

at Magnesia, the temples of Aprodisias and Aizani and other temples of imperial Roman times. As in other doorways of Ionic temples, the mouldings of the lintel and jambs take the general lines of a triple-banded architrave (Pl. III); but, since these mouldings were to be seen at very close range, it was deemed proper by the architect to place carved ornaments on the edges of the bands, and to adorn the outer mouldings with simple but rich carving. As in the doorway of the Erechtheion, and many late examples, upright consoles were placed at the ends of the lintel to carry a door-cap. For lack of examples in most of the known earlier Ionic buildings of portals which might be compared with the Sardis portal, it is necessary to fall back upon an examination of the carved details in order to find means of approximately dating this important feature. Here we find, in the treatment of the bead-and-reel, the Lesbian leaf and the anthemions, a much closer analogy with corresponding details of ornament in the temples at Priene, and even in the Erechtheion, than with those of the temples at Magnesia, Aphrodisias and Aizani. The beads in the Sardis doorway are of the globular variety found in early and late examples; but the leaf ornament of the narrow cyma reversa, and the anthemions of the outer moulding, are all characteristic of the earlier specimens of this work. One has only

<sup>1</sup> Cf. *Priene*, p. 101.

<sup>2</sup> *Magnesia*, p. 74.



to compare these features as shown in Ill. 50 with similar details from Priene illustrated by photographs in WIEGAND's work<sup>1</sup> to see that the Sardis portal conforms far more closely to fourth-century types than to the later types represented in the temple at Magnesia<sup>2</sup> (Ill. 120). It is almost invariably the case that the units of ornament, such as the oves of the egg-and-dart and the palmettes and anthemions in a continuous design, were set near together in early examples and were placed farther and farther apart through the late Hellenistic and Roman periods. In the two outer mouldings of the Sardis portal the oves correspond exactly to the palmettes above them. They are a little more widely separated than in the abaci of the capitals, probably to conform to the spacing of the palmettes; but the palmettes and anthemions are set as closely together as possible, like those of the ornament of the Erechtheion<sup>3</sup> and similar features in the carving at Priene;<sup>4</sup> the anthemion has almost the exact form of that in the example from the Erechtheion, and the acanthus scrolls from which



Ill. 120. Cymatium of the Architrave of the Artemision at Magnesia. From HUMANN.

the palmettes spring are counterparts of the ornament in the two examples quoted above. If now we turn to examples of similar ornament from the doorways of the Zeus temple at Magnesia and the architrave of the Artemis temple at the same place,<sup>5</sup> we shall see wherein the difference lies. In both we have anthemions very widely spaced, and in the latter, the oves spaced very much farther apart than in our mouldings. Examples might be greatly multiplied.

Consoles from the decoration of ancient portals are very rare, few being known between the oldest of examples in the Erechtheion and those from portals of the Roman period. The console of our portal has the reverse volute of the early type, and the palmette applied to its face (Pl. IV and Ills. 54 and 55), but these features alone would not serve to date it. This console is modelled as closely after the pattern of the capitals as one detail can be modelled from another. The deep channels, or spaces between the reeds, the reeds themselves and the bevelled fillets which accompany them, are taken directly from the volute of the capitals, the great palmette was studied from the angle ornaments of the abaci, and the half-palmette and acanthus foliage between the upper and the lower volute were evolved from the decorations of the volute-band. To whatever period we assign the capitals we must assign the consoles

<sup>1</sup> *Priene*, pp. 108, 109 and 145.

<sup>3</sup> LETHABY, *op. cit.* p. 166, 176.

<sup>5</sup> *Magnesia*, pp. 58, 150 and Pl. V.

<sup>2</sup> *Magnesia*, p. 150 and Pl. V.

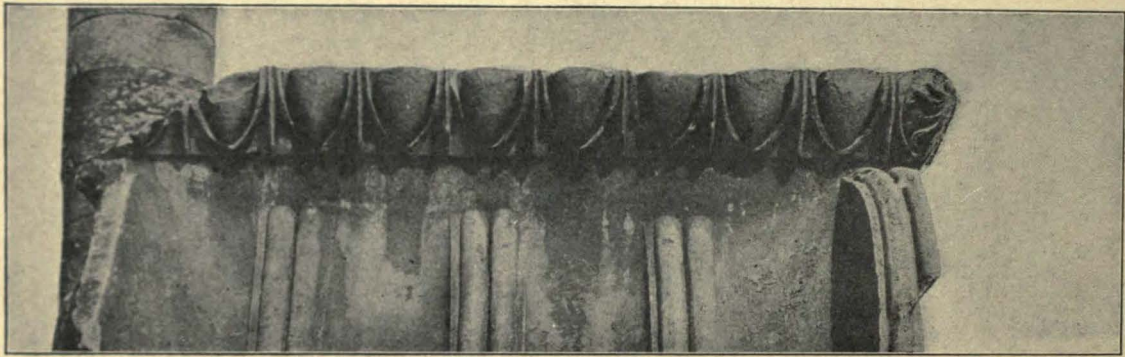
<sup>4</sup> *Priene*, pp. 108, 109.



also, and certain features of their details, such as the reeds and the bevelled fillets, seem to be not later than the end of the fourth century, or early in the third. One has only to compare these details with those of the fragment of a console found in the Ptolemaion at Samothrake<sup>1</sup> to see that the latter, with its flat channels, thin reeds, flat fillets, scale pattern and generally poorer workmanship, belongs to a later period.

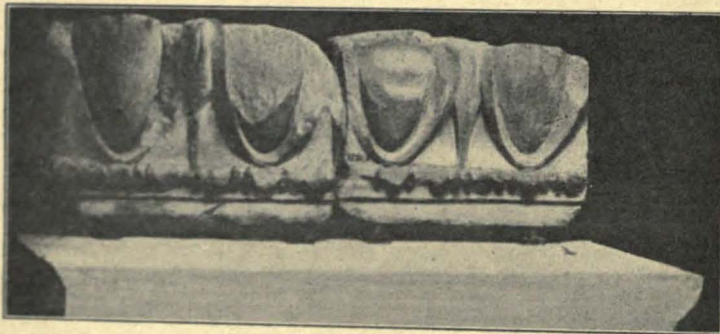
Other details. Other details, such as the angle antefix, or corner akroterion, (Pl. V, and Ills. 86 and 87) may be compared with some of the sima carving from Ephesos,<sup>2</sup> with similar carved decoration from Priene,<sup>3</sup> and with ornaments from Magnesia,<sup>4</sup> to show that the analogies with the earlier buildings are the closer; a comparison of this feature with the akroteria from Magnesia<sup>5</sup> shows no analogy whatever. On the other hand the fragment of decorative carving, which may have been part of the ornament of a screen or a statue base (Ill. 88), with its anthropomorphic forms, might easily belong to the period of HERMOGENES as illustrated by a fragment at Magnesia.<sup>6</sup>

There are other comparisons of minor details which may prove serviceable in the dating of the temple at Sardis, e. g. of such details as the treatment of the egg-and-



Ill. 121. Egg-and-Tongue in the Capitals at Sardis.

tongue. The actual form of the oves, their spacing and the shape of the tongue between them, were all subject to modification in the development of Ionic ornament from the sixth to the first century.



Ill. 122. Egg-and-Tongue from the Artemision. Now in the British Museum.

It is interesting to observe in this connexion that the egg-and-tongue, as it appears in the details of the temple at Sardis (Ill. 121) except in the portal, is precisely similar, in all the features mentioned above, to the same ornament at Ephesos (Ill. 122) and Priene (Ill. 123), as shown in the photographs, and that it resembles this ornament as given in drawings of the Mausoleum,<sup>7</sup> where even the inverted palmette of the corner egg is identical (Ill. 119). The only exception to the general

<sup>1</sup> *Samothrake*, Taf. XLIV.

<sup>2</sup> cf. LETHABY, *op. cit.* p. 24.

<sup>3</sup> *Priene*, p. 103.

<sup>4</sup> *Magnesia*, pp. 74, 77, 78.

<sup>5</sup> *Ibid.* pp. 67—71.

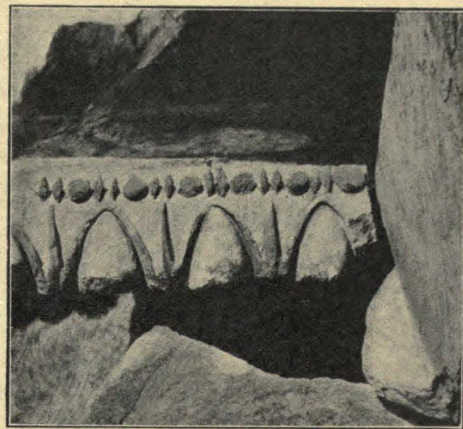
<sup>6</sup> *Ibid.* p. 77.

<sup>7</sup> DINSMOOR, *A. J. A.* XII, 1908, p. 22, fig. 7.



rule is found in the egg-and-tongue of the ornament of the doorway, where the oves are a little more widely spaced than in the examples quoted above, being set so as to conform to the spacings of the palmettes and anthemions above them. The tongue between the oves in the portal ornament has curled barbs on either side (Pl. III, Atlas), but the tongue is not heart-shaped, as broken specimens in Illustration 50 and 131 would suggest, nor are any of the tongues shaped like darts. In much of the ornamental detail of the later Hellenistic and Roman periods the oves of the egg-and-tongue are usually either longer, or more pointed, and almost always more widely spaced, and the tongue becomes a dart with barbs, or at least a shaft with a heart-shaped end.

The decorated egg-and-tongue of the echinus of capital C (Pl. VIII and Ills. 70 and 73) calls for special mention because it is so nearly unique in the field of ancient ornament. The closest analogy to this detail is found in an archaic monument, the temple of Apollo Phanaïos at Chios,<sup>1</sup> where the analogy is almost perfect. To some observers this unusual decoration is at once a sign of lateness; but, the more one studies the various efforts on the part of early architects to add new beauty to the Ionic order, the more he is convinced that this is not a late and decadent attempt at the ornamentation of a well established form, but an early attempt to beautify a detail which was still in process of development. The capital of the Erechtheion, as I have said above, affords an instance of a comparatively early breaking away from half-formed tradition, in the treatment of its volutes, in the insertion of a cushion between the echinus and the volute band, and in the addition of an ornamental neck-band below the capital. The later capitals of the Corinthian order, such as those of Epidauros and the Olympieion, tended to simplify the earlier examples of this capital as exhibited in the Choregic Monument of Lysikrates. Elaboration of detail, if the detail be good and well executed, is not a sign of decay so much as of experimentation in the early stages of development. And this seems to me to be the case of the decorated oves of the Sardis capital, as well as of the carved band above them. In the first place, the work is extremely well done (Ills. 73—79); the design could not be more graceful or delicate, or more perfectly executed; in the second, the design itself is more suggestive of compositions of the best period than of any later date. This design is unusual in several respects; the inverted palmettes, with their eleven slender leaves rising from delicate scrolls which spring from graceful sheaths and stalks of acanthus, might have been taken directly from the ornament of the Erechtheion. It is more difficult to find a parallel for the anthemions between them which take the place of the tongues. These are composed of very tenuous stalks terminating in small acanthus buds from which spring three minute sharp leaves. The closest parallel that I have found to this unit of the ornament is in the sima of the Mausoleum, and indeed, if one will take the trouble

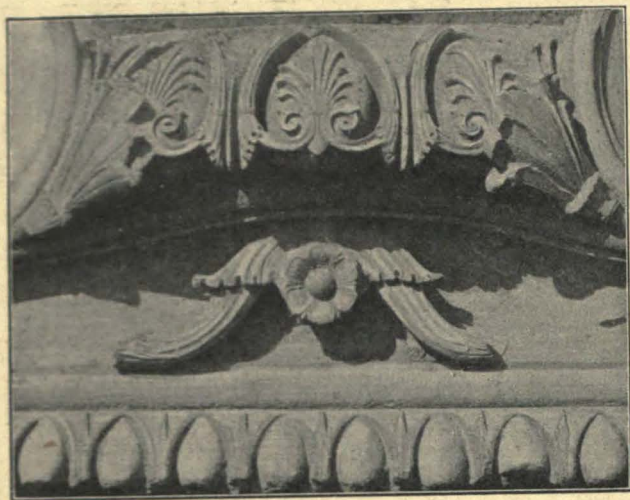


Ill. 123. Egg-and-Tongue at Priene.

<sup>1</sup> cf. KOUROUNIOTES, *Archaiologikon Deltion*, Vol. I, 1915, pp. 86—87, figs. 27—29.



to look up DINSMOOR's drawing of that sima<sup>1</sup> and to invert it, he will be struck with its resemblance to the inverted palmettes and anthemions applied to the echinus of capital C (Ill. 124); the only important difference being that the long stem of the

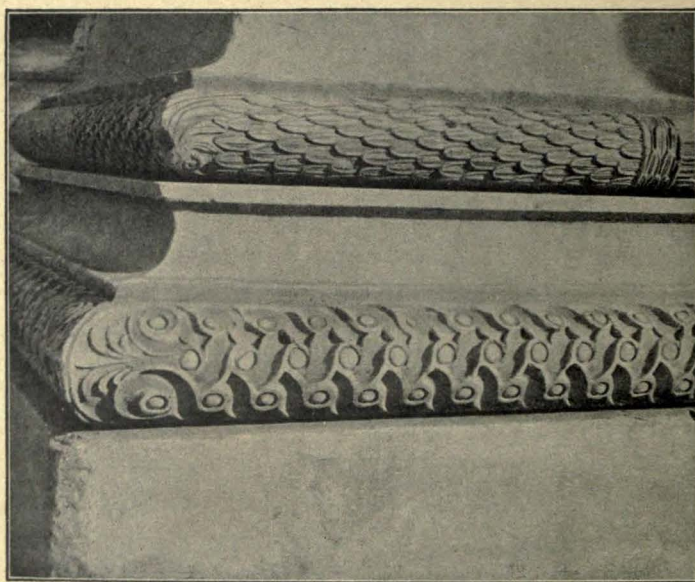


Ill. 124. Carving of Face of Capital C, Sardis.

anthemion on the Sardis capital is omitted. It seems to me that the artist who designed this capital realized that its scale was enormous, that the high volute-band and the great oves of the echinus were going to look very plain and bald, and that he conceived these decorations for those two members with a view to overcoming these bald effects. The fifth century was the period of the most important innovations in the evolution of the Ionic capital, and to that period I would assign these particular motives of ornament, quite aside from the question whether capital C was actually carved at that time, or later

in imitation of a capital executed in that period.

The guilloche ornament of the torus of the columns within the porch is interesting in comparison with the same pattern as it is found in other buildings, especially in buildings the date of which corresponds to the probable date of these columns. In the torus of the base mouldings of the Didymaion (Ill. 125) it is evident that the guilloche was carved upon a torus which was at first smooth and highly finished, and much of the original surface has been preserved; the eyes are nearly flat discs and the edges of the incisions which form the pattern are flat and lie in the curved surface of the original smooth torus. In the torus bases at Sardis (Ill. 126) there is no suggestion of a smooth torus worked into a guilloche. The eyes are globular, the edges of the incisions are almost sharp, the edges overlap and do not lie in the curved surface of a plainly finished torus (Pl. VII, Atlas). In fact this guilloche is in all respects a far closer reproduction of the bases of the Erechtheion. Since these toruses are detached, are only 20 cm. larger in



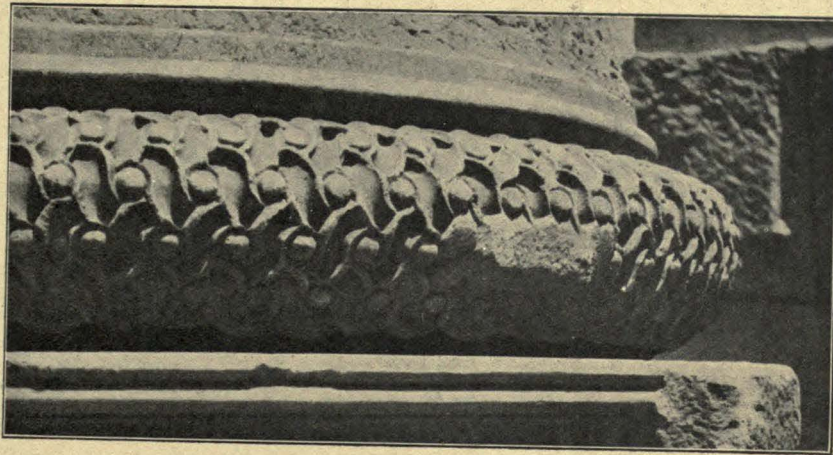
Ill. 125. Base of an Anta of the Didymaion.

<sup>1</sup> *A. J. A.* XII, 1908, p. 22.



diameter than the toruses of the elevated columns, and have the same proportions, they may originally have belonged to columns of the older temple which were slightly larger in diameter, as the columns of the front row might have been.

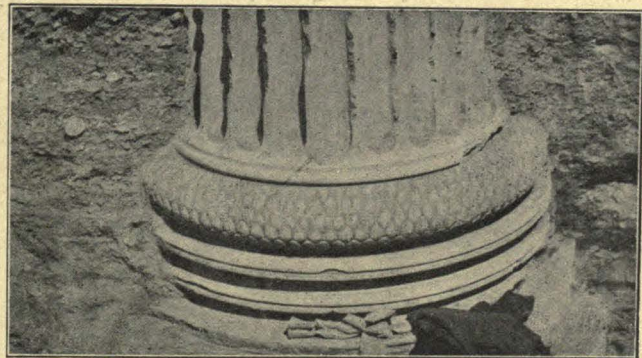
The leaf ornament used as a scale pattern in Sardis is another interesting detail



Ill. 126. Guilloche carving of two Bases at Sardis.

to compare with its use elsewhere. It appears in the torus mouldings of bases (Ill. 127) and in the bolster of some of the capitals (Ill. 128<sup>1</sup>). In both places its form and technique compare favourably with the same ornament in the capitals at Priene (Ill. 129) and is in strong contrast with the stiff hard leaves which appear in the upper torus

of the base moulding of the cella of the Didymaion (Ill. 125). In another form, as in two of the torus bases of the east porch (Ill. 130) it bears a closer resemblance to the example from Didyma, and these bases, in form and proportion, are probably of the same date as this part of the Didymaion. The oak-leaf decoration, finished and unfinished, as it appears in the toruses of three of the four middle columns of the east front (Ills. 63–66), is manifestly late, as the bases themselves belong to



Ill. 127. Base of Column No. 12.

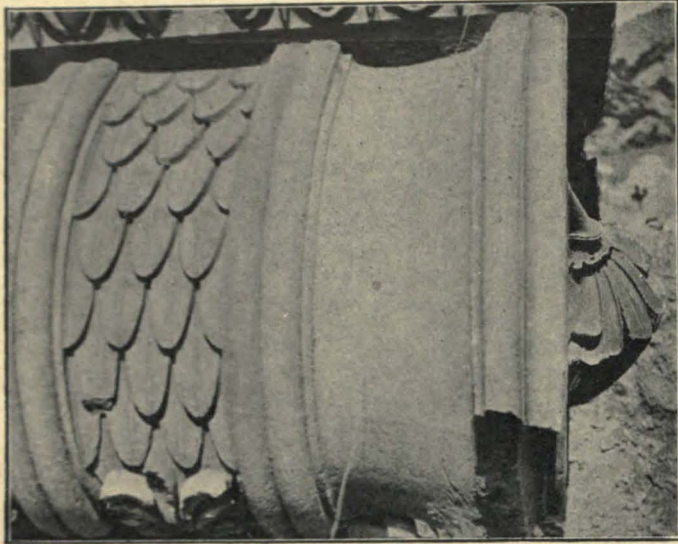
one of the later periods of restoration; but the occurrence of animal forms in the ornament is not new to architecture in the Ionic style; since birds appear in carving that has been attributed to the Erechtheion, and this motive may have been repeated from forms of ornament represented in the older temple or temples upon this site. It is interesting to observe that there is little similarity between the treatment of the oak-leaf here in Sardis and that in the portal of the Temple of Augustus at Ankyra.<sup>2</sup> Other forms of foliate and floral ornament may be studied in the palmettes and half-

<sup>1</sup> See also Pls. VI and X, Atlas.

<sup>2</sup> D'ESPOUV; *Fragments d'Architecture Antique*, Pl. 67.

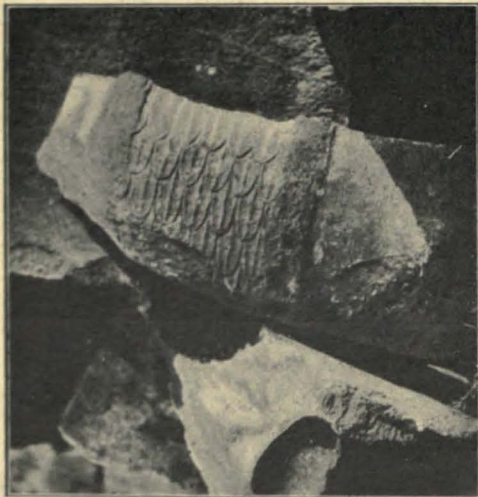


palmettes wherever they appear in the temple, and in the little bell flowers that are to be seen on the under side of some of the capitals. Palmettes occur, as we have seen, upon the angles of the abaci, upon the oves of the echinus (C), at the bottoms

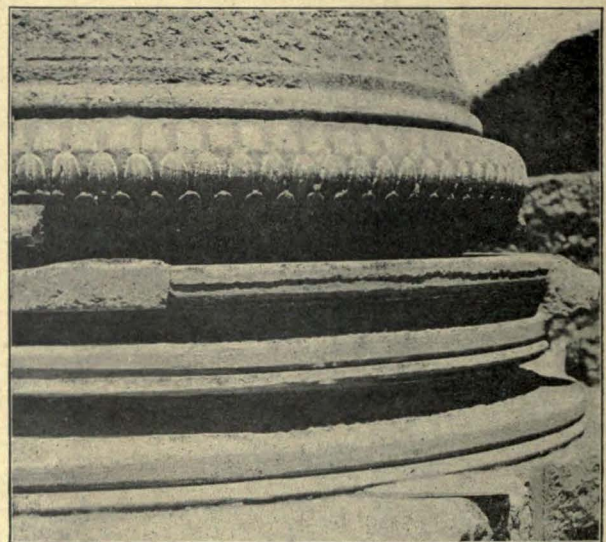


Ill. 128. Scale Pattern of Bolster of Capital C.

of the bolster channels of many of the capitals, where the half-palmette also occurs — all these are shown in Ill. 118 —, as well as with anthemions, in the outer moulding of the portal (Ill. 131). A huge palmette appears upon the face of the console (Ill. 54) and half-palmettes on the sides (Ill. 55). Half-palmettes of various forms also fill the volute angles of the capitals. It will be observed that all of these whole palmettes, with the exception of those in the frame ornament of the portal, are of the nine-leaved type and that the leaves of all but those in the portal and the corners of the



Ill. 129. Fragments of a Capital at Priene.



Ill. 130. Leaf Ornament in Sardis Temple.

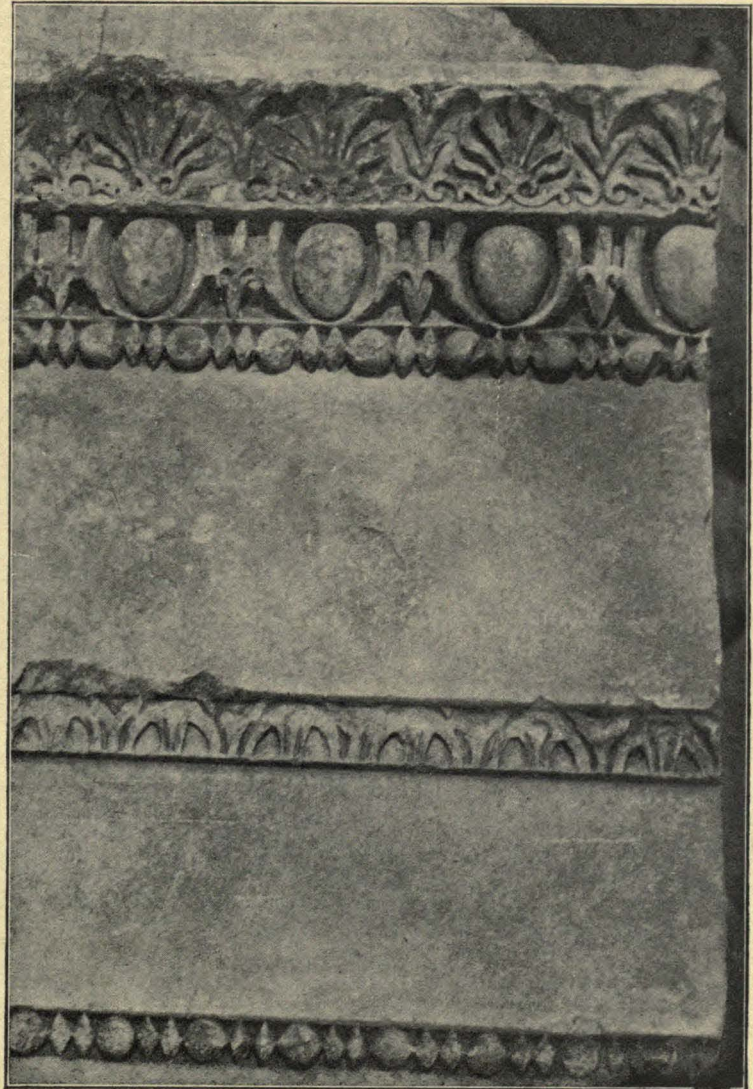
V-section, like the Lydian example, and in most cases have also fine, but strongly marked, dorsal and lateral ridges.

The palmette with from nine to thirteen leaves curving *outward*, and having rounded ends, was the predominating form in the architectural ornament of the fifth



century in Greece,<sup>1</sup> as is illustrated in the restored painted decoration of the Parthenon, the Theseion and the Temple of Athena Nike, and in carved ornament, such as the antefixes of the Parthenon, the sima of the pediment and antefixes at Bassai, and the door-cap and other carved bands of the Erechtheion. This type of palmette is also characteristic of Etruscan architectural ornament and of early Lydian work so far as we know it. In the temple at Sardis this form also predominates; the actual forms of the palmettes in the capitals (Ill. 118), with the scrolls from which they spring, could hardly be distinguished from those in the temple at Bassai and in the Erechtheion. In these two examples it is the alternating anthemion with only three or five leaves that shows pointed ends. The palmette with cyma-shaped leaves curving *inward* at the top and having pointed ends, does not appear commonly in architectural ornament until the fourth century, and then chiefly in Asia Minor, at which time the other type is greatly modified, and finally disappears from the carving of later centuries.

The palmette as it appears in the Mausoleum is of the nine-leaved type, often omitting the mid-leaf; the leaves curve inward, however, and the section is often slightly convex.<sup>2</sup> In the Temple of Athena at Priene the nine-leaved type with in-curving leaves is almost universal (Ill. 132) and the leaves are both convex and concave in section,<sup>3</sup> the convex type predominating. This same type is seen at Sardis on the oves at the angles of the anta-cap (Ill. 119), and in the cavetto moulding of the portal. In the Mausoleum and at Priene, the half-palmette in the volute angles has a convex section with a dorsal ridge, so far as one may judge from photographs and drawings; in the Ephesos capital this is



Ill. 131. Carving on Lintel and Jambs of the Portal.

<sup>1</sup> cf. LETHABY, *op. cit.*, pp. 83, 149, 157.

<sup>2</sup> cf. *A. J. A.* XII, 1908, p. 9 for photograph.

<sup>3</sup> *Priene*, pp. 96, 102, 104, 108, 131.

Sardis Expedition II.



certainly the case. In Magnesia, on the other hand, the palmette seldom has more than five or seven leaves; these are either straight or in-curved, and they spring loosely from a more spreading base.<sup>1</sup> The profile of the leaves is almost invariably a deep concave V in section without ridges, and the half-palmette of the volutes has leaves which show a similar concave profile (Ill. 116).

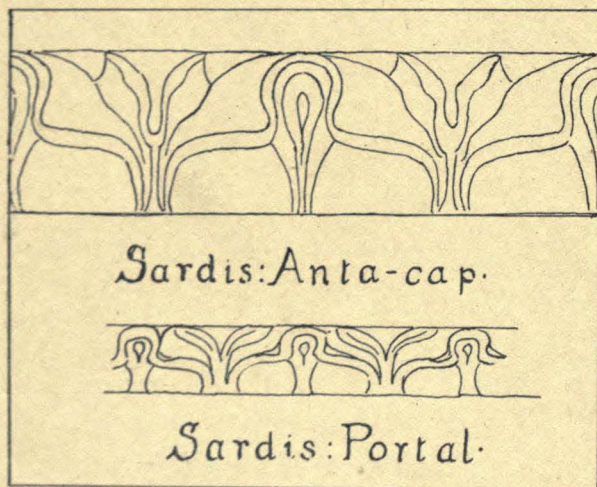
The little bell-flower which nestles modestly under the bolster of the Sardis capital, filling the point of separation of the double reeds (Ill. 118) finds counterparts in the Lydian stelae (Ills. 91 and 92). A similar flower, inverted, appears on the side of the anta-cap of the temple at Priene;<sup>2</sup> I have not found it elsewhere in the architectural ornament of Asia Minor.



Ill. 132. Cymatium from Temple at Priene.<sup>3</sup>

portal (Ill. 133). The two examples are not alike, though in both the design is laid out on a unit of two squares. Both, of course, are executed upon mouldings which have a cyma reversa profile. In the larger example the leaf is accentuated and given elaborate convolutions, while the tongue is rather suppressed. In the smaller, the leaf

is separated into two lanceolate leaves, and the space between the leaves is more accentuated.



Ill. 133. Lesbian Leaf Ornament.

In comparing these two specimens of the Lesbian leaf with other examples in Greek and Roman architectural ornament, we find that they occupy a place about midway between the earliest, which are of the sixth century, and the latest, which are Roman of the imperial period. There are several examples of this type of ornament among the fragments of the archaic Artemision at Ephesos, of which the one here represented (A, Ill. 134) is typical. Here the design is laid out on a unit embraced

within a tall rectangle, the face of the leaf is slightly modelled, and the tongue has a sharp point. The unit of design in a typical fifth-century example, taken from the Erechtheion (B), is a square, the leaves are joined above, and each is provided with a dorsal ridge parted at the top, and the tongue becomes blunt at the end and has a rounded head. The two examples chosen to represent the fourth-century, (C) from the Mausoleum and (D) from the temple at Priene, are quite unlike. In the former

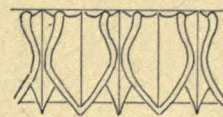
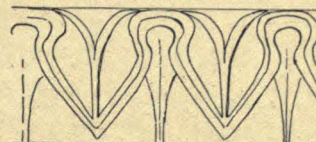
<sup>1</sup> *Magnesia am Maeander*. pp. 63, 74, 81.

<sup>2</sup> *Priene*. p. 96.

<sup>3</sup> *Ant. of Ionia* IV. Frag. 18, in the British Museum.



the unit of design occupies a square and a half, the leaf is slightly modelled and its dorsal ridge is lightly indicated; the tongue is pointed and has an eye incised in its head. In the Priene type (D) the unit is square again, but the leaf begins to lose its character, the dorsal ridge gives way to two parted sharp-pointed leaves, and the accentuated tongue has a blunt end and an almost globular head. This, in a way, fixes the type for future development, as may be seen by examining the examples from Sardis (Ill. 133) and from the Ptolemaion at Samothrake (E, Ill. 134). In the latter the leaf is modelled with a trilobed ornament like an anthemion, and the tongue is further accentuated; the unit here is nearly a square and a half. The oblong unit of design is carried on in HERMOGENES' work at Magnesia (F), in which the old Lesbian leaf with its point downward is replaced by an upright, flower-like ornament with curling ends. In Roman ornament of the first century B. C. and of the imperial period from the first to the third century, there are two types of the so-called Lesbian leaf: one which is the more rare and which was copied almost directly from the older Greek models, and another, almost universal, which has only the slightest resemblance to the old Greek forms. The former type is to be seen in some of the mouldings of the temple of Mars Ultor in Rome,<sup>1</sup> the latter (G) in a host of examples illustrated in D'ESPOUY'S *Fragments*. In this second and most common type the unit of design is square; but the original inverted leaf is replaced by a tulip-like flower with leaves springing from true caulicoli (G, Ill. 134), and the tongue becomes heavy and more blunt. This type is to be found in the Pantheon, the Baths of AGRIPPA, the Basilica Ulpia, and the Arch of TITUS.<sup>2</sup> In later examples, and in some earlier ones,<sup>3</sup> the design becomes more foliate and floral, the acanthus appears in the leaf, and stars take the place of the tongue, all within a square unit, as may be seen in the Temple of Concord and that of Castor in Rome.<sup>4</sup> Finally a series of small inverted acanthus leaves without tongues between them is the last representative of the old Lesbian leaf, as in the Arch of SEVERUS and the Baths of CARACALLA. In Asia Minor during this later period of the second and third centuries, the forms are either like those in Rome, or of new and still different design which have little or no resemblance to the designs seen in the Sardis temple or in any of the monuments earlier than the second century B. C. Some of these new types may have originated in buildings like the temple of AUGUSTUS at Ankyra.<sup>5</sup>

A. VI<sup>th</sup> Century B.C.B. V<sup>th</sup> CenturyC. IV<sup>th</sup> CenturyD. IV<sup>th</sup> CenturyE. III<sup>d</sup> CenturyF. II<sup>nd</sup> CenturyG. I<sup>st</sup> Century B.C.-A.D.

## III. 134. Varieties of the Lesbian Leaf

- A. Ephesos HOGARTH, Atlas, Pl. V.
- B. Erechtheion, D'ESPOUY, Pl. 16.
- C. Halikarnassos, From cast.
- D. Priene, *Priene*, p. 101.
- E. Ptolemaion, *Samothrake* 2, Taf. XXX.
- F. Magnesia, *Magnesia*, Abb. 66.
- G. D'ESPOUY, Pl. 77.

<sup>1</sup> D'Espouy, *op. cit.* Pls. 59 and 60.<sup>2</sup> *ibid.* Pls. 72, 75, 77 *et al.*<sup>3</sup> *ibid.* Pl. 59.<sup>4</sup> *ibid.* Pls. 83, 84, 88.<sup>5</sup> *ibid.* Pl. 67.



## 6. SUMMARY OF HISTORY AND DATING OF THE TEMPLE.

It remains to review as briefly as possible, and to sum up, the evidence deduced in the detailed discussions and comparisons of this chapter. The evidence derived from the old foundations is that a Lydian temple, of the age of CROESUS or earlier, occupied the site of the present temple, that its substructure was of sandstone and limestone, that the columns of the interior of its cella did not occupy exactly the position of the present marble foundations, and that the main dividing wall of the cella and probably also the west wall of the later building were erected on old foundations, and were set a little off axis with the old Lydian structure to the west of the temple, which was perhaps an altar. The marble foundations of the peristyle are constructed of huge blocks upon which no masons' marks have been found and among which no second-hand material appears. They are spaced 5.02 m. on centres, or only less than the column foundations at Ephesos which were erected upon, or around, the foundations of the columns of the archaic temple. They show, by means of right angles and crosses upon the different courses, the outlines of squares of 2.40 m., whereas the plinths of the columns of the present peristyle, being squares of 2.65 m. to 2.70 m., suggest that the original foundations were built to carry smaller columns. Columns with plinths 2.40 m. square and of older forms were re-erected upon the pedestals in the east porch and two toruses of similar scale were found which apparently had not been re-used. Therefore we may assume that these massive foundations were built to receive columns like those now elevated upon the pedestals and represented in the unused toruses. If we employ the diameters of these columns as a unit of measurement, we find that the intercolumniations were 3.118 d.; those of the archaic Artemision at Ephesos were about 3.50 d. The tables (cf. p. 119) show a great reduction of this measurement in terms of diameters in all other temples in Asia Minor, until we come to Teos, which may have been erected on old foundations. This would indicate that the peristyle foundations of the Sardis temple were fixed by those of an earlier temple, and that they were begun soon after the destruction of the earlier temple in 499 B. C. There seems to be some evidence that the satrap ARTAPHERNES undertook plans for reconstruction in Ionia, and it may be doubted if the principal shrine in his capital city was left in ruins for a long time. But it is impossible to determine which part, if any, of the present foundations belong actually to that early date; just as it is impossible to know if the temple visited by TEMISTOKLES about the middle of the fifth century, and referred to as the Metröon, was this temple of Artemis. It seems plain however that a temple was erected, and probably completed, before the year 400 B. C. Between this date and 350 a number of copper coins were dropped, accidentally or intentionally, into cracks between the base of the cult-statue and the surrounding pavement. It was probably before the altar of this temple that CYRUS and ORONTAS sealed their agreement. To this period we may assign the two highly finished bases which now stand upon pedestals in the east porch, the sections of shafts above them, the fragments of two similar columns found in the west porch and the two loose-tying toruses. The proportions and other features of these



details leave little doubt that they are among the earliest known in Asia Minor. That these bases were not originally made to stand on pedestals will be granted when we compare them with the bases of the tomb at Xanthus, the Mausoleum, and the Altar of Pergamon, all of which were intended to stand above the line of vision, and with which the Sardis bases have nothing in common. Their plinths fit the marks in the foundations of the peristyle. The Lydian inscription rather crudely carved upon the foot of one of the shafts is less useful in determining its date than it is likely to be when we know more of the development of the Lydian script; for there is now a large body of texts of many different periods beginning with a pre-Croesean inscription upon a pot found at Sardis and a Croesean inscription from Ephesos, coming down through the Persian period and ending with a text which is apparently dated by a year in the reign of ALEXANDER the Great. In any event this writing upon the column may belong to the re-erection of the column as well as to its original setting up. The capitals that have been found in the excavations, with one or two exceptions, with their oblong abaci, their unusual height, their slanting volutes and other distinctly archaic forms, as described above, may also be assigned to the period before 400 B. C.

The foundations of the cella walls, so far as they have been unearthed, belong to a different period from that of the foundations of the peristyle. Here we find less massive masonry, that is, much smaller blocks of marble, as in the foundations of the Ephesian temple, and a considerable admixture of second-hand material, such as blocks from finished walls, and re-dressed drums from fluted columns. Here also are found many masons' marks some of which are Lydian letters, and others letters that occur only in the Greek alphabet. There is every sign of a rebuilding here after the beginning of the fourth century. Yet coins continued to be dropped into cracks at the side and in front of the cult-statue at frequent intervals from 400 to 200 B. C., showing that the shrine was a centre of worship during those two centuries. There is no reference to a destruction of the temple during the lifetime of ALEXANDER or soon after his death, but this is not to be wondered at when we consider that we have almost no historical mention of Sardis except incidentally in connexion with the histories of persons or places outside of Sardis. It may be that the building was destroyed or severely injured during the strife between ALEXANDER's successors, or by some unrecorded earthquake. The evidence of the architectural remains is that the fifth-century building was taken down at a date soon after ALEXANDER's death, that a new cella was built on new foundations, that new columns of new proportions were erected upon the old foundations of the peristyle, that at least four columns of the older shrine were preserved and re-erected upon pedestals, that many of the old capitals were used over again, and that much material from the second temple was re-dressed for use in the third. During all this rebuilding, however, the cult-statue was not disturbed, and gifts were continually placed at its base.

The period that one would naturally select for this rebuilding, if all architectural evidence were lacking, would be the period of SELEUKOS' work upon the Didymaion; for both SELEUKOS and his father-in-law DEMETRIOS reigned in Sardis. But the reconstruction work done on the temple of Artemis shows itself to be of an earlier and



more refined type than that upon the temple of Apollo. The remains here which belong to this rebuilding are cella walls, the antae, the interior columns of the porch and probably the great portal. The corresponding features in the Didymaion are those which are generally assigned to SELEULOS. The cella walls at Sardis have the same high base course as that found at Didyma; but the elaborate carving of the mouldings is omitted; the bases of the columns show earlier proportions, and the minor details of ornament, especially the manner in which the guilloche of the toruses is executed, show closer analogies with the Erechtheion than with the Didymaion. I would suggest a slightly earlier date for the new temple at Sardis, about 320 B. C. or a little later, perhaps under the first ANTIGONUS who assumed the sovereignty of Asia in 319, becoming king in 306, and whose name occurs in the inscription<sup>1</sup> in the treasury, or by the royal widow CLEOPATRA, sister of ALEXANDER the Great, who resided at Sardis after her brother's death in 323. We might account for the greater refinement in technique by the presence of fifth-century models in the details, many of which were being re-used. In this rebuilding many details of the older building were employed without change. The capitals were now adjusted to new columns, taller and of a greater diameter, by a device which was facilitated by the architectural fashion of the times. The new shafts were given far less apophyge, or flare, at the top and bottom; their greater height offered opportunity for greater diminution, so that the old capitals fitted nicely upon them. In the old columns the line of the upper diameter fell well inside the eye of the volute, as was the fashion in all earlier columns; in the columns with new shafts, this line fell upon the centre of the eye, or was tangent to it, conforming to the fashions which had come in with the later development, so that the old capitals complied with every important demand of the day.

This temple was never completed in all its finer details, though it was roofed over with marble tiles at an early day, and gifts were continually made to Artemis. The west end appears to have been practically finished, except in so far as some of the minor details of the interior were concerned. Work progressed, probably by slow degrees, at the east end, where the work of the Pergamene period, about 200, is plainly seen in a capital and fragments of capitals which have a closed egg-and-tongue in the abacus in the second-century manner. It appears that the work was nearing completion at the beginning of the first century after CHRIST, there being nothing left to do but to finish off the mouldings and carve away the lifting-bosses, when the great earthquake of 17 occurred. In this catastrophe the columns of the front row seem to have been overthrown, or perhaps only rendered insecure; in any event they were eventually replaced by others which are still standing in part. This injury seems not to have extended far along the sides; for the plinths of the third column on the north, and that of the fourth column on the south side, are entirely finished. In the post-earthquake restoration the bases and shafts of the eight front columns were entirely renewed; but many of the capitals appear to have been used for a second, or even a third time. I am inclined to believe that capital B, now

<sup>1</sup> *A. J. A.* XVI, 1912, pp. 11 ff.



to be seen in place on column 7, was made in the Pergamene period, but that capital A was one of the fifth-century capitals reset for a third time. The new shafts were given a slight increase of diameter, so that the old capitals do not fit them as well as they had fitted the shafts of the other columns of the peristyle. In all the columns of the Ionic order that have been preserved, and in all modern restorations of fallen columns, the echinus of the capital projects beyond the astragal at the top of the shaft. In Sardis, in the case of capitals cut as of one piece with the top drum, this rule is observed; but in one of the two standing columns (6), the reverse is true, showing that the capital is too small for the shaft, and a side view shows that the top diameter of the shaft is greater than the width of the bolster. The bases of these new columns were cut in a manner entirely foreign to any early work in Asia Minor; the entire base, and in one case the plinth also, being made in a single piece, and the process of dressing the details being entirely different from that shown in earlier unfinished bases. But the design of the bases was to have conformed more or less well with that of the bases of the older order, although their proportions follow those prevalent in the later phases of the Ionic style. The inscription found upon one of these columns is believed by epigraphists to be late, perhaps engraved at the beginning of the third century A. D. This inscription must have been engraved upon a base carved at an earlier date, at the time of very late repairs upon the temple; for there is little evidence of large architectural undertakings in Asia Minor at this time, and no evidence whatever for the making of Asiatic Ionic bases later than the first century. The honorary inscriptions found at the opposite end of the temple show that the building was in use, and probably nearly complete, in the first and second centuries after CHRIST, and the colossal head of the Empress FAUSTINA depicted as Artemis-Cybele, which was discovered by DENNIS in 1882, is clear evidence that the restoration of the temple was complete, or nearly so, at the time of the empress' death in A. D. 141.







## APPENDIX.

### CAPITALS OF THE TEMPLE OF ARTEMIS

#### EXPLANATION OF ILLUSTRATION 135

BY L. C. HOLDEN, JR. AND GORDON McCORMICK.

The following explanation is included in this volume as a record of observations made by the staff in 1922 after further study of the capitals at Sardis. These observations, although approved in conversations with Professor BUTLER, have been written since his death.

Illustration 135 shows the comparative size and form of ornaments of the existing Capitals of the temple. Capitals C, D, E and G are drawn from small scale reproductions of the restorations in the Atlas, whereas Capitals A and B have been restored from photographs and from such measurements as it has been possible to obtain. Since Capitals A and B are *in situ* on top of their columns it was difficult to get their accurate measurements; however, it was found possible to get a rope and pulley over Capital B by first throwing over a stone with a string attached and thereafter hoisting up a boatswain's chair. From this position it was possible to take accurate measurements of the important dimensions of Capital B. Capital A was drawn by means of photographic comparison with Capital B for the vertical measurements, and the horizontal measurements were secured with the vertical hair of a transit set up on the nearby excavation bluff. Obviously, the drawing of Capital A is the least accurate of the six; but this plate is shown merely to facilitate comparison of the Capitals and should not be considered as an accurately measured drawing.

It will be seen by comparing the drawing of the Capitals with the photographs in the text that considerable restoration has been made. This is true, especially, of the ornament on the volute-band which in almost every case, being deeply under-cut, has broken away at the first joint of the stalk. However, the points of attachment from which the ornament had broken gave a very definite idea of the general shape of the ornament, while the form was given by comparison with existing bits on other Capitals, especially that of Capital A and the angle antefix shown in Plate V, Atlas.

In the actual state Capital C is the best preserved, lacking only the volute-band ornament. Capital D lacks the volute-band ornament with the exception of the small terminal flower and stem, the lower part of the volutes and the ends of the echinus leaves. Capital E was found in a more damaged condition, showing a long period of exposure and lacking the volute-band ornament, the exact form of the echinus leaves



and the lower part of the volute. Capital G is a simpler form of Capitals C and D as it is the reverse side of this type capital whose outer side probably resembled that of Capital D. The firmly attached central flower of the volute-band exists in every case.

The ornament of the volute-band seems to bear a very definite relation to the large leaves on the echinus, which from below appear to curve up into and over the scroll of the volute-band stalk, creating a unified mass of ornament not only from close up but from a distance. Included also in the upward view is the ornament terminating the bolster reed bands.

The idea of the use of such ornament on the volute-band of the Ionic order at first seems over elaborate, but with the existing example of Capital A the general effect is of harmony and brilliance.

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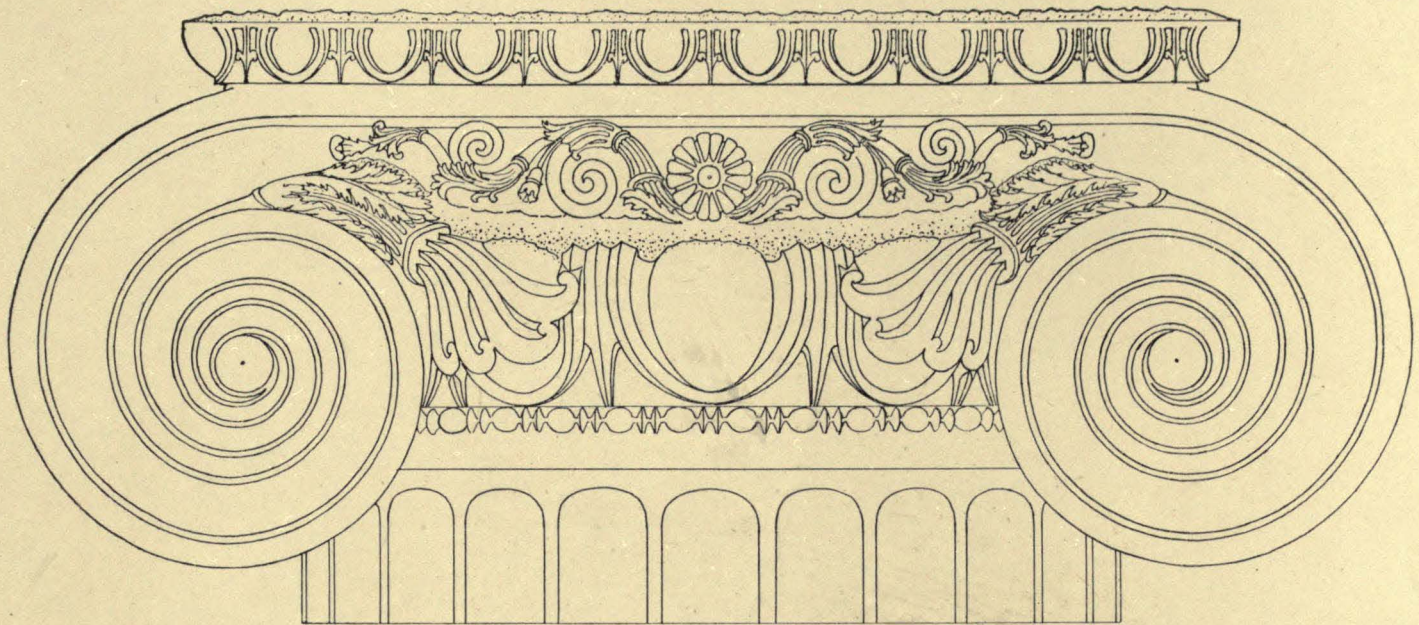




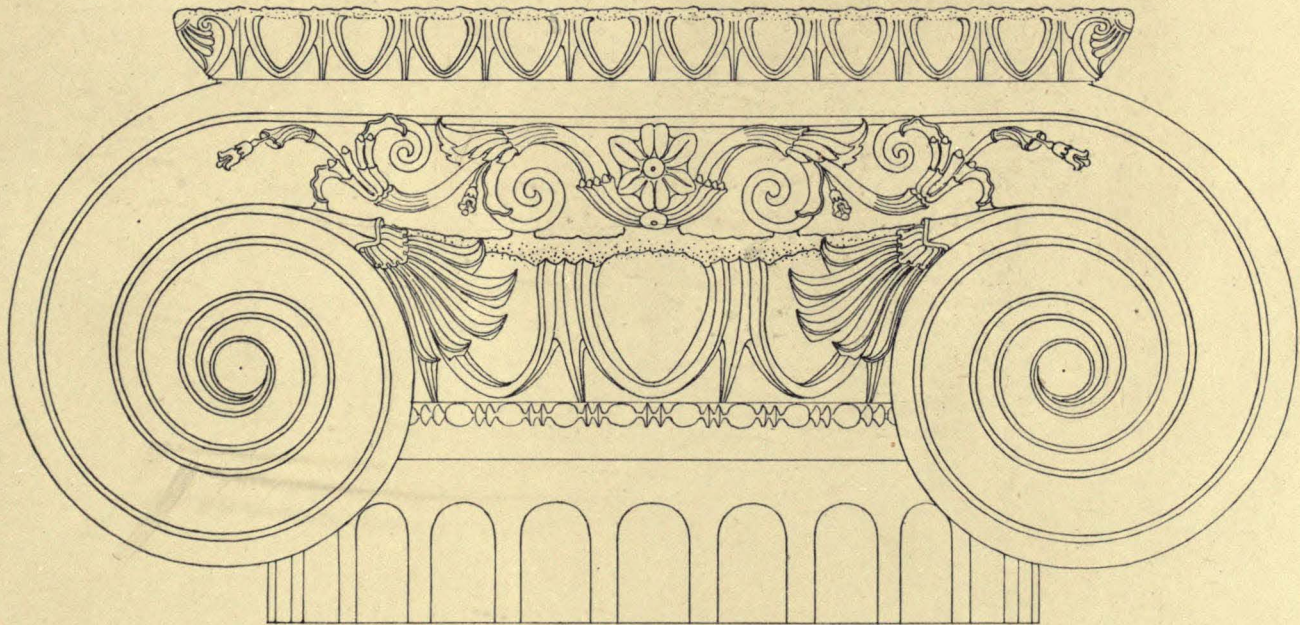




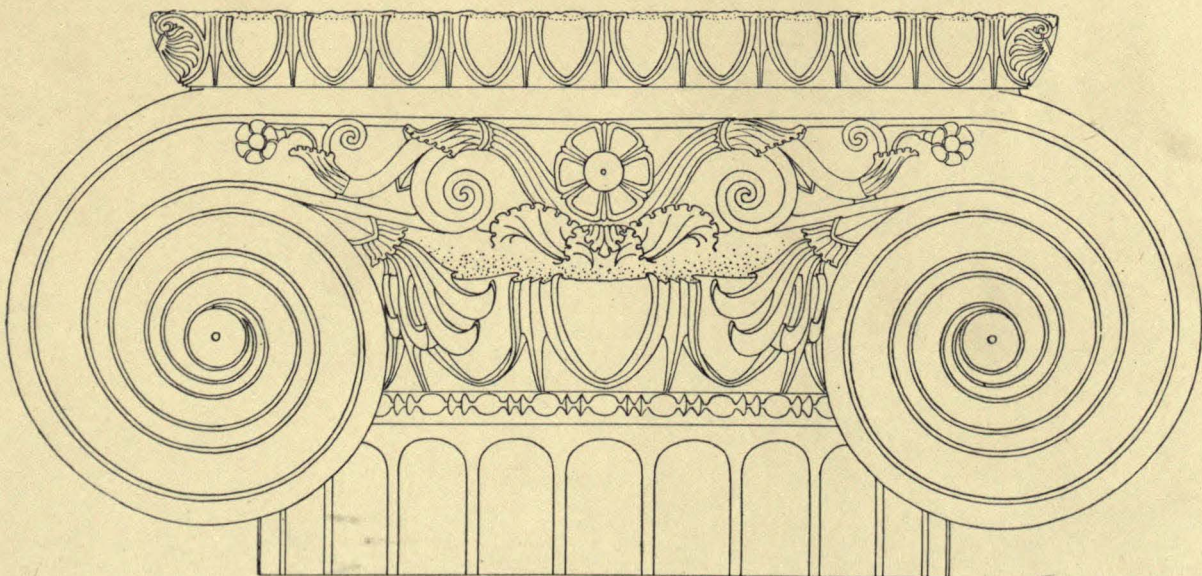




CAPITAL B



CAPITAL A



CAPITAL E