

THE AMERICAN EXCAVATIONS IN THE ATHENIAN AGORA  
HESPERIA: SUPPLEMENT V

1941

# OBSERVATIONS ON THE HEPHAISTEION



BY

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SWETS & ZEITLINGER B.V.  
AMSTERDAM - 1975

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East Front of the Hephaisteion, May, 1936

## INTRODUCTION

The title of the following report requires no justification at the present date.<sup>1</sup> The Doric temple on the Kolonos Hill, popularly known as the "Theseum," has been variously assigned to Theseus himself, to Theseus and Herakles together, to Herakles in Melite, to the Amazons, to Iacchos, to Zeus Soter, to Ares, to Apollo Patroös, to Aphrodite Ourania, to Demeter and Persephone, and to Hephaistos and Athena Hephaisteia. But the topographical reasons adduced for the last of these identifications have always seemed the strongest; and, now that the American excavations have brought to light the innumerable foundries, casting-pits, and slag-furnaces characterizing the metalworkers' quarter in which the temple of Hephaistos is known to have been located,<sup>2</sup> there can no longer be any doubt as to this attribution.<sup>3</sup> Since the identification ceases to be a problem, it is not here discussed.<sup>4</sup>

Nor is this the place for a detailed architectural study of the temple, desirable though such a study may be. The early drawings made by Stuart and Revett in 1751-1755, as yet the only complete architectural presentation, are antiquated and insufficient. Sporadic investigations of the first decades of the nineteenth century, such as those by Fauvel, Haller, Wolfe, Jenkins, and Schaubert, remain in large part unpublished. Christian Hansen between 1832 and 1850 made numerous detailed measured drawings which likewise have never been published. Penrose in 1846 confined himself to a few measurements dealing with the refinements. Ivanoff in 1857-1858 measured and sketched very accurately but never found time to coördinate

<sup>1</sup> I wish to record my obligation to T. Leslie Shear and Homer A. Thompson of the Agora Excavation staff for their unfailing assistance, to Louis E. Lord and Gorham P. Stevens of the American School at Athens for the facilities which they placed at my disposal, and to Dr. David H. Stevens and the Rockefeller Foundation for the grant which enabled me to undertake this study at Athens in the summer of 1939.

<sup>2</sup> Andokides, I, 40; Bekker, *Anecd. Gr.*, I, 316, 23.

<sup>3</sup> Shear, *A.J.A.*, XL, 1936, pp. 190-191; *Hesperia*, VI, 1937, p. 342; VII, 1938, p. 339; IX, 1940, p. 305; D. B. Thompson, *ibid.*, VI, 1937, pp. 396-425; H. A. Thompson, *ibid.*, pp. 65, 223; *A.J.A.*, XLII, 1938, p. 123; cf. Dinsmoor, *Proc. Am. Phil. Soc.*, LXXX, 1939, pp. 125-127; and see below, p. 109.

<sup>4</sup> For this reason we need not investigate the identification as the Eleusinion recently suggested by Picard, *Rev. arch.*, VII, 1936, pp. 119-120; XI, 1938, pp. 99-105; XII, 1938, pp. 93-96, 244-245; XIII, 1939, pp. 142-143; XIV, 1939, p. 74; *C. R. Acad. Inscr.*, 1938, pp. 384-401. If further refutation were needed, it might be found in the Eleusinian accounts which give details of the construction of the main doorway of the Eleusinion at Athens (*I.G.*, II<sup>2</sup>, 1672, lines 129-133; cf. Glotz, *C. R. Acad. Inscr.*, 1928, pp. 149-157—I owe the references to Socrates M. Eliopoulos): the dimensions are 15 feet in height and 3 feet in thickness, the material is poros from Akte, and the date is 329/8 B.C.—nothing could be more unsuitable for the "Theseum."

or finish his results, though he drew certain metrological conclusions. Imaginative restorations were made by architects of the French Academy at Rome, André (1851) and Paulin (1878). German architects, as Bötticher (1862), Ziller (1873), Adler (1874), Durm (1879), Dörpfeld (1884), Graef (1888), and Fiechter (1919), published several important observations of details; but the architectural study by Reinhardt (1903) deals solely with theories of proportion, to suit which the dimensions were distorted. Sauer's monograph (1899) was concerned primarily with the identification of the temple and with the sculpture. Lethaby (1908) published various suggestive observations concerning the architecture. Members of the American School, Bates (1901) and Stevens (1911), confined themselves to studies of the ceilings. Harrison and Verrall (1890), Frazer (1898), and Judeich (1905, 1931) summarized the general state of knowledge up to their time. Of a monograph in preparation since 1926 by Koch and Stockar we have as yet only a preliminary statement of results.<sup>5</sup> It is evident that these works do not meet all the requirements of modern scholarship; and it became equally apparent that systematic excavation, as

<sup>5</sup> Stuart and Revett, *The Antiquities of Athens*, III (1794), ch. I, pp. 1-10, pls. I-XXIV; 2nd ed. by Kinnard, III (1827), pp. 65-75, pls. V-XIV; French ed., III (1812), pp. 39-48, pls. V-XIV; German ed., II (1831), pp. 325-362, pls. 7-12 and 1-6 of Lief. IX-X, pls. 10-12 and 1-11 of Lief. XXV-XXVI. Fauvel, papers in the Bibliothèque nationale, Paris (cf. Legrand, *Rev. arch.*, XXX, 1897, p. 400, note 1, and p. 401; XXXI, 1897, p. 99). Haller, papers in the Bibliothèque nationale universitaire, Strasbourg (cf. Paton, *Erechtheum*, p. 619). Wolfe, diary in the Royal Institute of British Architects (cf. Paton, *Erechtheum*, pp. 598-600, 622). Jenkins, in Cockerell and others, *Antiquities of Athens . . . supplementary to the Antiquities of Athens by Stuart and Revett* (1830), pp. 1-2, pls. 1-2, 4 (of the chapter by Jenkins); 2nd ed., IV (1830), pp. 3-4, pls. 1-2, 4 (of the chapter by Jenkins). Hansen, drawings in the Royal Academy of Art, Copenhagen, portfolio B4, pl. 133; portfolio B5, pls. 54-56, 64-65, 115-140, 142-144, 146-151, 153-171 bis, 183; notebook C 39c (for access to and use of these drawings I am indebted to the Librarian, Dr. Aage Marcus). Schaubert, drawings at Breslau (cf. Köpp, *Jahrbuch*, V, 1890, *Arch. Anz.*, cols. 129-148; Paton, *Erechtheum*, p. 625). Penrose, *Principles of Athenian Architecture* (1851), pp. 67-68, pls. 35-36; 2nd ed. (1888), pp. 72-73, pls. 35-36. Ivanoff, *Architektonische Studien* (1892), I, pp. 14, 17-19, pls. 1-6. André, in D'Espouy, *Monuments antiques*, I, p. 10, pls. 42-43. Paulin, ms. mémoire in the library of the École des Beaux Arts, Paris. Bötticher, *Bericht über die Untersuchungen auf der Akropolis von Athen im Frühjahr 1862* (1863), pp. 181-189. Ziller and Gurlitt, "Attische Bauwerke: I, Das Theseion," *Zeitschrift für bildende Kunst*, VIII, 1873, pp. 86-91. Durm, "Constructive und polychrome Details der griechischen Baukunst," *Zeitschrift für Bauwesen*, XXIX, 1879, pp. 113, 284-286, pls. 14, 42-43. Dörpfeld, *Ath. Mitt.*, IX, 1884, p. 336 (cf. also notes 11 and 216 below). Adler, *Arch. Zeit.*, XXX, 1873, pp. 108-109. Graef, in Baumeister, *Denkmäler*, cols. 1774-1779 (cf. note 216 below). Fiechter, "Zu den dorischen Kranzgesimsen Athens," *Jahrbuch*, XXXIV, 1919, *Arch. Anz.*, cols. 36-37. Reinhardt, *Die Gesetzmässigkeit der griechischen Baukunst: I, Der Theseustempel in Athen* (1903). Sauer, *Das sogenannte Theseion und sein plastischer Schmuck* (1899). Lethaby, *Greek Buildings Represented by Fragments in the British Museum* (1908), pp. 147-151. Bates, "Notes on the 'Theseum' at Athens," *A.J.A.*, V, 1901, pp. 37-50. Stevens, "The Ceiling of the Opisthodomus of the Theseum," *A.J.A.*, XV, 1911, pp. 18-23. Harrison and Verrall, *Mythology and Monuments of Ancient Athens* (1890), pp. 112-122, 175. Frazer, *Pausanias* (1898), II, pp. 155-156. Judeich, *Topographie von Athen*, 2nd ed. (1931), pp. 365-368. Koch, *Jahrbuch*, XLIII, 1928, *Arch. Anz.*, cols. 706-721.

part of the general clearing of the Agora, would yield results in no way duplicating those hitherto attained. The presentation of the new material, rather than a restudy of the whole, is the object of the following discussion.

## EXPLORATION

The land surrounding the temple was cleared down to bedrock in 1936 (Frontispiece); and the resulting analysis of the precinct walls and the garden enframing the peristyle was published by Mrs. Dorothy B. Thompson.<sup>6</sup> The casting-pits of the metalworkers remain to be discussed by Homer A. Thompson.<sup>7</sup> The pottery from one of the most important areas just outside the temple is analyzed by Miss Lucy Talcott in one of the following sections.<sup>8</sup>

During 1936 and 1937, furthermore, a study of the mediaeval additions to the temple, with relation to its use as a church, was undertaken by A. K. Orlandos on the occasion of his repairs in the pronaos.<sup>9</sup> In addition to the important work of consolidation in the pronaos walls, entablature, and east peristyle ceiling, and the erection of the two inner Doric columns, the results of chief importance for the ensuing study were the removal of the east wall of 1835 and the extraction therefrom of such important blocks as the piece of upper interior epistyle and the two pieces of the cult-statue pedestal.

In the months of February, March, and April, 1939, the interior of the peristyle and cella of the Hephaisteion were cleared in the hope of gaining more information about the plan of the temple, its date, and the problem of whether or not it had been preceded by an earlier building on the same site. The exploration was supervised by Mrs. Dorothy B. Thompson, who was the first to observe the significance of the interior foundations; her notebooks have been freely utilized in the following discussion. I have also drawn extensively upon a preliminary ms. report made by Homer A. Thompson; I am indebted to him throughout for helpful collaboration and fruitful discussion; many of the identifications and interpretations are his, and, in fact, large portions of three sections (mediaeval tombs, re-used material, and pre-temple remains) are practically in his own words. As for myself, I have profited by this opportunity of utilizing some of my observations made at intervals between 1914 and 1926 (before Koch began his work), and also, with the coöperation of T. Leslie Shear and the Agora

<sup>6</sup> Thompson, *Hesperia*, VI, 1937, pp. 396-425.

<sup>7</sup> This material will probably be published in a later article; cf. *A.J.A.*, XL, 1936, p. 191; XLII, 1938, p. 123; *Hesperia*, VI, 1937, pp. 16, 342-343; VII, 1938, p. 339; D. B. Thompson, *ibid.*, VI, 1937, pp. 396, 411; H. A. Thompson, in *H.S.C.P.*, Suppl. I (1940), pp. 208-209.

<sup>8</sup> See below, pp. 130-150.

<sup>9</sup> Orlandos, *Ἀρχαίον τῶν Βυζαντινῶν Μνημείων τῆς Ἑλλάδος*, II, 1936, pp. 207-216.

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staff, during the summer of 1937; the major part of what follows, however, is the result of a systematic restudy of the material during July and August of 1939, when I revisited Athens for this special purpose.<sup>10</sup>

The excavation of the temple showed that mediaeval and modern tombs had occupied practically the whole area of the cella, all that of the opisthodomos and west peristyle, most of the south and much of the north peristyle. These graves were emptied and their walls were torn out wherever necessary to permit the examination of the structure of the temple. In the interior of the cella practically no late masonry was allowed to remain; in the porches the tombs have been but little molested. The tomb builders had commonly hewn their sepulchres out of the soft poros of the ancient foundations and had not scrupled to tear up both marble and poros for use in lining and covering the graves. Of the considerable mass of earth filling which had underlain the ancient floor in the mid-part of the cella only four small islands were found undisturbed (Fig. 11), and very little of the ancient accumulation survived beneath the tomb floors; in many places, in fact, the bedrock itself shows the scars of the graves. The resulting sad state of the ancient structure is apparent in the illustrations (Figs. 1-7, 11).<sup>11</sup>

We must, however, be grateful in part to the grave diggers, inasmuch as they had completely dissected and exposed for study the skeleton of the temple foundations, thus permitting a more detailed investigation than is possible in the case of better preserved foundations such as those of the Parthenon. Enough is left of both the ancient blocks and the earth fill to make reasonably certain the plan and history of the building.

In order to ensure the stability of the structure and also to conceal the unsightly condition of the foundations, the areas within the peristyle and cella building were refilled with earth in August, 1939, nearly up to the level of the ancient pavement (Fig. 7). The foundations being now invisible, therefore, a detailed description, accompanied by photographs and drawings, is included in the following sections.

<sup>10</sup> The photographs were made by Miss Alison Frantz, with the exception of those for the Frontispiece and Figs. 2, 5, 12, and 19 (by Hermann Wagner), for Figs. 18, 21, 23, and 30 (by myself), and for Fig. 42 (an old negative in the American School at Athens). Most of the drawings were made by John Travlos (Figs. 1, 11, 17, 25, 26, 33, 34, 35, 40, 54, 55, 70), in part with my supervision, particularly with respect to the restorations; but on account of military service it was impossible for Travlos to be present during all the course of my study, so that some inevitable alterations have been made by myself (especially in Figs. 11, 17, 33, 34, 35, 40). A few illustrations (Figs. 9b, 16, 20, 29, 32, 37) are my own sketches, and Fig. 76 is based on one by A. E. Raubitschek.

<sup>11</sup> In 1893, when E. Reisch was engaged on the study of the cult statues of the Hephaisteion, he commissioned Dörpfeld to search for possible remains of the underpinning for the base (*Jahreshefte*, I, 1898, p. 62). Dörpfeld's trench, *ca.* 1 m. wide and 1½ m. deep, on the long axis of the cella, running east from the Byzantine west doorway and then turning southward, was readily distinguishable by the present excavators. A glance at the plan, Fig. 26, will explain why Dörpfeld reported no trace of interior foundations.

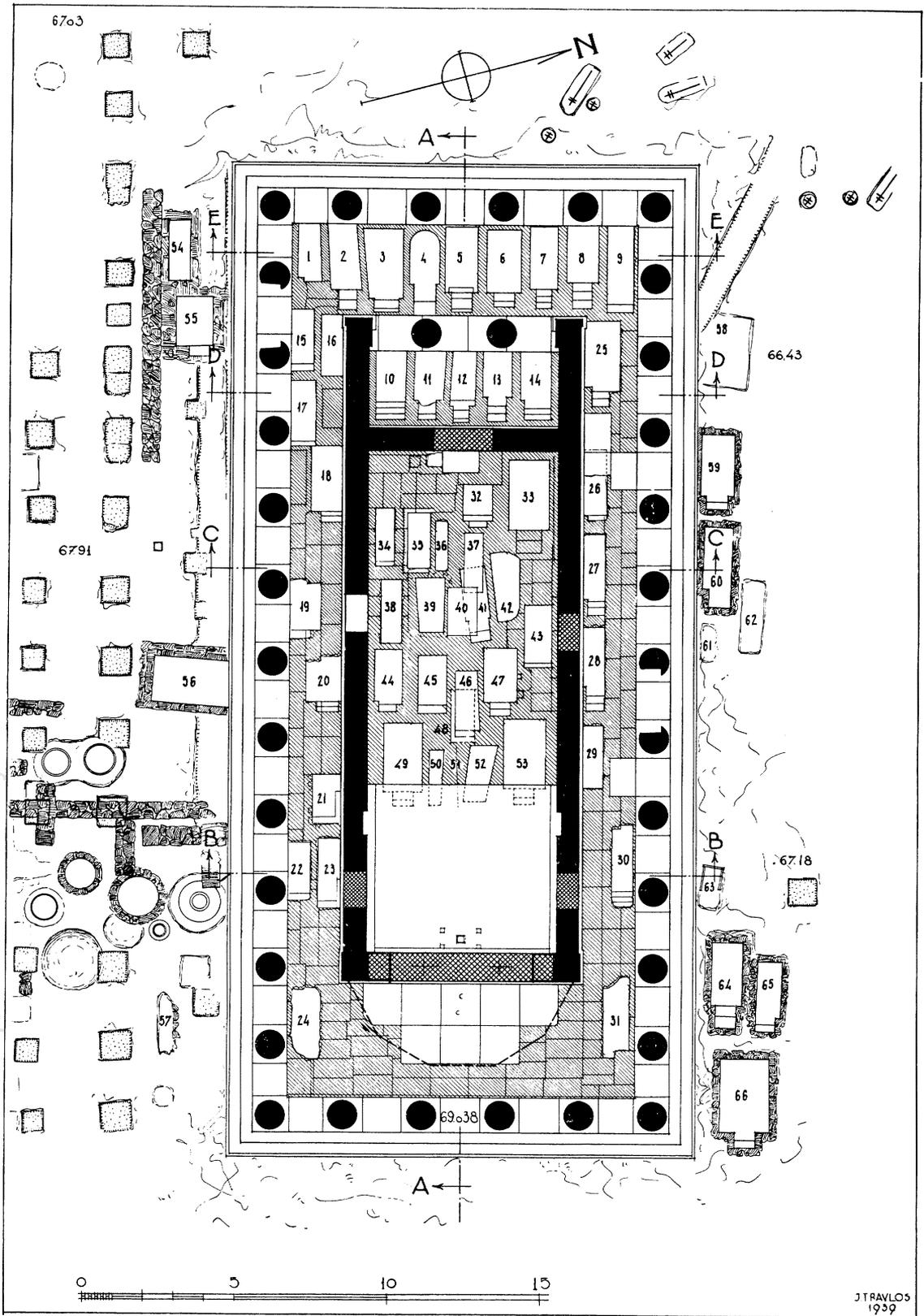


Fig. 1. Plan of the Hephaisteion as Church and Cemetery

## MEDIAEVAL TOMBS AND ALTERATIONS

The distribution of the Christian burials will be clear from the plan (Fig. 1).<sup>12</sup> Outside the temple, but in its immediate vicinity, are twelve tombs, nine along its north side (Nos. 58-66), three to the south (Nos. 54-55, 57). In addition, a cistern that abuts against the middle of the south side of the building had been re-used for burials (Tomb 56). Within the peristyle we may count twenty-six tombs (Nos. 1-9, 15-31), in the opisthodomos five (Nos. 10-14), and in the cella twenty-two (Nos. 32-53).

For the tombs outside the peristyle no definite sequence is observable. Tomb 66, at the northeast corner, is one of the largest, best built, and presumably one of the earliest of the entire series.

The earliest of the graves within the peristyle, but outside the cella, are obviously those in the west peristyle and the opisthodomos, the most available and most prominent positions in relation to the main west door of the church. From the plan (Fig. 1, cf. Figs. 3, 4) it will be observed that in the north and south peristyles the tombs grow fewer and smaller toward the east.

Of the burials in the west peristyle (Figs. 1, 11, section E-E), the middle tomb (No. 5) and the second on either side (Nos. 3, 7) form a homogeneous group between and beside which inferior graves were later inserted, those at the extremities (Nos. 1, 9) coming latest. It will be noted that the nine tombs in the west peristyle coincide exactly with the nine slabs in each row of the ancient pavement (aligning with the front stylobate slabs); evidently the axial Tomb 5 and its companions Nos. 3 and 7 were excavated in the areas obtained by removing the corresponding pavement slabs, the intervening slabs being left undisturbed until at some later period the six other tombs were inserted. Much the same sequence was observed in the opisthodomos (Figs. 1, 2, 11, section D-D). Of these five tombs that in the middle (No. 12) undoubtedly was excavated first by removing the central row of floor slabs, leaving the other slabs in place. It seems probable that the outside tombs (Nos. 10, 14) came next, and finally the intervening tombs (Nos. 11, 13);<sup>13</sup> but they all date within a

<sup>12</sup> A. K. Orlandos, in the course of his restoration of the pronaos of the temple, had cleared three tombs in the west peristyle. His tombs A, B, and Γ appear under Nos. 8, 6, and 3 on our plan; for his report on them, with drawings, cf. *Ἀρχαίον*, II, 1936, pp. 214-216, figs. 6, 14. His plan shows also Nos. 58-60 and 62-66 outside the north flank and Nos. 54-57 outside the south flank, opened during the American excavations. Fig. I of this report is based on fig. 2, p. 399, of Mrs. Thompson's article in *Hesperia*, VI, 1937, with the results of additional excavation.

<sup>13</sup> With regard to the sequence, H. A. Thompson observes that Tombs 10, 12, and 14 are alike in having tiled floors, Nos. 11 and 13 being unfloored. Likewise the party wall between Nos. 10 and 11 has only one proper face, that toward No. 10, just as the party wall between Nos. 13 and 14 has a proper face only toward No. 14, suggesting that these walls were intended originally for Nos. 10 and 14 and were subsequently utilized for Nos. 11 and 13. Still more significant are the

short time of one another, and structurally are closely similar, though the tombs on either side of the central one (Nos. 11, 13) are less pretentious than the others. Thus in the opisthodomos, where the scheme of the ancient pavement is more problematical, the positions of the five tombs would agree with the hypothesis that there were five slabs in each row as in the pronaos.<sup>14</sup>

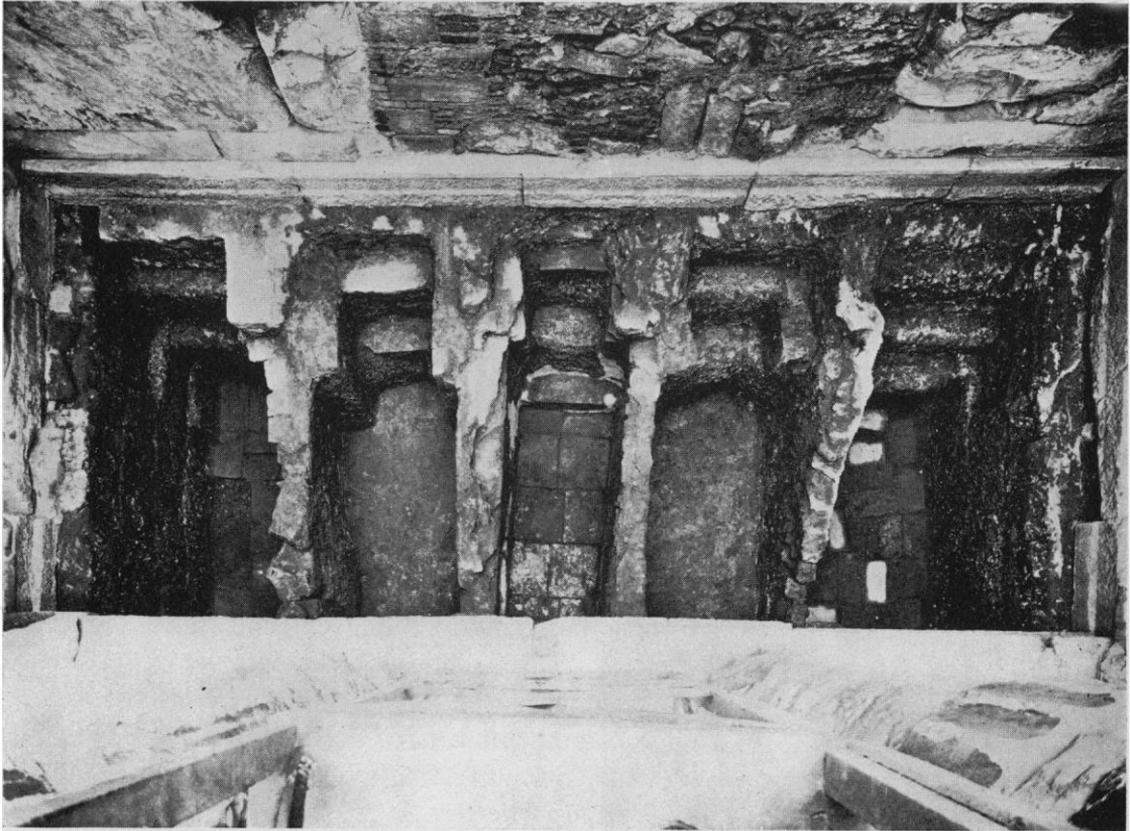


Fig. 2. Tombs in Opisthodomos, from West

The earliest tombs within the cella (Figs. 1, 5) are probably somewhat later than the earlier groups of the opisthodomos and west peristyle, judging from a comparison of their construction and from the coins found in them. Within the cella also a certain

depths of the various dividing walls as shown in Fig. 11, section D-D; these walls were ordinarily carried down only to the bottoms of their respective tomb chambers, and consequently the deeper tombs that flank party walls (Nos. 10, 12, 14) should be the earlier, just as in the case of the west peristyle (Nos. 3, 5, 7, section E-E).

<sup>14</sup> See p. 64. At the north end of the top course of the west cross-wall a layer of mortar extends southward to a definite line 1.31 m. from the north toichobate. This must approximately agree with a pavement joint, or at least with a tomb cover slab which replaced a pavement slab.

order was observed in assigning places. The row of three large vaulted chambers across the east end of the cella (the central one, No. 51, being very ruinous) may be accounted among the earliest. No. 33, in the northwest corner, was perhaps the first of a projected but uncompleted corresponding row across the west end of the cella. Practically the entire area of the interior was eventually occupied, the tombs falling roughly into four north-to-south rows.

The majority of the tombs are roomy chambers with an average width of about 1.40 m., entered by steps one, two, or three in number at the east end (cf. Fig. 19).



Fig. 3. North Peristyle, from West

As may be seen on the plan, the tombs were regularly laid with their long axis east to west; and the steps, when they occur, being placed at the east end, imply that the head of the deceased was toward the west. Actually, where skeletons were found in anything like their original position, their skulls regularly lay at the west end. In most cases the floor consisted of earth, or the roughly dressed bedrock, or the poros blocks of the ancient foundations; in the better tombs, of terracotta tiles or stone slabs (cf. Fig. 2). The floor at the west end of the chamber was in several cases sloped up in a pillow-like effect for the greater comfort of the deceased. The walls likewise show considerable variation in material and construction. For the most part the tombs were hewn boldly and unfeelingly out of the poros foundations of the temple, so that one or more of their walls consisted of the original poros blocks. The ancient masonry, however, was commonly lined with new, built of broken poros blocks, field stones, fragmentary roof tiles, and baked brick set usually in lime mortar of various colors and qualities, sometimes in clay. Above thirty-seven of the tombs simple barrel vaults of burnt brick or brick and stone may be restored with assurance or probability. The vaults stopped short of the steps, which were covered by readily removable stone slabs. The more pretentious vaults were plastered with unpainted stucco, white or red in color. The other tombs were roofed to their full length with stone or marble slabs.

Apart from these oft-used chamber tombs are a number of simpler graves intended for single burials: shallow trenches cut in the earth, unlined, roofed with stone slabs or with tiles. Examples are Nos. 36, 40, 57, and 62.

The larger vaults had been used repeatedly for successive burials, probably of various members of the same family. A maximum of fourteen skeletons was found in Tomb 20 in the south peristyle. All the chamber tombs and most of the smaller graves had been entered and disturbed after the latest burials. In most cases the interior was a tangled mass of fallen masonry, earth, and bones. Hence little can be said of the disposition of the remains or of grave offerings. In two cases (Tombs 37, 43) iron nails attested the use of wooden coffins. Bits of coarse woven material were found about the bones in Tombs 40 and 54. In the chamber tombs, the body of the latest comer was apparently lowered, in a light shroud, upon the remains of his fathers. The confused state of the bones suggests that some at least of the deceased arrived not as corpses but as skeletons. Of burial offerings little remained: a few plain pitchers and bowls, small fragments of other pots, occasional bracelets and earrings of bronze or silver, buckles and thimbles of bronze.<sup>15</sup>

A suggestion for the relative chronology of the tombs has been made above. Their absolute dating is more difficult. A good many coins and a certain amount of pottery were found in their filling. This material must have accumulated in the course of repeated burials over long periods of time, but some of it undoubtedly comes from later disturbance. Since, however, it is improbable that coins once arrived in the tomb (whether by design or by chance) were commonly removed, we may draw some cautious inferences from the numbers of coins of various periods. Among them is a bare sprinkling of pieces of the fourth century after Christ; of the tenth and the eleventh, scarcely enough to be significant. The twelfth century is more generously represented, and the numbers are sufficiently large to suggest that burials were being made at that time. Much more common are

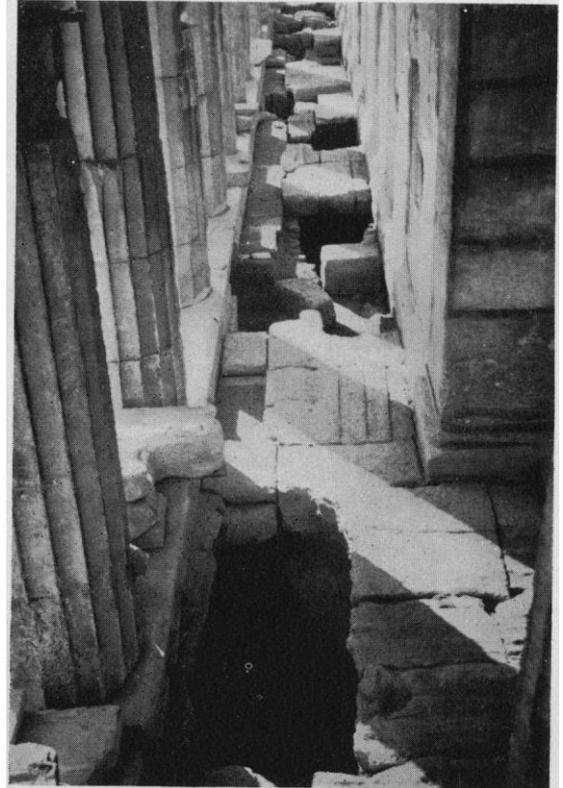


Fig. 4. South Peristyle, from East

<sup>15</sup> The preponderance of women's ornaments among the finds from the graves is damaging to Orlandos' suggestion (*loc. cit.*, p. 214) that the tombs were those of the monks of a monastery supposed to have been built around the temple-church. There were, furthermore, at least four women, including one nun (Eudokia, died 1040), among those recorded in epitaphs on the columns (see note 31).

coins of the thirteenth and fourteenth centuries, so common indeed as to show that this was the flourishing period of the monumental vaults. A slight but welcome indication is given by a coin of Guy II de la Roche, Regency of Helen l'Ange (A.D. 1287-1291), found in the wall of Tomb 49 in the southeast corner of the cella. This tomb, therefore, cannot have been built before the end of the thirteenth century; as already observed, it is probably one of the earliest within the cella. From the



Fig. 5. Interior of Cella from East, Showing the Tombs

masonry of Tomb 31, near the northeast corner of the peristyle, came a coin of Agostino Barbarigo (A.D. 1486-1501), than which the tomb cannot be earlier. This tomb, in view of its remote position and debased style of construction, may be regarded as one of the latest of the sizeable vaults. A fair number of coins of the Turkish period indicate that burials continued to be made during the Turkish régime. Toward the end of their rule the Turks, as we know, allowed Protestants to be interred in the church. These Protestant graves will be discussed in the following section.

In addition to the tombs it seems evident that sarcophagi were set out in the peristyle. For, between the sixth and seventh columns from the east on the north

flank, and again between the second and third columns from the west on the south side, places were prepared by undercutting the columns, obviously for sarcophagi (Figs. 1, 6). That on the south side must have been thrust in from outside the peristyle, the northern from the floor of the peristyle, as indicated by the fact that these openings narrow toward the interior and exterior, respectively, and finally terminate without quite reaching to the inner faces of the columns of the south peristyle, or to the outer faces of the columns of the north peristyle.<sup>16</sup>

As to the history of the building as a Christian church of St. George, little can

be added at present to what was written by Orlandos in the course of his report on the restoration of the pronaos.<sup>17</sup> It may be noted, however, that his conclusion that it passed through two Christian transformations, presumably with a round apse of the fifth century replaced by a polygonal apse in the middle Byzantine period, the existing barrel vault belonging to the latter period, is in exact accord with the new evidence. In the first period the temple interior would seem to have been little changed; the marble pavement, interior colonnades, and extremities of

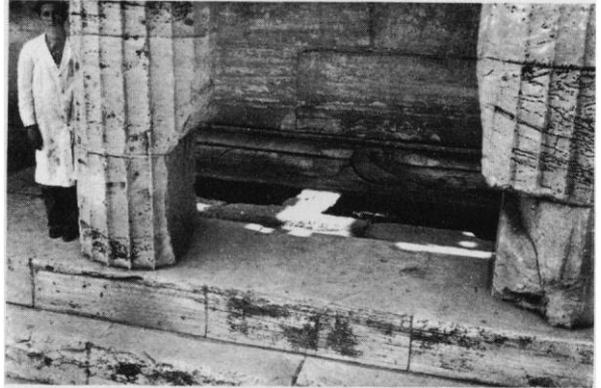


Fig. 6. Cuttings for Sarcophagus between Columns of North Peristyle

the east cross-wall apparently remained intact, though the central column of the west return of the interior colonnades was undoubtedly removed (as in the Parthenon) in order to avoid obstructing the new doorway cut in the west cross-wall,<sup>18</sup> while the east doorway may have been widened to improve access to the apse which replaced the two pronaos columns. The mediaeval plaster which covers the lower six courses of the cella walls (IV-IX)<sup>19</sup> was obviously applied at a time when the interior colonnades and stumps of the east cross-wall were still standing.<sup>20</sup> On the other hand,

<sup>16</sup> The northern cutting would have accommodated a coffin *ca.* 2.10 m. long, 0.86 m. wide, 0.73 m. high, the southern *ca.* 2.00 m. long, 0.80 m. wide, 0.58 m. high (including a lid *ca.* 0.10 m. thick). The significance of these cuttings, pointed out by Mrs. John Kostanecka, had also been noted by Pittakis (*Ἀρχ. Ἐφ.*, 1853, fasc. 34, p. 939).

<sup>17</sup> *Ἀρχαίον*, II, 1936, pp. 207-216; see also Mommsen (A.), *Athenae Christianae*, pp. 99-100; Kampouroglou, *Ἀθηνά*, V, 1893, pp. 322-324; Sotiriou, *Ἐυρετήριον τῶν μεσαιωνικῶν μνημείων τῆς Ἑλλάδος*. Α', *Ἀθηνῶν*, pp. 48 ff.; Deichmann, *Jahrbuch*, LIV, 1939, pp. 131, 134, fig. 15.

<sup>18</sup> For the interior colonnades and the central column see pp. 73-94.

<sup>19</sup> The marble courses of the cella walls are here numbered from bottom to top: I = toichobate on exterior, II = moulded wall base on exterior, III = orthostates, IV-XII = plinth courses aligning with columns of porches, XIII-XVI = plinth courses aligning with architrave and sculptured frieze of porches, XVII = epikranitis outside cella walls.

<sup>20</sup> For the mediaeval plaster and its relation to the interior columns and east cross-wall, see pp. 77-78.

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the great barrel vault which spans the entire distance between the flank walls is quite incompatible with the survival of the interior colonnades, agreeing with the fact that it not only shows on its under surface no traces of the east cross-wall, but even fills the sockets in the flank walls from which the uppermost blocks of the cross-wall had been removed. The second period, then, is that of the construction of the great barrel vault, which implies the removal of the interior colonnades and of the remainder of the east cross-wall;<sup>21</sup> probably the internal marble pavement began to disappear at this same time;<sup>22</sup> and all this work, as shown by the graves which lie immediately below the internal column positions, may have occurred at any time up to 1300 after Christ.<sup>23</sup> The mediaeval barrel vault was supported during erection on a wooden centering, with the spring of the vault apparently at the top of the tenth wall course (XIII) above the orthostates (Fig. 7); but for a height of three more courses (XIV-XVI) the concrete vault is merely a curtain adhering but in no way secured to the inner faces of the two flank walls, so that when the centering was removed the entire vault was left hanging from two projecting lugs along the top of the thirteenth wall course (XVI). The profile is somewhat less than a half ellipse, meeting the flank walls at a slight angle; and on the under surface the impressions of the planks of the centering are plainly visible. The material is concrete of which the aggregate consists of large lumps of ancient epigraphical and architectural fragments,<sup>24</sup> and more complete analysis of this material would doubtless permit fairly exact dating. To this same period may belong two mediaeval cuttings high up on the flank walls, on course XIII, in the line of the east cross-wall, presumably for an ikonostasis which replaced it.<sup>25</sup>

<sup>21</sup> Specific evidence that the stumps of the cross-wall were removed before 1655 is the inscription quoted below (p. 16).

<sup>22</sup> Sauer (*Theseion*, p. 6) suggests that the pavement need not have been removed until 1799 when Tweddell was buried here, or even 1810 when Hobhouse described the floor as of mud (see p. 17); but the Byzantine graves scattered over the area are, of course, adverse to such a theory. So clear is the evidence that the removal of the interior pavement must have begun by 1300 that it is hardly necessary to quote the testimony of Chandler, who as early as 1765 admits that "the pavement has been removed" (*Travels in Greece* [Dublin, 1776], p. 75).

<sup>23</sup> Of the tombs inside the cella, Nos. 32-34, 38, 43-44, 49, and 53 lie directly under the internal colonnades, which must therefore have been destroyed before they could be excavated. Of these tombs, that of the greatest chronological importance is No. 49 at the southeast corner, an early tomb with a coin of about A.D. 1290. We may infer, therefore, that the interior colonnades, and with them the east cross-wall, were destroyed little later than 1300, though they may equally well have been cleared away considerably earlier.

<sup>24</sup> An architect who examined the top of the vault with Lusieri on June 26, 1818, long before it was covered with Malta tiles, says that "the present arched vault is composed of many of these pieces" of the marble ceilings (Taylor, *The Auto-Biography of an Octogenarian Architect*, I, p. 124). Again, on July 5, 1939, I found a fragment of an inscription of 307 B.C. (Inv. No. I 5884) among material taken from a hole on the north haunch of the vault (Dinsmoor, *The Athenian Archon List*, p. 221; Pritchett and Meritt, *The Chronology of Hellenistic Athens*, pp. 7-8).

<sup>25</sup> These cuttings in course XIII of both flank walls are shallow sockets extending 0.062 m. from the east cross-wall and descending 0.17 m. below the top of the course. Each socket is 0.022 m.

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Fig. 7. Interior of Cella from East, with Vault

On clearing the poros underpinning for the (now missing) marble floor slabs of the pronaos, four holes apparently for the feet of the altar were noted in the poros blocks immediately inside the pronaos column stylobate (Figs. 1, 19). Directly beneath the altar a rectangular pit had been cut in the poros, floored and covered with marble slabs. In loose earth filling within the cavity lay a lead box containing still the incense and wax from the deposit made on the dedication of the church. These cuttings must have been made after the removal of the marble flooring and hence are more probably to be assigned to some renewal rather than to the original consecration of the building to Christian service. Later still must be a rude paving of marble slabs which overlay the cuttings in question and extended westward *ca.* 0.90 m. beyond the line of the (demolished) east wall of the cella. Resting on this paving on either side of the pronaos was a low bench of masonry *ca.* 0.22 m. high, 0.285 m. wide.<sup>26</sup>

Other stages of the gradual removal of the marble pavement are apparently reflected in various late stories of destruction. It is uncertain, to be sure, what could have happened on the occasion to which Pittakis refers: <sup>27</sup> "In 1660 the Turks had begun to destroy this temple to make a mosque; the Greeks prevented this by presenting an order which had arrived from Constantinople." Probably this was no more than an abortive attempt, since all the evidence indicates that the temple had attained essentially its present state long before that date, with the exception of the marble pavement of the east peristyle. This, on the other hand, seems to have remained almost intact as late as 1769; for only two graves (Nos. 24, 31) were sunk at its north and south edges, and the poros underpinning is elsewhere complete, so that only four of the twenty-seven marble slabs need have been disturbed. Furthermore, it is only on the assumption that the pavement was nearly complete that we can understand the claim of Stuart and Revett to have found a mysterious meridian line incised on the marble pavement from a point behind the second column from the left corner on the east front to the second column on the north flank, which would be approximately or exactly a true north-and-south line; <sup>28</sup> the silence of later travelers on the subject was apparently due to removal of the pavement immediately afterwards. For Pittakis reports that "the pavement of the temple, of Pentelic marble, was removed

deep at the top, 0.015 m. at the bottom, the surface being cut rather roughly; but the east edge forms a fairly careful mitre, not at 45 degrees, but cutting in more sharply at a rate of 2:3, so that the beveled surface (measured not on the bevel but in direct elevation) is about 0.015 m. wide at the top, 0.010 m. at the bottom. Both the workmanship and the location of these sockets forbid association with the ancient use of the temple; but the ikonostasis of the church should have been approximately in this position.

<sup>26</sup> This late paving and bench are represented on the plan, Fig. 1.

<sup>27</sup> Pittakis, *Ancienne Athènes* (1835), p. 87.

<sup>28</sup> Stuart and Revett, *Ant. of Athens*, III (1794), ch. I, p. 6, pl. II at F-G; the line is mentioned in the text but was inserted in the plan only from memory. The failure of later visitors to mention it caused unnecessary skepticism among the editors of later editions (*id.*, 2nd ed., III [1827], p. 71, note; German ed., II [1831], p. 356).

for making lime in 1769 by a Turk who was building a house";<sup>29</sup> or, as Kinnard puts it, "the paving of the peristyle *is nearly perfect; that of the interior* was not long since carried away by one of the Waiwodes when building a house a mile and a half from Athens, on the road to Eleusis."<sup>30</sup> It is true that neither of these two writers specifically designated the pavement as that of the east peristyle, and that Kinnard even garbled the story by inserting the italicized words, which are manifestly untrue since the peristyle pavement had long before been torn up for the mediaeval graves (except on the east where most of it was likewise missing in his time), while the interior had likewise been riddled with Byzantine graves and the pavement, probably removed as early as 1300, was expressly stated to be missing in 1765. By elimination, therefore, the depredation of 1769 must have occurred in the east peristyle, where only eight slabs were protected by the apse of the church (Figs. 1, 24).

The history of the church may also be traced, in part, by means of the inscriptions which began to cover its walls and columns during the middle ages. These require study, however, which falls outside the province of this report. Some of these, Byzantine sepulchral inscriptions dated between 896 and 1103 A.D., on the walls and on the southwest angle column and on the two next to it on the south flank, have been published by Pittakis and others.<sup>31</sup> On the middle column is reported to be a Genoese sepulchral inscription of 1453, "Vit. Conradus Spinula 1453 die 20 yanuaryo."<sup>32</sup> Greek epitaphs of later date on the columns and walls are scattered through the period from 1491 to 1816. Whether any of these are to be associated with the tombs below the pavement must remain uncertain, though, as we have seen, the great majority of the tombs seem to belong to the intervening period (1057-1453) unrepresented among the epitaphs. Among inscriptions of other character on the walls and columns (especially the eleventh and twelfth on the south flank) are historical records, parts of the so-called "stone chronicle," mentioning a plague in 1555, a fire in 1591, an Arnaut incursion in 1770, war in 1785, a fast in 1800, etc.<sup>33</sup> The inscriptions associated with visitors from western Europe are discussed in the following section.

<sup>29</sup> Pittakis, *op. cit.*, p. 81.

<sup>30</sup> *Ant. of Athens*, 2nd ed., III, p. 67, note.

<sup>31</sup> Pittakis, *Ἀρχ. Ἐφ.*, 1853, fasc. 34, p. 939, nos. 1599-1600; 1854, fasc. 38, pp. 1215-1216, nos. 2450-2454; 1858, fasc. 50, pp. 1809-1810, nos. 3468-3478; *C.I.G.*, 9345-9349; Antoninos, *Περὶ τῶν ἐν Ἀθήναις ἀρχαίων χριστιανῶν ἐπιγραφῶν* (Petrograd, 1874), pp. 21, 28-29; Kampouroglou, *Ἱστορία τῶν Ἀθηνῶν, Τουρκοκρατία*, I (1889), pp. 145-152 (*Λίθινον χρονικόν*); II (1890), pp. 306-309; *Μνημεῖα τῆς ἱστορίας τῶν Ἀθηναίων*, I (1891), pp. 191-192, 308-310.

<sup>32</sup> Zisios, *Δελτίον τῆς ἱστορικῆς καὶ ἐθνολογικῆς ἐταιρείας*, II, 1885, p. 23, note 1 (with the letter "r" mistakenly read "z" and with the theory that this Conrad was a Spaniard); Gregorovius, *Geschichte der Stadt Athen im Mittelalter*, I, p. 383, note 3 (repeated in Greek translation by Lambros, *Ἱστορία τῆς πόλεως Ἀθηνῶν*, I, p. 462, note 4).

<sup>33</sup> Zisios, *loc. cit.*, p. 22; Kampouroglou, *Ἱστορία*, I (1889), pp. 145-152 (*Λίθινον χρονικόν*); cf. Νέος Ἑλληνομνημῶν, XVIII, 1924, p. 258 (inscription of 1678 on left parastas). An unpublished Christian inscription on the reveal of the north jamb of the mediaeval west doorway, now concealed by masonry, is mentioned by Gurlitt and Ziller, *Zeitschrift für bildende Kunst*, VIII, 1873, p. 90.

## THE PROTESTANT GRAVES

In view of certain inscribed fragments which came to light during the excavations, it may be of interest to report the additional information thereby acquired with reference to the use of "that great mausoleum of British travellers," that "classic and most appropriate mausoleum for the interment of those unfortunate travellers who by a cruel fate expire so far from their native land."<sup>34</sup>

The earliest English names occurring in the temple are those of some of the first British travellers to visit Athens. For, on the lowest course (IV) of the south wall, on the joint surface denuded by the removal of the pronaos cross-wall, directly under a prominently but rudely hacked graffito of 1655 (Fig. 31),<sup>35</sup> appear the well printed names of "Gyles Eastcourt, Fran. Vernon, Barn. Randolph, 1675 An" one below another.<sup>36</sup> Eastcourt died and was buried at Vitritinza between Lepanto and Delphi (1676), while Vernon was murdered on the way from Trebizond to Persia (1677). Randolph, who had been at Thespiæ with Eastcourt and Vernon in 1674 and went to Eubœa from Athens in 1679, left no statement in his book "The Present State of the Morea" (1st ed. 1686; 3rd ed. 1689) as to the time of his arrival at Athens.<sup>37</sup> The signatures on the south wall, however, imply that all three came to Athens together; and these are the earliest English names to be found in the temple.

It seems improbable that any English or other Protestants were buried in the Hephaisteion until a century and a quarter later. For the marble slab commemorating George Stoakès (apprentice to "Consull Lancelot Hobson") and Captains Thomas Roberts and William Fearn, who all died in 1685, now set against the inner left wall of the English Church at Athens,<sup>38</sup> need not necessarily come from the "Theseum";<sup>39</sup>

<sup>34</sup> Hughes, *Travels in Sicily, Greece, and Albania* (London, 1820), I, pp. 251, 252.

<sup>35</sup> This date shows that the cross-wall was destroyed before the event to which Pittakis refers as having occurred in 1660 (see note 27), and merely corroborates our argument that the cross-wall had disappeared together with the interior colonnades, that is, before the excavation of Tomb 49 of about 1300 in the southeast corner of the cella (see pp. 10, 12, note 23).

<sup>36</sup> The signature of Vernon was seen about 1753 by Stuart and Revett (*Ant. of Athens*, III, 1794, ch. I, pp. 3-4), who also refer to signatures by Spon and Wheler on the inner faces of the walls; the latter I did not see. Chandler (*Travels in Greece*, 1776, p. 76) likewise saw Vernon's signature in 1765. Spon's signature has been mentioned by Lambros as occurring on an ancient Athenian structure, but without closer definition (*Νέος Έλληνομνήμιον*, XV, 1921, p. 97).

<sup>37</sup> Miller, *The English in Athens before 1821* (Anglo-Hellenic League, 1926), p. 5.

<sup>38</sup> Miller, *op. cit.*, pp. 5-6, 28; *Centenary of the English Church in Athens* (1938), p. 10. The stone is 1.40 m. high and 0.56 m. wide, with a wide chamfer on both vertical edges and across the top; the letters are curiously cut in relief, each line enclosed within a sunken panel so that the raised letters are part of the original surface of the slab.

<sup>39</sup> Miller offers such a suggestion (*Centenary*, p. 10). But earlier (*Essays on the Latin Orient*, p. 388) he stated that they were buried in the temple on the Ilissus (St. Mary's-on-the-Rock).

no travelers mention it as having existed there, and we are expressly told that Tweddell was the first foreigner to be interred within the structure.<sup>40</sup>

We come then, to the year 1799, when John Tweddell died on July 25. Without entering upon a discussion of the long controversy as to Tweddell's manuscripts and drawings, of which the disappearance was attributed by certain members of his family to the negligence of the Earl of Elgin,<sup>41</sup> it may be recalled that Tweddell's "remains were deposited here by the interest of Monsieur Fauvel in whose arms he breathed his last."<sup>42</sup> For Fauvel had conceived a brilliant scheme for testing his thesis that the "Theseum" really contained the bones of Theseus. It happened that, "the Catholics being buried in the Capuchin convent, on the death of Tweddell no consecrated site was known as appropriate to the grave of a Protestant, but from the esteem in which our nation was held by the Greeks, the clergy of Athens devoted the church of St. George to that purpose, and performed there his obsequies."<sup>43</sup> Now, therefore, Fauvel had the "grave dug --- exactly in the centre --- in the hopes of finding some remains of THESEUS."<sup>44</sup> The archaeological purpose of the interment bore no fruit: Theseus failed to appear, and "Mr. F. told me, that on digging he had only found tombs of a later age."<sup>45</sup> For a long time the grave (Tomb 40) remained unmarked; Clarke, visiting it on October 30, 1801, says, "It was simply a small oblong heap of earth, like to those over the common graves in all our English churchyards, without stone, or inscription of any kind."<sup>46</sup> Likewise Hobhouse, as late as the winter of 1809/10, reported that "the pavement on the inside having been removed, the floor is of mud; and, the middle nearly of the building, there is a small sepulchral mound of earth, like those in our churchyards. This is the grave of Tweddell."<sup>47</sup> The story of the epitaphs which eventually marked the grave is a curious sidelight on an acrimonious situation which was protracted for a dozen years.

<sup>40</sup> Hughes (*op. cit.*, p. 252) says that "our accomplished and lamented countryman Tweddell was for many years the sole occupant of this superb sepulchre." Hughes refers, of course, to the modern, not to the unknown mediaeval occupants.

<sup>41</sup> *Remains of John Tweddell* (1st ed., London, 1815; 2nd ed., London, 1816); the references are to the second edition. For the Tweddell case see in general, though without reference to the inscriptions, Smith, *J.H.S.*, XXXVI, 1916, pp. 365-368 (to the bibliography should be added Paston [Symonds], *Little Memoirs of the Eighteenth Century*, 1901, pp. 299-384). I have been unable to consult Elgin (Mary Nesbit, Countess of), *Letters* (1926).

<sup>42</sup> Hughes, *loc. cit.*

<sup>43</sup> Kinnard, in *Ant. of Athens*, 2nd ed., III, p. 67, note.

<sup>44</sup> *Remains of John Tweddell*, p. 17.

<sup>45</sup> Turner, *Journal of a Tour in the Levant* (London, 1820), I, p. 342.

<sup>46</sup> Clarke, *Travels in Various Countries of Europe, Asia, and Africa* (London, 1814), III, pp. 532-533; 4th ed. (1818), VI, p. 291.

<sup>47</sup> Hobhouse, *Journey through Albania and Other Provinces of Turkey and Asia to Constantinople during the years 1809 and 1810*, 1st and 2nd eds. (London, 1813), I, p. 311; American ed. (Philadelphia, 1817), I, p. 259.

Clarke was the first to take the initiative in 1801: "Having therefore obtained permission to take up the coffin, and Lusieri promising to superintend the work, we sat about providing a proper covering for the grave; promising to send an inscription worthy of the name it was destined to commemorate. Large blocks of Pentelican marble from the Parthenon, which had been sawed from the bas-reliefs intended for our Ambassador, were then lying in the Acropolis ready for the purpose; we therefore begged for one of these; and before we left Athens every thing had been settled, and seemed likely to proceed according to our wishes."<sup>48</sup> This situation was doubtless reported by Lusieri to his chief, who came to Athens shortly afterward (Jan. 25 to Feb. 3, 1803) on his way home.<sup>49</sup> Elgin not only approved the plan of setting a marble tablet on the grave but is even reported to have "manufactured a long Latin inscription in honor of himself and of Tweddell, which was left with Lusieri, who had orders to engrave it, and place it over Tweddell's grave in the temple."<sup>50</sup> But on reaching Naples a month later, as Elgin himself relates, "I engaged the Rev. Mr. Hayter, then employed in unrolling Herculaneum manuscripts, to compose a Greek epitaph, suitable for such a person, interred in such a situation — — — which, however, notwithstanding its classical elegance, could not be applied on the tomb of a Christian."<sup>51</sup> Nothing was done with either version; Elgin retained the Greek version in his own possession, while Lusieri merely filed away the Latin composition when Elgin, passing through France with diplomatic immunity, was imprisoned for three years upon information mysteriously sent from Athens—one suspects the jealousy of Fauvel who always referred to Elgin as "that rascal Herostratus."

It happened that in 1805, while Elgin was still incarcerated in France, a second example of a Greek epitaph was composed by the Rev. Robert Walpole. Stirred to action by this rivalry, Lusieri drew Elgin's neglected Latin version from his portfolio and, as a correspondent of Walpole reported in 1811, "not having a good opinion of his lordship's Latin, he sent the inscription to Naples, where his relation, a learned father, Daniel, biographer to the king, absolved it from all its impurities, and sent it back again considerably shortened. Much as he confides in his father, still, even in its present state, Lusieri neglected to place it upon marble; and on arriving here, I

<sup>48</sup> Clarke, *op. cit.*, III (1814), pp. 533-534 (quoted in *Remains of John Tweddell*, p. 13).

<sup>49</sup> That this discussion occurred during the visit of 1803 is apparent from Elgin's *Letter to the Editor of the Edinburgh Review* (Edinburgh, 1815, p. 35): "I had the melancholy satisfaction, upon my return from Turkey, of preparing for them (Tweddell's remains) an appropriate monument in the Temple of Theseus."

<sup>50</sup> Letter to R. Walpole from a friend in Athens, Feb. 25, 1811 (published in *Remains of John Tweddell*, p. 15).

<sup>51</sup> Elgin's letter to R. Tweddell, Feb. 9, 1813 (published in *Remains of John Tweddell*, p. 497), and his supplementary comment (*Letter to the Editor of the Edinburgh Review*, p. 35, with R. Tweddell's reply on p. 52). Elgin states in his letter that he encloses the original copy of the unsatisfactory [Greek] epitaph, and R. Tweddell acknowledges its receipt.

found that nothing had been done. Upon sounding Lusieri with respect to his intentions, it appeared that he was positively bent on beginning his corrected inscription immediately; and he offered to allow me to engrave mine under his, on a very fine marble slab which he has for the purpose.<sup>52</sup> --- On my not acceding to this condition, he proposed to me to engrave my inscription on the wall of the temple, as he declined to allow it to appear alone on his marble, as was my wish, and to suppress Lord Elgin's entirely. A deal of time was thus spent, but all to no purpose. Lord Byron entered most heartily into the cause and supported your inscription; Mr. Cockerell and Mr. Foster were also with us; nothing therefore remained but to act in defiance of Lusieri; and to act *à l'Italienne*, in secret, lest he should place his stone in the temple before we could get another ready. The Disdar offered to sell any marble in the Acropolis; but Athens could not furnish means to remove one thence on account of the size; and no person possessed a cart but Lusieri.<sup>53</sup> A beautiful marble next fell in our way, and it required sawing through the middle; but no one in Athens had a saw but Lusieri.<sup>54</sup> Both these plans were therefore abandoned: at last by examining private houses, a slab was found in the house of an Albanian, of convenient thickness;

<sup>52</sup> Hobhouse refers to this inactive situation in the winter of 1809/10: "a slab of marble with an inscription is in preparation at Lord Elgin's expence and under his direction" (*loc. cit.*).

<sup>53</sup> Byron writes in Note A to the second canto of *Childe Harold's Pilgrimage*: "Between this artist [Lusieri] and the French Consul Fauvel --- there is now a violent dispute concerning a car employed in their conveyance [i. e., of the Elgin marbles], the wheel of which—I wish they were both broken upon it—has been locked up by the Consul, and Lusieri has laid his complaint before the Waywode." When Johann Martin von Wagner crossed Greece in 1812 he reported: "Ich überhaupt in Griechenland gar keine Art von irgend einem Fuhrwerk zu Gesichte bekam. Denn es fand sich durchaus nichts, was mit Rädern versehen wär, weder Wagen noch Schubkarn. Nur in Athen zeigte [man] damals als Seltenheit einen alten vierrädigen glatten Wagen, welchen Lafieri (sic) zum Transport der Elginischen Marmorwerke einst hatte verfertigen lassen" (Munich, Staatsbibliothek, Cod. germ. Monac. 6238 I, quoted by Herbig, *Würzburger Studien zur Altertumswissenschaft*, XIII, 1938, p. 24). According to Fauvel's own papers (Bibl. nat., mss. franç. 22871, fo. 196; cf. Legrand, *Rev. arch.*, XXX, 1897, p. 388) this cart had belonged to himself and had been seized by Lusieri during Fauvel's absence in France before 1803. The French ownership is freely admitted in the Lusieri-Elgin correspondence, where Lusieri in 1802 notes that Fauvel will claim it upon his return and that "the Chief of the Capuchin Monastery, Pere Hubert, has written very threatening letters to his Friar here, for having suffered Your Artists to use the Carriage" (Smith, *J.H.S.*, XXXVI, 1916, pp. 232, 238); and by 1806-1808 Lusieri was urging Elgin to send him a strong cart since the French one already in use had been repeatedly repaired (*ibid.*, pp. 265, 267, 268, 270), while in 1808 Maltass wrote to Hamilton, "Lusieri has begun to build the cart" (*ibid.*, p. 274), though probably this was merely another repair.

<sup>54</sup> This was the stone-saw employed in the preparation of the Parthenon frieze blocks for shipment, the traces of which, in the form of easily recognizable "ripple marks," are visible on so many blocks on the Acropolis. When rubbed down and smoothed, these sawn surfaces become the wavy "Lusieri surfaces" to which I later allude. The saw figures largely in the Lusieri-Elgin correspondence (*J.H.S.*, XXXVI, 1916, pp. 201, 202, 208, 212, 233, 237); Lusieri complains that he has only a single saw and continually asks for more.

it was purchased; and after two days labor, it was dragged up and placed in the temple. Excellent masons as these good folks were formerly, yet no instruments were to be found in modern Athens to polish or plane it; we were therefore obliged to have it hammered as smooth as we could. Mons. Fauvel was so good as to take a deal of trouble and interest in the affair; and he drew the letters and worked them out in so clear a manner, that it was impossible for the letter-cutter to make a mistake: there is only one person now in Athens of this latter description." And so, continues the letter, "At length your inscription is engraved on a white marble slab placed over Tweddell's grave. The marble is four feet ten inches long by three feet four inches wide;<sup>55</sup> it is not of so good a quality or form, nor are the letters as well engraved, as one could wish; it is however the best which could be had; and, considering the difficulties and obstacles which were to be overcome, most persons are satisfied with it. — — — It was placed there on the fifteenth of February, and finished on the twenty-second."<sup>56</sup> Another account reports that the inscription "is engraved in the true antique style, without stops or separations; it cannot be read without considerable attention and study; it is indeed astonishing that men should be willing to sacrifice to the mania of imitating the very errors of the ancients, the striking effect which so beautiful an epitaph would produce on every reader were it legible."<sup>57</sup>

After reviewing these circumstantial accounts, and recalling the numerous copies made by visitors during the first seven years of its existence,<sup>58</sup> it is all the more remarkable that not a vestige of the Greek epitaph has been discovered. By means of these early accounts, however, we may infer that it presented the following appearance:

<sup>55</sup> The dimensions of the slab as here reported, 3' 4" = 1.016 m. in width and 4' 10" = 1.473 m. in length, suggest that this, like the slab already reserved by Lusieri for the Latin version (see note 64), was another Parthenon frieze slab (1.014 m. high) which in some way had been brought down from the Acropolis, and that the hammered surface was required to obliterate the ripple marks of the saw. The length exceeds that of any of the slabs in the British Museum with the exception of the long east frieze pieces, from which it may have come.

<sup>56</sup> The above-mentioned letter of Feb. 25, 1811, to R. Walpole (*Remains of John Tweddell*, pp. 15-17).

<sup>57</sup> Laurent, *Recollections of a Classical Tour* (London, 1821), p. 91.

<sup>58</sup> Copies were published by Clarke (*loc. cit.*), also in the *Classical Journal* (1814, p. 171), and in the *Remains of John Tweddell*. Turner made a copy in 1814, but says "my copy is unfortunately effaced, having been unavoidably written in Turkish ink, of which no trace remained on the paper when I reached Constantinople" (*op. cit.*, I, p. 358, note). Jolliffe in 1817 (*Narrative of an Excursion from Corfu to Smyrna* [London, 1827], p. 166), Laurent in 1818 (*op. cit.*, pp. 91-92), and Kinnard likewise in 1818 (*Ant. of Athens*, 2nd ed., III [1827], p. 67, note; German ed., II [1831], p. 341, note), all made copies and published them in full. We know that the grave was visited also by Hughes in 1813 (*op. cit.*, I, p. 252, without mention of the inscription), and by Pouqueville in 1815 (*Voyage de la Grèce* [2nd ed., Paris, 1827], V, p. 57, mentioning that Fauvel buried "M. Tudwell" in the temple, a circumstance which more than one English traveler has forgotten to record!).

ΤΥΕΔΔΕΛΛ  
 ΕΥΔΕΙΞΕΝΦΘΙΜΕΝΟΙΣΙΜΑΤΗΝΞΟΦΙΗΣΠΟΤΕΔΡΕΥΑΣ  
 ΑΝΘΕΑΚΑΙΞΕΝΕΟΝΜΟΥΞΕΦΙΛΗΣΕΜΑΤΗΝ  
 ΑΛΛΑΜΟΝΟΝΤΟΙΞΩΜΑΤΟΓΗΙΝΟΝΑΜΦΙΚΑΛΥΠΤΕΙ  
 ΤΥΜΒΟΣΤΗΝΥΥΧΗΝΟΥΡΑΝΟΣΑΙΠΥΞΕΧΕΙ  
 ΗΜΙΝΔΟΙΞΕΦΙΛΟΙΦΙΛΟΝΩΞΚΑΤΑΔΑΚΡΥΧΕΟΝΤΕΞ  
 ΜΝΗΜΑΦΙΛΟΦΡΟΣΥΝΗΣΧΛΩΡΟΝΟΔΥΡΟΜΕΘΑ  
 ΗΔΥΓΟΜΩΞΚΑΙΤΕΡΤΗΝΟΝΕΧΕΙΝΤΟΥΤΕΞΤΙΝΑΘΗΝΑΙΞ  
 ΩΞΞΥΒΡΕΤΑΝΝΟΞΕΩΝΚΕΙΞΑΙΕΝΞΠΟΔΙΗΙ

The fate of the stone is sufficiently obvious. The last who claim to have seen it were Laurent and Kinnard in 1818, shortly before the outbreak of the War of Independence, and probably, like most of the other gravestones, it was broken up during the ensuing disturbances.<sup>59</sup> For Frankland, who came in 1827, mentions only the grave of Watson whose stone formed a visible part of the pavement; and Auldjo, visiting Athens in 1833 and noting that “the bodies of the unfortunate Tweddell and of a person named Watson are buried within the precincts,” is significantly reticent.<sup>60</sup>

Equally mysterious, though for a contrary reason, is the story of the Latin inscription. For, as we learn from the writer of the letter of Feb. 25, 1811, to Walpole, “I believe Mr. Lusieri heard of our having gotten possession of the ground, while he was drawing the letters of his own inscription. He informs me that he shall certainly place his marble in the temple also; but I do not suppose that he will remove ours.”<sup>61</sup> In view of the complete silence of all other visitors on the subject of the Latin epitaph, it might reasonably have been inferred that Lusieri again abandoned his purpose. But among the fragments in the debris excavated inside the Hephaisteion is a piece of marble slab (Fig. 8) of excellent quality, 0.53 m. high and 0.14 m. thick; the back is of ancient roughly tooled work, with a partial vertical anathyrosis suitable for the back of one of the Parthenon frieze slabs; the total dimensions as restored below, in fact, suggest that it could only have come from one of the longer pieces from the east frieze now in the British Museum. The front is a typical “Lusieri surface,” slightly wavy from the effects of the saw but polished smooth; the bottom is roughly hacked, undoubtedly by Lusieri’s mason. On the polished face are the following letters 0.032 m. high (Inv. No. I 1257 *d*):

<sup>59</sup> See p. 29.

<sup>60</sup> Frankland, *Travels to and from Constantinople in the Years 1827 and 1828* (London, 1829), p. 303; Auldjo, *Journal of a Visit to Constantinople and Some of the Greek Islands in the Spring and Summer of 1833* (London, 1835), p. 25.

<sup>61</sup> *Remains of John Tweddell*, p. 16.

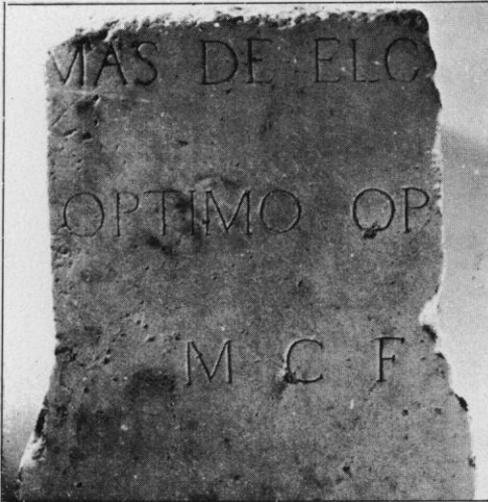


Fig. 8. Fragment of Tweddell Epitaph  
(Inv. No. 1257 d)

MAS DE ELGI  
OPTIMO OP  
M C F

It is evident that this forms the missing lower left corner of the inscription recomposed by William Miller by means of four marble fragments in the courtyard of the Epigraphical Museum (E.M. 5347, 5347 *a-b*, 5350), which were thereupon transmitted to the British Legation on March 19, 1926, and restored in the form of a slab 0.74 m. wide and 1.10 m. high against the outer wall of the English Church at Athens to the right of the entrance (Fig. 9 *a*, at right).<sup>62</sup> These fragments bear the following letters:

O H S S  
DHANNIS . TWEDDELL . AN  
PROVINCIA . NORTVMBRIA  
CANTAP<sup>IA</sup> ICIAE LITERIS IM  
N . COME  
TIMEQ MERITO  
C

In restoring this inscription, Miller had been assisted by a footnote in the *Remains of John Tweddell*,<sup>63</sup> which gives the following version but with no implication that it was ever more than one of Elgin's ideas, perhaps that sent to Father Daniel for criticism:

IOANNIS TWEDDELLII ANGLI  
&c &c &c  
TOMAS DE ELGINO COMES  
AMICO OPTIMO OPTIMEQ MERITO  
M. C. F. C.

In any case it is not a copy of the actual gravestone; not only does it omit several lines, but it Latinizes the names Tweddell and Elgin. In the gravestone itself, furthermore, between the two extant fragments of the upper half and the two from the lower right corner, as set together on the wall of the English Church, there is no direct junction (Fig. 9 *b*); my sketch of 1926 shows that the fractures never joined, and in the slab as there restored a narrow horizontal strip of new marble is inserted between them. Among the material from the Agora excavations, however, are four other

<sup>62</sup> Cf. Miller, *English in Athens*, p. 16.

<sup>63</sup> *Remains of John Tweddell*, p. 592.

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fragments of the same sort of marble, of the same thickness and treatment of the back (in three cases which preserve the entire thickness), with identical lettering 0.032 m. high, and with identical intervals of 0.08 m. between the lines (in one case which preserves this detail), as follows:

Inv. No. I 1257 *a*, found in 1934 in a late wall 50 m. southeast of the southeast corner of the "Theseum," full thickness, rough back, remains of two lines: ΓΙΣ . SO

Inv. No. I 1257 *b*, from loose filling inside "Theseum" in 1939, back broken off: \GR

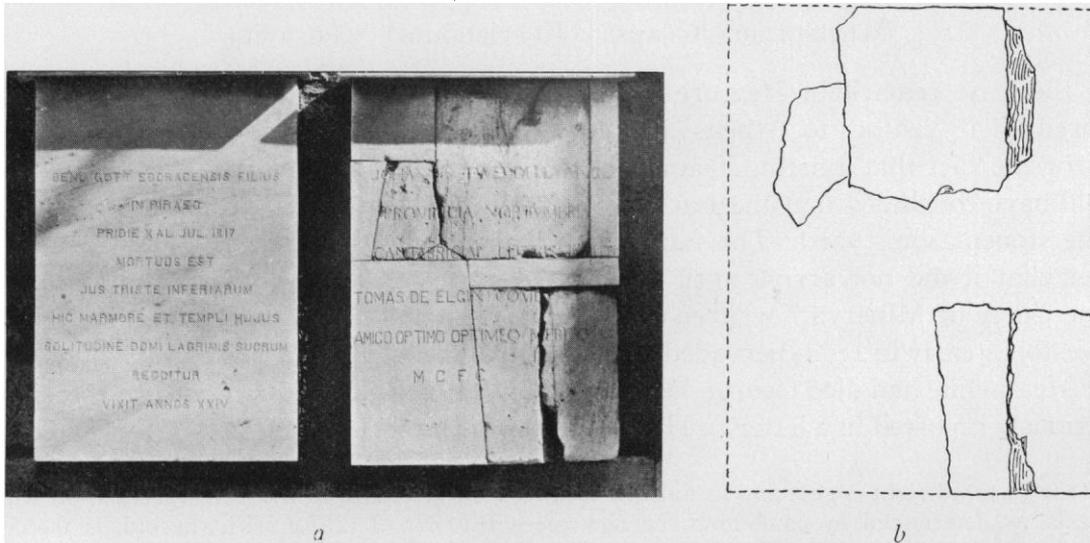


Fig. 9. Gott and Tweddell Epitaphs Restored in the English Church (*a*) and Sketch of 1926 (*b*)

Inv. No. 1257 *c*, from loose filling inside "Theseum" in 1939, full thickness, rough back: \_ SEX

Inv. No. I 1257 *e*, from the "Theseum" in 1939, full thickness, rough back: R.

These four small fragments cannot be inserted in the epitaph as restored in the English Church, and so must form portions of at least two lines to be interpolated in the place of the horizontal strip of new marble between the fourth and fifth lines of the restored version,<sup>64</sup> approximately as follows:

<sup>64</sup> The upper edge of Inv. No. I 1257 *d* is hacked across horizontally, as if the slab had been split in halves, cutting from both back and front; but this treatment of the upper edge must be a mutilation subsequent to Lusieri's time, and probably accounts in part for the gap with the inserted strip in the restored stone in the English Church, for which, as my sketch of 1926 shows (Fig. 9 *b*), the lower portions of the upper fragments were cut away. It is evident from the photograph (Fig. 9 *a*), moreover, that the restored width of 0.74 m. is inadequate: the upper portion of the slab has the letters too close to the right edge, and the lower half has them too close to the left edge.. The upper portion does not preserve the edge on either side (the axis of the inscription is now 0.33 m.

O(ssa) H(ic) S(ita) S(unt)  
 [J]OHANNIS . TWEDDELL . AN[GLI]  
 PROVINCIA . NORTVMBRIA  
 CANTAB[R]IGIAE LITERIS IM[BUTI]  
 // RGR //R. // TIS. SO // E SEX //  
 [HOC M]O[NVMENTVM]  
 [TO]MAS DE ELGIN . COMES  
 [AMICO] OPTIMO OPTIMEQ(ue) MERITO  
 M(emoriae) C(ausa) F(aciendum) C(uravit)

Not the least remarkable feature of this inscription is the fact that it was tacitly ignored by all visitors to Athens; nobody ever alluded to it or copied it, and, were it not for the fact that existing fragments were actually found in the "Theseum" one would have concluded that the Latin epitaph remained either in Lusieri's portfolio or in the stonemason's yard. The fact that it was actually set upon the grave suggests either that it did not arrive until after 1818, or that the feelings of the author of "The Curse of Minerva," written during the very days of the controversy over these gravestones early in 1811, pervaded every English visitor.

Meanwhile had died George Watson, Esq., on Aug. 15, 1810, as Byron somewhat facetiously reported in a letter to Hobhouse.<sup>65</sup> The tombstone selected in this case, and

from the restored right edge), and so must be located with reference to the lower portion, on which the axis, as determined by combining the new piece Inv. No. I 1257 *d* with the old, is 0.465 m. from the original right edge. Thus the original height of the slab was at least 1.33 m. (or more if additional lines are to be restored) and the width about 0.93 m. Since it was clearly a Parthenon frieze slab, it would seem that the width was cut down about 0.08 m. from the original frieze height of 1.014 m., while the other dimension suggests that the slab came, not from either flank, but from the west or more probably the east front. We may presume that this was the very stone selected by Clarke in 1801 (see p. 18). Another Elgin inscription, likewise on a marble slab which may have been taken from the Parthenon frieze, is that containing the dedication of the town clock given to Athens by the Earl of Elgin in 1814 (cf. Smith, *J.H.S.*, XXXVI, 1916, pp. 264, 281, 284, 285), but destroyed in the great fire of August 8, 1884 (cf. Myliarakis, *Εστία*, XXVI, 1888, p. 779). Some of the works of the clock are preserved in the Museum of the Historical and Ethnographical Society, together with the inscription itself:

TOMAS COMES  
 DE ELGIN  
 ATHENIEN. HOROL. D. D.  
 S. P. Q. A. EREX. COLLOC.  
 A. D. MDCCCXIV

Smith (*loc. cit.*, p. 285, note 225) merely quotes this inscription from Breton (*Athènes décrite et dessinée*, 1862, p. 104), saying nothing of its present location. And my old copy of the inscription, unfortunately, contains no record of the dimensions or of the character of the surface.

<sup>65</sup> Byron writes to Hobhouse from Athens, August 23, 1810: "Here hath been an Englishman yepleped Watson, who died and is buried in the Tempio of Theseus. I knew him not, but I am told

set up on Feb. 25, 1811, was an already prepared Hymettian marble table top, presumably from an ancient tomb,  $0.956 \times 1.613$  m., with a moulding on the lower surface making the thickness 0.247 m.; the bottom surface was slightly hollowed to reduce the weight in antiquity. This slab was the product of a fortnight's search by Watson's friends, and no trimming was required; a letter from Athens states that "the inscription which will be engraved on the marble is written by Lord Byron,"<sup>66</sup> to whom we must, therefore, attribute the sentiments neatly cut on the smooth top:

[HIC OSSA QUIESCUNT]  
 [GEORGII WATSON ARM : BRITANNI]  
 [QVEM]  
 NEC ANIMI VIRTUTES CORPORIS VIRES  
 JVV[ENTVTIS] VER [NEC HAEC] SALVBE[RRIMA REGIO]  
 .CONS[E]RVARENT .  
 OBIT .XVII KAL .SEP .MDCCCX .  
 SI .MISERANDVS .IN .MORTE  
 [S]ALTEM .IN .SEPVLCHRO .FELIX ~

This stone has been preserved intact in the floor of the Hephaisteion (Fig. 10), but so badly footworn (some of the lines being completely obliterated) that it has been necessary to restore the epitaph by means of the only published copy, that made in 1814 by Turner.<sup>67</sup> The bones found in 1939 beneath the stone, probably those of Watson, have been replaced in their original location.

When Cockerell was dangerously ill at Athens in August, 1813, "they even got so far as to speak of his burial, and it was settled that it should be in the Theseum, where one Tweddle, an Englishman, and other foreigners had been interred."<sup>68</sup>

that the surgeon of Lord Sligo's brig slew him with an improper potion, and a cold bath" (Howarth, *The Letters of George Gordon, 6th Lord Byron*, 1933, p. 38).

<sup>66</sup> The letter of Feb. 25, 1811, to R. Walpole (*Remains of John Tweddell*, p. 17), stating that "Mr. Watson, a nephew of Mr. Wilkie of Malta, died in Athens and was buried by the side of his countryman. We have been for this last fortnight endeavouring to find a marble to place over his grave; and to-day we have succeeded." Turner in 1814 states that "the monuments which excite the greatest interest in an Englishman are the tombs of two countrymen, Mr. Watson and Mr. Tweddell ---. Over the graves are placed slabs of plain marble, with inscriptions, which I copied" (see notes 58 and 67). Kinnard saw the grave beside Tweddell's in 1818 (*loc. cit.*), as did Laurent ("by his side is buried a Mr. Walker," *loc. cit.*). Only this stone seems to have remained visible in 1827, when Frankland observed that "upon the marble pavement is the tombstone of Sir J. Watson, an English baronet" (*loc. cit.*). And Auldjo in 1833 mentions the burial "of a person named Watson" in the temple, without allusion to the inscription (*loc. cit.*).

<sup>67</sup> Turner, *loc. cit.*; his copy is incorrect in giving the date as XVIII Kal.; but Miller (*English in Athens*, p. 17) in republishing the epitaph from Turner's copy gives the correct date.

<sup>68</sup> Cockerell (S.P.), *Travels in Southern Europe and the Levant, 1810-1817: the Journal of C. R. Cockerell* (1903), p. 222.

He fortunately recovered, so that the third English grave was that of Benjamin Gott, who died at the Piraeus in 1817 at the age of twenty-four, and was buried "next but one to Tweddell;"<sup>69</sup>

Kinnard and Laurent saw his grave the next year.<sup>70</sup> Gott's remains are reported to have been "removed to the new English churchyard" by the Ilissus, and afterward to the English corner of the Athenian cemetery.<sup>71</sup> In the absence of any definite fragments of Gott's epitaph, a copy was engraved on a new marble slab (0.73 × 1.11 m.) under Miller's supervision in 1926, placed against the external wall of the English Church beside Tweddell's stone (Fig. 9 a at left), as follows:



Fig. 10. Epitaph of George Watson inside the Hephaisteion

BENJ. GOTT ANGLUS  
 BENJ. GOTT EBORACENSIS FILIUS  
 IN PIRAEO  
 PRIDIE KAL. JUL. 1817  
 MORTUUS EST  
 JUS TRISTE INFERIARUM  
 HIC MARMORE ET TEMPLI HUIJUS  
 SOLITUDINE DOMI LACRIMIS SUORUM  
 REDDITUR  
 VIXIT ANNOS XXIV

As Miller suggests, furthermore, it seems certain that a fragment in the Epigraphical Museum (E.M. 5346), with the words

REDDIT  
 XIT ANNOS XX

formed part of the last two lines of this epitaph.<sup>72</sup> In addition, two fragments

<sup>69</sup> Miller, *loc. cit.*, with reference to a letter of H. Venn Elliott to Gott's father, July 25, 1822.

<sup>70</sup> Kinnard, *Ant. of Athens*, 2nd ed., III, p. 67, note (citing Gott by name); Laurent, *loc. cit.* ("in the chancel are the graves of three English travellers, who have paid the debt of nature in this country").

<sup>71</sup> Miller, *loc. cit.*, with reference to Mrs. Halliday's unpublished journal, July, 1847.

<sup>72</sup> The Museum inventory states that this was transferred to the British Legation on March 19,

discovered in the Agora excavations obviously belong to the same stone. One (Inv. No. I 1111 *a*), found in 1933 in a house 75 m. south of the southeast corner of the Hephaisteion, forms the upper right corner of the stone with the word [A]ΓΓΛUS; the other (Inv. No. I 1111 *b*), found in loose filling in the cella of the Hephaisteion in 1939, bears the letters HUIJUS SOLIΓ[UDINE]. The marble and lettering in both fragments are identical; the marble is 0.115/0.12 m. thick in the top piece, 0.11 m. thick in the other, the back roughly picked with coarse strokes, apparently ancient, while the front is smooth, but with the typical "Lusieri surface" sawn and rubbed; the letters are 0.036 m. high, well cut, sometimes with little bored holes to emphasize their terminations. One of the new pieces (Inv. No. I 1111 *b*) shows that the division of the lines in Miller's restoration is erroneous.

A fourth Englishman buried in the "Theseum" was Thomas Melville Phillips. Laurent reports that during his visit to the temple in 1818 "a grave was digging for a Mr. Phillips, who had died [at Patras] while making the tour of the Morea."<sup>73</sup> It would seem plausible to assign to his grave a fragment now in the court of the Epigraphical Museum (E. M. 5342), 0.05 m. thick with a rough back, the front presenting a typical "Lusieri surface" and the following letters 0.021 m. high:

[THO]MAS M[ELVILLE PHILLIPS]  
 MORE E  
 IR

In the same year, according to Kinnard, "on a similar melancholy occasion, we attended the last sad ceremonials at the interment of a countrywoman, conducted by the Archbishop of Athens in person. This was at the funeral in 1818, of Elizabeth Cumming, the female attendant and companion of Lady Ruthven."<sup>74</sup> To this occasion refers a fragment (Inv. No. I 1269 *b*) evidently found in loose fill in the temple in 1939, of Pentelic marble, the face smoothed in a typical "Lusieri surface," while the

1926, along with the Tweddell pieces; and Miller states that this fragment was removed to the English church in March, 1926; I did not see it.

<sup>73</sup> Laurent, *loc. cit.*; the grave of "Mr. Melville Phillips" was mentioned also by Kinnard (*loc. cit.*). Miller (*op. cit.*, p. 18) gives the date of his death as 1819; but the previous year (ΑΩΙΗ') is clearly designated by Laurent (*op. cit.*, pp. 91, 118).

<sup>74</sup> Kinnard, in *Ant. of Athens*, 2nd ed., III (1827), p. 67, note (I owe the reference to Dr. James M. Paton). There is a possible discrepancy in the date, however, since Lusieri wrote as late as May 7, 1819, to Elgin: "Milord and Milady Ruthwen with her brother have been here for several months" (Smith, *J.H.S.*, XXXVI, 1916, p. 286, note 233). The visitors were James, seventh baron Ruthven (1777-1853), and his wife Mary Hamilton Campbell Ruthven (1789-1885), who presented her collection of Greek antiquities to the Edinburgh Antiquarian Museum in 1884 (cf. Brown, *J.H.S.*, VI, 1885, p. 16). Says Kinnard, "The visit of Lord Ruthven and that of his accomplished lady to Athens, will ever be remembered with grateful satisfaction by the surviving inhabitants of that since unfortunate place."

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back is roughly beveled at the preserved left edge; the stone has been subjected to fire. The letters are 0.027 m. high, not very well cut, as follows:

ELISA[B]ETHA [CVMMING]

A

MOR

From a lower position at the same left edge of this stone, with all the foregoing characteristics, including the traces of fire, is a piece found in 1934 (Inv. No. I 1269 *a*) in Dörpfeld's excavations among the buildings southeast of the "Theseum" with the following letters:

SOLVΜ ET OFFIC[INAM

DV

ATHENIS VIT

In addition to the English, it is evident that at least one other Protestant was buried in the Hephaisteion at this time. The eminent architectural archaeologist Baron Carl Haller von Hallerstein died at Ambelakia in Thessaly on November 5, 1817, and it is reported that the Austrian consul Gropius and some English travelers brought his body to Athens,<sup>75</sup> where he was buried in the "Theseum" beside Tweddell.<sup>76</sup> Stackelberg wrote to Cockerell from Rome on April 1, 1818:<sup>77</sup>

Les Anglois qui étoient à Patrasse de sa connoissance sont retournés à Athènes pour assister à ses funérailles, qui ont été faites avec toute la distinction qu'il meritoit et on l'a ensévelé dans le temple (de) Thésée.

Also John Sanders wrote to Sir John Soane from Naples on April 19, 1818:<sup>78</sup>

Baron Haller died recently at Athens (!) and is buried by the side of Mr. Tweddell in the Temple of Theseus.

And Linckh, writing from Rome to Cockerell in the same month, just when Prince Ludwig of Bavaria and the architect Ludwig von Klenze were on the point of departing for Greece, stated:<sup>77</sup>

J'ai dit à Klentz peu de jours avant son départ pour Athènes que je ne doutois pas que ce voyage du Prince procureroit à Haller un beau monument que le Prince devoit lui ériger en Grèce.

But the Prince, Haller's patron, was recalled by letters from his father just as he was embarking from Ancona; and Haller's tomb, judging from the negative documentary

<sup>75</sup> Stackelberg (Natalie v.), *Otto Magnus von Stackelberg* (1882), p. 347.

<sup>76</sup> Cockerell (S.P.), *loc. cit.*

<sup>77</sup> Unpublished letters in Cockerell papers, Dept. of Greek and Roman Antiquities, British Museum.

<sup>78</sup> Bolton, *Portrait of Sir John Soane* (1927), p. 259.

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evidence and the absence of marble fragments, evidently remained without an inscription.<sup>79</sup>

The use of the "Theseum" as a strictly Protestant cemetery probably ceased with the outbreak of the War of Independence. As the Austrian consul Gropius wrote in a letter of April 15, 1824: <sup>80</sup> "With respect to the temple of Theseus, it should be observed that on the 13th of May, 1821, a few days after the occupation of the town by the peasants, its north-west angle was struck by lightning ---. Finding some respectable looking tombstones in the temple of Theseus, and the Capuchin convent, the avidity of the Arnaut soldiery made them fancy there must also be treasures concealed under them; they were in consequence all opened, and their contents scattered about. This sacrilege was effected at the temple without injuring the marble slabs, but in the convent they were forced to break them in pieces." It is evident that the Greek epitaph of Tweddell, and the Latin epitaphs of Tweddell, Gott, Phillips, Miss Cumming and some others were lifted from their places at this time; and if, as Gropius reports, they were not immediately broken up, they must nevertheless have been demolished very shortly afterwards, either during another treasure hunt or as a result of Turkish vandalism. No later travelers mention them, and only Watson's stone survived as a floor slab, to be trodden and almost obliterated in the course of a century.

On the inner face of the north wall are scratched a few inscriptions which may

<sup>79</sup> Two additional fragments are so problematical that they are included here merely in the hope that some interpretation may later be found; we have not even definite grounds for assuming that they come from the Hephaisteion. One, in the court of the Epigraphical Museum (E. M. 5340), cut on a good ancient surface of a slab 0.053 m. thick and moulded on both faces, seemingly turned upside down so that the crowning mouldings appear at the bottom, has lettering 0.021 m. high like that in the Phillips stone (the US being much smaller):

FLEBANT  
US  
[A]UG 16

followed by a representation of a bird on a branch. The fact that the inventory number is close to those of the Tweddell, Gott, and Phillips fragments is in itself suggestive. Another piece of Pentelic marble from a different monument (Inv. No. I 3504), brought in from the Stoa of Attalos in 1936 so that its provenance before reaching that recent depository is unknown, bears the following letters 0.023 m. high cut on a good ancient surface:

AUGUST MI

The left edge is well tooled, 0.095 m. thick, and the back, at a distance of 0.08 m. from the left edge, is hollowed in the manner of the Watson stone to reduce the weight, all this work being ancient. It is evident that some of these fragments might have come from the French Capuchin monastery rather than from the Hephaisteion.

<sup>80</sup> Quoted by Blaquiére, *Narrative of a Second Visit to Greece, including Facts connected with the Last Days of Lord Byron, &c.* (London, 1825), p. 156; I owe the reference to Dr. J. M. Paton. The excavation of gravestones from the Capuchin monastery is mentioned by Smith, *J.H.S.*, XXXVI, 1916, p. 289; and of these the Lusieri tombstone, complete and unbroken, was transferred to the front wall of the English Church.

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possibly be interpreted as epitaphs (Fig. 36). To be sure, those of Giuseppe Tosi and Carlo Seralli, both of Novara and respectively 16 and 18 years of age ("23 Aprile, 1819"), also P. le Tellier ("D. 1821") and Messein, represent individuals who were presumably of the Catholic faith so that their epitaphs—if such they are—would more fittingly have been in the Capuchin monastery. But Marius Wohlgemuth (1822), with crossed cannon, a pile of cannon balls, and a pair of laurel branches, was probably one of those Philhellenes who fell while leading a storming party soon after the siege of the Acropolis began, at the end of April, 1822, and were buried the next day in the "Theseum."<sup>81</sup> In any case, burials probably ceased almost immediately after the outbreak of the War of Independence, some years before the building passed out of the service of the Church in 1834.<sup>82</sup>

Having examined the new evidence disclosed by the excavation with reference to the recent history of the temple, we now turn to the work of the fifth century.

### FOUNDATIONS OF PERISTYLE

The order in which the various foundations of the temple were laid is clearly evident from the manner in which they abut against one another and also from the stratification between them. First came the outer rectangle for the peristyle colonnade. As its courses were successively laid, the ground level inside was gradually raised by throwing in alternate layers of earth and working chips from the poros blocks (Fig. 13; cf. Fig. 11, sections C-C, D-D). These outer foundations were thus carried up behind the poros lower step and the marble middle step; and probably the stylobate itself was also laid in place to serve as a guide for locating the inner building. Next, through the accumulated filling within, trenches were cut for the cella building,<sup>83</sup> the flank walls on the long sides, the columns of pronaos and opisthodomos on the ends, and the two cross-walls. Afterwards, along the inner faces of all four walls of the cella, were opened trenches which were comparatively narrow inside the east wall,

<sup>81</sup> Schreibern (C. M.), *Aufenthalt in Morea, Attika, und mehreren Inseln der Archipelagus* (Leipzig, 1825), as quoted by Dieterich, *Deutsche Philhellenen in Griechenland 1821-22 aus ihren Tagebüchern* (Hamburg, 1929), pp. 122, 179-185; I owe the reference to Dr. J. M. Paton. It is reported that of 266 Philhellenes who fell during the War of Independence, 128 were Germans and German-Austrians; Wohlgemuth was evidently one of the latter.

<sup>82</sup> I have made no attempt to complete the list of signatures of passing visitors of the eighteenth and nineteenth centuries on the walls of the temple. A few of the early English names have been noted on p. 16. Pouqueville (*Voyage de la Grèce* [2nd ed., 1827], V, pp. 56-57) mentions the names of the Abbé Michel Fourmont and his nephew Claude Louis Fourmont (1729), Comte de Choiseul-Gouffier (1776 and 1785), Jacques Delille, Comte d'Hauterive, J. B. G. d'Ansse de Villoison (1786), Lady Craven (1786), Comte de Dillon (1788), Prince de Rohan (1788), and the Abbé Boismond; he failed to find the signature of Chateaubriand (1806).

<sup>83</sup> Thus the Hephaisteion becomes another of the many instances proving that Greek architects began the cella building later than the peristyle.

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wider along the two flank walls of the cella, and of exceptional width inside the west wall. At the east was erected an inner lining of the original cross-wall foundation, along the flank walls massive foundations for interior columns, and at the west both a lining for the cross-wall foundation and also a much wider foundation for the return of the interior colonnade (Figs. 26, 27). The fact that these added inner foundations abut against but do not bond with the original cella foundations is of considerable importance for the history of the temple. Finally, the poros underpinning for the marble floors was laid in peristyle, porches, and cella. These later portions of the construction will be examined in greater detail in the following sections.

The outer faces of the peristyle foundations, cleared in 1936, had been exposed to view several times previously, so that their relation to the stratification of the surrounding earth fill had been greatly disturbed. In fact, portions of the foundations lay exposed down to bedrock nearly three centuries earlier,<sup>84</sup> so that the complete story of the transformations of the external area can never be written.<sup>85</sup>

The cap of the natural rock once rose considerably higher than the proposed level of the bottom of the lowest step, so that along the south flank (just as was the case northeast of the Parthenon) it was cut down to a level at least 0.07 m. below the top of the euthynteria.<sup>86</sup> Thus along the south flank (except at the extreme southwest and southeast corners) the euthynteria rests directly on the dressed bedrock. On the other hand, where the rock descends, special poros foundations were inserted, on the east front (Frontispiece) only one course in height except at the northeast corner where a second course was placed beneath. Along the north flank the rock at first rises from the northeast corner and so reduces the height to a single course below the euthynteria, but as it descends again towards the west a second course appears below the fifth column from the west, a third course two intervals further on, and finally at the northwest corner the foundation attains its maximum depth of five courses below the euthynteria. On the west front the foundation gradually diminishes from five courses at the northwest to a single course at the southwest (Fig. 12). In places the lowest course is set down into the soft bedrock by its own depth or more. The height of the foundation courses averages 0.45 m. each, that of the euthynteria 0.37 m.

<sup>84</sup> Spon (*Voyage d'Italie, de Dalmatie, de Grèce et du Levant* [Amsterdam, 1679], II, p. 144) and Wheler (*A Journey into Greece* [London, 1682], p. 385) made sketches showing five and six steps respectively, and Wheler mentions "half a dozen of steps," of which three must have been foundation courses presumably suggested by those exposed at the northwest corner. Five foundation courses are shown in Stuart's view of about 1753 (*Ant. of Athens*, III [1794], ch. I, pl. I); also Leake (*Topography of Athens* [1st ed., 1821], p. 393) says that six foundation courses are exposed at the northwest corner. Sketches by Christian Hansen (Copenhagen, Royal Academy of Art, Hansen portfolio B5, pl. 170) show the five courses below the euthynteria exposed at this corner as early as the establishment of the Greek kingdom.

<sup>85</sup> See, however, D. B. Thompson, *Hesperia*, VI, 1937, pp. 396-425.

<sup>86</sup> *Hesperia*, VI, 1937, p. 403, fig. 6 (rock level 67.91 m. above sea is 0.07 m. below euthynteria which is 67.982 m., stylobate 69.038 m., fig. 2, p. 399).

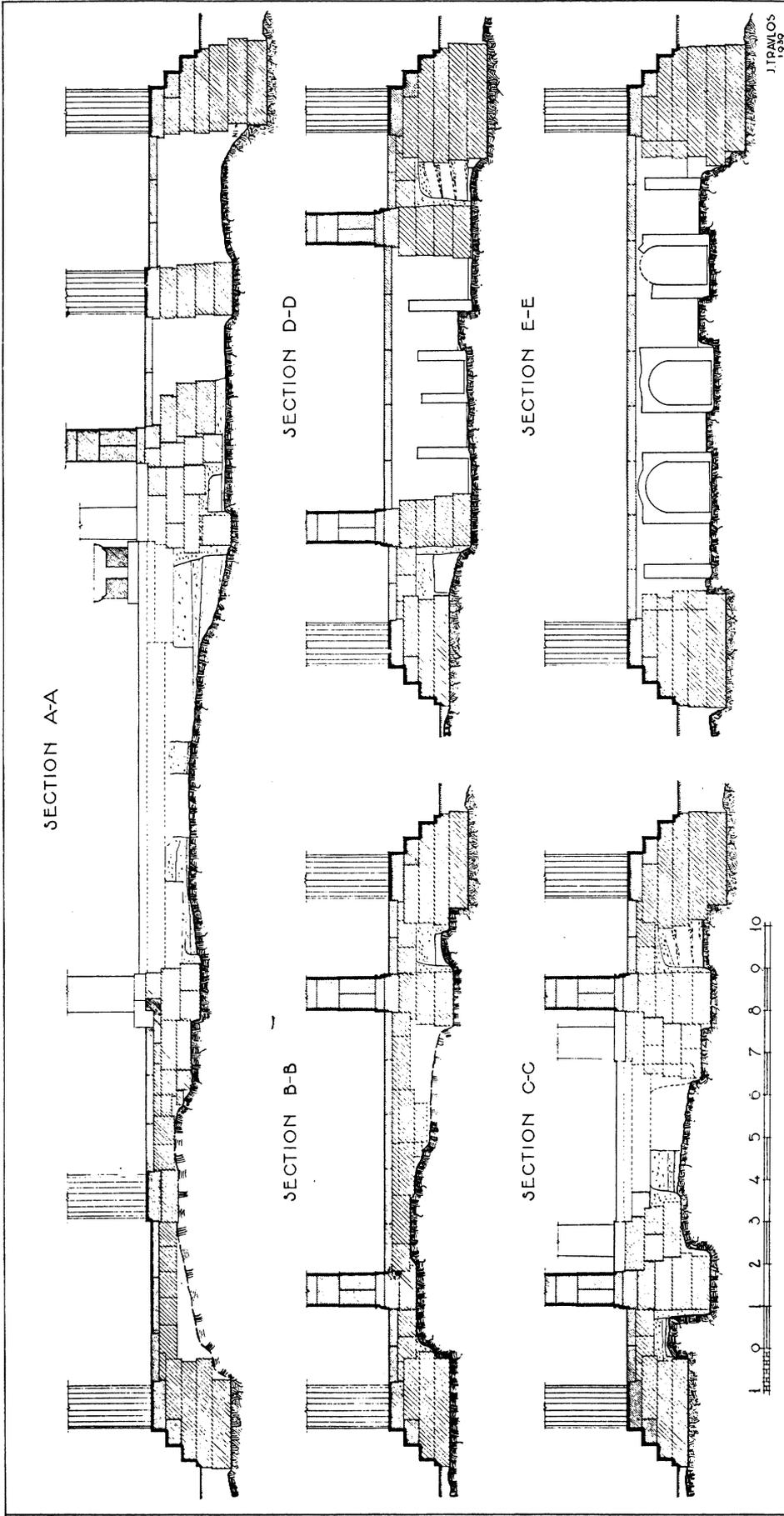


Fig. 11. Sections of Foundations of the Hephaisteion

The peristyle plan which the foundations were destined to accommodate was based on a decision that the width of the stylobate rectangle should be exactly 42 Doric feet (13.700 m.);<sup>87</sup> the actual dimension is 13.708 m. From this was derived an axial spacing of  $7\frac{1}{2}$  Doric feet (2.5825 m.) and from this in turn the column diameter of  $3\frac{1}{8}$  Doric feet (1.0195 m.); the actual dimensions are 2.583 m. and 2.581 m. for the front and flank axial spacings, 1.018 m. for the column diameters. The flanks having seven more axial spacings than the fronts, the length of the stylobate is  $7 \times 7\frac{1}{2} = 55\frac{1}{2}$  Doric feet greater than the width and so  $97\frac{5}{2}$  Doric feet (31.7765 m.); the actual dimension is 31.776 m. on the south and 31.762 m. on the north. The step treads being  $1\frac{1}{8}$  Doric feet (0.367 m.), the total dimensions of the bottom step are  $46\frac{1}{2} \times 101\frac{1}{2}$  Doric feet ( $15.168 \times 33.2445$  m.).

The foundation courses are constructed as stretchers, with four-foot blocks (averaging about 1.305 m.) arranged without regard to the desirability of breaking joints with the euthynteria above. Thus, on the east front (Frontispiece), eleven such four-foot blocks were placed end to end beginning at the southeast corner, pieced out with a header (the end of the north flank block) at the northeast corner, with the result that the joints deviate only slightly from those of the euthynteria. No clamps were employed in the foundations, as contrasted with the euthynteria where double-T clamps appear at every visible joint. The euthynteria, furthermore, breaks joints with the poros lowest step and reproduces the joints of the marble middle step fairly accurately, though the lengths of the normal euthynteria blocks vary from 1.22 m. to 1.31 m. instead of adhering to the unit of 1.291 m. required by the column spacing. The enlarged corner blocks (1.54/1.57 m.) and the narrowed second blocks (0.98 m.) conform properly to the requirements at the corners of a Doric peristyle. The upper portion (0.145/0.16 m. high) of the face of the euthynteria is trimmed to a line 0.11 m. outside the bottom step and forms a stippled surface, from which the rough lower portion protrudes 0.01/0.08 m. more (Fig. 12).

<sup>87</sup> Concerning the use of the term "Doric" instead of "Attic," see *Hesperia*, IX, p. 20, note 40; the exact length in the case of the Hephaisteion, however, I now recalculate as 0.32619 m. instead of 0.32600 m. as I formerly estimated (*ibid.*, p. 23). The unit of 0.32606 m. then calculated for the temple of Ares is to be retained, but I now prefer to believe that the calculated dimensions of this temple should be increased by  $\frac{1}{2}$  Doric foot (0.027 m.) in both directions; in other words, the dimensions shown (*ibid.*, p. 10, fig. 5) are to be increased to  $13.151 \times 31.981$  m. (between axes of opposite colonnades),  $13.131 \times 31.961$  m. (between centres of angle columns),  $14.347 \times 33.177$  m. (stylobate),  $15.915 \times 34.745$  m. (bottom step), and  $16.229 \times 35.059$  m. (euthynteria). This extra amount was presumably taken up by an inclination of  $\frac{1}{24}$  Doric foot (0.0135 m.) at each corner of the entablature, as in the Hephaisteion. Thus the dimensions at the top of the frieze would remain  $14.086 \times 32.916$  m. or  $43\frac{3}{16} \times 100\frac{5}{16}$  Doric feet as previously calculated (*ibid.*, p. 28). But the dimensions in plan (*ibid.*, p. 24) now become  $40\frac{1}{3} \times 98\frac{1}{48}$  Doric feet for the axial rectangle,  $40\frac{1}{3} \times 98\frac{1}{12}$  Doric feet between the axes of opposite colonnades,  $44 \times 101\frac{3}{4}$  Doric feet for the stylobate,  $48\frac{5}{6} \times 106\frac{7}{12}$  Doric feet for the bottom step, and  $49\frac{1}{24} \times 107\frac{3}{24}$  Doric feet for the euthynteria. The detailed analyses of this plan and of that of the Hephaisteion are discussed in my forthcoming *Athenian Architecture*.

The thickness of the foundations under the peristyle colonnade normally varies according to their height, the courses projecting irregularly outward and inward and yielding maximum thicknesses between 2.60 m. and 2.85 m. on the east, south, and



Fig. 12. South Foundation of the Hephaisteion, from West

north. But on the west, where the foundation is highest, the thickness is paradoxically only 2.30 m. at most (Fig. 11, section A-A). Thus it happens that on the east, south, and north, the topmost course of poros (backing the middle step) projects inward beyond the stylobate about 0.50/0.60 m. and serves to support part of the underpinning for the paving of the peristyle. So desirable did this inward extension seem, in the eyes of the builders, that at one point on the south flank where the foundation backing

the middle step terminated only 0.33 m. or even 0.20 m. behind the stylobate, this was pieced out with narrow blocks of 0.20 m. and 0.40 m., respectively, yielding inward projections of 0.53 m. and 0.60 m. At the west end, however, the foundation is not so generous; not only is the projecting support for the pavement underpinning absent, but even the inner edge of the stylobate is unsupported, the foundation receding in places (as in the lower courses under the second column from the north, and to a lesser degree under the second from the south) as much as 0.405 m. within the line of the stylobate, so that the inner face of the column is actually unsupported to the extent of 0.28 m. (Fig. 14; cf. Fig. 11, section A-A). It might be tempting to account for this irregularity at the west on the hypothesis that the top foundation course was intended, here as elsewhere, to protrude about 0.55 m. inside the stylobate, and to assume that its actual recession of 0.10 m. should be taken as evidence for a proposed location of the west façade about 0.65 m. (2 Doric feet) farther west, just as the cross-wall foundations were once intended to be further out than they actually are.<sup>88</sup> But such a hypothesis with respect to the peristyle foundations would be difficult to justify in view of the fact that the columns are uniformly spaced all around the temple<sup>89</sup> and seem to form a consistent scheme determined in advance of construction; to assume that the west façade was once planned to lie farther out would imply either that the thirteen flank columns were intended to be more widely spaced, or that there were to be fourteen columns more closely spaced than on the façades, both unpalatable alternatives. It seems preferable to regard the discrepancy as a simple error, in spite of the tempting analogy of deliberate changes of plan during construction to be noted in the flank walls and cross-walls of the cella.

The working of the foundation blocks is good and at the same time economical.

<sup>88</sup> See below, pp. 44-57.

<sup>89</sup> That is, within a very small margin (2.583 m. on fronts and 2.581 m. on flanks), so that even if the flank spacing were as large as the front spacing the increase in length would be only 0.020 m.

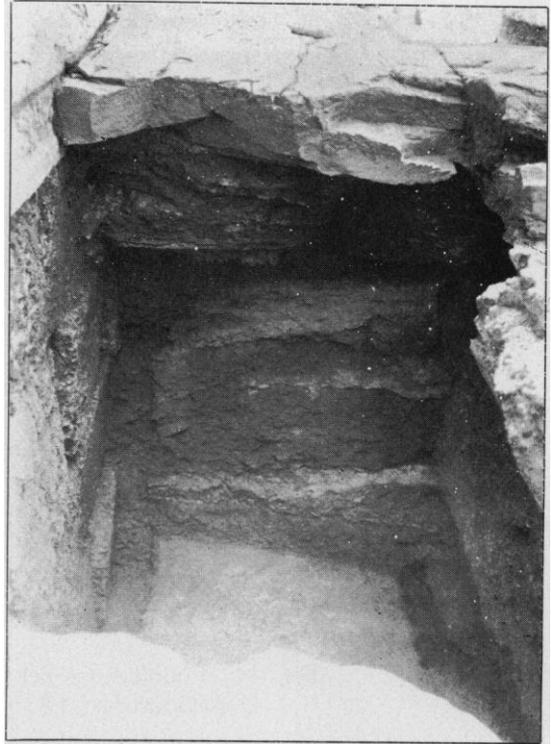


Fig. 13. Stratification in North Peristyle, from East

The joints were treated with increasing care in the upper courses until in the course below marble the surfaces ordinarily show anathyroses both across the top and down the sides. These foundations below the peristyle were cut from brown poros, rather hard and granular in texture. For the euthynteria and the lowest step of the outer colonnade was selected a second variety of poros, gray to brown in color, still harder than that in the foundations, and marked by irregular gray veins.



Fig. 14. Foundations below Northwest Corner of Peristyle, from Southeast (Arrow Points to Mason's Mark)

Worthy of note is the mark of mason or quarryman on the inner face of a block deep in the foundation of the peristyle, the fifth course beneath the stylobate, directly under the second column from the north at the west end (Fig. 14; cf. Fig. 11, section A-A, at NI). The letters NI, about 0.13 m. high, are boldly inscribed in red paint which appeared fresh and bright when the ancient filling was removed.

The fact that the lowest step is of poros, as contrasted with the marble of the two upper steps, was misinterpreted by some of the earlier investigators who, laying great stress on their assumption that the temple had only two steps, attempted to deduce from this fact and from the erroneous attribution to Theseus a general law that a heroön should have only two steps.<sup>90</sup> But the assumption that two steps formed

<sup>90</sup> Kinnard, *Ant. of Athens*, 2nd ed., III (1827), p. 66, note b; Pittakis, *Ἀρχ. Ἐφ.*, 1838, p. 75; Bötticher, *Bericht über die Untersuchungen auf der Akropolis*, p. 182, and *Tektonik der Hellenen*, 2nd ed., pp. 180-181, note 4.

the distinguishing characteristic of a heroön raised considerable doubt.<sup>91</sup> The fact that there were actually three steps, the lowest hitherto unrecognized because of its color and ruinous state, was first demonstrated by Ziller and Adler.<sup>92</sup> The purpose obviously was, as previously in the Older Parthenon and later at Rhamnous, to effect a transition from the marble to the surrounding terrace.

The inner face of these peristyle foundations, including the backing of the poros euthynteria and lower step and of the marble middle step, rises in poros as high as the bottom of the stylobate. The inner face of the latter (Fig. 14), 0.364 m. high, is treated with an anathyrosis 0.055/0.06 m. high at the upper edge, and below this is hollowed to a distance of 0.18 m. below the top, that is, to the bottoms of the pavement slabs. Below the pavement the stylobate protrudes 0.02/0.03 m., this lower portion retaining the preliminary surface with a drafted margin 0.015/0.03 m. wide along the lower edge and at both vertical edges of each block, enframing a slightly projecting stippled panel. The angle stylobate blocks were square when laid in place, varying, that is, between  $1.203 \times 1.229$  m. (northwest) and  $1.255 \times 1.255$  m. (southeast). And when the inner corner was afterwards cut out in line with the backs of the front and flank stylobates to form a reëntrant angle  $0.041 \times 0.050$  m. (northwest) to  $0.088 \times 0.093$  m. (southeast) in depth (Fig. 34), the lower portion of the original corner was allowed to protrude under the pavement (Fig. 14), with its stippled faces bordered by marginal drafting. Pry cuttings at the back of the stylobate, on the top of the poros course below, show that the blocks were pushed forward from the interior.

## OUTER FOUNDATIONS OF CELLA

The foundations of the main rectangle of the cella are but a single course (*a*) deep at the east end of the building, four courses (*a-d*) deep at the west.<sup>93</sup> Their outer faces give an impression of inadequacy comparable to that of the inner face of the west peristyle foundation. This is not because the cella foundations are insufficiently thick, but rather for the reason that, as may be seen in the sections (Fig. 11, sections B-B to D-D; cf. Fig. 15), their outer faces on the flanks often fail to carry

<sup>91</sup> The German edition of *Ant. of Athens* (II, 1831, p. 337) quotes a dissenting opinion of Osann; and similar doubts were expressed by Curtius, *Arch. Zeit.*, I, 1843, col. 98; Adler, *ibid.*, XXX, 1873, pp. 108-109; Wachsmuth, *Rh. Mus.*, XXIV, 1869, p. 43, and *Stadt Athen*, I, p. 363; Penrose, *Athenian Architecture*, 2nd ed., p. 72.

<sup>92</sup> Gurlitt and Ziller, *Zeitschr. f. bild. Kunst*, VIII, 1873, pp. 88-89, 90-91; Gurlitt, *Das Alter der Bildwerke und die Bauzeit des sogenannten Theseion in Athen*, pp. 77, 89; Wachsmuth, *Stadt Athen*, I, p. 363; Graef, in Baumeister, *Denkmäler*, III, col. 1774; see also note 282 for later references.

<sup>93</sup> The poros courses of the cella foundations are lettered from the top downward, *a* being the harder poros stretchers, *b-d* the lower soft poros headers (cf. Fig. 29).

out even to the edge of the superimposed marble, the toichobate (course I)<sup>94</sup> which projects 0.098 m. from the wall plane. Such inadequate support in the outer faces might possibly be interpreted as due to economy (such as might have been permissible in the case of inner foundations protected from weather and ground water), were it not for the very different conditions encountered in the inner faces, which protrude for some distance within the cella. The top poros course (*a*), for instance, projects 0.275 m. inside the wall plane; the next course down (*b*) protrudes 0.115/0.13 m. more, the third course down (*c*) in turn sometimes as much as 0.12 m. more; and



Fig. 15. Outer Corner of Foundation below Southwest Corner of Opisthodomos, from South

the fourth course (*d*), where it exists, may either retreat or advance slightly beyond the third (Figs. 11, 29). Thus the flank wall foundations vary in thickness from about 1.135 m. (in course *a*) to a maximum of 1.37 m., while the wall thickness is 0.761 m. In fact, the distance between the centre lines of the flank foundations being about 6.71 m., as contrasted with 6.993 m. between the centres of the flank walls, it might even be thought that each wall was originally intended to be about 0.14 m. closer to the axis of the temple and so to be symmetrically supported. Thus, in what we may designate as scheme A, we may infer that the total width measured across the wall planes, now 7.752 m. ( $23\frac{3}{4}$  Doric feet), was originally planned to be about 7.50 m. (23 Doric feet). The purpose of the alteration may have been, in part at least, to modernize the somewhat archaic proportions of the plan which, measured to the outer corners of the antae, would have been 1 : 2.949 in scheme A, and now became

<sup>94</sup> For the numbering of the marble courses from I upward, see note 19, and Fig. 29.

1 : 2.857 in scheme B. Probably, however, a more cogent reason for the widening was the desire for space to accommodate the interior colonnades planned for scheme B.<sup>95</sup> The absence of any signs of alteration above the foundation courses suggests that the change of scheme occurred before the laying of the lowest marble course but after the completion of the foundations.

The lower courses (*b-d*) consist of headers of soft gray poros, running through the thickness of the wall and so with lengths of 1.10/1.37 m. On each flank the first and third courses (*d, b*) commence with a stretcher at the west end, the second course (*c*) with a header (Fig. 15), all the other blocks in each course being headers which gradually die away against the rising rock surface toward the east. The heights of the courses normally average 0.44 m. (varying between 0.425 m. and 0.45 m.) and so resemble the lower courses of the peristyle foundation;<sup>96</sup> the bottom course sometimes takes advantage of the rising rock and is of lower blocks, 0.405 m. or even 0.35/0.36 m.<sup>97</sup> These courses differ from the peristyle foundation, however, in the choice of material, exemplifying the nice discrimination shown by the builders with respect to economy and good construction: all parts that were completely protected from weather and ground water are of this third variety of poros, soft and gray in color, very light and easily worked.

The topmost poros course (*a*) of the cella foundation, making the complete circuit of the rectangle, is of uniform height, 0.37/0.375 m., and consists of stretchers of the harder brown poros which is employed in the lower parts of the outer foundations. Both in this special height and in the different material and more careful finish the course corresponds to the euthynteria under the peristyle; and in fact course *a* has the function of a euthynteria. The lower edge of the outer face is always drafted to a height of 0.110 m. to permit more precise alignment (Fig. 15); and above this beautifully finished margin the face projects roughly as much as 0.025/0.028 m., except on the west front where the rough surface was hewn back to the plane of the drafted margin so that the distinction between the two surfaces is almost imperceptible. The anathyroses of the joint surfaces are carefully executed, with a width of 0.08 m.; and the edges of the roughly projecting face are carefully chamfered, both along the top and at each vertical joint, to prevent chipping. There is no visible evidence as to whether clamps or dowels were employed; clamps are absent, however, in the corresponding course of the east cross-wall, suggesting that they were omitted throughout this course. The west edge of the course is flush with the face of the toichobate (course I) above; and seven blocks (averaging 1.146 m.) fill the width of

<sup>95</sup> For corroborative evidence, derived from the length of the cella, that the interior colonnades were first planned in scheme B, see p. 93.

<sup>96</sup> Thus the foundation course levels all around the cella building are normally 0.56 m., 0.935 m., 1.370 m., and 1.815 m. below the internal floor level as later defined (p. 70 and Fig. 29).

<sup>97</sup> Measured on the north flank, course *c*, west of east cross-wall.

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the plan, nineteen (averaging 1.188 m.) the length.<sup>98</sup> The corner blocks are no larger than those between; the north face of the northwest corner block is 1.11 m. in length, the south face of the southwest block 1.175 m., so that the first joint in each case is rather unsatisfactorily located almost immediately above a joint below (Fig. 15). Furthermore, while we may speak of these blocks in course *a* as stretchers, it is clear that, like the headers below them, they pass through the entire thickness of the foundation (here about 1.135 m.) and so are approximately square in plan. This we learn, in spite of the fact that their upper surfaces cannot now be seen, from the fact that the joints carry through from outside to inside, with all the diversities in the lengths of the blocks, the discrepancies averaging only 0.003 m. being reasonable inaccuracies of workmanship.<sup>99</sup>

At this point should be described a series of roughly hewn shelves or ledges cut on the inner faces of the flank foundations throughout the length of the cella (Figs. 16, 18, 21, 27, 29; cf. Fig. 11, section C-C), but not appearing in the pronaos or opisthodomos. These ledges were obviously cut after the completion of the flank wall foundations, for the purpose of laying the foundations of the interior colonnades later to be described. The uppermost ledge on course *a* is 0.20/0.21 m. wide and 0.115/0.135 m. below the top, its back hewn flush with the toichobate (course I) above. The second ledge on course *b* is 0.115/0.13 m. wide and 0.20/0.21 m. below the top, its back flush with the face of course *a* above. And the third shelf on course *c* is 0.01/0.12 m. wide and 0.20/0.22 m. below the top, its back hewn flush with course *b* above. It will be noted that the height from shelf to shelf yields in each case an average course height (0.425/0.45 m.) to accommodate the inner column foundations.<sup>100</sup> Certain irregularities occur at various points, a ledge sometimes gradually fading away or abruptly stopping. Thus the ledge on course *b* of the south wall terminates 1.22 m. short of the inner face of the east cross-wall plane. Also on the north wall this ledge on course *b* is interrupted at one point by a block 1.19 m. long which lacks it, and again at the northwest corner of the cella, where it terminates 1.07 m. from the west cross-wall plane (Figs. 17, 18). We shall return to these ledges in connection with the cross-wall and interior column foundations.

<sup>98</sup> Joints were visible on the outer face of the north flank at distances of 7.284 m., 8.569 m., 10.829 m., 12.006 m., and 16.742 m. from the northeast corner of the toichobate (course I). The total length of the north toichobate being 22.559 m., these joint intervals become 7.284 (= 6 × 1.214), 1.285, 2.260 (= 2 × 1.130), 1.177, 4.736 (= 4 × 1.184), 4.707 (= 4 × 1.177), and 1.11 m. Thus the variations lie between 1.11 m. and 1.285 m.

<sup>99</sup> This was tested at the five above-mentioned joints on the north flank, which reappear on the inside at distances of 7.282 m., 8.560 m., 10.829 m., 12.011 m., and 16.742 m., with a maximum discrepancy of 0.009 m., and average discrepancies of 0.003 m.

<sup>100</sup> I. e., 0.115/0.135 m. (on *a*, to be combined with course I as noted below) accommodating course *a'* (0.425/0.43 m.); 0.235/0.24 + 0.20/0.21 = 0.435/0.45 m. (*a* + *b*) accommodating course *b'* (0.43/0.45 m.); 0.23 + 0.20/0.22 = 0.43/0.45 m. (*b* + *c*), accommodating course *c'* (0.41/0.45 m.).

While course *a* carries us up to the top of the foundations, we may nevertheless add a few notes at this point with respect to the marble courses which rest upon them, particularly when this information was revealed by excavation and is now inaccessible because of refilling.

The toichobate (course I) is 0.358 m. high. Across the two ends of the rectangle this course forms the stylobate under the pronaos and opisthodomos columns, with widths of 1.180 m. and 1.181 m., respectively. Each porch front is divided into six blocks with a central joint, the next joint on either side coming under a column but by no means under its centre. Under the flank walls the toichobate projects 0.098 m. outside the wall plane and about 0.05/0.09 m. inside, the inner face being roughly dressed; thus the width is approximately 0.91/0.95 m. Within the pronaos and opisthodomos, where the inner face of the flank toichobate is dressed to form a joint with the pavement, 0.008/0.040 m. from the wall plane, the width is reduced to 0.867/0.899 m.

The total length of the toichobate under the flank walls is composed of fifteen blocks on each side, of very differing lengths. The end blocks are 1.186/1.189 m. in length at the east (projecting 0.097 m. from the antae) and 1.756/1.852 m. at the west (projecting 0.087 m. from the antae). The intermediate blocks average 1.506 m. in length, but actually vary from 1.206 m. to 2.283 m.<sup>101</sup> The fact that the eighth, eleventh, and thirteenth blocks from the east end of the north flank, and the twelfth from the east end of the south flank, are unfinished Doric column capitals (Fig. 53), will be discussed below. The outer face has an anathyrosis 0.16/0.18 m. high along the upper edge, which includes the rise of 0.098 m. above the pavement and so allows about 0.06/0.08 m. to serve as actual anathyrosis for the abutment of the pavement slabs. Below this, the face is roughly hollowed to form the joint surface until, at a level 0.29/0.315 m. below the top (and so just below the bottom of the pavement) a rough lip or band 0.045/0.07 m. high projects 0.02/0.05 m. very much in the manner of the inner face of the outer stylobate. The special treatment at the antae, with a jog corresponding to the anta offset, is shown in Fig. 15; a little finished panel 0.085 m. long and 0.033 m. high, cut back in the roughly projecting bottom lip to the plane of the finished upper edge of the toichobate, served as a guide in setting the block.

The inner face of the toichobate, at least for the portion within the cella, is roughly dressed from top to bottom, and originally projected 0.01/0.05 m. from the line of course II (and so 0.05/0.09 m. from the wall plane) for its entire height. Each block has at the middle of the inner face, at the lower edge, a shift cutting indicating that when this course was laid the shelf on course *a*, which now leaves no possible support

<sup>101</sup> North wall, east to west: 1.186 + 1.803 + 1.240 + 1.334 + 1.216 + 1.782 + 2.283 + 1.297 + 1.788 + 1.245 + 1.303 + 1.793 + 1.233 + 1.308 + 1.748 = 22.559 m. South wall, east to west: 1.189 + 2.185 + 1.279 + 1.206 + 1.207 + 1.209 + 1.438 + 1.299 + 1.206 + 1.678 + 1.704 + 1.315 + 1.867 + 1.933 + 1.852 = 22.567 m.

for the crowbars, did not yet exist (Fig. 16). Subsequently, too, the upper edge of course I, for a height of 0.065 m., was carefully chipped back to the plane of course II, forming a narrow ledge, 0.01/0.05 m. in width and sometimes tapering to nothing (as at the west end of the twelfth block from the east, which runs behind the north

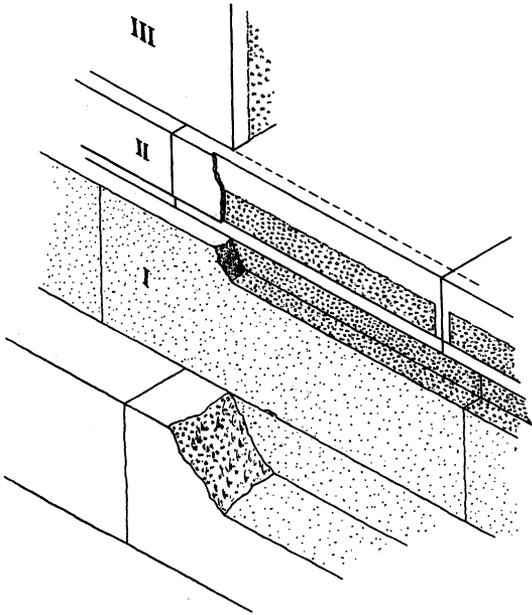


Fig. 16. Inner Face of Courses I and II of Flank Walls, Showing Recutting

end of the west cross-wall, Fig. 18). Within the pronaos and opisthodomos, however, the inner face of course I is treated as a joint surface, with an anathyrosis 0.08 m. high along the upper edge, for the abutment of the pavement; this is generally flush with, or slightly behind, the face of course II above, so that the pavement joint was not apparent. A peculiarity of the north wall of the pronaos is a change of plane from 0.002 m. to 0.020 m. behind the face of course II, occurring at a point 0.363 m. east of the corner formed by course I of the cross-wall;<sup>102</sup> the purpose of this treatment will be discussed in connection with the pavement.

The moulded wall base (course II) is composed of fourteen blocks of various lengths on the north flank, and of thirteen on the south flank. The end blocks in this case are theoretically the largest, measuring 1.749/2.199 m. in length (besides the projections of 0.077 m. from the antae). The intermediate blocks average 1.540 m. in length on the north, and 1.676 m. on the south, but actually vary from 1.127 m. to 2.308 m.<sup>103</sup> The moulding projects 0.077 m. from the orthostates (0.087 m. from the wall plane) only on the exterior and across the faces and inner returns of the antae. Inside the pronaos this course projects only 0.017/0.027 m. from the orthostates (0.027/0.037 m. from the wall plane), while inside the cella the projections are more uniform, 0.029/0.031 m. from the orthostates. In the porches the inner face is finished to be exposed above the pavement. Within the cella, however, the inner face of this course (II) on both flanks at first glance seems to present the most unusual appearance of having anathyrosis bands along both the upper and lower edges, with the inter-

<sup>102</sup> A peculiar notch 0.07 m. high and 0.068 m. wide is cut within the anathyrosis band at the point of transition.

<sup>103</sup> North wall, east to west: 1.810 + 1.577 + 1.317 + 1.127 + 1.867 + 1.884 + 1.986 + 1.195 + 1.658 + 1.263 + 1.580 + 1.698 + 1.322 + 2.091 = 22.375 m. (besides projections). South wall, east to west: 1.749 + 1.820 + 1.656 + 1.505 + 2.290 + 1.233 + 1.505 + 1.403 + 1.542 + 1.848 + 1.328 + 2.308 + 2.199 = 22.383 m. (besides projections).

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vening stripe roughened. Closer inspection shows that what seems to be the lower anathyrosis band was originally a sunken margin 0.037 m. high along the lower edge; we may suppose that the upper portion of the course, 0.165 m. high, formed a preliminary surface projecting 0.010 m. (Fig. 16). The purpose of the sunken margin was to define the finished plane which could be laid along guiding lines incised on the course below, here on the interior because the curved moulding on the exterior would have been an unsatisfactory guide. This fact demonstrates, furthermore, that when course II was laid the ledge on course I had not yet been cut, since only on the edge thus removed could the guiding lines have been engraved. Subsequently the upper edge of course II likewise was dressed back to the plane of the finished lower margin, forming the present anathyrosis band 0.085/0.09 m. high; and the vertical edges were less carefully smoothed for a width of 0.01/0.03 m., sometimes with the toothed chisel; finally the projecting panel thus enframed was roughly chiseled away to form a sunken joint surface. The work was not so carefully done, however, but that traces of the projecting edge of the preliminary surface, 0.037 m. above the bottom, can be detected here and there, particularly on the north flank. The retooling on course II seems to have been done at the same time as the cutting of the ledge on course I. The combination of this evidence suggests that when these blocks were ordered for the flank walls the cella floor level was yet undecided or was planned to be at the bottom rather than the top of course II.

The orthostates (course III) of the flank walls should have been accurately related to the design of the wall courses above them. In other words, since all the wall courses above the orthostates are composed of regular blocks averaging 1.243 m. or  $3\frac{1}{16}$  Doric feet in length—eighteen units filling the flank wall length averaging 22.379 m.<sup>104</sup> or  $68\frac{5}{8}$  Doric feet from anta face to anta face—it is evident that the usual arrangement with orthostates twice as long as the wall blocks would have required lengths of 2.4865 m. or  $7\frac{5}{8}$  Doric feet. There should have been, in each wall, eight orthostates of this length, besides two of half length (1.243 m. or  $3\frac{1}{16}$  Doric feet) forming the terminal antae. As constructed, however, the end blocks have a slightly larger average length 1.283 m. (varying from 1.208 m. to 1.319 m.), while the eight intermediate blocks on each flank average 2.477 m. on the exterior but actually vary from 2.255 m. to 2.610 m. (a difference of 0.355 m.),<sup>105</sup> exhibiting a striking irregularity as contrasted with the fairly regular spacing of the course joints above. Internally the discrepancies are even more apparent, not only because the regularity is disturbed by the cross-walls, but also because the north wall has one more block on the inside than on the outside. Thus, while the terminal blocks are

<sup>104</sup> That is, 22.375 m. on the north flank and 22.383 m. on the south flank.

<sup>105</sup> North wall, east to west: 1.208 + 2.486 + 2.478 + 2.445 + 4.994 (2) + 2.603 + 2.254 + 2.591 + 1.316 = 22.375 m. South wall, east to west: 1.319 + 4.851 (2) + 2.482 + 2.510 + 2.578 + 2.259 + 2.610 + 2.485 + 1.289 = 22.383 m.

almost identical with those on the exterior, averaging 1.2805 m. (varying from 1.206 m. to 1.315 m.), the seventeen intermediate blocks vary from 1.443 m. to 2.868 m.,<sup>106</sup> a difference of 1.425 m., and the inner joints sometimes disagree from the outer by as much as 1.27 m.

### INNER CROSS-WALL FOUNDATIONS

Of the two connecting foundations traversing the cella rectangle, supporting the rear walls of the pronaos and opisthodomos, it is preferable to examine the latter first because both of its faces were in great part exposed by excavation within the opisthodomos and cella.

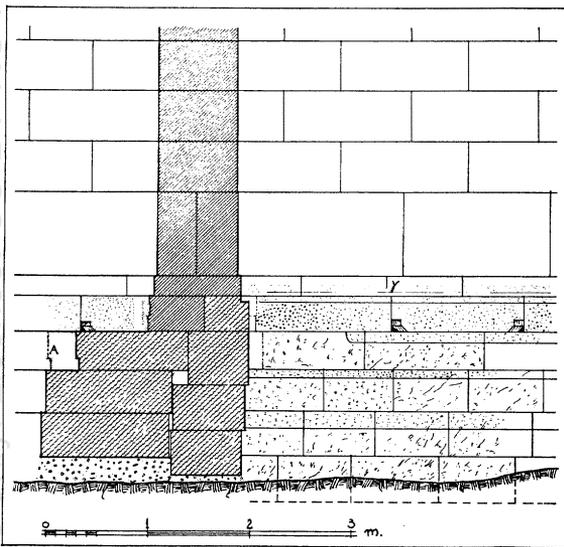


Fig. 17. Section of West Cross-Wall Foundation, Looking North

The west cross-wall rests on a foundation which differs from those of the flank walls and porch fronts in being of much greater thickness; also, while it is three courses high on both inner and outer faces, the two faces are of independent construction and differ as to the heights and levels of the courses (Fig. 17). The heights of the three courses on the outer or west face are, from bottom to top, 0.445 m. (*c*), 0.435 m. (*b*), and 0.38 m. (*a*), exactly as in the flank walls; the lowest rests on an accumulation of earth about 0.24 m. thick, bedrock being about 1.50 m. below the bottom of course I. Furthermore, as under the flank walls

and the porch columns, the lower courses are headers of the soft gray poros, while the top course (*a*) consists of the well-cut square blocks of brown poros appearing as stretchers on the face of the wall but extending as far back as the headers; and, as elsewhere, they show on the exterior the excellent drafted lower margin 0.110 m. high. The heights of the three courses on the inner or east face are 0.45/0.46 m. (*c*), 0.44/0.455 m. (*b*), and 0.535 m. (*a*) from bottom to top, with a higher rather than lower course at the top; the accumulation of gray earth below the lowest course is

<sup>106</sup> North wall, east to west: 1.206 + 2.665 + 1.760 (including 0.707 m. of east wall) + 1.711 m. (including 0.121 m. of east wall) + 2.544 + 4.926 (2) + 1.443 + 2.401 m. (including west wall of 0.784 m.) + 2.404 + 1.315 = 22.375 m. South wall, east to west: 1.312 + 2.561 + 1.720 (including 0.669 m. of east wall) + 1.839 (including 0.159 m. of east wall) + 2.392 + 5.188 (2) + 2.868 + 0.784 (gap for west wall) + 2.430 + 1.289 = 22.383 m.

here only 0.06 m. thick. All three courses of the inner face consist of stretchers, 1.19/1.27 m. in length, breaking joints carefully, with a short block at the north (and presumably also at the south) end of the middle course; and their material is uniformly the soft gray poros from bottom to top, thereby differing from the outer face. Similar discrepancies appear in the cross section of the foundation. The two lower courses (*a*, *b*) are both 1.94 m. thick (*b* receding 0.05 m. from *a* outside but overhanging the same amount inside), while the third course (*c*) is 1.70 m. thick, receding 0.28 m. outside but overhanging 0.04 m. inside. The three courses project 1.15 m., 1.09 m., and 0.81 m. from the outer face of the cross-wall; but the projections from the inner face are only 0.025/0.05 m., 0.085/0.09 m., and 0.125/0.16 m. respectively from bottom to top. Probing through the joints from the east, moreover, showed that changes occur at distances of 0.67 m. (*a*), 0.63 m. (*b*), and 0.45/0.48 m. (*c*) within the east wall plane. Thus it is evident that the widths of the three courses of the outer face of the foundation are 1.26 m. (*a*), 1.24 m. (*b*), and about 1.125 m. (*c*). On the other hand, the widths of the corresponding courses of the inner face are only 0.68 m. (*a*), 0.70 m. (*b*), and about 0.575 m. (*c*).

Another peculiarity of the inner or eastern face of the cross-wall foundation is its lack of bonding with the flank wall foundations: it seems clearly to be a later insertion. The junction to the south flank, to be sure, is now concealed by the interior column foundation existing at this point; but we might infer, on the analogy of the east cross-wall, that there is no actual bond. The north end of the west foundation is completely exposed to view, however, and shows that, while the first and second courses (*b*, *c*) merely abut against the north flank without any bond, the third course (*a*) on the contrary rests on a shelf or ledge 0.18 m. high cut in the top of course *b* on the north flank (Fig. 18). This at first glance might seem to be a proper bond, but in reality it is merely overlapping due to the fact that the ledge on course *b*, cut for the interior column foundations, had been carried a little too far westward and was utilized as a convenient support.<sup>107</sup> Another detail of preparation for course *a* of the inner face of the west foundation is the anathyrosis on course *a* of the north flank, with a contact band 0.085 m. wide, reaching 0.24 m. east of the west wall plane, though course *a* of



Fig. 18. Junction of West Cross-Wall and North Wall Foundations in Northwest Corner of Cella

<sup>107</sup> The importance of this detail for the history of the temple will be noted later.

the west foundation projects only 0.125/0.16 m.; the anathyrosis is 0.171 m. from the plane of the north wall.

It is now evident that there must have been a complete change of plan in the location of the west cross-wall, and that the inner face of the foundation is a later facing or revetment inserted for the purpose of supporting the wall in a more easterly position than had been intended. The outer portion of the foundation is in itself of the proper thickness to receive the cross-wall, but is at present wrongly located. We may, therefore, assume that the wall was planned to be approximately centrally located on the two lower courses (*b, c*) of the outer portion, which, assuming them to have been undisturbed during later alterations, offer a solid support 1.20 m. wide.<sup>108</sup> The third course (*a*), however, recedes 0.28 m. from the face of the second; but it is clear that the upper course has been bodily thrust inward by 0.267 m. as may be seen at the north end where a jogged joint was prepared on the northernmost block to fit around a protruding block of the north foundation but now leaves an open gap of this width. Returning the third course westward by 0.267 m. (Fig. 17, at A), therefore, we find that it originally receded only 0.013 m. from the outer face of the second course, and so would have projected 1.077 m. outside the present cross-wall. Since this "euthynteria" 1.125 m. wide was in itself an adequate support for the cross-wall and undoubtedly was so intended, we may assume that the outer wall plane was intended to lie between 0.713 m. and 1.077 m. west of its present position, depending on whether the inner or outer wall planes were placed directly over the corresponding faces of the "euthynteria" or were slightly recessed.

The present depth of the opisthodomos, measured from the west anta faces to the wall plane of the cross-wall (courses IV, etc.), is 3.730 m. The depth originally planned, 0.713/1.077 m. less, would have been 2.653/3.017 m. measured to the wall plane.

The only detail of importance on the inner face of the foundation is a continuation of the ledge cut on course *a* of the flank wall; but here it is confined to the northernmost block of the west wall, 1.21 m. long and so extending only 1.38 m. from the north wall plane. The ledge is 0.098 m. high; and its back, projecting 0.065 m. from the west wall plane at the north and 0.095 m. at the point where it terminates, is not flush with the course above as in the case of the flank walls.

The toichobate course (I) under the west cross-wall is curiously constructed. Only the northernmost block is of marble throughout its thickness (0.91 m.),<sup>109</sup> with a length of 1.541 m., extending 1.568 m. south of the north wall plane. The remainder of the outer face is composed of four narrow marble blocks (only 0.555 m. wide), irregular in length and unsymmetrically jointed; thus from north to south the outer

<sup>108</sup> I. e., apart from the outer recession of 0.06 m. and the inner overhang of 0.04 m.

<sup>109</sup> Projecting 0.081 m. outside and 0.048 m. inside the orthostates of 0.782 m.

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joints are located as follows:  $1.541 + 1.322 + 1.309 + 1.146 + 0.851 = 6.169$  m. (Fig. 2). The inner face is completed by four soft yellowish poros blocks only 0.43 m. wide; their lengths are (from south to north)  $1.16 + 1.01 + 1.245 + 1.21$  m., terminating at both ends in line with the ends of the narrow marble blocks. Both at north and at south this course abuts against excellent anathyrosis joints cut on course I of the flank walls. At the south the anathyrosis contact band extends 0.315 m. east of the wall plane, even though the poros course I here projects only 0.15 m. At the north the anathyrosis joint is 1.200 m. wide, projecting 0.194 m. east and 0.245 m. west of the wall planes, and recedes 0.013 m. behind the finished lower edge of course II of the north wall (Figs. 17, 18); the contact band is 0.07 m. wide along the top, 0.08/0.09 m. on the vertical returns, of which that on the east stops 0.16 m. above the bottom of the course. The upper part of the outer face of course I forms a joint surface 0.20 m. high with an anathyrosis along the top for contact with the opisthodomos pavement; the lower portion (about 0.16 m. high) is roughly tooled and protrudes about 0.02 m. more (Fig. 2). On the inner face of course I the ledge 0.065 m. below the top is continued from the flank walls, and appears not only on the northernmost marble block but also on the four poros blocks, except where it was broken away at the middle in forming the mediaeval threshold.

Course II of the west wall, of marble throughout, recedes 0.052 m. from the course below in the opisthodomos (as fixed by a setting line) and has a width of 0.839 m.<sup>110</sup> Having been cut through by the mediaeval west doorway the lengths of the individual blocks are not exactly obtainable. The northernmost is 1.156 m. long; the next is cut away at a distance of 0.97 m. from the joint. The southernmost block seems to have been exceptionally long, now measuring 1.49 m. outside and 1.89 m. inside to the broken north end. It is evident that the arrangement was very unsymmetrical, apparently composed of four blocks approximately breaking joints with those below,  $1.156 + ca. 1.45 + ca. 1.45 + ca. 2.095 = 6.15$  m. from north to south. The outer face lacks the base moulding appropriate only for the flank walls. The inner face also differs from that in the flank walls of the cella in that, below the anathyrosis 0.085/0.09 m. high along the upper edge, it is merely a roughly hollowed joint surface. In other words, the plane with reference to which this course was laid was the unmolded outer face, which does not present the difficulties encountered in the outer faces of the flank walls and corresponds to a setting line engraved on the top of course I.

The jointing of the orthostate course (III) of the west wall is now confused because the piercing of the wall for the Byzantine doorway, and subsequent damage, have obliterated some of the evidence. Each face, though differently jointed, seems to have consisted of three blocks arranged symmetrically. On the exterior, a block bonds into the north flank wall and extends 1.695 m. from it; a corresponding joint was

<sup>110</sup> Projecting 0.029 m. outside and 0.028 m. inside the orthostates of 0.782 m.

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apparently located 1.695 m. from the south flank orthostates, leaving a central interval of 2.82 m. which would undoubtedly have been filled by a single block. On the inner face the northernmost block again bonds into the north flank wall but extends 1.920 m. from it; the southernmost block merely abuts against the south flank orthostates and has a length of 1.927 m.; the interval of 2.363 m. again was evidently filled by a



Fig. 19. Pronaos and East Cross-Wall, from West

single block. Thus the outer and inner joints differ by 0.225/0.232 m., the inner joints being more nearly correct with respect to the wall courses above; the proper length of the central block would have been two fifths of the total distance between the flank wall planes, or 2.492 m., equivalent to the flank wall orthostates. Such a length would have fitted exactly the plinth courses (IV-XVI), with five blocks in the even courses filling the total width (and averaging 1.246 m. in length), so that the odd courses (V, VII, etc.) have four complete blocks and two half blocks at the ends.<sup>111</sup> It

<sup>111</sup> The south block of course V of the west cross-wall measures 0.632 m., the south block of course VI, 1.246 m.

is evident that these closely conform to the flank wall standard of  $3\frac{1}{16}$  Doric feet, the blocks being in fact interchangeable.

Turning now to the east cross-wall foundation, we observe that not only the excavation within the cella but also the removal of the church flooring in the area of the pronaos permit a closer examination of both foundation and door threshold (Figs. 5, 19-23, 26; cf. Fig. 11, section A-A). The inner portion of the foundation for the east cross-wall consists of poros courses rising to the level of the top of the toichobate (I). But in the outer part of the foundation the marble toichobate (I) is itself returned across the pronaos, about half of its width supporting the cross-wall, half serving as part of the paving of the pronaos. The central portion of the east face of this course, i. e., the part beneath the threshold, consists of exceptionally wide marble slabs, their tops recessed to receive an inset, apparently the threshold itself. The reason for this peculiar treatment now awaits explanation.

The foundation of the east cross-wall resembles that of the west cross-wall in being of disproportionate thickness and in showing discrepancies between the east and west faces, both in material and in construction. The abnormal thickness of 2.22/2.38 m. or even 2.84/3.00 m. (Fig. 20) can hardly be due merely to a desire to give solidity to the slightly thickened door wall; and the differences in heights and levels of the courses on the east and west faces of the foundation must, as in the west cross-wall, be explained on other grounds.

The east or outer face of the foundation is concealed below the above-mentioned marble course and also below the thin poros underpinning of the pavement (Fig. 5), to be described later. Upon lifting some of the thin poros underpinning slabs the east face of the foundation course *a* appeared in a continuous line about 3.535 m. behind the east anta faces. And upon lifting the central block of the marble portion of course I, furthermore, there appeared the west edge of the same series of blocks, forming a continuous cross-wall foundation 1.12 m. wide on the top. A poros block fully exposed by this lifting process (Fig. 22) is 1.17 m. long, excellently worked, of

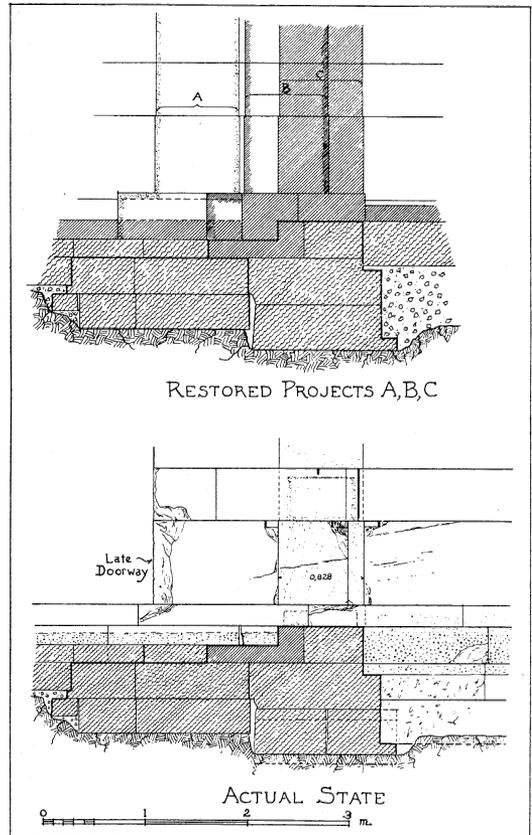


Fig. 20. Section of East Cross-Wall Foundation, Looking South

the harder poros with beveled edges characteristic of course *a* under the flank walls and porch fronts of the cella building (the so-called “euthynteria”), and of similar dimensions. The height 0.37 m., too, is the same;<sup>112</sup> and it is clear that this course corresponded exactly to the “euthynteria” of the cella building. Under it is a lower course of similar width but of softer poros, this in turn lying directly on rock. And against the outer face of the series 1.12 m. wide abuts, at least along the middle portion of the wall, another series of blocks 0.617 m. wide, these likewise solidly supported on a lower course resting on bedrock, with small pieces of poros inserted where the rock is deficient (Fig. 20). In other words, where this outer face of the foundation

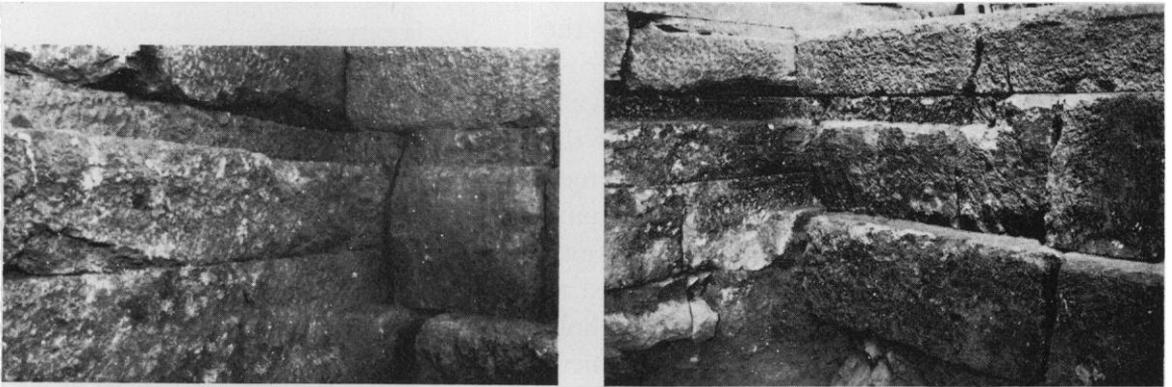


Fig. 21. Junction of North Wall and East Cross-Wall Foundations in Northeast Corner of Cella

can be examined it is two courses high and 1.737 m. wide, the upper course (*a*) forming the “euthynteria” 1.12 m. with an eastward extension 0.617 m. wide.

The west or inner face of the foundation, though likewise consisting of two courses of poros (*a*, *b*), besides a third course which corresponds to the marble course I (Figs. 19-21; cf. Fig. 11, section A-A), is a separate piece of construction. The lowest of these courses is of stretchers: four blocks 1.20/1.26 m. long, and a fifth piece only 0.30 m. long inserted just north of the southernmost block, fill the space between the bottoms of the flank wall foundations. The northernmost block is 0.50 m. high, the others 0.45/0.46 m.; also the levels vary, the two northernmost having their tops 0.56 m. below the bottom of course I, while the three southern blocks are only 0.445 m. below; thus the bottom of the lowest course varies from 1.06 m. at the north to 0.90 m. at the south below the bottom of course I. Behind this course, which seems to be about 0.67 m. wide, must lie a middle row of stretchers of similar width abutting against the lower course of the east series (Fig. 20). The second course on the west fills the remaining height of 0.56 m. in the north half, occupied by six headers set

<sup>112</sup> No trace of the drafted margin at the bottom of the outer face was observed.

edgewise so that their width (originally height) is about 0.45 m., while, in the south half, the height of 0.445 m. is occupied by five more headers, of which one is only 0.385 m. wide and the four southernmost are about 0.62 m. wide. Probing in two of the joints of the upper course showed that these headers are about 1.10/1.26 m. in length,<sup>113</sup> and that they abut against a definite surface 0.51/0.52 m. east of the rear line of the marble portion of course I,<sup>114</sup> this abutting surface clearly being the back of the "euthynteria" 1.12 m. wide (*a*). The total width at the top of the resulting



Fig. 22. Top of Course *a* of East Cross-Wall, with Course I Lifted

foundation, consisting of two (or even three) series of blocks side by side, is thus 2.22/2.38 m., or even 2.84/3.00 m. in the central portion. But this foundation of such unusual width is not only separated into two distinct parts by the longitudinal joint running north and south, but these two parts are further distinguished by the discrepancy in course levels (varying 0.075/0.19 m. at the bottom of course *a*) and also by a difference in material. The inner (west) portion, constructed throughout of soft gray poros, is clearly a supplementary foundation made necessary by a change in the location of the cross-wall.

We have noted that, while the course level on the outer face agrees with the flank foundations (0.37 m. below course I), the course levels on the inner face are 0.56 m. and 1.06 m. below the bottom of course I at the north, and 0.445 m. and 0.90 m.

<sup>113</sup> The upper poros course (*a*) of headers protrudes 0.59 m. (tenth joint from north), 0.67 m. (third joint), or 0.74 m. (eighth joint from north) west of the marble portion of course I.

<sup>114</sup> As measured in the third and tenth joints from the north.

below at the south. Since the corresponding course levels on the flanks are 0.375 m. and 0.81 m. below the bottom of course I (i. e., 0.935 m. and 1.37 m. below the inner floor level)<sup>115</sup> it is evident that, with respect to levels, the inner face of the cross-wall foundation could not have bonded with the flank either on the south (Fig. 20) or on the north (Fig. 21). Such, in fact, is the case. At the south, the courses of the cross-wall foundation simply abut against those of the flank and were obviously inserted later. At the north, where the lower course merely abuts against the north flank, yet the upper course (*a*), in spite of the difference in level, bonds into the north foundation to a certain extent in that it rests on the ledge 0.18 m. deep cut at the upper edge of the flank course *b*, and thus lying 0.555 m. below the bottom

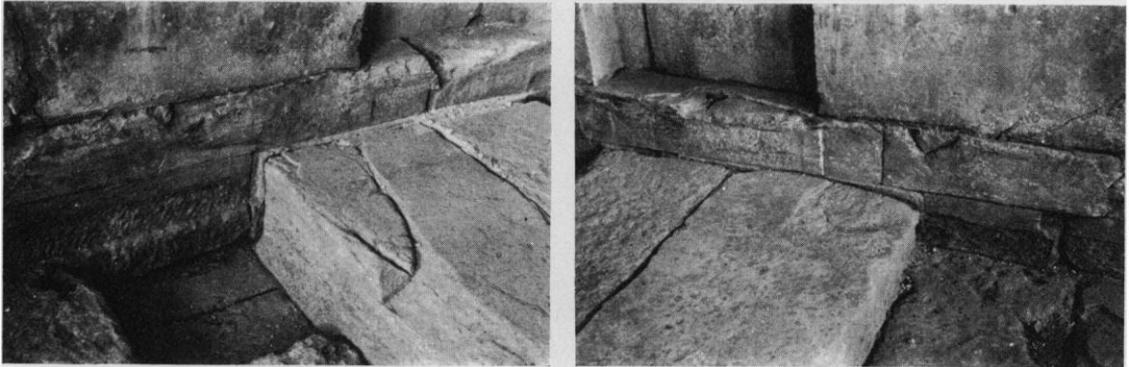


Fig. 23. Abutment of East Cross-Wall Courses I and II against South and North Walls

of course I (Fig. 21). This overlapping, while insignificant in itself, is of considerable importance as an indication that the ledge was cut on course *b* of the flank before the laying of course *a* of the inner face of the east cross-wall foundation. The next ledge above this, however, on course *a* of the flank wall foundations, returns on the inner face of the east cross-wall to distances 1.405 m. from the north wall plane (Fig. 21) and 1.56 m. from the south wall plane, where it abruptly terminates; here we have evidence that this ledge was cut on course *a* of the flank after the laying of the corresponding course of the east cross-wall. We have noted similar evidence at the north end of the west cross-wall;<sup>116</sup> and, taken together, all this proves that the ledges on the flank wall foundations, intended for the reception of the interior column foundations, were cut during the erection of the supplementary inner facings of the cross-wall foundations (schemes B/C).<sup>117</sup> In other words, preparation for the interior column foundations was made before the cross-walls themselves had been erected in their final positions.

<sup>115</sup> See p. 39, note 96.

<sup>116</sup> See p. 45.

<sup>117</sup> See below, p. 56, for the distinction between schemes B and C.

The topmost course (I) remaining on the cross-wall foundation, though of the usual height (0.358 m.) of this course, is again of complicated construction and of different materials. The east or outer face consists of five blocks of marble, with lengths  $1.243 + 1.208 + 1.198 + 1.283 + 1.202 = 6.134$  m. from south to north, filling the gap between the flank walls at the level of course I.<sup>118</sup> The two end blocks of this marble series are 0.615 m. (south) and 0.638 m. (north) in width, so that the rear edges differ by 0.023 m. while the anathyrosis joints forming their east faces are at uniform distances (4.566 m.) from the east anta faces, or 0.369 m. outside the east wall plane as executed. These east joint faces align exactly with offsets in course I of the flank walls, receding 0.009 m. at the north (coinciding with a joint) and 0.023 m. at the south (Fig. 23). The three central marble blocks, with their rear edges approximately aligning with those of the end blocks, are 0.942/0.945 m. wide and so protrude 0.304 m. (north) to 0.320 m. (south) outside the end blocks. These three blocks, furthermore, retain their full height only for a width of 0.27 m. at the back; the entire front portion is cut down to a depth of 0.184 m., so that the actual height is here only 0.174 m. and the section assumes an L shape (Fig. 20). The east faces of these three central blocks, not coming into contact with marble pavement slabs but only with its poros underpinning, are not worked as joints and so retain their earlier surfaces. The middle block of the five shows the lower portion of a slightly protuberant stippled panel, surrounded at bottom and both vertical edges by drafted margins 0.025/0.037 m. wide. The block just south of this is similar except that the bottom margin and that at the north end were removed when the block was shortened and diminished in height for its present position. The block north of the centre, on the other hand, shows an unusual profile with a finished margin 0.105 m. high at the bottom, crowned by a cavetto 0.012 m. high and projecting 0.014 m., above which is a portion of the stippled face with a smooth margin 0.03 m. wide at bottom and vertical edges (Fig. 55). And the north end block, in spite of its narrowness and its treatment with an anathyrosis joint, shows the same finished profile at the bottom. The interpretation of these peculiar surfaces will be advanced later.<sup>119</sup>

The depressed bed in the three central marble blocks of the east face of the cross-wall was obviously intended to receive the face of the threshold, which must have descended through the missing marble pavement in a somewhat unusual manner. The length of the threshold covered not only the three central blocks, but also penetrated 0.090 m. into the southern end block, 0.031 m. into the northern, as shown by the very careful anathyrosis joints; its length, therefore, was  $0.090 + 1.208 + 1.198 + 1.283 + 0.031 = 3.810$  m., terminating 1.153 m. and 1.171 m. from course I on south and north respectively. Since course I here protrudes 0.059 m. from the south

<sup>118</sup> Slight gaps aggregating 0.016 m. (resulting from shaking of the foundations) are closed up in this calculation; the present dimension is 6.150 m.

<sup>119</sup> See p. 124.

flank wall plane and 0.037 m. from the north wall, it is clear that the ends of the threshold were 1.212 m. and 1.208 m. from the south and north wall planes respectively, and thus were almost symmetrically placed. Two pry holes for crowbars worked from the north appear on the bed for the threshold, 0.11 m. and 0.30 m. north of the two central joints and so dividing the total length into parts of about 1.41 m., 1.39 m., and 1.01 m. from left to right; and since the threshold joints were always south of the pry holes we may conjecture that there were two end blocks of about 1.21 m. each with a central block of about 1.39 m.

Other pry holes on the depressed marble bed, approximately opposite the middle of each of the three restored threshold blocks, mark the line of their faces. From them we learn that the threshold face was in line with the anathyrosis on the east faces of the southern and northern end blocks, and so was likewise 0.369 m. outside the executed east wall plane. The back of the threshold, as limited by the rough cutting 0.27 m. from the rear edge of the marble portion of course I, must have coincided—at least in its lower part—with the orthostate plane. But the upper portion may have been wider; that is, if constructed in  $\Gamma$  shape, it would have hooked over the top of the more elevated rear portion of course I. The height of the threshold must have occupied, not only the depression of 0.188 m., but also the entire height 0.202 m. of the sill course (II), and enough more to form the abutment of the door valves, perhaps 0.07 m., a total of about 0.46 m. Whether it was of a different material, such as dark Eleusinian limestone, is conjectural.

The west or inner face of course I of the east cross-wall is composed of six blocks of the usual height (0.358 m.), but of soft poros as in the two courses of the supplementary foundation below; the central block is 1.28 m. long, and four others average 1.127 m., with an extra short piece of 0.345 m. at the south. The width of the blocks is 0.57/0.59 m. except for the longer one at the centre, which measures 0.645 m. and so protrudes into the cella by 0.075 m. Taken together, the marble outside and the poros inside constitute a foundation 1.205/1.208 m. wide at both ends, though at the centre the outward and inward projections increases it to 1.587/1.600 m. But the normal inward projection (at both ends) is only 0.028/0.031 m. from the wall plane, too slight to have afforded any support for heavy door jambs protruding into the cella as at Aigina, Olympia, Bassai, and Sounion,<sup>120</sup> especially in view of the fact that such jambs would have been too far apart to take advantage of the extra support of 0.075 m. afforded by the central block.

Course II is now missing from the east cross-wall; but anathyrosis joints for its abutment appear on both flank walls (Fig. 23), as well as vertical engraved lines marking the actual corners. Thus, on the south flank, a vertical line 0.836 m. from the

<sup>120</sup> At Sounion, for instance, where these inward protruding jambs were planned, apparently projecting 0.285 m. inside the walls (Orlandos, *Ἀρχ. Ἐφ.*, 1917, pp. 220-222), the sill course is of exceptional width, 1.225 m. instead of 0.864/0.867 m. as in the Hephaisteion.

outer wall plane marks the inner (west) face of the sill, which projected, therefore, 0.028 m. from the inner wall plane. No corresponding line marks the outer face on the south; but on the north flank we find not only a similar engraved line for the inner face, 0.833 m. from the outer wall plane, but also a slight offset of 0.009 m. marking the junction with the outer face of the same sill course, 0.031 m. outside the wall plane. Thus the width of the missing sill under the cross-wall may be measured directly on the north as 0.864 m.; it may have been the same at the south or, if it projected uniformly 0.031 m. from the outer wall plane, the width would be increased to 0.867 m. Exact uniformity was unnecessary, since this course was interrupted by the threshold and so consisted of only one block at north and south, respectively 1.180 m. and 1.177 m. in length. Two pry cuttings 1.28 m. from the south end of the course show that the southernmost block was laid in place before the three threshold blocks which were also worked from the north.

We have noted that the outer face of the foundation course *a*, the "euthynteria" of the cross-wall, is 3.535 m. behind the anta faces, and that the marble course I next above it recedes until the anathyroses of the north and south end blocks are 4.566 m. from the anta faces. The present depth of the pronaos, however, is still greater, measuring 4.904 m. from the anta faces to the sill course (II), 4.925 m. to the orthostates (III, 0.828 m. thick), and 4.935 m. to the wall plane (IV, etc., 0.808 m. thick). Again, as in the west cross-wall, we have reason for suspecting that the present conditions are not those designed by the architect.

In the arrangement now restored (Fig. 20 C) two incongruous features of course I of the cross-wall at once attract our attention. The first is the projection of the southern and northern end blocks to the extent of 0.369 m. beyond the east wall plane or 0.338 m. beyond course II, introducing a curious joint in the pavement which is inadequately justified by alignment with the face of the threshold. It would seem more natural if the anathyrosis on course I were flush with course II as on the flank walls, in other words, if course II were moved eastward 0.338 m. so that course I would be entirely covered. The second incongruous feature is perhaps more convincing, namely, the fact that the three central marble blocks are 0.942/0.945 m. wide, protruding 0.673 m. (north) to 0.689 m. (south) outside the east wall plane. Since the threshold protruded only 0.369 m. outside the wall plane, it is evident that the central blocks of course I protruded in turn 0.304/0.320 m. outside the threshold. It is hardly logical to assume that this useless projection was intended merely to give more solid support to the floor slabs, or that it was due to the employment of discarded stylobate blocks which already possessed this greater width; for either reason would have been equally applicable to the north and south ends of the course where no such projection occurs. These peculiarities, and the fact that the length of the projecting portion almost coincides with the length of the threshold, suggest that we are here concerned with an alteration of design. If we assume that the sill course (II) was

once intended to be flush with the north and south blocks of course I, and that course II in turn projected 0.031 m. from the wall plane as in the executed east cross-wall, or 0.031 m. from the orthostates as in most of the other walls, we see that the east wall as finally erected was 0.328/0.338 m. behind the line proposed when course I was laid in place. Assuming that the threshold in turn was intended to project 0.369 m. outside the wall plane as in the executed building, we see that the face of the threshold as then proposed would have been 0.679/0.707 m. east of the present position of the wall plane, thus overhanging the faces of the three central blocks of course I by only 0.008/0.024 m. or 0.018/0.034 m. The coincidence is too close to be regarded as fortuitous. We may, therefore, restore an earlier scheme as shown in Fig. 20 B, with a shift of 0.328/0.338 m.

Even this, however, was not the original scheme. For we have noted that the "euthynteria" (*a*), 1.12 m. wide, lies 0.28-1.40 m. outside the east wall plane as finally erected and so between 1.06 m. outside and 0.06 m. inside the proposed east wall face as located in the above-mentioned preliminary scheme B. Since the "euthynteria" forms in itself an adequate support (as under the flank walls and porch fronts) without the aid of supplementary foundations, it seems clear that the cross-wall was originally intended to be supported on the "euthynteria" so that the east wall plane would have been between 1.09 m. and 1.40 m. east of its present position, depending on whether the inner or outer wall faces were to be set directly over the corresponding faces of the "euthynteria" or were to be somewhat recessed. The threshold, which in the original scheme as in its two successors may be presumed to have projected 0.369 m. from the wall plane, would in any case have been adequately supported on the special blocks protruding 0.617 m. east of the "euthynteria." Thus we may define the three successive positions of the outer face of the east cross-wall as (A) 3.535/3.845 m., (B) 4.597/4.607 m., and (C) 4.935 m. behind the anta faces.

The total length of the flank walls, as measured over the anta faces, is 22.375 m. (north) or 22.383 m. (south), yielding a mean of 22.379 m. equivalent to  $68\frac{5}{8}$  Doric feet, as noted above.<sup>121</sup> Assuming that this was the originally planned length (as seems probable in view of the fundamental relation of the east antae to the peristyle columns), it is reasonable to suppose that the present subdivision of this total length into eighteen blocks of uniform length, 1.243 m. or  $3\frac{1}{4}\frac{5}{8}$  Doric feet, was so intended from the beginning. Particularly does this seem to be a justifiable supposition when we note that the present depths of pronaos and opisthodomos were regulated accordingly, being theoretically equivalent to four and three blocks respectively,  $4 \times 1.243 = 4.973$  m. ( $15\frac{1}{4}$  Doric feet) and  $3 \times 1.243 = 3.730$  m. ( $11\frac{7}{8}$  Doric feet). The measured opisthodomos depth (3.730 m.) is exactly the theoretical dimension, but the measured depth of the pronaos (4.935 m.) suggests an error or alteration of about 0.038 m. ( $\frac{1}{8}$  foot). Presumably this was an intentional alteration in order

<sup>121</sup> See p. 43.

to yield 12.145 m. or  $37\frac{1}{4}$  Doric feet for the clear length of the cella, after deducting 0.761 m. or  $2\frac{1}{8}$  Doric feet for the rear cross-wall and 0.808 m. or  $2\frac{3}{8}$  Doric feet for the front cross-wall. Since the opisthodomos was originally planned to be 0.713/1.077 m. shallower, it would seem possible that the inner rather than the outer face of the west cross-wall was to have aligned with the wall joints, fixing the alteration as about 0.761 m. or  $2\frac{1}{8}$  Doric feet, and the original depth as 2.969 m. or  $9\frac{5}{8}$  Doric feet or more probably, for convenience, 2.976 m. or  $9\frac{1}{8}$  Doric feet. As for the pronaos, we have seen that in its second stage (B) it was 0.328/0.338 m. or presumably 1 Doric foot shallower, so that the depth of the pronaos was then 4.607 m. or  $14\frac{1}{8}$  Doric feet. But since we have an even earlier stage (A) when the depth was 3.535/3.845 m., we are apparently justified in assuming that the exact dimension was originally intended to be what the opisthodomos eventually became, three wall blocks or 3.730 m. ( $11\frac{1}{6}$  Doric feet). In other words, the successive transformations through which the length of the inner building successively passed may be tabulated as follows:

	pronaos	cella	opisthodomos	
(A)	$11\frac{1}{6} + 2\frac{3}{8} + 43\frac{1}{4}$	$+ 2\frac{1}{8} + 9\frac{1}{8}$	$= 68\frac{5}{8}$	Doric feet
(B)	$14\frac{1}{8} + 2\frac{3}{8} + 40\frac{9}{16}$	$+ 2\frac{1}{8} + 9\frac{1}{8}$	$= 68\frac{5}{8}$	Doric feet
(C)	$15\frac{1}{8} + 2\frac{3}{8} + 37\frac{1}{4}$	$+ 2\frac{1}{8} + 11\frac{1}{6}$	$= 68\frac{5}{8}$	Doric feet

It is evident that the pronaos was always planned to be deeper than the opisthodomos; at first the relation was as nearly 5 : 4 as it could conveniently be made, and during the intermediate period not far from 3 : 2, and finally theoretically 4 : 3.

## FLOORING OF PERISTYLE AND PORCHES

As underpinning for the marble floor slabs one layer of massive poros blocks about 0.44/0.45 m. thick was regarded as sufficient, resting merely on the earth and chips accumulated during erection. The general arrangement of the underpinning, and its adjustment to the foundations at various levels, requires examination before we turn to the marble pavement itself.

Since the stylobate blocks, as laid in place, retained their preliminary inner faces with stippled panels and marginal drafting, the upper half of the inner stylobate face had to be trimmed back about 0.02/0.03 m. to give the final widths of 1.167 m. and 1.179 m. on east and west, 1.162 m. on either flank. Thus the area to be covered by the marble pavement measured 11.384 m. in width on both fronts,<sup>122</sup> where the depth is 3.796 m. on the east and 3.064 m. on the west.<sup>123</sup> On the flanks the depth of the

<sup>122</sup> The finished interval between the stylobates is 13.708 —  $(2 \times 1.162)$  = 11.384 m.

<sup>123</sup> East, 4.963 — 1.167 = 3.796 m.; west, 4.243 — 1.179 = 3.064 m.

area to be covered is 1.718 m.,<sup>124</sup> and the length is that of the toichobate, averaging 22.563 m.<sup>125</sup>

It will be recalled that on three sides of the temple (north, east, and south) the foundations beneath the peristyle columns project inward far enough to offer very solid support for the outer edge of the flooring. Since the marble stylobate blocks are 0.364 m. high, while the marble pavement slabs were to be only approximately half of this height (0.175/0.20 m.), it was necessary to provide supplementary underpinning along the edges of the peristyle (on the three sides with protruding foundations) in the form of thin poros slabs only 0.165/0.19 m. thick, and about 0.42/0.44 m. wide, laid as stretchers along the inner edge of the stylobate.<sup>126</sup> This adjustment of the underpinning of the pavement to the different level of the peristyle foundation by the use of a half course of thin blocks is illustrated in the sections of Fig. 11.

The poros underpinning of the east peristyle pavement, still remaining in place, consists of blocks about 0.44/0.45 m. in height, 0.99/1.32 m. in length, and averaging 0.62 m. in width. Six rows of blocks run from north to south, terminating about 0.74 m. from the north stylobate and 0.79 m. from the south stylobate; there being eight stretchers in each row, they have an average length of about 1.23 m.<sup>127</sup> The intervals between the ends of the rows and the north and south stylobate were filled by the thin blocks laid parallel to the north and south stylobates, and resting on their projecting foundations. Also the easternmost row of the six, likewise resting on the inward projection of the peristyle foundation, is composed of thin blocks. Because of the variant lengths and widths the plan of the underpinning (Fig. 1) is by no means regular, and jogged joints are frequent.

The poros underpinning of the west peristyle pavement is missing but undoubtedly resembled that at the east, with the exception that, the west peristyle foundation providing no support, all the rows of blocks must have been of the normal thickness, 0.44/0.45 m. The depth of the area being 0.732 m. less than on the east, we may assume that there were only five rows of blocks.

On each flank the interval between stylobate and toichobate was occupied by three rows of blocks laid parallel to the flank walls. Of these, the outermost rests on the inward projection of the peristyle foundation, running from the east to the west stylobate (a distance of 29.42 m.),<sup>128</sup> and consists of thinner (0.165/0.19 m.) and narrower blocks (0.42/0.44 m.), usually slightly shorter than the blocks composing

<sup>124</sup> Flanks, 2.880 — 1.162 = 1.718 m.

<sup>125</sup> I. e., 22.559 m. north, 22.567 m. south.

<sup>126</sup> Such a half-course of poros was employed as the underpinning of the pavement also in the Parthenon, not only in the peristyle, where the half-course and the marble pavement together correspond to the stylobate, but also in the side-aisles of the nave, between the older foundations and the new marble pavement (see my section in *A.J.A.*, XVI, 1912, pl. VIII).

<sup>127</sup> I. e.,  $\frac{1}{8}$  (11.384 — 0.74 — 0.79) = 1.232 m.

<sup>128</sup> I. e., 31.769 — 1.167 — 1.179 = 29.423 m.

the two other rows and independently jointed.<sup>129</sup> The two other rows are about 0.44/0.45 m. thick and 0.61 m. wide, like the normal blocks of the east and west underpinning. These thicker blocks are arranged in pairs, the joints in both rows coinciding though they are irregularly spaced; the average length is 1.285 m., and eighteen pairs of blocks occupied most of the length of the north toichobate,<sup>130</sup> and probably this was the case also on the south. These two inner rows are not carried through to the façade stylobates but, like the marble pavement above, only for the length of the toichobate, to which they are variously adjusted at the corners. At the northwest (and presumably also southwest) the last pair terminated in line with the west face of the toichobate. At the northeast, a nineteenth pair of stretchers penetrates into the area of the east peristyle, usurping the position of the northernmost block of the innermost east row. At the southeast, conversely, a block parallel to those in the east peristyle runs across the south peristyle in the form of a header against which the two inner flank rows abut. The central row, furthermore, overlaps the peristyle foundation (the backing of the middle step) by 0.03/0.15 m. and is undercut to this extent, a complicated form of construction (Fig. 11, sections B-B, C-C, D-D).

Of the marble flooring itself, eight slabs remain in place in the east peristyle (saved by the apse of the church, Figs. 1, 24), four in the north (Fig. 3). From these it is evident that the jointing of the floor followed as closely as possible that of the stylobate. By observing this principle and noting the pry holes, one may recover with assurance the scheme of the paving throughout the peristyle.

The east peristyle, 11.384 m. wide between the two flank stylobates and 3.796 m. deep between east stylobate and cella toichobate (course I), which here almost aligned with a joint of the flank stylobate,<sup>131</sup> was divided into three rows of slabs aligning with the flank stylobate joints, so that the easternmost row was 1.162 m. wide, the two others 1.309 m. and 1.325 m. Each row, furthermore, was divided into nine slabs aligning with the east stylobate joints, so that seven slabs averaged 1.292 m. (the three central slabs actually measuring 1.285 + 1.296 + 1.303 m. south to north), leaving 1.170 m. for the width of each outermost slab adjoining the flank stylobate. The slabs which remain in place are eight of the fourteen of normal dimensions 1.292 × 1.317 m. The thirteen slabs forming the eastern, northern, and southern edges

<sup>129</sup> Between joints 0.31 m. west of the fifth and 0.41 m. west of the tenth stylobate blocks from the northwest corner, on the north flank, a distance of 6.364 m., we have five blocks averaging 1.273 m.

<sup>130</sup> Fifteen pairs on the north extend from 0.70 m. from the northeast corner of the toichobate to 0.65 m. east of the fifth stylobate block from the northwest corner, a distance of 19.263 m., yielding an average of 1.284 m. Portions of the sixteenth pair remain in place, and two additional pairs would terminate the series in line with the northwest corner of the toichobate.

<sup>131</sup> The distance from east stylobate edge to axis of the third column on each flank being 5.560 m., a stylobate joint one quarter of the axial spacing (0.645 m.) from the column axis would have been 4.915 m. from the stylobate edge. The discrepancy of 0.048 m. with reference to the distance to the east toichobate, 4.963 m., was easily distributed among the slight irregularities of the slabs.

must have been of three special types,  $1.170 \times 1.317$  m. (four slabs),  $1.162 \times 1.292$  m. (seven slabs), and  $1.162 \times 1.170$  m. (two slabs). A split slab 1.162 m. long (width now 0.49/0.55 m.) formerly lying at the east end of the south flank, would probably have been one of the special marginal slabs in the east peristyle. Another, lying farther west, 1.168 m. long (maximum width now 0.59 m.), evidently belongs to the same series.<sup>132</sup>

In the west peristyle, again 11.384 m. wide but only 3.064 m. deep, the entire arrangement was destroyed by the excavation of Tombs 1-9. We cannot doubt,



Fig. 24. Pavement and Underpinning of East Peristyle, from North

however, that in each row were nine slabs carrying through the lines of the west stylobate, seven having lengths of 1.292 m. and two of 1.170 m., as in the east peristyle. And, in fact, the nine graves were clearly excavated with reference to the nine slabs of each row.<sup>133</sup> As for the number of rows in the depth, it is clear that the west face of the toichobate differed from the east face in bearing no relation to the flank stylobate joints, so that, if two rows of pavement slabs aligned with the flank stylobate slabs, there would remain a surplus of 0.618 m. for a very narrow row directly in front of the opisthodomos.<sup>134</sup> It is true that such a plan might have been reconciled to the flank

<sup>132</sup> The places in which the slabs lay, as well as the law of probability (thirteen *vs.* six), favor attribution of these two slabs to the east peristyle rather than to the series with a similar length on the west. Both pieces are now transferred to the interior (note 136).

<sup>133</sup> See p. 6.

<sup>134</sup> I. e., the innermost normal joint would be 3.625 m. from the edge of the façade stylobate, and so 2.446 m. from the inner edge of the west stylobate, but 0.618 m. from the toichobate. Thus the three rows would have been  $1.156 + 1.290 + 0.618 = 3.064$  m.

stylobate jointing by assuming that an L-shaped slab was fitted around each of the two west corners of the toichobate. But such construction was foreign to Greek temple pavement design, in which either the flank or the front line of the toichobate was prolonged to the stylobate by means of a pavement joint. So here in the Hephaisteion, on the inner face of the north and south stylobates, a distinct change of surface is visible on the polished anathyrosis band exactly in the line of the west face of the toichobate. It is clear that a joint was carried through from north to south, 3.064 m. behind the west stylobate. Instead of dividing this distance into two rows of 1.532 m.,

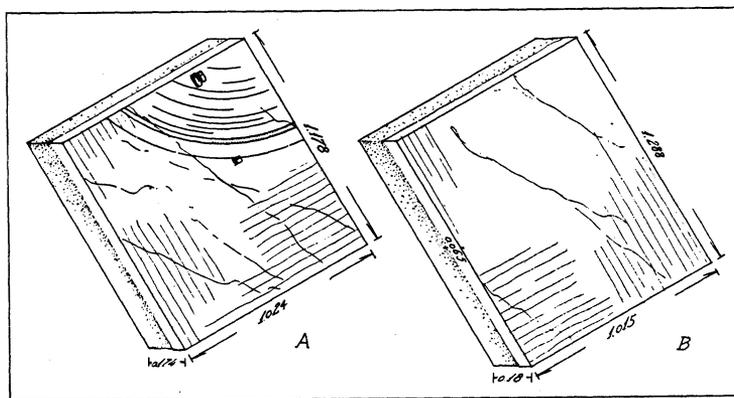


Fig. 25. Two Loose Slabs from West Peristyle Pavement

it was more reasonable to divide it into three equal rows averaging 1.021 m., quite without relation to the flank stylobates. Thus we should expect to have twenty-one slabs measuring about  $1.292 \times 1.021$  m., and six about  $1.170 \times 1.021$  m. That the latter procedure was the one adopted is shown by a surviving slab which had been re-used as a covering for a tomb in the opisthodomos or west peristyle (Fig. 25 B), measuring  $1.288 \times 1.015$  m.; this can be identified as one of the twenty-one normal blocks. And a floor slab which had been re-used at a late period just inside the west door of the church, measuring  $1.178 \times 1.024$  m. (Fig. 25 A),<sup>135</sup> would satisfactorily fill the position of one of the end blocks. Thus the widths of the three rows in the west peristyle were  $1.015 + 1.024 + 1.025 = 3.064$  m., though the exact sequence is not determinable.<sup>136</sup>

<sup>135</sup> On the top of the slab are the marks of wear left by a swinging door with a radius of *ca.* 1.10 m. These traces may derive from one leaf of the main west doorway of the church which, without the jambs, had an opening *ca.* 2.20 m. wide.

<sup>136</sup> The slab  $1.015 \times 1.288$  m. has been replaced behind the second column on the west front, counting from the northwest corner, and the slab  $1.024 \times 1.178$  m. behind the second column on the north flank. In these positions they clearly illustrate the jointing system and fit satisfactorily enough though they might equally well have come from other positions in the vicinity. Three other loose slabs found in the peristyle (mentioned on pp. 60, 62) were placed inside the cella in 1939.

Along the flank peristyles the interval of 1.718 m. between the stylobate and toichobate was divided into two equal rows of slabs, each 0.859 m. wide, jointed in accordance with the flank stylobates. Thus each row contained sixteen regular slabs averaging 1.290 m. in length; the westernmost in each row was presumably longer, about 1.962 m., to reach to the west corner of the toichobate.<sup>137</sup> The four slabs still surviving in the north peristyle are of the regular series, 0.858/0.859 m. in width and 1.29/1.30 m. in length. A weatherworn but complete slab formerly resting on the south stylobate measures 0.858 × 1.308 m. A perfectly preserved slab found in the Agora (Inv. No. A 623), formerly employed as a support for the altar in the first period of the church of the Vlassarou, measures 0.858 × 1.285 m.

The marble pavement slabs of the peristyle as thus described, of which twenty survive (in whole or in part) out of the total of one hundred and eighteen, are 0.174/0.19 m. in thickness (averaging 0.183 m.), with very carefully dressed lower beds, the sides bordered with an anathyrosis band all around the upper edge. The slabs were laid without dowels.

Within the pronaos, the marble flooring was carried on a packing of poros blocks, one to one and one half courses deep, resting in part on earth but chiefly on bedrock. A certain amount of irregularity resulted from the protrusion of the various tentative east cross-wall foundations, of which the first threshold support (extending to within 1.835 m. of the inner edge of the east toichobate)<sup>138</sup> left only a narrow interval to be filled with normal underpinning blocks 0.44/0.45 m. thick, reaching up to the level of the bottom of the marble pavement, 0.184 m. below the top of the toichobate (course I). These thicker blocks are arranged in two rows of four blocks each, parallel to the east toichobate, terminated by a header parallel to each flank wall. Between these and the buried cross-wall foundations a thin layer of slabs resting on earth filled out the irregularities and brought the remaining area up to the level of the top of the euthynteria course *a*. Over this area, in turn, was placed another layer of thin poros slabs 0.174 m. thick, rising to the level of the depressed threshold bed in the marble cross-wall blocks of course I and also to the tops of the two thicker poros underpinning courses. The somewhat irregular plan and section formed by this underpinning are illustrated in Figs. 26 and 11 (sections A-A, B-B).

The area to be filled by the marble pavement in the pronaos measures 6.163 m. in width<sup>139</sup> and 3.821 m. in depth.<sup>140</sup> As we have noted, however, the east threshold projected 0.369 m. from the cross-wall plane (0.338 m. from course II), and the line

<sup>137</sup> I. e.,  $1.290 + (1.290 - 0.618) = 1.962$  m.

<sup>138</sup> See p. 50; the face of the threshold foundation is 2.918 m. behind the anta faces, 3.015 m. behind the toichobate face, 2.017 m. outside the east cross-wall plane.

<sup>139</sup> I. e., 6.230 m. (between wall planes) — 0.033 — 0.034 m. (north and south projections of course II from wall planes) = 6.163 m.

<sup>140</sup> I. e., 5.032 m. (face of toichobate to east cross-wall plane) — 1.180 m. (east toichobate) — 0.031 m. (projection of course II from cross-wall plane) = 3.821 m.

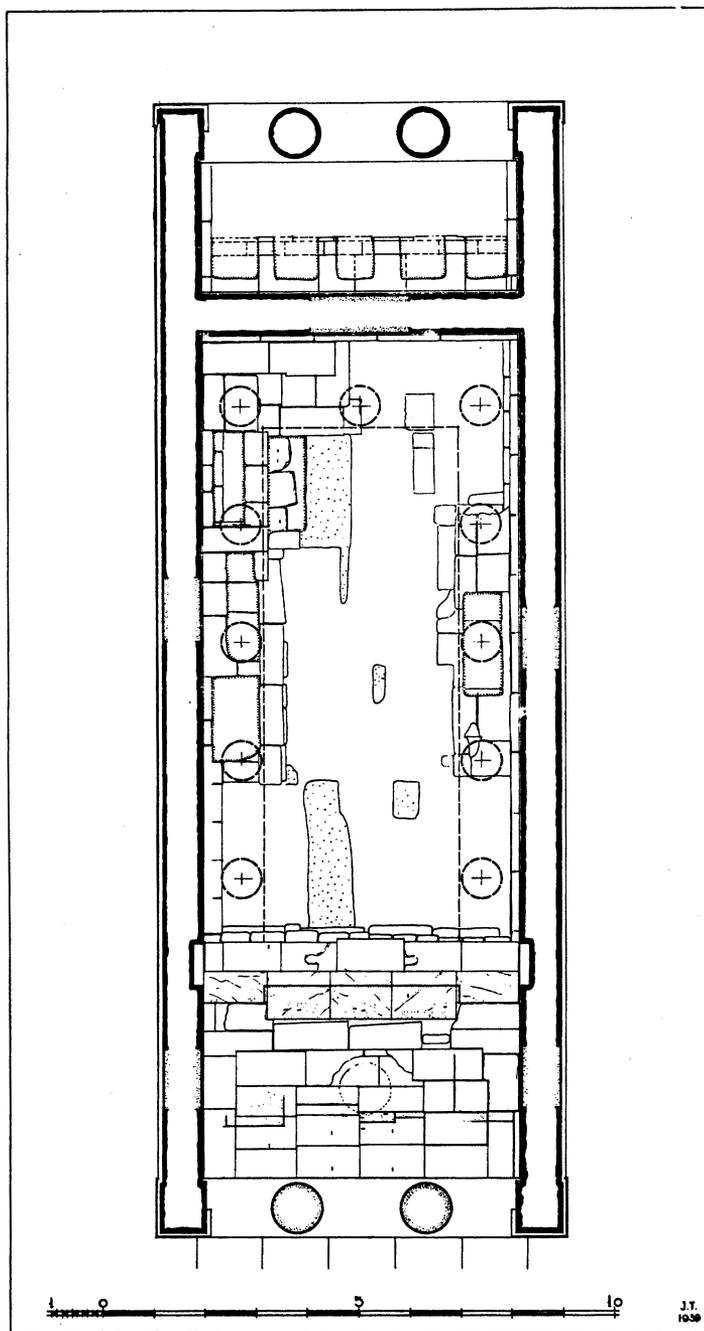


Fig. 26. Plan of Interior of Cella, Showing Actual State of Ancient Foundations

of the face of the threshold was prolonged north and south to the flank walls.<sup>141</sup> Thus the actual depth to be filled by the pavement slabs became 3.483 m. Enough pry holes and beddings for individual slabs may be distinguished on the top of the poros underpinning to show that the area was occupied by fifteen slabs arranged in three rows with five slabs in each row. It will be noted that these joints are in alignment with those of the east peristyle and east stylobate, thus breaking joints with the pronaos toichobate. Evenly subdivided, the slabs would measure 1.233 m. from north to south and 1.161 m. from east to west; and this seems to have been the actual arrangement.<sup>142</sup>

A peculiar jog in the north wall, at a point 0.364 m. east of the west pavement joint, where course I suddenly recedes from 0.002 m. to 0.020 m. behind course II, is absolutely meaningless since it cannot have aligned with a pavement joint. The dimension so closely resembles the threshold projection (0.369 m.), however, that it is tempting to assume that it was cut during the intermediate stage of the design when course I of the cross-wall was planned to be 0.328 m. farther east than the final design required. At any rate, the jog was concealed by the overhanging course II, which overlapped the pavement on the north as contrasted with the south side where courses II and I are flush and the pavement terminated in the same line.

Not a single slab of the pronaos pavement has survived, but we may conclude that its level coincided with that of the top of the toichobate (course I); in other words, it was not depressed as in the Parthenon and at Bassai. It is true that the anathyrosis band 0.08 m. high along the upper edge of course I would permit a depression of 0.025/0.03 m., but this would expose the above-mentioned irregularity on the north flank (where, with course I receding, course II would seem to be unsupported). It is also notable that the depth of the pavement bed below the top of course I is 0.184 m., exactly the average thickness of the peristyle pavement slabs. That the level of the pavement exactly coincided with the top of the toichobate cannot be doubted.

In the opisthodomos we have neither poros underpinning nor marble slabs to guide us in the restoration. Everything was removed to make way for the five Byzantine tombs (Nos. 10-14). We may suppose that the underpinning was one course (0.44/0.45 m.) in thickness throughout, resting on earth. The area to be filled by the marble pavement was 6.155 m. in width<sup>143</sup> and 2.597 m. in depth.<sup>144</sup> But course I of the west cross-wall, unlike that on the north and south flanks, projects 0.052 m. from the course above, and so reduces the depth available for the pavement to 2.545 m.

<sup>141</sup> See p. 53.

<sup>142</sup> Traces of joints 1.12/1.17 m. from the east toichobate, 1.26 m. from the north wall and 2.55 m. from the south wall, would agree with this system.

<sup>143</sup> I. e., 6.230 m. (between wall planes) — 0.040 — 0.035 m. (north and south projections of course II from wall planes) = 6.155 m.

<sup>144</sup> I. e., 3.817 m. (face of toichobate to west cross-wall plane) — 1.181 m. (west toichobate) — 0.039 m. (projection of course II from cross-wall plane) = 2.597 m.

We may assume that this area was evenly subdivided into five slabs of 1.231 m. from north to south as in the pronaos, and into two rows of 1.2725 m. from east to west. In fact, the disposition of the five tombs (Nos. 10-14) within the opisthodomos shows fairly definitely that they correspond exactly to the pavement slabs, as in the west peristyle.<sup>145</sup>

## FOUNDATIONS OF INTERIOR COLONNADES

We now return to the cella and consider in greater detail the interior foundations which, as already observed, have come to light along the south, west, and north sides of the room (Fig. 27). These foundations are built of heavy poros blocks, laid in regular sequences of headers and stretchers. Practically everywhere they extend down to bedrock, attaining toward the west end a maximum depth of four courses as counted below the rebate or shelf which, as previously mentioned, lies 0.065 m. below the top of marble course I.<sup>146</sup> Their massive character and their disposition make it clear that they supported an interior colonnade of II shape.

Along the inner face of the west cross-wall, for instance, a single course of stretchers (*d'*) was laid in a trench about 0.95 m. wide cut through the accumulation of red earth on the temple site, and reaching down to within about 0.05 m. of bedrock; a thin residuum of the gray earth which underlies the red, therefore, forms the actual bed of this course. The southernmost stretcher of this row is largely concealed behind the abutting foundation lining the south wall; the second stretcher is 0.50 m. high, 1.25 m. long, and 0.71 m. wide, its west and east faces being respectively 1.29 m. and 2.00 m. from the west cross-wall plane.<sup>147</sup> The north end of a third stretcher lies 1.38 m. beyond the end of the second, but most of it has been cut away by the builders of Tomb 32. Between these stretchers and the lowest foundation course of the west wall is an interval of 1.24 m., filled merely by earth (Fig. 28) of which about 0.05 m. is a gray accumulation, 0.345 m. more a red earth accumulation (cut through at east and west by the trenches for the above-mentioned stretchers and for the west cross-wall), and the topmost 0.175 m. is the construction debris of the temple (filling also the unoccupied portions of the above-mentioned trenches and running across the line of stretchers, burying them to a depth of about 0.07 m.). On this layer of debris, and directly against the west wall foundation, was laid a line of stretchers (*c'*) 0.48 m. high and 0.68 m. wide, faced on the east by headers 0.38 m. high and up to 1.36 m. in

<sup>145</sup> We have noted the edge of a layer of mortar 1.31 m. from the north toichobate, which may have some indirect relation to a pavement joint or to the edge of a grave cover slab replacing a pavement slab (see note 14).

<sup>146</sup> These courses of the interior column foundations are lettered from the top downward (*a'*, *b'*, *c'*, *d'*); cf. Fig. 29.

<sup>147</sup> All dimensions within the cella are measured from the wall planes enclosing a rectangle 6.230 × 12.145 m.

length, their east ends resting on the thin 0.07 m. layer of debris which covers the stretchers below. These headers of the second course extend at most 2.16 m. from the wall plane, this being the extreme eastward projection of the foundation. The third course (*b'*) is composed of headers 0.415 m. high, 0.675 m. wide and 1.32 m.



Fig. 27. Interior of Cella from East, with Ancient Foundations Exposed

long, abutting against the west wall foundation, faced on the east by stretchers of the same height, 0.60 m. wide and 1.30 m. long; the utmost protrusion of this course is 2.05 m. from the wall plane. The fourth course (*a'*) is composed of stretchers along the west wall, 0.42 m. high, 1.30 m. long, and 0.61/0.67 m. wide, faced on the east by headers of the same height, 1.115/1.19 m. long<sup>148</sup> and 0.59/0.64 m. wide (the southernmost being only 0.40 m. wide).

The exact projection of this fourth course (*a'*) from the west wall plane is

<sup>148</sup> I. e., the two headers now remaining are 1.19 m. long, extending from 0.74 m. to 1.93 m. from the west wall. The missing fourth and fifth headers, however, abutted against a portion of stretcher projecting 0.07 m. more, to 0.82 m. from the wall; between this stretcher and the assumed face of the course is an interval of 1.115 m.

nowhere preserved, though the ends of the headers imbedded in the southwest corner, projecting 1.93 m., seem to have aligned approximately with the missing face of the course. A more definite indication is a mediaeval ledge cut on the top of course  $b'$ , for a distance of 1.30 m. to 2.02 m. from the south wall plane; this roughly cut ledge, 0.17 m. deep and about 1.935 m. from the west wall plane, was made for the cover of Tomb 35 (Fig. 28). North of this another ledge, only 0.015 m. deep and 0.11 m. wide, likewise at a distance of 1.935 m. from the west wall plane, is traceable for a



Fig. 28. Interior Column Foundations at Southwest Corner of Cella, with Earth Below

short distance between 2.05 m. and 2.57 m. from the south wall plane. This more shallow cutting, though of better workmanship, seems likewise to have been intended for a Christian grave; the bed slopes and shows rough hacking of late date, and it corresponds to the shallow Tomb 36, of which it would have supported the cover. While these two ledges are not in themselves original, therefore, the very fact of their existence in such definite and exact alignment, not only with each other but also with the ends of the surviving headers at the southwest corner, would suggest that here, at about 1.935 m. from the west wall plane, once lay the face of the course against which the covers of the tombs abutted.

It will be noted that, the topmost foundation course ( $a'$ ) being 0.065 m. below the top of course I and so 0.267 m. below the floor level,<sup>149</sup> the other course levels are here

<sup>149</sup> The floor level is here taken as the top of marble course II (see below, p. 70).

0.685 m., 1.10 m., and 1.48/1.58 m. below the floor level, with the lowest stretchers (*d'*) reaching to 2.07 m. below the floor. When we compare the west wall foundation (with course lines 0.56 m., 1.095 m., 1.545 m., and 2.00 m. below the floor), it is apparent that only one course line, that which is about 1.10 m. below the floor, carries through. Thus there is no actual bonding of the interior foundation to that of the west cross-wall; even the coincidence at the level 1.095/1.10 m. below the floor is due rather to an external influence, the fact that at their north ends courses *a* of the west wall foundation and *b'* of the interior column foundation were both bedded on the ledge cut on the upper edge of course *b* of the north wall foundation.

Along the south wall the foundation for the interior columns was erected independently of that at the west, with no continuity of courses except in the topmost. There are only three courses of poros (Fig. 29). The lowest (*c'*) consists of headers of various heights (0.36/0.495 m.), 0.64/0.70 m. wide, and 1.30/1.65 m. in length; the two westernmost headers, laid somewhat diagonally, project as much as 1.79/1.90 m. (west and east edges respectively) from the south wall plane, while, at a point 3.50 m. from the west wall, the third header recedes to within 1.64 m. of the south wall plane, a distance which it retains (with variations up to 1.68 m.) as it proceeds eastward. Thus the two westernmost headers form a sort of projecting "ear." The blocks toward the west rest on the earth accumulations (gray earth, red earth, and temple debris in succession from bottom to top), while toward the east they are bedded on rock; the south ends, at least toward the west, in some cases rest on the ledge cut in course *c* of the south flank wall; only the top of this header course (*c'*) is at a uniform level. The next course (*b'*) is composed of two rows of stretchers laid parallel to the wall, 0.43/0.45 m. in height, 1.20/1.28 m. in length,<sup>150</sup> and averaging 0.675 m. in width; at the only point where the north face of the course has been respected by late grave-diggers, namely, between Tombs 34 and 38, it is 1.605 m. from the south flank wall plane. The inner edges of these stretchers rest on the ledge cut in course *b* of the south flank wall, 0.25 m. outside the wall plane. The top of stretcher course *b'* is at the level of the corresponding course against the west wall (0.685 m. below the floor level), forming a continuous bed for the topmost foundation course. This latter, the third poros course (*a'*) on the south, consists of one row of headers 0.43 m. high, 1.26 m. in length, and of various widths between 0.49 m. and 0.69 m.,<sup>151</sup> laid directly against marble course I of the south wall and resting on the ledge cut in the topmost poros course *a*, 0.14 m. below the bottom of the marble; the back of the ledge is flush with the marble course I, and so is 0.06 m. outside the wall plane. The face of this course still remains beside Tombs 34 and 38, extending 1.325 m. from the south wall plane but receding 0.28 m. from the course below. Thus the course lines of the south interior column foundation lie 0.69 m.,

<sup>150</sup> Five blocks measure 1.20 + 1.22 + 1.28 + 1.22 + 1.23 m. from east to west.

<sup>151</sup> Five blocks measure 0.60 + 0.49 + 0.49 + 0.69 + 0.69 m. from east to west.

1.14 m., and 1.57 m. below the floor level, corresponding as closely with those of the west column foundation as could be expected in this sort of work, but disagreeing most emphatically with the south wall foundation (with course lines 0.56 m., 0.93 m., 1.375 m., and 1.81 m. below the floor). The differences of 0.13 m., 0.19 m., and 0.195 m., and the ledges cut on the flank wall foundation to accommodate the interior column foundations, show clearly that these were two distinct stages of the construction.

Along the north wall two patches of the interior column foundation are preserved at the west and east ends of Tomb 43, and also a thin strip along the south side of this grave. The face of this part of the foundation has been almost entirely hewn away by the builders of Tombs 42 and 47. We see, however, that it once consisted of four courses of poros in its western portion, three courses in its eastern portion; the topmost course (*a'*) is now entirely lacking. The lowest course (*d'*), bedded on rock under the western part of the foundation, consisted of two pairs of stretchers 0.66/0.68 m. wide; the second pair, 1.26 m. long, terminates at a distance of 3.85 m. from the west wall plane, here abutting against a header at the same level, 0.64 m. wide, marking the eastern end of the lowest course. This lowest course projected to a maximum of 1.71 m. from the north wall plane;<sup>152</sup> but a separate block, apparently a second-hand wall block set on edge, was bedded on rock at a distance of 2.02 m. to 3.22 m. from the west wall plane and 1.68 m. to 2.08 m. from the north wall plane, thus again forming a projecting "ear" corresponding to that of the south foundation. The top of this isolated block is cut with a slightly lower bed (depressed 0.035 m.) west of a line 2.33 m. from the west wall plane, at a level exactly fitted to receive the face of course *c'* of the west foundation; the higher portion of the top, east of this line, fits the bottom of course *c'* of the north foundation. Course *c'* on the north is composed of headers 0.41 m. high, 0.62/0.70 m. in width, projecting at most 1.65 m. from the north wall plane;<sup>153</sup> the ends of these blocks rest in some cases on the ledge cut in course *c'* of the north flank foundation. The third course (*b'*) is composed of two lines of stretchers, not laid in pairs but showing variations as great as 0.24 m. in the positions of corresponding end joints; they are 0.44 m. high, 0.65 m. wide, and 1.23/1.30 m. long;<sup>154</sup> the face of the course is entirely destroyed. And the topmost course (*a'*) is missing, so that its construction (in headers) and projection must be restored on the analogy of that on the south. Thus the course lines of the north interior column foundation lie 0.675 m., 1.115 m., and 1.525 m. below the floor level, comparing favorably with those of the west and south column foundations, but contrasting

<sup>152</sup> The face of the course is preserved at the very bottom, under Tomb 42.

<sup>153</sup> Ends of blocks are preserved between Tombs 42 and 47.

<sup>154</sup> Three blocks of the outer row (toward the north flank wall) occupy 3.90 m., while the three corresponding blocks of the inner row occupy only 3.69 m., with joints 0.03 m. to 0.24 m. west of the outer joints.

strongly with those of the north wall foundation (with course lines 0.56 m., 0.945 m., 1.365 m., and 1.815 m. below the floor). The differences of 0.115 m., 0.17 m., and 0.16 m. again demonstrate the separation in construction.

Above these foundations, of which the topmost poros course ( $a'$ ) lies 0.065 m. below the top of marble course I and corresponds exactly to a shelf hewn in the upper edge of this marble course, we are to restore the marble stylobate of the internal colonnade (Fig. 29). The height of the stylobate is suggested by the fact that the inner face of course II (the moulded base course of the exterior) is flush with the back of this ledge and is treated with an anathyrosis joint, of which the contact band along the upper edge is 0.085/0.09 m. high. Thus the course of which the back fitted into the ledge on course I, and abutted against the back of course II, must have risen nearly if not quite to the top of course II. It might, of course, be assumed that not all of the band of 0.085/0.09 m. was utilized for the joint, and hence that course II protruded 0.025/0.03 m. above the abutting course. But such a slight rise in the wall sill appears trivial; and in view of the fact that the sill projected from the orthostates we may infer, conversely, that it was flush with the pavement (as inside the Parthenon). Thus we may conclude that whatever abutted against course II rose to its very top, so determining the level of the floor at the point where it came into contact with the wall. But the height of the abutting course, corresponding to the ledge of 0.065 m. and the wall base (II) of 0.202 m., forms a dimension (0.267 m.) which is far too great for ordinary floor slabs, and yet insufficient for such floor slabs plus an underpinning of thin poros slabs of the type used just inside the outer peristyle. Such a height, on the other hand, would be very suitable for stylobate slabs supporting columns, and thus yields confirmatory evidence of the existence of the internal colonnades.

The width of the internal stylobate may be estimated, or very closely approximated, by means of an ancient cutting which is preserved, almost miraculously, among the various cuttings for the sides of graves and for the ledges supporting their covers. In one place, on the south foundation, between Tombs 35 and 39, exists a short length (about 0.76 m.) of a ledge which has no connection with the graves, but is a remnant of an ancient ledge 0.125 m. deep cut in the upper edge of the topmost poros course ( $a'$ ), 0.09 m. behind the face of the course, parallel to the south wall and 1.235 m. from the wall plane (Fig. 29). This must correspond exactly with the lower portion of the face of the inner stylobate, which, as we have noted, would undoubtedly have been of marble, 0.267 m. high. It is conceivable that, as on the inner face of the peristyle stylobate, the upper edge of the inner stylobate was cut back 0.02/0.03 m.; but the discrepancy between this ledge in the poros course and the finished edge of the stylobate could hardly have been greater. Thus we may infer that the finished edge of the inner stylobate was 1.205/1.235 m. from the flank wall plane, and that the clear width measured between the finished tops of the inner stylobates was 3.76/3.82 m.

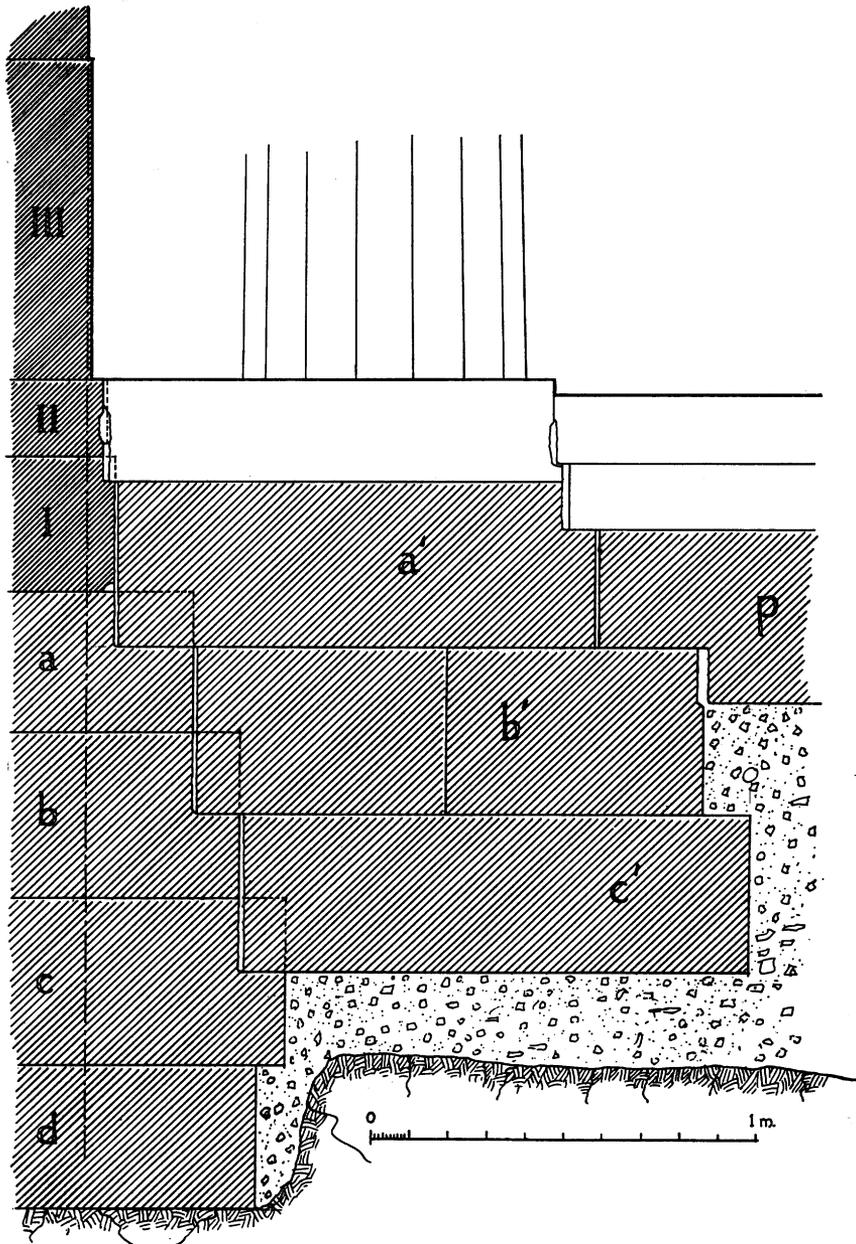


Fig. 29. Detail of Interior Column Foundation and Pavement Underpinning at South

The fact that the top course ( $a'$ ) of the west interior column foundation projected about 1.935 m. from the wall plane, as contrasted with the projection of only 1.325 m. from the wall plane on the south (and presumably also north), at once suggests that the colonnade was deeper across the back than on the flanks. This seems to be implied also by the construction, which is two units in width on the flanks (i. e., two stretchers or one header) but three units on the end (i. e., one header plus one stretcher). This mode of construction, however, must warn us that we should not necessarily adopt the difference in foundation projections (0.61 m.) as the actual difference in the depths of the colonnades; for this difference happens to be approximately one unit, that is, the width of a stretcher, and so might have resulted merely from construction with standard blocks. The difference in the depths of the colonnades, while it certainly existed, might have been either more or less than 0.61 m. The face of poros course  $a'$  of the west foundation yields the maximum dimension allowable, 1.935 m.; but the marble stylobate might well have receded slightly. We can only say that the minimum distance of the west stylobate from the east wall would have been  $12.145 - 1.935 = 10.21$  m., and that it might have been considerably more, with an unattainable limit of  $12.145 - 1.205$  (the minimum projection from the flank walls) = 10.94 m. Thus we obtain limits of 3.76/3.82 m. for the width and 10.21/10.94 m. for the length of the sunken nave (disregarding any slight inward projection of the east threshold).

By great good fortune there remains in place, again toward the southwest corner of the cella, at the east end of Tomb 35, a small piece of a poros block ( $p$ , Fig. 29; cf. Fig. 27) of underpinning for the flooring of the nave. This block is 0.45 m. high, and its south edge is undercut for a width of 0.26 m. and a height of 0.14 m., so that it rests in part on the top of course  $b'$  (which projects 0.28 m. from the face of course  $a'$ ) and in part on a very narrow ledge cut 0.14 m. below the upper edge of course  $b'$  (Fig. 29). Its top, of which an area only  $0.075 \times 0.10$  m. is preserved, is flush with the bottom of the ledge cut 0.125 m. deep in the topmost course ( $a'$ ) of the foundation beneath the stylobate. Between this level and that assigned to the top of the inner stylobate is an interval of  $0.125 + 0.267 = 0.392$  m. On the analogy of other contemporary temples we may safely assume that the floor of the nave lay slightly lower than that of the aisles, perhaps by 0.04 m. The remaining difference in level, 0.352 m., is still excessive for marble floor slabs alone. It will, however, accommodate a floor slab of normal thickness, 0.178 m., together with a half course of poros bedding, say 0.174 m. thick. This is precisely the thickness of the half course already noted beneath much of the marble flooring in the pronaos and peristyle. Hence in the western part of the nave, at least as far as the east edge of this block of underpinning (4.25 m. from the west wall), we may restore marble floor slabs above one and a half courses of poros underpinning, a total thickness of about 0.80 m., and extending 0.84 m. below the top of the internal stylobate (Fig. 29).

In the middle and eastern parts of the cella, on the other hand, thin vertical slices of the ancient earth filling survived between the tombs to such a height that they rose to within 0.66/0.72 m. of the top of the internal stylobate (Fig. 11, section A-A). In these positions, therefore, the pavement was at least 0.18 m. thinner; we evidently have room only for a single course of poros of normal thickness, about 0.44 m., below the marble pavement, forming a total thickness of about 0.615 m. and extending about 0.655 m. below the top of the internal stylobate. This contrast with the heavier underpinning toward the west suggests that the architect anticipated the placing of a statue base in its normal position.

As we have noted, the internal column foundations have projecting "ears" in the southwest and northwest corners, for which it would be difficult to find any other explanation than that they, too, were intended for the support of the ends of a statue pedestal. But these "ears" at a low level, and the heavy pavement underpinning above, have little relation one to another, and appear to form parts of two disconnected schemes separated by earth which directly covered the "ears" and showed that they did not actually support the heavier underpinning. The solution of this discrepancy will be undertaken later.<sup>155</sup>

By means of the study of the foundations, however, we have ascertained that the II-shaped plan supported a colonnade which was closer to the walls on the flanks than at the rear. The clear width of the nave was 3.76/3.82 m. between the missing internal stylobates, which lay 1.205/1.235 m. from the flank walls. The length of the nave was 10.21/10.94 m. from east cross-wall to west stylobate, which lay 1.205/1.935 m. from the west wall. For more accurate information we must turn to the superstructure.

## RESTORATION OF INTERIOR COLONNADES

The existence of interior columns is confirmed, not by any surviving fragments of the columns themselves, but by a length of epistyle of Pentelic marble (Fig. 30)

<sup>155</sup> See pp. 92, 108-109. It may be noted, however, that these "ears" might conceivably be regarded, as H. A. Thompson prefers (letter), as the beginnings of somewhat wider foundations for the flank colonnades, approximately of the width of the west foundation. As corroborative evidence Thompson recalls that the trench prepared for the remainder of the south flank colonnade was of excessive width; thus the part of the footing trench unoccupied by foundation blocks (as under the surviving block of the nave floor underpinning, Fig. 27, for instance) is here much greater than elsewhere in the temple (as on the outer face of the north flank wall foundation, Fig. 13). The corresponding evidence for the north colonnade foundation trench was destroyed by the graves. I must concede that this interpretation of the "ears" is not impossible: one might infer that the architect decided to narrow the foundations (or, rather, to widen the nave) after he had begun to lay them and when he found that he could place the flank walls of the cella farther out (see p. 38). But it seems more probable that the decision to place the walls farther out coincided with the planning of the interior columns and was, in fact, an integral part of that plan (scheme B), thus antedating the actual laying of the interior column foundations; and the coincidence of the "ears" with the logical location of the statue pedestal seems too close to be ignored.

found by Orlandos in the modern east wall of the church in the course of his reconstruction.<sup>156</sup> Its material, dimensions, and workmanship, in addition to its recent provenance, make certain the attribution of the block to the temple. The width of the soffit is 0.514 m., and this is finished to be exposed to view from below except at the points where the ends were supported. The height is 0.409 m. The faces are nondescript in character, one face being absolutely plain, the other crowned by a simple fascia or taenia 0.097 m. high and projecting 0.011 m.

The close correspondence in height (0.409 m.) with the two uppermost surviving courses of the cella walls (XV-XVI, each 0.404 m.), aligning with the sculptured friezes of the pronaos and opisthodomos (very different from the heights of any of the courses below),<sup>157</sup> suggests that this internal epistyle not only followed the usual

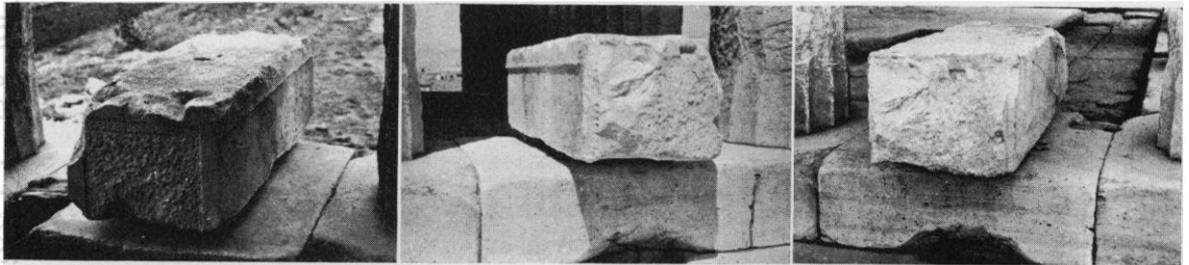


Fig. 30. Epistyle Block of Upper Interior Colonnade

technical practice of aligning its soffit with a wall course line, but also that the construction and design were so coordinated as to align the top likewise with a course line. The slight discrepancy in height (0.404 m. in wall courses XV-XVI, 0.409 m. in the epistyle) is immaterial, since it might have been overcome by a slight bed dressing. In consequence, the height of the epistyle soffit above the internal stylobate would have been at least 6.250 m. (epistyle aligning with course XV),<sup>158</sup> but might have been 6.654 m. (aligning with XVI) or even 7.058 m. above (aligning with XVII, if the walls rose so high).

The last of these possibilities requires some consideration in view of the fact that the inner face of the wall now rises only to the top of course XVI. That there was also a course XVII is certain, however, at least on the exterior, where this course is actually preserved in the form of an epikranitis 0.207 m. high. But this course must likewise have had an inner face, now missing, in view of the fact that course XVI lacks any form of transition to the interior ceiling. It is true that this absence can

<sup>156</sup> Both Orlandos and I had indulged in vain speculation in 1937 regarding its original use. Its true nature was first ascertained by Thompson after the discovery of the inner column foundations two years later.

<sup>157</sup> Courses IV-X average 0.5115 m., XI-XII 0.4925 m., XIII-XIV 0.420 m., XV-XVI 0.404 m.

<sup>158</sup> That is, 0.843 (III) + 3.581 (IV-X) + 0.986 (XI-XII) + 0.840 (XIII-XIV) = 6.250 m.

now be discerned only on the west cross-wall, where the face of course XVI is visible below the crown of the mediaeval vault; but it is clear that a crowning moulding on the flank walls, if it existed, would also have been returned across the rear wall. And while the upper parts of the flank walls are now concealed to the depth of three courses (XIV-XVI) by the haunches of the vault, excavation at one point on each flank revealed the absence of the crowning mouldings here as well. The deficiency must have been supplied by the missing inner face of course XVII. For the purpose of examining the bed of this course (partly covered on the west cross-wall by the rear wall of the mediaeval vault, and entirely concealed on both flanks by the haunches of the vault, while the east cross-wall is missing), the two above-mentioned holes were pierced through the flanks of the vault. They revealed that on both flanks the course was made in two parts, without connecting clamps. The outer portion, formed by the long epikranitis blocks 0.207 m. high, occupies 0.335/0.365 m. of the width of the flank wall and has remained in place because it still supports the marble peristyle ceiling. The inner portion occupied 0.395/0.425 m. of the width, but was removed entirely by the builders of the mediaeval vault in order to obtain a firmer grip on the walls than a course of half-width could have afforded. This missing inner portion might be restored either as an interior cornice (perhaps an exact replica of the epikranitis on the exterior, 0.207 m. high) or as a full wall course 0.409 m. high with a simpler crowning feature (such as the fascia on the epistyle itself). In the latter case, the great difference in height between the inner and outer portions of course XVII might be corroborated by the very fact that they were separate series of blocks; likewise the absence of connecting clamps (as shown by the flank walls) suggests that the tops were at different levels. It may be admitted that the latter implications should not be pressed too far, in view of the fact that the outer and inner faces of the epikranitis on the porch fronts and also on the flank walls of the pronaos and opisthodomos are likewise separately constructed and lack clamps, even though their tops are at the same level.<sup>159</sup> On the other hand, the peculiarity of this separate construction of members of uniform height—contrast the porches of the Parthenon wherein outer and inner faces are cut on single blocks—suggests that these latter instances (which form comparatively short stretches) merely continue a method forced upon the masons throughout the major extent of this course by differences in level. Even the very fact that the inner blocks were removed from both flank walls might be attributed to the apprehension of the mediaeval builders that blocks which were high as well as narrow might topple or rotate under pressure of the vault. These facts render plausible, at least, the supposition that the inner face of course XVII might have been 0.409 m. high.

The profile of the epistyle gives no clear indication as to whether the order was intended to be Doric or Ionic; either face would be appropriate for either order

<sup>159</sup> On the opisthodomos porch front, in fact, the epikranitis course is composed of three series of blocks, outer and inner faces with intervening fillers, all with the tops at the same level.

(assuming that, if Ionic, it was the fascialess type antedating the Propylaia), since the main face must have been supplemented in either case by a higher course containing the crowning mouldings. Fortunately, however, a decision may be reached on the basis of two dimensions, soffit width of 0.514 m. and height of 6.250/7.058 m. above the internal stylobate. The soffit width happens to be almost identical with that of the Ionic epistyle at Bassai (0.518 m.), where, furthermore, the internal Ionic columns were not very different in height (5.856 m.).<sup>160</sup> It is evident, however, that this proportion of 1 : 11.30 at Bassai is an abnormal one, applying only to a particularly thin epistyle resting on the half-capitals of engaged columns, and even there it is replaced by a ratio of 1 : 9.01 where the epistyle emerges into the open at the south end of the cella (with a soffit width of 0.650 m.). It is clear, therefore, that the ratio of 1 : 12.16/13.73 resulting in the Hephaisteion would be inadmissible for a single storey of Ionic columns filling the entire height. It would be even more preposterous for a single storey of Doric columns. We are in consequence obliged to restore two storeys of columns. Under such conditions, however, it is evident that the epistyle would be, not too narrow, but too wide for Ionic columns. The available ratios of soffit widths to column heights are 1 : 8.29 (Athena Nike), 1 : 8.68 (Ilissos), 1 : 9.01 (Bassai), 1 : 9.79 and 1 : 9.96 (Erechtheion east and north), and 1 : 10.28 (Propylaia); an average would be 1 : 9.37. But an upper colonnade in the Hephaisteion would occupy considerably less than half of the available height of 6.250/7.058 m. (since much more than half would be required for the heavier lower colonnade and for the intervening epistyle), yielding a wider soffit ratio than 1 : 6.08/6.86,<sup>161</sup> which would be quite unsuitable for the Ionic order. On the other hand, such a soffit ratio would be perfectly adapted to the Doric order, comparing favorably with 1 : 5.10 (Parthenon),<sup>162</sup> 1 : 5.71 (Hephaisteion), 1 : 5.76 and 1 : 5.90/6.09 (Propylaia west wings and central building), 1 : 5.92 (Bassai), and 1 : 6.30 (Sounion); an average would be 1 : 5.83. Without any doubt, therefore, we are to restore two storeys of Doric colonnades.

The height of the lower storey of interior columns can be determined with perfect accuracy. Sockets for receiving the end of the last block of each alternate course of the (now missing) east wall of the cella appear in the orthostates (III) and in the "odd" courses (V, VII, IX, XI, XIII) of the flank walls, against which the "even" courses merely abutted (Figs. 31, 36). The ends of the terminal blocks of the sixth course (IX) above the orthostates were set in to twice the normal depth, i. e., 0.16 m. as contrasted with 0.07 m.<sup>163</sup> This exceptional jointing must have been

<sup>160</sup> I quote the dimensions attained in my forthcoming monograph on the temple at Bassai.

<sup>161</sup> That is, half of 1 : 12.16/13.73.

<sup>162</sup> Always from the outer colonnades; that is, in all cases except the Propylaia the peristyle dimensions are employed.

<sup>163</sup> The sockets for the reception of the blocks in courses V, VII, and XI of both flanks are 0.06/0.08 m. deep (except that in course XI on the north which is 0.15 m. deep, probably an error, since on the south side the depth is here only 0.08 m.); but that in course IX is 0.16 m. deep on the south and apparently the same on the north (where in any case it is so deep that it still holds

intended as a precaution against some special stress.<sup>164</sup> Since the lintel of the east door may be supposed to have rested well above this level, there remains as an explanation only the epistyle of the lower interior order. It would seem probable, therefore, that the extra precaution was taken to strengthen, not the lower epistyle itself, but the wall course on which it was supported.<sup>165</sup> Confirmation for this placing is given by the observation that a late coat of plaster on the lower cella walls stops abruptly on all three surviving walls precisely at the level of the top of the sixth wall course, IX (Fig. 31). This plaster was applied certainly before the removal of the east wall—against which it terminates on the south flank<sup>166</sup>—and so presumably before the removal of the interior columns. It would be difficult to suggest another explanation for this regular line except that it was fixed by the bottom of the lower epistyle. There results for the lower column a height equal to that of the orthostates and six wall courses (III-IX), i. e.,  $0.843 + (6 \times 0.5115) = 3.912$  m. (12 Doric feet).<sup>167</sup>

As for the missing lower epistyle it may be noted that, while the level of the soffit was undoubtedly governed by a course line of the cella walls, that of the top was not subject to this constructive requirement; also the height 0.512 m. permitted by course X seems inadequate for columns 3.912 m. high. In other buildings by the same architect we find that the proportions between epistyle and column heights were 0.836 : 5.713 m. (peristyle of Hephaisteion), 0.836 : 6.024 m. (Sounion), 0.571 : 4.10 m. (presumably, at Rhamnous); these are equivalent to 1 : 6.83, 7.21, and 7.18 respectively, averaging 1 : 7.07, which with columns 3.912 m. high should yield about 0.553 m. Or, if we confine ourselves to the Hephaisteion alone, the proportions of 0.836 : 5.713 m. (peristyle) and 0.840 : 5.611 m. (porches) would yield an average of 1 : 6.75, requiring about 0.580 m. ( $1\frac{2}{3}$  Doric feet) as a preferable height for the lower epistyle, rising about 0.068 m. above the wall course line.

It is evident that the lower epistyle, fitting into a socket in course X, could have been housed only in the missing east cross-wall. For the west wall of the cella is preserved to its full height (or at least to the top of course XVI) and betrays no traces of contact with the lower interior columns. This is exactly what we might have

the protruding block securely in place, the only surviving fragment of the east wall). In course XIII on the south the socket is of the normal depth, 0.09 m.; but on the north occurs a special jogged joint which is described below (p. 83).

<sup>164</sup> A difference in the use of double-T clamps fastening the east wall to the flank walls seems to be unrelated to this question of stress. In the lower courses (IV-V north, IV south) a single T clamp secured the east wall block; but in course V at the south the builders changed their minds, leaving the single central clamp cutting unfilled and substituting two others so that three appear at this joint; after this a pair of clamps was normal for a while (VI-VII north and south, also IX south), after which the builders returned to the single clamp (VIII and X south, XI-XII both north and south—VIII-X north being invisible). These are mere vagaries of construction; see Figs. 31, 36.

<sup>165</sup> These observations with regard to the deeper sockets in course IX and the termination of the mediaeval plaster at the top of this course are due to Thompson.

<sup>166</sup> The north wall has been too well cleaned off at this point to show this detail (Fig. 36).

<sup>167</sup> Direct measurement gives 3.910 m. south, 3.914 m. north.

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expected from the ambulatory type of plan, in which any connection with the west wall would be incongruous. Consequently the upper epistyle, likewise, could have been housed in a cross-wall only at one of the east corners of the cella.<sup>168</sup>

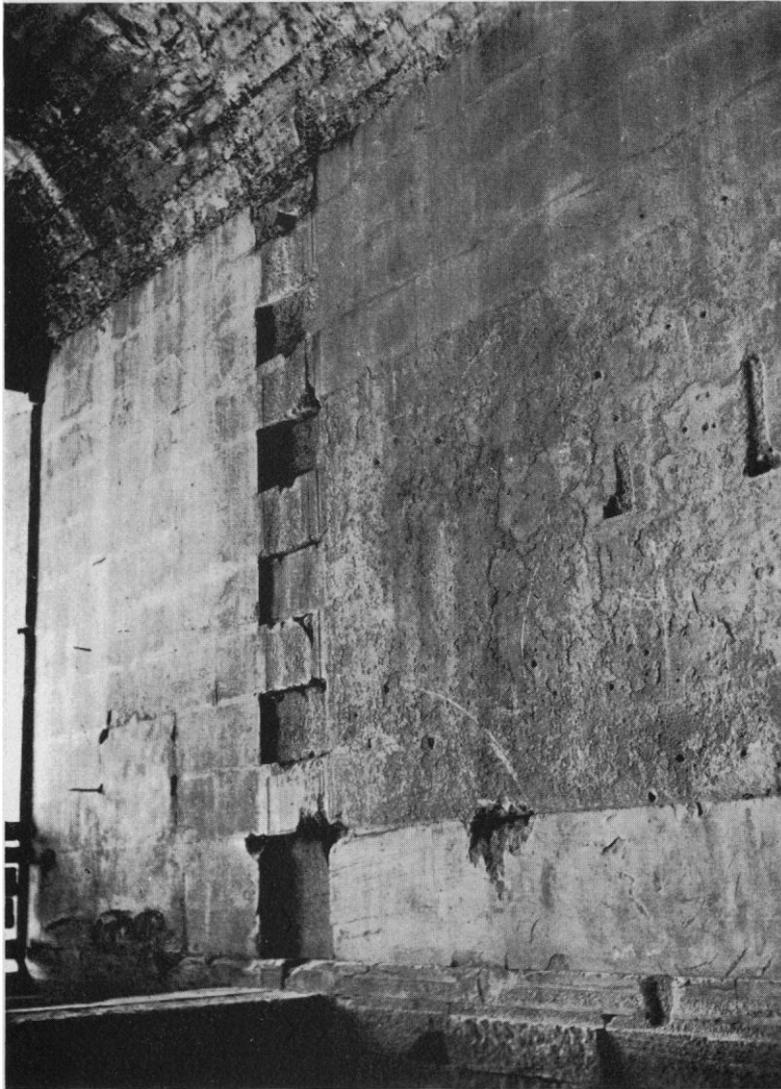


Fig. 31. South Wall of Cella at Junction with East Cross-Wall, Showing Mediaeval Plaster

We may next examine the relation between the heights of the lower and upper storeys of superposed Doric colonnades within temple cellae, as at Aigina and Paestum,

<sup>168</sup> The points at which the upper epistyle would have abutted against the west cross-wall, if it were not for the ambulatory plan, are concealed behind the haunches of the mediaeval vault.

and in the Parthenon. We have definite information as to the heights of the two storeys at Aigina (3.747 m. and about 2.15 m. as restored) and at Paestum (6.050 m. and 3.390 m.); and in the case of the Parthenon the evidence is such that we may calculate 6.912 m. and about 4.312 m. with reasonable security.<sup>169</sup> Thus we obtain ratios of about 1 : 0.57 (presumably, at Aigina), 1 : 0.56 (Paestum), and about 1 : 0.61 (Parthenon), a series into which the Hephaesteion is to be fitted. Translated into actual dimensions, in the Hephaesteion the Aigina-Paestum analogies would yield for the upper columns about 2.21 m., the Parthenon analogy about 2.39 m.<sup>170</sup> Thus the level of the soffit of the upper epistyle should be considerably more than 6.70 m., perhaps even more than 6.88 m., above the internal stylobate.<sup>171</sup> Since the soffit of the upper epistyle must correspond with a wall course line, those at levels 6.250 m. and 6.654 m. above the internal stylobate are probably to be eliminated because they would yield an upper storey of even lower proportions than at Aigina and Paestum; hence we are apparently confined to the course line 7.058 m. above the internal stylobate, requiring upper columns 2.566 m. ( $7\frac{7}{8}$  Doric feet) high and a ratio of 1 : 0.66 between the lower and upper columns.

Lest such calculations by means of analogous proportions in other temples may seem too abstract for acceptance, we return to the very concrete evidence of the upper epistyle block, the only portion of the interior colonnades now surviving. In order to ascertain the original position of this block we examine the peculiar features of its end joints, of which one rested on a column, while the other was thrust into a wall, necessarily the east wall. This is proven in the case of the square end by an unpolished bearing surface 0.235 m. wide on the soffit, presumably occupying half of the width of a column capital, and by a dowel hole and a shifting notch at the joint; while the top, at the same end, is marked by cuttings for two double-T clamps and by a notch for a shifting bar. The other end of the block is not square but had two set-backs from the unmoulded face, one receding 0.029 m. forming a rebate, the other receding about 0.23 m. more (i. e., to the exact middle of the block) forming a tongue. The shallow rebate is 1.296 m. from the square joint, while the deeper set-back is 1.37 m. from the same point; the length of the tongue is uncertain, since it was hacked off by its late re-users, but the original shape may be restored as indicated in Fig. 33.<sup>172</sup> On the top, at the joint formed by the deeper set-back, is a T-clamp cutting, and a little lower

<sup>169</sup> These dimensions are obtained in my unpublished study of the Parthenon.

<sup>170</sup> I. e.,  $0.565 \times 3.912 = 2.210$  m.;  $0.61 \times 3.912 = 2.386$  m.

<sup>171</sup> I. e.,  $3.912 + ca. 0.580 + 2.21/2.39 = 6.702/6.882$  m.

<sup>172</sup> A vertical row of drill holes in the internal corner of the deeper set-back, and a corresponding vertical row of drill-holes about 0.035 m. behind the opposite face (that with the taenia) and likewise 1.37 m. from the square end, are both due to the late re-users who adopted this method of breaking away the protruding tongue of marble. Similar methods, as Thompson has shown me, were adopted in breaking up cornice blocks and column drums of the Stoa of Zeus. The fact is mentioned here in order to dispel any suspicion that the drill-holes might have formed the internal corner of another shallow rebate on the side of the epistyle containing the taenia.

in this joint surface appears a cutting for the point of the shifting bar, the counterpart of the notch on the top at the other end. We are evidently concerned with an epistyle set into a wall and projecting therefrom by 1.296 m. The face containing the taenia, to be sure, exhibits no sign of contact with the wall at 1.296 m. from the square end, the taenia being preserved for 1.31 m. and the surface below for 1.33 m. before they are broken away; but the absence of any weathered trace of an abutting block must be attributed to chance, and the prolonging of the taenia into the wall joint, where it would have been housed on a special shoulder, is habitual in the Hephaisteion as, for instance, the taenia on the back of the opisthodomos epistyle at the point of abutment against the wall and the taenias of the metopes at the edges of the triglyphs.

From this epistyle block we may also infer that there were no antae at the ends of the colonnade; for examination of the finish of the soffit at the end toward the wall shows that the smooth-polished surface extends in well beyond the line of the face of the receiving wall, and only at the point where the stone is now broken away does it begin to show the typical roughening which is to be expected in the inner area of a bed surface. Had the block rested on an anta the bottom should have retained some trace of the contact and, on the analogy of similar joints elsewhere in the building, the roughened bed surface should have started farther out.<sup>173</sup>

Since the interior stylobate faces lay at most 1.235 m. from the flank walls, while the columns must have been at least 0.04 m. within the stylobate lines, it is evident that, even with the improbable supposition that the outer face of the epistyle lay as far out as the lower edge of the column, this outer face must have been at most 1.195 m., the inner face at most 0.681 m., and so the median line at most 0.938 m. from the flank walls. It is more probable, however, that the dimensions were considerably less.

The peculiar shape of the rebated tongued joint housed in the east wall must be discussed in connection with the wall joints. The locations of the joints of this missing east cross-wall, to be sure, are not definitely known; but we may assume that, in any case at the upper levels where they were undisturbed by the doorway, they reproduced those of the west cross-wall, the "even" courses (IV, VI, . . . XVI) being composed of five blocks of approximately uniform length, 1.246 m.,<sup>174</sup> the terminal blocks merely

<sup>173</sup> Any interpretation of the jogged end as something that fitted around a protruding buttress or pilaster enframing the doorway (as at Bassai), the longer face with the taenia thus being entirely exposed to view (facing the south flank wall) rather than partly concealed in a socket of the east wall, would be contrary to the evidence. Such a buttress protruding from the east cross-wall would have extended into the area of the nave, in order to support whatever fitted into the rebate 1.296 m. from the column centre, and thus would have been of disproportionate width, combining both respond to the columns and door enframing. Such a buttress, furthermore, would have been entirely unsupported except at the extremity resting on the interior column foundation; for, as we have seen, the cross-wall foundation suffices only for the wall of 0.808 m., with a surplus of 0.028/0.031 m. which is required for the inner projections of orthostate and sill course.

<sup>174</sup> That is,  $\frac{1}{5}$  (6.230) = 1.246 m. (compare 1.243 m. in the flank walls—the blocks in flank walls and cross-walls being interchangeable; cf. pp. 49, 101).

abutting against the flank walls, while the "odd" courses (V, VII, . . . XVII) consisted of four such blocks and of two half-blocks of about 0.623 m. at the ends (the latter lengthened slightly to bond into the flank walls as noted above).

One of the possible interpretations of the shallow rebate of 0.029 m. on the epistyle, now that we are assured that it was not intended to fit around a buttress, might be that it enabled the epistyle to fit an ordinary wall joint and to overlap the adjoining block by 0.029 m. In an "even" course (XVI), for instance, with the first joint about 1.246 m. from the flank wall, the epistyle would be about 1.217 m. from the north wall or 0.761 m. from the south wall,<sup>175</sup> both greatly in excess of the allowance given by the interior column foundations. In an "odd" course (XV or XVII), however, with the first joint about 0.623 m. from the flank wall, the epistyle would be about 0.594 m. from the north wall or 0.138 m. from the south wall,<sup>176</sup> the former being reasonable, the latter impossibly close. Thus the only suitable position for the extant epistyle block, according to this hypothesis, would be at the north end of courses XV or XVII.

It is quite as possible, however, that the shallow rebate of 0.029 m. was no more than a special device for the purpose of concealing any miscalculation in the width of the beam socket. And in any case we should attribute greater structural importance to the long tongue of marble penetrating deeply into the east cross-wall. Since the second offset of the jogged joint, coinciding with the median line of the epistyle, would be at most 0.938 m. from the flank wall, it is evident that in an "even" course (XVI) the first joint (about 1.246 m. from the flank wall) would be at least 0.051 m. beyond our epistyle (Fig. 32 *a, b*),<sup>177</sup> leaving in the case of the northeast corner (*b*) a narrow tongue of stone which would form a structural weakness, though at the southeast corner (*a*) the tongue would be stepped in such a way as to be, at any rate, not impossible. Likewise in the lower "odd" course (XV) the first joint (about 0.623 m. from the flank wall, and so nearer—by less than 0.315 m.—than the median line of the epistyle)<sup>178</sup> would leave at the northeast corner of course XV a narrow tongue (Fig. 32 *d*, in broken lines), easily avoidable if the end of the epistyle had been of different form. On the other hand, at the southeast corner of course XV such a relation between the joint and the end of the epistyle would avoid any structural weakness (Fig. 32 *c*). There remains for consideration course XVII, which would normally have reproduced the conditions in course XV, but was in fact of different construction (Fig. 32 *c, d*, in solid lines). The above-mentioned penetration of the mediaeval vault at the point of junction with the east cross-wall revealed something of the construction of the latter (Fig. 33). In addition to three pry cuttings for adjusting

<sup>175</sup> I. e.,  $1.246 - 0.029 = 1.217$  m.; or  $(1.246 + 0.029) - 0.514 = 0.761$  m.

<sup>176</sup> I. e.,  $0.623 - 0.029 = 0.594$  m.; or  $(0.623 + 0.029) - 0.514 = 0.138$  m.

<sup>177</sup> I. e.,  $1.246 - (0.938 + \frac{1}{2} \times 0.514) = 0.051$  m.

<sup>178</sup> I. e.,  $0.938 - 0.623 = 0.315$  m.

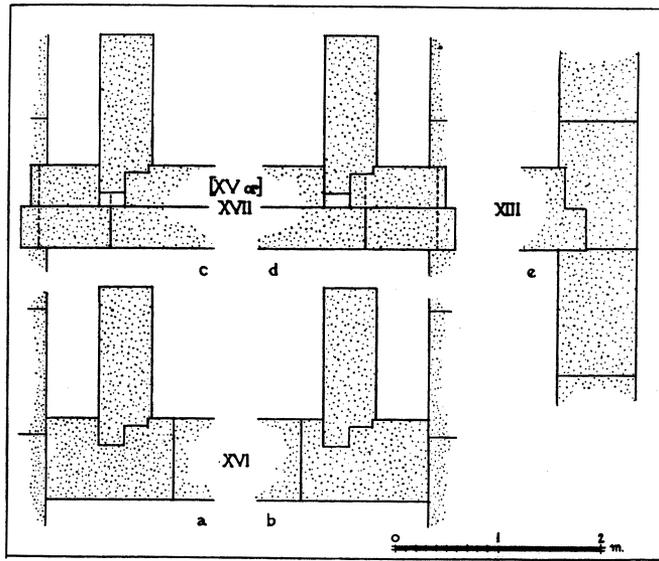


Fig. 32. Variant Plans of Adjustment of Interior Epistyle Block

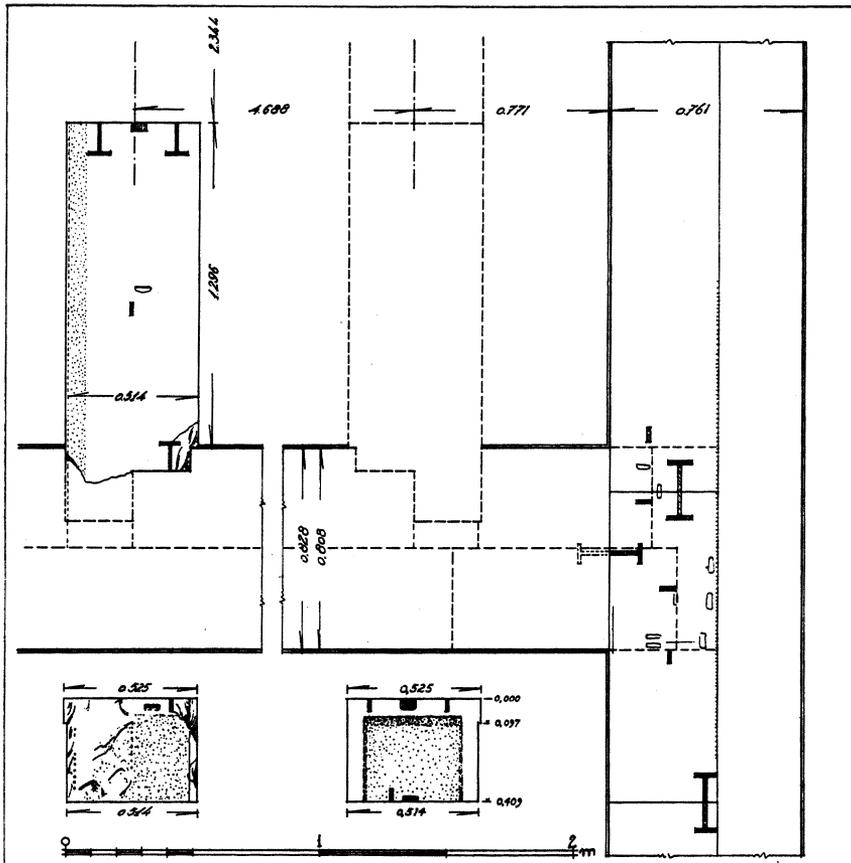


Fig. 33. Details of Interior Epistyle Block at Southeast Corner and Related Evidence at Northeast Corner of Cella

the epikranitis on the exterior, and two dowel holes (each accompanied by one or two pry cuttings) for securing the adjacent ends of the inner blocks lying east and west of the cross-wall—indicating that the inner portion was laid after the outer portion—there remained a gap of 0.808 m. which, last of all, received the north end of the cross-wall. The entire depth of this gap, 0.425 m., was not filled by the blocks of the cross-wall because of the necessity of leaving access to their ends. Two dowels, each accompanied by a pry cutting, show that course XVII was composed of two lines of blocks on the east cross-wall as well as on the flank walls. The series on the west face was bonded in to a depth of 0.16 m., that on the east face to a depth of 0.26 m. The fact that course XVII had separate inner and outer faces on the east wall,<sup>179</sup> as on the flank walls, would make it possible to attribute the epistyle block to either of the east corners without any structural defects (Fig. 32 *c, d*, in solid lines).

In the light of this examination of the conditions under which the extant epistyle block could be employed at the northeast or southeast corners, it seems clear that it is to be eliminated from the northeast corner in courses XV-XVI. The elimination of the northeast corner in course XV carries with it the only possibility of explaining the shallow rebate of 0.029 m. as an overlap on an adjoining block. In four positions, the southeast corner in either of the courses XV-XVI, or both corners in course XVII, the jogged joint could satisfy the jointing requirements of the east cross-wall. When, however, we turn to the available locations in courses XV and XVI, both at the southeast corner, it seems clear that both are to be eliminated because of the embarrassing absence of a taenia along the upper edge of the wall course corresponding to that on the epistyle, which is separated from the flank wall by so slight an interval that such a lack of correspondence would be most marked. An additional objection to course XV is the obvious fact that course XVI above it was likewise intended to be visible and would provide no support for the aisle ceiling; and a further objection to course XVI is that the extra tongue of marble even in the southeast end wall block would still be structurally weak (Fig. 32 *a*). In fact, comparison with the only analogous joint in the walls, that at the junction of the east wall with course XIII of the north wall (Fig. 32 *e*),<sup>180</sup> where the east wall block was bonded into the flank wall for a depth of only 0.06 m. in its western half, but for 0.275 m. in its eastern half, suggests that the epistyle was housed in an "odd" course (XVII, now that XV has been eliminated) where the conditions would be identical, rather than in an "even" course (XVI).

It has now become clear that the epistyle aligned with course XVII, the extant block being placed either at the northeast or at the southeast corner. For the distinc-

<sup>179</sup> The existence of two separate dowels makes it improbable that we are concerned with a single block ending in a jogged joint, such as that, for example, in course XIII (Fig. 32 *e*). The construction with two faces gives a maximum of 0.40 m. for the length of the epistyle tongue.

<sup>180</sup> No corresponding treatment appears in the south wall.

tion between these, we turn to the only remaining explanation of the shallow rebate of 0.029 m., namely, that it was a device for the purpose of concealing any miscalculation in the width of the socket. As such, it would seem futile if employed on the almost invisible face of the epistyle close to the flank wall, and suggests that the bare face on which it appears was the important side of the epistyle, to be seen from the nave, rather than the side with the taenia which lacks such protection. We may, therefore, regard the position of the shallow rebate as decisive evidence that the epistyle is to be located at the southeast corner.

This decision is in perfect accord with other evidence which may be gleaned from the epistyle itself. It might at first glance, to be sure, seem preferable to assume that the taenia, the only decorative element now surviving, should have faced inward toward the nave, with the bald side backed against the cella wall. But it would seem equally possible to assume that the epistyle face at present exhibiting the taenia was in fact the simpler and lower face. This seems to be corroborated by the fact that on the top, above the taenia, appears exceptionally severe weathering—and perhaps also more careless tooling—for a width of about 0.08 m. along the edge, suggesting that this edge supported a lower ceiling over the aisle, presumably of wood, which collapsed long before the removal of the marble interior cornice slab which covered most of the epistyle (Fig. 33). The interval between epistyle and flank wall was so slight that it would have been ceiled merely by planks, without beams or other interference with the roof construction. In fact the purlins, which as shown by the cuttings in the backs of the pediments lay above the inner half of the cella wall, had their bottoms approximately at the level of the tops of the beams of the peristyle ceiling, or, more exactly, at a level 7.773 m. above the internal stylobate and so 0.716 m. above the top of course XVI.<sup>181</sup> Thus there would be plenty of room for the insertion of an epikranitis course XVII with a height of 0.409 m. as well as for the necessary planks of the ceiling, of which the soffit would be 7.467 m. above the internal stylobate. On the side toward the nave the epistyle face which is at present plain would have been crowned by more elaborate mouldings in a now missing course above. This upper course, of which the existence is indicated by a dowel hole and pry cutting at the middle of the top of

<sup>181</sup> This is calculated by means of the fact that the purlin sockets, 0.38 m. in width, lie 3.025-3.405 m. from the centre of the pediment. The bottoms of the sockets are now 0.72-0.815 m. below the top of the raking geison; but in the southwest purlin socket is a shelf on the north side marking the top of a special inserted support for the end of the beam, 0.648 m. below the top of the raking geison at this point. Since the geison slope is at the rate of 1 : 4.0846, and the central height of the pediment (to the apex of the geison) is  $1.527 + 0.203 = 1.730$  m., it follows that the bottom of the purlin is 1.390 m. below the apex of the geison and so 0.340 m. above the pediment floor, or  $0.340 + 7.733 = 8.073$  m. above the stylobate. Disregarding the upward curvature of the platform, the bottom of the purlin would be 7.975 m. above the toichobate (course I) of the porch fronts, or 7.773 m. above the wall base or internal stylobate, and so  $7.975 - 7.259 = 7.773 - 7.057 = 0.716$  m. above the top of course XVI.

the extant southeast epistyle block (Fig. 33), may well have reproduced the epikranitis of the outer faces of the walls. On this interior cornice would have rested the wooden beams of the nave ceiling, with their under surfaces about 7.674 m. above the internal stylobate. The restoration suggested in the section (Fig. 35) has few elements of doubt.

This long analysis of the lone epistyle block has shown that it aligned with course XVII, with its soffit 7.058 m. above the internal stylobate, and with its taenia facing the south flank wall, for the following reasons: (1) it is eliminated from the northeast corner of courses XV and XVI by the jointing, from the southeast corner by the taenia; (2) in course XVII it could fit either the northeast or the southeast corner, but only the latter would explain the shallow rebate; (3) the weathered trace above the south taenia suggests a low aisle ceiling of wood rather than the higher nave ceiling on its marble interior cornice; (4) a course of full height as the inner face of course XVII of the flank walls accords with the ancient construction and with the mediaeval rebuilding; (5) an epistyle fitting the proportions of the lower and upper columns is necessarily to be assigned to course XVII.

For recovering the diameters of the columns our evidence is scarcely so specific. But we may safely infer that their proportions would not have departed very radically from the normal Doric proportions of the period. At Paestum the proportions are 1 : 4.41 and 1 : 4.05 (lower and upper respectively),<sup>182</sup> at Aigina 1 : 5.20 and about 1 : 4.21, and in the Parthenon (as estimated) 1 : 6.20 and about 1 : 5.27. With such proportions, the diameters of the lower columns (3.912 m. high) would vary between 0.63 m. and 0.89 m., those of the upper columns (2.566 m. high) between 0.49 m. and 0.63 m. It is evident that the upper columns were always of heavier proportions than the lower (sometimes by nearly a column diameter), but it is probable that the extremely heavy proportions in the earlier poros structures at Paestum and Aigina would not have recurred in the marble Hephaisteion. In other words, the diameters of both storeys of columns would presumably have been within the lower half of each bracket, 0.63/0.76 m. and 0.49/0.56 m. respectively.

Another method of approach is with reference to the piece of upper epistyle, in connection with a principle observed at Aigina and Paestum, namely, that the tapering outlines of the two storeys of inner columns formed continuous lines giving the effect of one very tall slender support. Starting with the upper epistyle (soffit width 0.514 m.), and recalling that the upper diameter of a column normally varies between 78 per cent (Hephaisteion peristyle) and 93 per cent (Bassai, flanks and rear) of the epistyle soffit, we obtain an upper diameter of 0.40/0.48 m. This in turn, being normally between  $\frac{5}{8}$  and  $\frac{7}{8}$  of the lower diameter, suggests that the lower diameter

<sup>182</sup> Diameters 1.384/1.408 m. (average 1.396 m.) and 0.838 m. (Paestum); 0.72 m. and 0.51 m. (Aigina); 1.115 m. and probably 0.818 m. (Parthenon).

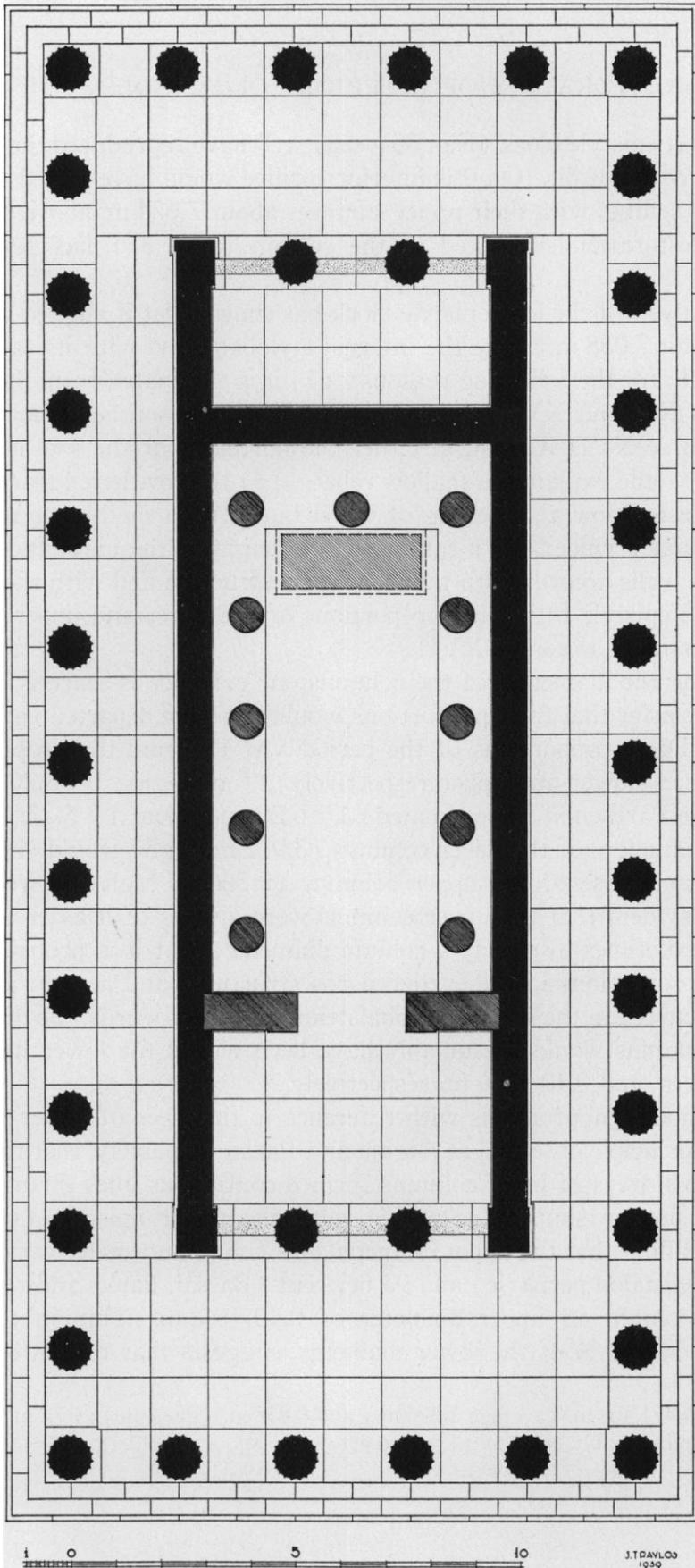


Fig. 34. Plan of the Hephaisteion, with Interior Columns Restored

of the upper storey of columns was 0.480/0.617 m.<sup>188</sup> The height of the upper columns, within which this diminution occurs, has been estimated as 2.566 m.; but from this, in order to obtain the rate of diminution, we must deduct the height of the capital (about half of the lower diameter or 0.24/0.31 m.), thus leaving about 2.255/2.325 m. for the shaft. Next, having an allowance of  $3.912 + 0.580 = 4.492$  m. for the lower columns and their epistyle, we may, on the assumption that the tapering outlines were

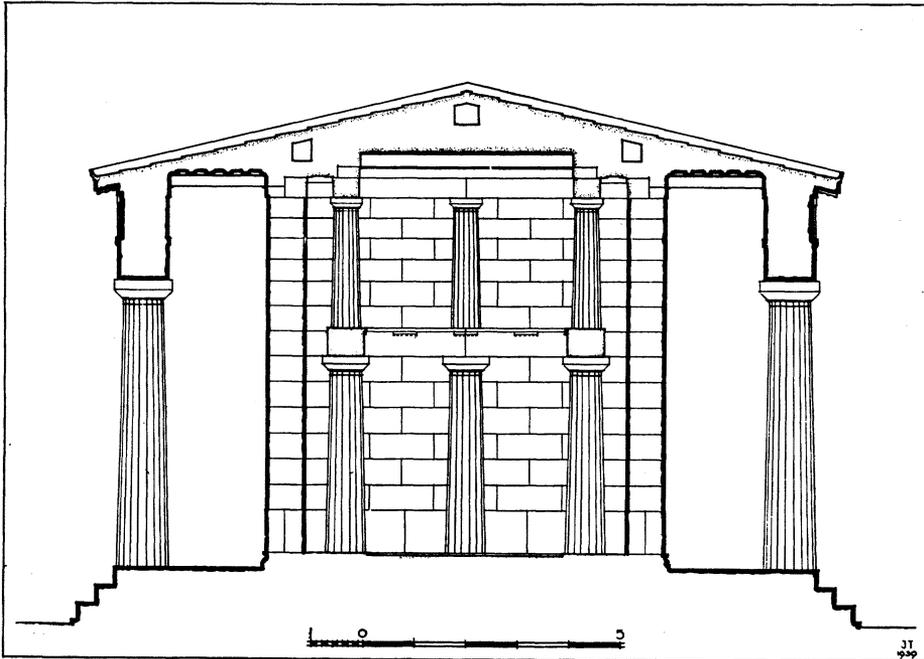


Fig. 35. Transverse Section of the Hephaisteion Restored, Looking West

continuous from the upper columns to the lower, estimate that the lower diameter of the lower columns exceeded that of the upper columns by the following extreme amounts:

$$\frac{z}{0.080} = \frac{4.492}{2.325}, \text{ to } \frac{z}{0.137} = \frac{4.492}{2.255}$$

$$z = 0.155 \text{ m.} \quad z = 0.273 \text{ m.}$$

Thus the lower diameter of the lower columns might be estimated as between  $0.480 + 0.155 = 0.635$  m. and  $0.617 + 0.273 = 0.890$  m.

We have ascertained by the foregoing requirements that the lower diameter of the lower columns was 0.63/0.89 m., or even 0.635/0.76 m. if we are to meet both

<sup>188</sup> I. e.,  $\frac{5}{8} \times 0.40 = 0.48$  m.;  $\frac{5}{7} \times 0.48 = 0.617$  m.

requirements simultaneously. We now turn to the axial spacing, which should be brought into reasonable relation to the diameter.

As a basis for discussion we may determine approximately the width of the nave which should have some definite relation to the axial spacing. Thus the distance between the interior stylobates may be restored as 3.76/3.82 m. The stylobate projection beyond the lower column faces should be, on the analogy of other structures, between 0.040 m. (porches of the Parthenon) and 0.095 m. (porches of the Hephaisteion, peristyle of the Older Parthenon). Thus the distance between the faces of the lower columns would be 3.84/4.01 m., a distance which, depending on the number of columns across the rear (four or three) would include two columns and three intervals, or one column and two intervals. Designating the diameter as  $x$  and the interval as  $y$ , we have the two following possibilities:

$$(1) \quad 2x + 3y = 3.84/4.01 \text{ m.}$$

$$(2) \quad x + 2y = 3.84/4.01 \text{ m.}$$

Since our limits for the lower diameter are 0.63/0.89 m., or even 0.635/0.76 m., we obtain the following extreme allowances for the column intervals and axial spacings:

	Minimum diameter	Maximum diameters	
	$x = 0.63 \text{ m.}$	$x = 0.76 \text{ m.}$	$x = 0.89 \text{ m.}$
(1)	$y = 0.86/0.92 \text{ m.}$	$y = 0.77/0.83 \text{ m.}$	$y = 0.69/0.74 \text{ m.}$
	$x + y = 1.49/1.55 \text{ m.}$	$x + y = 1.53/1.59 \text{ m.}$	$x + y = 1.58/1.63 \text{ m.}$
(2)	$y = 1.605/1.69 \text{ m.}$	$y = 1.54/1.625 \text{ m.}$	$y = 1.475/1.56 \text{ m.}$
	$x + y = 2.235/2.32 \text{ m.}$	$x + y = 2.30/2.385 \text{ m.}$	$x + y = 2.365/2.45 \text{ m.}$

In making our choice between these two varieties of spacing we must consider two factors, the relationship of column diameter to axial spacing, and the distance of the easternmost column from the east wall plane as indicated by the epistyle length 1.296 m. Considering the latter first, we might assume, on the analogy of the other fifth-century temples with Doric interior orders, that the space between the axis of the last column and the face of the neighboring wall (or anta), when increased by half the diameter of the column, would form the maximum allowance for the normal axial spacing. The minimum allowance for the axial spacing, on these analogies, would be the distance from the first column axis to the wall itself.<sup>184</sup> Thus our limits would seem to be 1.296 m. for the minimum and  $1.296 + \frac{1}{2} (0.63/0.89) = 1.611/1.741 \text{ m.}$  for the maximum, suggesting that we should employ the smaller axial spacing (equation 1).

<sup>184</sup> At Aigina the distance from wall to first column axis is 2.065 m. as contrasted with 2.28 m. for the axial spacing; the difference, 0.215 m., is only three-fifths of the radius at the bottom of the shaft, and the end interval exceeds the normal interval by 0.145 m. (1.705 m. and 1.56 m. respectively). At Paestum the distances from anta to column centre and between column centres are

Considering, on the other hand, the relationship of diameter to interval in the lower storeys in other temples, we see for instance that it is 1 : 2.166 (Aigina), 1 : 1.476 (Paestum), 1 : 1.333 (Olympia), and 1 : 1.335 (Parthenon); in every instance the interval between the columns exceeds the column diameter by at least one third of the diameter, and by still more in the earlier or smaller examples. It would be desirable to observe the same principle in calculating the dimensions for the Hephaisteion. It is evident, however, that with three intervals across the rear (equation 1) the closest allowable proportion of 1 : 1.333 would require a diameter of 0.640/0.668 m., not far from the minimum, and also that even with the minimum diameter of 0.63 m. the proportion could be no more open than 1 : 1.365/1.460. On the other hand, we should expect that the inner spacing would be even more open than in the peristyle, which, in the Hephaisteion, is unusually great, with a ratio of 1 : 1.533 ( $1\frac{8}{15}$  diameters). Again, the actual excess of interval ( $y$ ) over diameter ( $x$ ), with the closest proportion of 1 : 1.333, would be only 0.213/0.223 m., and even with the minimum diameter of 0.63 m. would be only 0.23/0.29 m., whereas we know that the effort during the Periclean period was to give an excess of at least 0.49 m. ( $1\frac{1}{2}$  Doric feet).<sup>185</sup> Hence the plan with four columns or three intervals across the rear is unsatisfactory both because of the close proportions and also on account of the inadequate allowance for the excess.

We turn, therefore, to the system with two intervals across the rear (equation 2), wherein the minimum diameter of 0.63 m. would yield a ratio of 1 : 2.55/2.68, and the maximum diameter of 0.89 m. a ratio of 1 : 1.66/1.75. Between these limits fall much more reasonable ratios than those obtained with three intercolumniations. Such a ratio as 1 : 2, for instance, would require a lower diameter of 0.768/0.802 m., which might be acceptable except for the fact that it exceeds 0.76 m. (the more probable maximum diameter), and also because it yields rather low proportions for the lower column height, only 4.88/5.09 diameters. More satisfactory would be such a ratio as that at Aigina (1 : 2.166), yielding a lower diameter of 0.720/0.752 m., well within the more probable limits, and giving a more reasonable column height, 5.20/5.43 diameters.

As for the fact that the distance from the east wall to the first column centre is now seen to be less than the normal axial spacing, it is possible that this requires no special explanation. As we have ascertained, there were no formal antae; the epistyles

2.778 m. and 3.4865 m.; the difference, 0.7085 m., is practically identical with the radius at the bottom of the shaft, so that the end interval is equal to the normal intervals (2.080 m. and 2.090 m. respectively). In the Parthenon these distances are 2.125 m. and 2.603 m.; the difference, 0.478 m., is equal to the radius at two-thirds of the height of the shaft; and the end interval exceeds the normal interval by 0.080 m. On the other hand, at Olympia the distance from anta face to column centre is equal to the axial spacing, 3.50 m., so that the end interval exceeds the normal interval by the radius of the column.

<sup>185</sup> Dinsmoor, *Hesperia*, IX, 1940, p. 22, note 49.

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simply abutted against the wall, and the narrowness of this first interval is exactly comparable to the first interval upon entering the cella at Bassai. Or it might even be possible to explain this narrow spacing as a curtailment resulting from the process of shortening the cella itself, as suggested below.

With the aid of these elements we may now form some notion of the axial rectangle of the internal columns. The width of the nave has been restored as 3.76/3.82 m.; the stylobate projection being 0.04/0.095 m. on either side, the distance between the faces of the opposite columns would be 3.84/4.01 m. The column diameters being 0.72/0.75 m., the distance between the axes of the opposite colonnades would be 4.56/4.76 m., the axial spacings 2.28/2.38 m. As for the length, the epistyle of the upper tier has shown us that the easternmost column centre was 1.296 m. from the inner face of the east cross-wall; and the west stylobate, at least 10.21 m. or at most 10.94 m. from the east wall, must have been 8.914/9.644 m. from the easternmost column centre. To this dimension we add the stylobate projection of 0.04/0.095 m. and the column radius of 0.36/0.375 m., thus ascertaining that the distance from the easternmost column centre to the axis of the west colonnade must have been 9.314/10.114 m. In other words, the dimensions of the axial rectangle become 4.56/4.76 × 9.314/10.114 m.

Comparison of these dimensions suggests a fairly probable conclusion, namely, that the length of the axial rectangle was exactly twice the width; thus with two axial spacings across the rear end, there were exactly twice that number along each flank (in addition to the length of epistyle fitting into the east wall), all the axial spacings being uniform. For, with a fifth axial spacing on the flanks, uniform with the two at the rear, the length of the axial rectangle would have been the excessive amount of 11.40/11.90 m. Or, with five smaller spacings on the flanks, these would have been 1.863/2.023 m. as contrasted with 2.28/2.38 m. at the rear, an improbable variation.<sup>186</sup> We may, therefore, base our estimates on the assumption of uniform spacing, a condition which, with two by four axial spacings, fits within the allowable limits with dimensions of 4.657/4.76 × 9.314/9.52 m.

From this point the investigation becomes more subjective, though we have certain indications which seem to yield tangible results. For instance, though we have hitherto admitted limits of 3.76/3.82 m. for the width of the nave between the stylobates, it may be observed that the inner stylobate lines may be carried forward into the threshold of the east wall, where the length can be exactly measured between the anathyroses as 3.810 m. Such a coincidence is probably not to be regarded as fortuitous; and 3.810 m. may be taken as the most suitable width for the nave. This does

<sup>186</sup> Even at Bassai, with all the freedom of the Ionic and Corinthian orders, the spacing is 2.673 m. on the flanks and 2.537 m. across the rear, a variation of only 0.136 m. It must be admitted, however, that the dimensions at Nemea, about 2.80 m. and 2.23 m. (see p. 155, note 323) yield the great variation of 0.57 m.

not, however, greatly change our calculations for the dimensions of the axial rectangle, since we still retain the minimum width of 4.657 m. and reduce the maximum only to 4.75 m.,<sup>187</sup> and the length in consequence to 9.314/9.50 m.

At this point may be considered a vertical scratched line on the inner face of the north wall base (course II, Fig. 17 at  $\gamma$ ), crossing the joint surface prepared for the abuttal of the inner stylobate, at a distance 1.473 m. east of the west wall plane,<sup>188</sup> and so 10.672 m. from the east wall plane, 9.376 m. from the easternmost column centre. Unless we are to assume that this engraved line was cut by error, it ought to represent some important element in the design; and it would be desirable, if possible, to utilize this indication in the restoration of the interior. Similar vertical lines appear on this same course at the points marking the abuttal of both cross walls; but this particular line has no corresponding trace on the south side and so does not seem to mark the junction with any transverse course of masonry, nor does it occur at a point where any such junction could have occurred. It might, however, have been part of a construction diagram laid down by the architect. Obviously it could not coincide with the face of the west stylobate (8.914/9.030 m. from the east column centres) nor even with the faces of the west columns (8.954/9.125 m. from the same points);<sup>189</sup> but it could exactly coincide with the axis of the west colonnade (9.314/9.50 m. from the easternmost column centres, or 10.610/10.796 m. from the east wall plane). The coincidence is such that it seems difficult to ignore the engraved line, which might well have been cut as part of the process of marking the essential elements on the inner face of the north wall with five vertical lines:  $\alpha$ - $\beta$  as the outer and inner faces of the west wall,  $\gamma$  as the centre of the rear colonnade, and  $\delta$ - $\epsilon$  as the inner and outer faces of the east wall. After these lengths had been set out on the north wall, only two marks ( $\beta$  and  $\delta$ ) were required for the guidance of the masons and so were transferred to the south wall.<sup>190</sup> If, therefore, we adopt this line ( $\gamma$ ) as valid evidence, we obtain 9.376 m., for the length and so 4.688 m. for the width of the axial rectangle. Then, with 3.810 m. as the width between the inner stylobates, the difference amounting to 0.439 m. on either side would form the radius plus stylobate projection; and, with the radius limited to 0.36/0.375 m., the limits for the stylobate projection would be 0.064/0.079 m. Furthermore, with 9.376 m. for the length of the axial rectangle, increased by 1.296 m. for the distance to the east wall, we subtract 0.439 m. for radius and stylobate projection together and so obtain 10.233 m. for the distance from the east wall to the face of the west stylobate, exceeding the minimum of 10.21 m. as required.

<sup>187</sup> I. e.,  $3.810 + (2 \times 0.04) + 0.72 = 4.61$  m. (which is too narrow for the minimum); and  $3.810 + (2 \times 0.095) + 0.75 = 4.75$  m.

<sup>188</sup> This line was first detected by G. P. Stevens.

<sup>189</sup> I. e.,  $9.314 / 9.50 - 0.36 / 0.375 = 8.954 / 9.125$  m.; and  $8.954 / 9.125 - 0.04 / 0.095 = 8.914 / 9.030$  m.

<sup>190</sup> For the absence of  $\epsilon$  (outer face of east wall) at the south see p. 55.

Now, therefore, we are enabled to locate the epistyle block with even greater precision. The width of the axial rectangle being 4.688 m., the centres of the columns lay 0.771 m. from the flank walls.<sup>191</sup> The columns and walls were vertical, so that the upper epistyle 0.514 m. wide had its faces 1.028 m. and 0.514 m. from the flank wall. This identity of dimension was probably intentional.

Perhaps we should discuss as another factor the proposed location of the statue pedestal, which, as in the Parthenon, would undoubtedly have been intimately related to its architectural frame. The most direct evidence as to its proposed position is afforded by the protruding "ears" near the west ends of the north and south interior column foundations. We have already discussed these features; and the fact that they would adequately have supported the ends of the pedestal is demonstrated below. Here we are concerned with their relation to the internal colonnade. The earlike foundations extend eastward to 3.22 m. (north) or 3.50 m. (south) from the west wall plane; the smaller dimension is probably decisive, and may be adopted as the limit for the eastward projection of the face of the pedestal. In this most easterly position, the front edge of the pedestal would be about 1.31 m. east of the face of the west stylobate. We do not know the width of the pedestal originally proposed; but, if it were about 1.20 m. like that eventually erected, the rear line would have been about 0.11 m., and the axis about 0.71 m., from the face of the west stylobate. Now, with the column spacing of 2.344 m., the second column centre would be 1.905 m., and the middle of the interval 0.733 m., in front of the stylobate face. It would not be difficult to adjust the distance to the pedestal axis (about 0.71 m.) to fit the latter dimension (0.733 m.), the pedestal thus aligning with the middle of an interval between the column as in the Parthenon so that an unimpeded lateral view of the statues might be obtained. Thus the earlike foundations could have supported a pedestal, harmoniously combined with the plan of the colonnade, only with the arrangement with two by four axial spacings of 2.344 m., which seems, therefore, to be corroborated.<sup>192</sup>

As a final test it seems desirable to check our results in Doric feet. The column diameter of 0.720/0.752 m. is probably to be more closely defined as 0.734 m. or  $2\frac{1}{4}$  Doric feet. The axial spacing of 2.344 m. would be  $7\frac{3}{16}$  Doric feet, making the interval 2.19 diameters.<sup>193</sup> The width of the axial rectangle, 4.688 m., would be

<sup>191</sup> I. e.,  $4.688 + (2 \times 0.771) = 6.230$  m.

<sup>192</sup> Attempts to place the pedestal in a similar relationship to a plan with three by six intercolumniations showed that it could not have been planned to find support on the "ears," leaving them unexplained and so forming an additional objection to any scheme with more numerous columns. Concerning these "ears" see also pp. 73, 108, and the alternative interpretation in note 155.

<sup>193</sup> The height of the lower columns would be 5.33 diameters. With a diminution of  $\frac{2}{3}$  diameter, the upper diameter of the lower columns would be 0.571 m. or  $1\frac{3}{4}$  Doric feet, and, continuing the line of diminution through the capital (*ca.* 0.367 m.) and epistyle (*ca.* 0.580 m.), the lower diameter of the upper columns would be 0.043 m. less or 0.528 m. or  $1\frac{5}{8}$  Doric feet,



across the rear (counting the angle columns twice), with the remarkably narrow interval adjoining the doorway and the greater depth behind the rear colonnade, recalls the plan at Bassai to a striking degree.

### TREATMENT OF WALL SURFACES

The removal of the east wall of the church has flooded the interior with light and has made more prominent the unusual treatment of the inner wall surfaces. While the inner faces of the wall base (II) in the porches and of the orthostate course (III) throughout were smoothly polished, all the courses above the orthostates were lightly stippled with a single point driven in vertical strokes seldom more than 0.005 m. long. Around the edges of each block was usually left a border about 0.005/0.007 m. wide (Figs. 36, 37), but in some cases the border is almost non-existent, while on the other hand, here and there, was left a wider border, up to 0.027 m.; and it is clear that around many other blocks such a wide border had been reserved in the beginning and then reduced to the narrower ribbon. A similar treatment with borders of 0.017/0.027 m. was also given the side and rear walls of both pronaos and opisthodomos; in these parts the broader border was regularly left.<sup>196</sup> Besides the inner offsets of the antae was left a wider margin, 0.03/0.065 m., which increases in width to 0.09 m. beside the capitals. In some instances a definite incised line forms the boundary of the stippled surface. On the outer face of the rear wall of the opisthodomos the lowest wall course (IV) above the orthostates is exceptional in being smoothed (not polished), preparatory to being stippled, and was so left, probably through oversight. The outer faces of the flank walls were smoothly polished.

The fact that the inner faces of the walls are stippled, and the logical deduction that the stippling was a preparation for the effective adherence of stucco,—which, in turn, would have been painted,—has frequently been noted in the past. Indeed, the coincidence that a layer of plaster is still preserved on these wall surfaces has been regarded as corroborative evidence. And when it was recalled that the sanctuary of Theseus, as the temple was long supposed to be, was known to have had its walls painted by Mikon (Pausanias, I, 17, 2-3), possibly in collaboration with Polygnotos (Harpokration, Photios, Suidas, *s. v.* Πολύγνωτος),<sup>197</sup> the cumulative evidence seemed inescapable. The earliest investigators observed only the plaster, on which Chandler in 1765, mistakenly placing it on the outer faces of the walls, imagined that he could see painted traces of what were either figures of saints or the sole surviving relics of the brush of Mikon; and other English antiquarians who examined it between 1800

<sup>196</sup> Compare the description in Sauer, *Theseion*, p. 9, note 1 (where he claims that the tooling is that of the toothed chisel).

<sup>197</sup> The latter possibility rests on an emendation, the text having *ἐν θησαυρῷ*; the usual emendation *ἐν θησέως ἱερῷ* would indicate the Theseion, while the textual form might refer to the Opisthodomos (White, *Harvard Studies*, 1895, pp. 13-14; Dinsmoor, *A.J.A.*, XXXVI, 1932, p. 170, note 8).

and 1820, such as Dodwell, Leake, Kinnard, and Donaldson, while in agreement as to the antiquity of the plaster, in most cases added to the confusion.<sup>198</sup> Dodwell and Leake properly limited this “ ancient ” plaster to the inner faces of the walls ; but the former,

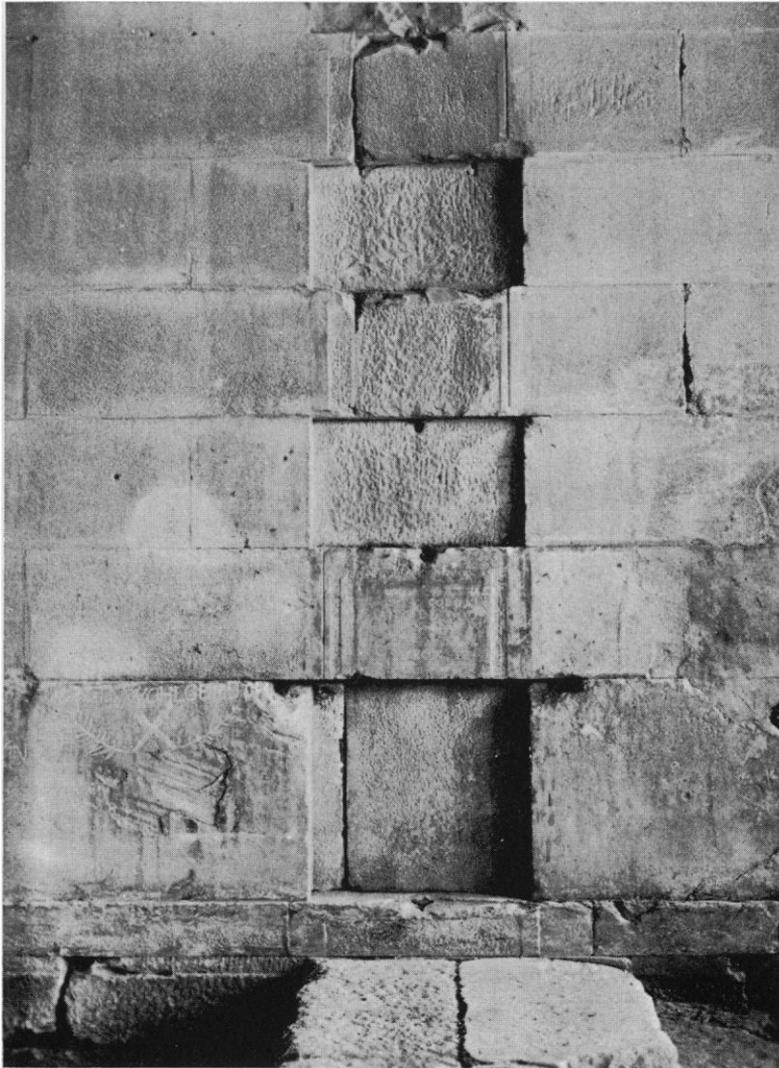


Fig. 36. Bonding of East Cross-Wall to North Flank Wall

apparently in collusion with Fauvel, proposed the curious theory that the paintings of Mikon were in reality the painted sculptures of the friezes, metopes, and pediments,

<sup>198</sup> Chandler, *Travels in Greece* (Dublin, 1776), p. 76; Dodwell, *A Classical and Topographical Tour through Greece* (1819), I, p. 365; Leake, *Topography of Athens* (1821), p. 400 (cf. 2nd ed., 1841, p. 512); Kinnard, *Ant. of Athens*, 2nd ed., III (1827), p. 66, note; Donaldson, quoted in *Trans. Roy. Inst. Br. Architects*, 1836, p. 86, note.

to which Pausanias was supposed to have referred too carelessly.<sup>199</sup> Kinnard mistakenly, like Chandler, put the "fine marble stucco" and with it the paintings on the exterior "walls of the temple behind the peristylum." Donaldson was the first to observe the stippling below the plaster; but his notes remained in manuscript form until 1836 and even then the error persisted that "the interior and exterior faces of the walls of the cella are worked with a point, evidently for the purpose of receiving a coat of plaister or paint," though only the west cross-wall actually shows this on the exterior. Leake's conservative opinion was adopted by the German compilers of textbooks, Hirt and K. O. Müller, who regarded the stucco as certain evidence that the paintings of Mikon were executed directly upon it;<sup>200</sup> and Pittakis even asserted that "one may see there faint traces of ancient painting; it is probably all that remains from the brush of Mikon."<sup>201</sup>

Meanwhile the conditions inside the Hephaisteion were beginning to play a most important part in the rapidly developing study of architectural polychromy. Hittorff opened the subject in his article of 1830, claiming that mural paintings were executed directly upon the walls.<sup>202</sup> Shortly thereafter, in the winter of 1831/32, special examinations of the walls by two investigators, though marred by erroneous statements, definitely corroborated Hittorff. Thiersch reported that there was a polished marble dado 10 to 12 feet high, then a stuccoed wall surface receding 1½ inches and about 15 feet in height, crowned by a projecting polished frieze about 3 feet high; in the sunken middle zone would have been the paintings, and in fact, "when one examines the stucco with a light, one still sees the colorless lines engraved in the surface, as they were drawn on vases to form the contours of the paintings. It is clear, therefore, that the treatment was the same as that for vases, and as employed also in the grottoes of Tarquinii." Semper during two months of study rightly noted that the stucco extended only from the top of the orthostates to the top of the sixth course above; and he published for the first time the existence of the stippled surface beneath, but mistakenly reported that this likewise extended only to the top of the sixth course, the upper portion of the walls being smooth and thus corresponding to Thiersch's "frieze." Both argued that the absence of holes for attachment prohibits the idea of

<sup>199</sup> Dodwell, *op. cit.*, pp. 364-365; Fauvel, *Bibl. nat., Mss. Franç. 22877* (1), fo. 71 (cf. Legrand, *Rev. arch.*, XXX, 1897, p. 401, and Raoul-Rochette's objection, *Expéd. de Morée*, II, p. 15, note 58). The allusion to the friezes as the *γραφαί* of Pausanias seems to go back to Fourmont (cf. German ed. of *Anf. of Athens*, II, p. 339, note).

<sup>200</sup> Hirt, *Geschichte der Baukunst bei den Alten*, III (1827), p. 41 (cf. *Geschichte der bildenden Künste bei den Alten* [1833], p. 171). Müller, *Handbuch der Archäologie der Kunst* (1830), § 209, 2, pp. 208-209; 2nd ed. (1835), § 319, 5, p. 432; 3rd ed. (1848 and 1878), pp. 451-452; English transl. (1847), § 319, 5, pp. 319-320.

<sup>201</sup> Pittakis, *L'ancienne Athènes* (1835), p. 82; cf. Mott, *Travels in Europe and the East* (1842), p. 186.

<sup>202</sup> Hittorff, "De l'architecture polychrome chez les Grecs, ou restitution complète du temple d'Empédocles dans l'acropolis de Sélinunte," *Annali dell'Inst.*, II, 1830, pp. 263-284.

wooden revetment as a background for the paintings.<sup>203</sup> The stippling of the marble was observed also by Dreux, who regarded it as the effects of the chisel or bush-hammer (*boucharde*) and wrongly stated that it occurs likewise in the Pinakothek of the Propylaea, just as Ross claimed that the walls of the Pinakothek were left rough like those of the "Theseum"; both concluded that this roughening was intended for the adhesion of a stucco background for painting.<sup>204</sup>

Now, however, the situation was complicated by one of those absurd controversies which disfigured the earlier stages of archaeological investigation. It seems that Carl Böttiger, and afterwards Stieglitz, had enunciated the baseless dictum that the great Greek artists never painted on walls;<sup>205</sup> and this standpoint was assumed with unnecessary fervor by Raoul-Rochette, who argued that mural paintings were always executed on wooden panels or planks which in the case of the "Theseum" would have been fastened to the marble walls by means of iron bolts.<sup>206</sup> The opinions of the latest observers at Athens, though adverse to Raoul-Rochette, nevertheless contained so many errors that they could be perverted to assist his case: Thiersch's lofty dado 10 or 12 feet high became a background for statues which would not obscure the paintings, and the wall surface recessed 1½ inches behind the dado below and the frieze above formed the sunken panel for the vertical planks; the meaning of the stippling and the plaster was ignored, until a new examination made by von Klenze at Raoul-Rochette's request showed that the plaster is mediaeval and has no traces of the contours of painting,<sup>207</sup> a result that was hailed by Raoul-Rochette (still ignoring the stippling) as clear evidence in his favor. Dedicating his book to Böttiger and, little foreseeing the future, declaring that the Germans were both his masters and his friends, Raoul-Rochette found his only convert in Germany, Welcker, who modified his theory only to the extent of claiming that the plaster or stucco was an adhesive material which cemented the planks to the walls without the aid of bolts.<sup>208</sup> Hermann, while announcing that he supported Raoul-Rochette in general, in reality took exactly

<sup>203</sup> Thiersch, letter quoted by Letronne, *Lettres d'un antiquaire*, p. 101 (probably this is the very letter of 1834 now preserved in the library of the Institute at Paris, as noted by Perrot and Chipiez, *Histoire de l'Art*, IX, p. 192, note 3); Semper, *Vorläufige Bemerkungen über bemalte Architektur und Plastik bei den Alten* (1834), pp. 47-49; *Der Stil*, 2nd ed., I (1878), p. 426; *Kleine Schriften* (1884), pp. 256-258.

<sup>204</sup> Dreux, quoted by Letronne, *op. cit.*, p. 110; *Rev. arch.*, III, 1846, p. 242. Ross, *Kunstblatt*, 1837, no. 54, pp. 218-219 (criticised by Raoul-Rochette, *Lettres archéologiques*, pp. 29, 64 note).

<sup>205</sup> Böttiger, *Ideen zur Archäologie der Malerei* (1811), pp. 257-258, 280-284. Stieglitz, *Archäologische Unterhaltungen* (1820), p. 157-158.

<sup>206</sup> Raoul-Rochette, "De la peinture sur mur chez les anciens," *Journal des Savants*, 1833, pp. 361-371, 429-440, 486-491 (especially pp. 435-436); *Peintures antiques inédites précédées de recherches sur l'emploi de la peinture dans la décoration des édifices sacrés et publics chez les Grecs et chez les Romains* (1836), especially pp. xii-xiii, 146-149, 175, 303 note 1.

<sup>207</sup> Klenze, quoted in Raoul-Rochette, *Peintures antiques*, pp. xii-xiii; *id.*, *Lettres archéologiques*, p. 27.

<sup>208</sup> Welcker, *Allgemeine Literatur-Zeitung* (Halle), 1836, III, pp. 145-239, especially pp. 202-203.

the opposite view and decided that mural paintings were executed directly upon the walls.<sup>209</sup> Raoul-Rochette had aimed his polemic against Hittorff, but the prompt reply came, not from this expected quarter, but from Raoul-Rochette's perennial opponent Letronne, who took up the cudgels in favor of painting directly on the walls, in conformity with the most reasonable interpretation of the observations made at Athens.<sup>210</sup> It is true that Letronne at first accepted with too much credulity Thiersch's statements with regard to the plaster and the incised contours, and argued that the absence of colors might be explained as due to flaking or to concealment behind Christian whitewash; but his criticisms of Raoul-Rochette based on the absence of ancient bolt-holes and on the absurdity of Welcker's adhesive stucco, and also on the inadequacy of the shelf assumed to have supported the planks—with a projection which he gradually reduced from Thiersch's 1½ inches to 1 or even ½ inch (in which he was more nearly right)—seemed incontrovertible. But Raoul-Rochette took Letronne to task for inconsistently diminishing the projection of the "shelf," and argued that the bolts might have been pulled out and the holes plugged by the Christians, thus becoming invisible (!). Other scholars published their observations and opinions: Kugler, Wiegmann, and Walz added their voices to the majority favoring painting on walls.<sup>211</sup> Raoul-Rochette and Letronne published reviews of these books, "open letters" to the authors, and criticisms of each other.<sup>212</sup> Raoul-Rochette not only appealed to the embarrassed Boeckh to serve as arbiter,<sup>213</sup> but spent fifty days at Athens in order to ascertain the facts for himself; he found that most of Thiersch's interpretations were to be rejected, and admitted the presence of the stippling (which he claimed to have been done with the toothed chisel) but offered no explanation of it, adhering to his theory of the wooden panels. A much more detailed examination of the actual state of the walls by Rangabé, on the other hand, not only clarified many of the misunderstand-

<sup>209</sup> Hermann, *De veterum Graecorum pictura parietum conjecturae* (Diss. Leipzig, 1834 = *Gött. Opusc.*, 1835); "Bemerkungen über die antiken Dekorationsmalereien an den Tempeln zu Athen," *Allgemeine Bauzeitung*, 1836, pp. 81-86.

<sup>210</sup> Letronne, *Lettres d'un antiquaire à un artiste sur l'emploi de la peinture historique murale dans la décoration des temples et des autres édifices publics ou particuliers chez les Grecs et les Romains* (1836), especially pp. 94-106; *Appendice aux Lettres d'un antiquaire* (1837), especially pp. 133-136.

<sup>211</sup> Kugler, *Ueber die Polychromie der griechischen Architektur und Sculptur und ihre Grenzen* (1835; English partial translation in *Trans. Roy. Inst. Br. Architects*, 1836, pp. 73-99). Wiegmann, *Die Malerei der Alten in ihrer Anwendung und Technik, insbesondere als Dekorationsmalerei* (1836). Walz, "Schriften über die Malerei der Alten," *Heidelberger Jahrbücher der Literatur*, 1837, pp. 209-260 (especially pp. 233-236).

<sup>212</sup> Raoul-Rochette, "Sur l'application de la peinture à la sculpture et à l'architecture chez les anciens," *Journal des Savants*, 1836, pp. 667-685; *ibid.*, 1837, pp. 17-35, 93-111, 406-414, cf. pp. 588-601 (especially pp. 589-593). Letronne, "Les Grecs ont-ils peint l'extérieur des monuments en marbre blanc?" *ibid.*, 1837, pp. 299-306, 366-374, 385-392 (especially pp. 390-392). Raoul-Rochette, *Lettres archéologiques sur la peinture des Grecs* (1840), especially pp. 25-32, 64-70.

<sup>213</sup> Reinach, "Lettre inédite de Boeckh à Raoul-Rochette au sujet de la peinture murale chez les Grecs," *Rev. ét. gr.*, II, 1889, pp. 396-412 (cf. *Phil. Woch.*, 1886, col. 1546).

ings as to the height and projection of the dado (orthostates) and the absence of the so-called projecting frieze, but also certified as to the uniformity of the stippling from the orthostates to the top of the walls and the mediaeval origin of the extant plaster and of such holes as were visible on the interior.<sup>214</sup> Finally, more than twenty years after he had initiated the discussion, Hittorff published a detailed summary of the opinions of everybody else as well as his own, concluding triumphantly that the painting was executed directly on the walls.<sup>215</sup>

Though the hypothesis of the wooden planks had been demolished, and even though the theory that Mikon's paintings were once to be seen upon these very walls was fast losing ground, the question of the plaster or stucco and of the stippling remained. Like von Klenze and Rangabé, later observers such as Graef, Dörpfeld, Sauer, and Koch have rightly insisted that the plaster to be seen at present is of mediaeval origin. But none of these authorities hesitated to assume that the stippled walls were intended to be stuccoed and painted; and Graef quoted an oral communication from Adler to the effect that the latter in 1874 had seen ancient stucco under the Byzantine in the southeast corner of the opisthodomos, while Koch even recently maintained that some of the original stucco is still to be seen under the mediaeval.<sup>216</sup>

As for the plaster, examination shows that not only does it rise merely to the top of the sixth course (IX) above the orthostates—where it was limited by the soffit of the lower epistyle—but also that it is clearly of the period of the church. It is of pure lime rather than of sand and marble dust which would certainly have been employed in the fifth century B.C. On the upper portions of the walls, which have in general suffered less molestation, there are no traces of stucco; and even under the plaster there are no traces which can be identified as ancient.

In the absence of ancient stucco, it might at first glance seem reasonable to adopt the opposite hypothesis that the stippled wall surface was intended to be visible rather than to be concealed by stucco. This hypothesis might seem to be supported by the precision and regularity of the work in general, by the care taken to obliterate the broader margins (where they formerly existed) within the cella, and even by the very fact of the existence of margins—for utilitarian roughening would more logically have covered the wall surface as a whole without regard for the joints, since these would have been concealed. The objection to regarding the treatment as a preparation for

<sup>214</sup> Rangabé, "Lettre . . . à M. Letronne . . . sur les peintures du Théseum et des Propylées," *Rev. arch.*, III, 1846, pp. 234-245, 292-304 (especially pp. 237-242).

<sup>215</sup> Hittorff, *Restauration du temple d'Empédocle à Sélinonte ou l'architecture polychrome chez les Grecs* (1851), especially, pp. 81-83, 112-119, 186-190, 246-254, 270, 364, etc. Beulé in 1860, as quoted by Breton (*Athènes décrite et dessinée*, 1862, pp. 200-201), even suggested that the stippling was mediaeval, done for the purpose of obliterating the ancient paintings which he supposed to have been executed on the smooth marble walls.

<sup>216</sup> Graef, in Baumeister, *Denkmäler*, III, col. 1776; Dörpfeld, in Robert, "Marathonschlacht in der Poikile," *Hall. Winkelmannsprog.* 18, p. 88; Sauer, *Theseion*, p. 2, note 2, p. 9, note 1; Koch, *Arch. Anz.*, 1928, col. 719. See also Perrot and Chipiez, *Histoire de l'Art*, IX, p. 191.

stucco might also seem to be corroborated by contrasting it with the incomparably rougher treatment found in certain other cases wherein the surfaces were definitely prepared for stucco, as in the Tholos.<sup>217</sup> According to one interpretation of the evidence, therefore, the purpose of the stippling was merely to produce a happy contrast in wall surfaces.

Unfortunately, however, the analogies for such treatment are to be found only in surfaces which were definitely left unfinished (either because the building was incomplete, or because the surfaces were to be concealed, like the door jambs of the Parthenon) or in surfaces which deliberately retained this treatment as a form of rustication (as in certain statue or stele bases, such as the base of Leagros in the Agora,<sup>218</sup> or in heavy fortification or terrace walls, such as the bastion under the Nike temple). It would be desirable to be able to cite analogies in finished temples of this period, if we were to accept this treatment as a wall texture in the case of the Hephaisteion.

In this connection must be discussed another peculiarity of the wall blocks of the Hephaisteion, namely, the technical treatment of the lower edge with an almost imperceptible relieving margin 0.0005 m. high and 0.014/0.022 m. wide which appears not only on the interior but also on the exterior and even across the transverse joints (Fig. 37). On the other hand, the relieving margins stop just short of the anta offsets, so that all the anta faces were polished smooth with almost invisible joints. One might perhaps regard this treatment as evidence that the architect was exempt from the usual fear of permitting the joints to show, but even, as at Bassai, wished to emphasize them. The gaps at the joints are so nearly imperceptible, however, that such an explanation would be inadequate. We must regard this rather as a mere technical process, usually confined to situations where vertical surfaces met horizontal projections (and so could not be dressed down and polished across the joint), but here uniquely appearing at all the joints of simple vertical surfaces. The implication is that the walls were erected,

<sup>217</sup> The inner faces of the wall blocks of the Tholos were stuccoed and much of the ancient stucco remains even on blocks which have suffered more severely than the walls of the Hephaisteion. The picked surface beneath the stucco on the blocks of the Tholos is incomparably rougher and more irregular than that of the walls of the Hephaisteion (Thompson, *Hesperia*, Suppl. IV, pp. 50, 54-55). I may add that Thompson suggests to me (by letter) that, if such mural decoration had been planned for a marble structure such as the Hephaisteion, "pigment would have been applied directly to the surface of the marble as it was in the case of the extensive and elaborate border patterns elsewhere in this building and as was done on so many stelai and plaques of the sixth and fifth centuries." He objects also that if mural paintings had been intended we should expect a belt course below them as in the Old Propylon, the Pinakothek of the present Propylaia, and presumably also in the repaired Tholos (*loc. cit.*, pp. 50-53). He would prefer, therefore, to regard the stippled surfaces as pure decoration and to assume either that no painting was intended or, if an intention to employ painting must be admitted on account of the water-proofed joints (described below), that "the stippling was a substitute rather than a preparation for the painting." For answers to these arguments, see below.

<sup>218</sup> *Hesperia*, V, 1936, p. 358, no. 2.

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not with the usual preliminary surfaces to be dressed down afterwards, but rather in their final finished form—in other words, there were no preliminary surfaces on the walls. This advance preparation of the blocks would explain the omission of stippling on one course of the opisthodomos rear wall; these five blocks, obviously intended for the flank walls with the smooth outer face, were used by mistake in the cross-wall

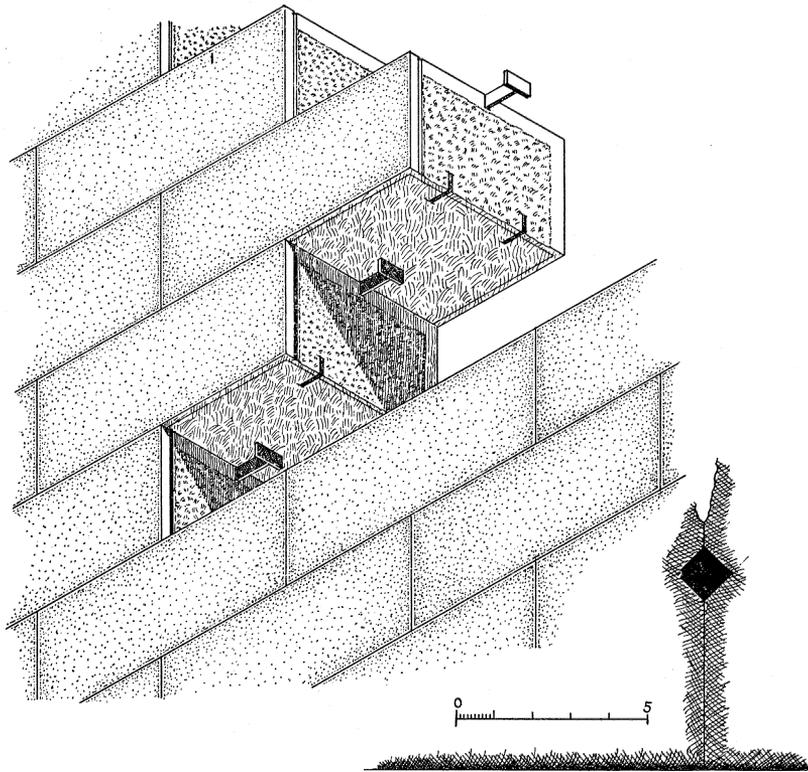


Fig. 37. Detail of Lead Waterproofing, Inner Wall Face

because the blocks were interchangeable in length, height, and thickness. Such advance preparation of the inner faces with stippled surfaces, furthermore, is compatible with the marginal borders even with the understanding that these were to be entirely concealed by stucco; for these narrow borders, which would seem rather unnecessary on the hypothesis that they were to be concealed, might have served a purpose in the accurate setting of the blocks.

That the stippled surfaces were intended to be stuccoed seems to be indicated by a detail which was first examined by the writer about 1914, but was never published until Koch briefly discussed it in 1928.<sup>219</sup> This is the system of pouring lead into the vertical joints of the wall blocks by means of vertical grooves located very close to

<sup>219</sup> Koch, *Arch. Anz.*, 1928, col. 719 (with fig. 6).

the inner face of the wall. These grooves are square in plan but are set diagonally with the square bisected by the joint; the width of the groove (forming the diagonal of the square) is 0.012/0.014 m.; and the middle of the groove is 0.04/0.055 m. from the inner face of the wall, cut in the smooth vertical contact surface of the anathyrosis (Fig. 37).<sup>220</sup> The cutting of the grooves is generally smooth, though in a few cases they are roughly hacked out. Where the joints are intact, and even in some cases where they have been opened, the stream of lead remains in place. Obviously this construction is in large part concealed within the thickness of the walls; but where it is exposed at open joints or breaks the evidence is to be tabulated as follows:

External faces of flank walls, no lead whatsoever; <sup>221</sup>

Inner faces of side walls of pronaos, lead evidently always present; <sup>222</sup>

Inner faces of side walls of opisthodomos, lead evidently always present; <sup>223</sup>

Inner faces of side walls of cella, lead evidently always present; <sup>224</sup>

Opisthodomos cross-wall, outer face lacks lead except in course VIII, while on inner face lead is always present except in course VIII where it is near outer face; <sup>225</sup>

Abutment of opisthodomos cross-wall against flank walls, courses not bonded in (IV, VI, etc.) have lead near inner face but not near outer, except in course VIII (south end) where it is near outer face but absent from inner; <sup>226</sup>

Abutment of pronaos cross-wall against flank walls, courses not bonded in (IV, VI, etc.) have lead near inner face but not near outer, except in courses VI and VIII (north end only) where it is near outer face but absent from inner.<sup>227</sup>

<sup>220</sup> This is based on an old sketch drawn a quarter of a century ago.

<sup>221</sup> Examined, in north wall, outer face: course IV, joint 16 (all joints counted from the east); course V, joints 1 and 9; course VI, joints 1 and 16; course VII, joints 1 and 17; course IX, joint 1; course X, joints 3 and 16; course XI, joint 17. In south wall, outer face: course IV, joints 3, 9, 10, 12, 14, and 15 (all joints counted from the east); course V, joint 11; course VI, joints 4, 6, 9, and 10; course VII, joint 15; course X, joint 16; course XI, joint 17.

<sup>222</sup> Examined, in north wall, inner face: course VII, joint 3 (all joints counted from east anta face); course VIII, joint 1; course X, joint 3. In south wall, inner face: course V, joint 2 (from anta face).

<sup>223</sup> Examined, in north wall, inner face: course IV, joint 2 (all joints counted from west anta face); course V, joint 2; course IX, joint 1. In south wall, inner face: course IV, joint 2; course V, joint 1; course IX, joint 1.

<sup>224</sup> Examined, in north wall, inner face: course IV, joint 8 (all joints counted from east cross-wall excluding abutting joint of cross wall). In south wall, inner face: course IV, joint 5 (from east cross-wall); course V, joints 5 and 7; course VI, joints 5 and 6.

<sup>225</sup> Examined, in opisthodomos cross-wall, outer face without lead; course XI, joint 1 (all joints counted from south wall); course XIII, joint 1; course XIV, joint 1. Inner face with lead: course V, joint 1 (from south wall); course XI, joint 1.

<sup>226</sup> Examined, in opisthodomos cross-wall, south abutment, outer face without lead: courses IV, X; inner face with lead: courses IV, VI, X. South abutment, outer face with lead: course VIII; inner face without lead: course VIII.

<sup>227</sup> Examined, in pronaos cross-wall, north abutment, outer face without lead: courses IV, X, XII; inner face with lead: courses IV, X, XII. North abutment, outer face with lead: courses VI, VIII; inner face without lead: courses VI, VIII. South abutment, outer face without lead: courses IV, VI, VIII, X, XII; inner face with lead: courses IV, VI, VIII, X, XII.

Another point to be considered is that the square grooves, while always beginning at the top of the stone, do not in every case descend to the bottom. This is a point which now is more difficult to check, except in cases in which the bottom of the joint surface is visible. Examination of these instances reveals sixteen cases wherein the groove was certainly carried to the very bottom,<sup>228</sup> as contrasted with three wherein it equally certainly was not.<sup>229</sup> These three exceptions, however, all occur in one region, at the abutment of the pronaos cross-wall against the south flank wall, and at the inner corner of these two walls, so that, with both pronaos and peristyle beyond them, they were doubly protected against the external elements and complete sealing of the joints may have been regarded as less vital.

As for the interpretation of these extraordinary precautions, the use of both stippling and strips of molten lead on the inner faces of the walls, the conclusion is inescapable that they were intended in connection with mural compositions painted on stucco. That such had actually existed was taken as a matter of course by the early investigators who assumed that our temple was the true Theseion, and that its walls bore the famous paintings by Polygnotos and Mikon. For them the stippled surfaces for the adherence of stucco provided additional evidence to be combined with the literary sources for paintings inside the Theseion. For us, the stippled surfaces and the lead waterproofing must be equally decisive evidence, unaccompanied by literary allusions, that mural paintings were planned inside the Hephaisteion. Perhaps the closest analogy is to be found in the neighbouring Stoa of Zeus Eleutherios, of which the inner faces of the walls were decorated with paintings by Euphranor. The Aiginetan poros blocks of the upper part of the rear wall of the Stoa, used at second-hand for later constructions behind the Stoa, 0.70 m. wide and 0.345 m. high, are roughly picked on one face, while just behind the other face in the vertical anathyrosis band of the joint surface a vertical groove was cut from the top to a point 0.095 m. above the bottom. The groove is only 0.007 m. wide, centered 0.030 m. from the smooth face of the block (the anathyrosis is 0.055 m. wide), and is not smoothly cut.<sup>230</sup>

<sup>228</sup> Grooves carried to the very bottom: pronaos, north wall: course X, joint 3 (from anta face). Opisthodomos, north wall: course IV, joint 2 (from anta face); course V, joint 2. Cella, north flank wall: course IV, joint 8 (from east cross-wall); south wall: course V, joint 7; course VI, joints 5 and 6. Opisthodomos cross-wall, inner face: course V, joint 1 (from south wall); course XI, joint 1. Abutment of opisthodomos cross-wall against south flank wall, outer face: course VIII. Abutment of pronaos cross-wall against north flank wall, outer face: courses VI, VIII; inner face: courses IV, X, XII. Abutment of pronaos cross-wall against south flank wall, inner face: course VI.

<sup>229</sup> Groove not carried to bottom: abutment of pronaos cross-wall against south flank wall, inner face: courses VIII, X, XII. The termination is respectively 0.025 m., 0.06 m., and 0.08 m. above the bottom.

<sup>230</sup> Thompson, *Hesperia*, VI, 1937, pp. 23-24, 69 (detailed observations added by the present writer). A similar system of waterproofing, though installed for a different purpose, is to be found in a spring-house in the Amphiareion at Oropos, with double-T clamps of bronze (a precaution

While this system of waterproofing undoubtedly protected the paintings by Euphranor, it must have been prepared as early as the fifth century B.C., either for earlier paintings by an unknown artist or as an unfulfilled intention. In the analogous case of the Hephaisteion, therefore, in spite of the fact that the walls are of marble and so would not actually have required stucco as a background for painting, we may assume that the use of stucco was planned here in order to avoid the danger of having the mural composition broken up by the ashlar pattern of the masonry (since there would undoubtedly have been some uncolored portions through which the joints and course lines would otherwise have been visible). Perhaps the preference of the mural painters for a specially prepared ground, like that to which they were accustomed on wooden and poros walls—compare also the polychrome white-ground lekythoi<sup>281</sup>—may have exerted some influence. The absence of a special belt-course such as frequently occurs below mural painting may have resulted in this case from its inutility (the painting being carried down to the protruding orthostates) and from a desire to avoid the extra expense of inlaying a belt-course on the inner face of the wall—it was absent also in the Erechtheion.

On the other hand, the absence of any literary allusion to such paintings in the Hephaisteion, and the failure to discover any actual traces of ancient stucco below that of mediaeval times or elsewhere, suggest that such mural compositions may never have been executed. If this be the case, we can only cite the instance of the northwest wing of the Propylaia, which was certainly planned to have mural decoration,<sup>282</sup> and yet never received such mural painting as we may ascertain from the state of its unfinished walls;<sup>283</sup> the collection of paintings discussed by Polemon and Pausanias, whence came the name of Pinakotheké actually applied to this wing of the Propylaia, were undoubtedly panel pictures from various sources, in some cases even earlier than the date of the Propylaia. Neither in this wing of the Propylaia nor in the east cella of the Erechtheion, both apparently planned for mural painting (which was actually executed in the case of the Erechtheion) do we find any precaution for waterproofing the joints. The Pinakotheké, however, forms an exact analogy for the apparent failure to carry out the paintings in the Hephaisteion.

against rust) set in lead. Here the joints have a system of grooves beautifully cut with a depth of 0.026 m. and a width of 0.006 m. at the face of the wall, increasing in a graceful curve to 0.015 m. in width at the back; these are filled, not with lead, but with cement.

<sup>281</sup> Compare Inwood, *The Erechtheion at Athens* (1831), p. 38: "Perhaps on a similar thin polished surface of white [as on the polychrome lekythoi] were the paintings in the poikile of Athens, in the Theseion," etc.

<sup>282</sup> Dörpfeld, *Ath. Mitt.*, XXXVI, 1911, pp. 52-53.

<sup>283</sup> For the most recent arguments that the walls of the Pinakotheké actually received mural decoration, see Perrot and Chipiez, *Histoire de l'Art*, IX, p. 192; Reinach, *Recueil Milliet*, pp. 144-145. For my contrary opinion, see Swindler, *Ancient Painting*, p. 425, note 14a.

## THE BASE OF THE CULT STATUES

For the restoration of the base of the cult statues we may avail ourselves of two blocks of dark gray Eleusinian limestone, re-used in the modern east wall replacing the apse of the church and disengaged by Orlandos (Figs. 38, 39, 40). Each block has but one finished face and each had the back part of its top cut down for the reception of a crowning member. The faces of the blocks are very smoothly dressed, in spite of the intractable nature of the stone. In one (B) the face is blank, but the face of the other (A) is marked by five cuttings of varying sizes and shapes, 0.022/0.042 m. in width, 0.027/0.060 m. in height, and 0.046/0.049 m. in depth; they occur



Fig. 38. Block "A" from Front of Statue Pedestal,  
Eleusinian Limestone

at varying distances above the bottom of the stone, 0.255/0.305 m. as measured to the bottom of the hole, and are cut with marked care, being certainly contemporary with the original working of the block. On the bottom of each block is a relieving margin 0.022 m. wide at the front edge. The end joints are bordered by well-worked anathyroses 0.065/0.07 m. wide. Each block has a cutting for a dowel at the bottom of one end, at the left end in the case of the one with five holes (A), at the right end of the other (B). One of the blocks (A) is roughly mitred at the left end of the back (less at the bottom than at the top); it is obviously prepared for a corner joint. Each block has a cutting for a double-T clamp at either end, that at the left end 0.175/0.18 m. from the face in both cases, that at the right 0.22/0.32 m. from the face; and one (A) has two shallow pry cuttings on top.

The place of finding the blocks, the fact that the two were found together, and the excellent quality of their workmanship leave no doubt that they are to be associated with the temple. The exquisite finish of the exposed faces and their perfect preservation make it altogether probable that they stood inside the building. The material,

the holes on the face, and the peculiar cutting of the top, are most appropriate for statue bases. It seems clear, therefore, that we have here two blocks of the base erected for the statues of Athena and Hephaistos by Alkamenes in 421-415 B.C. The raised



Fig. 39. Block "B" from Back of Statue Pedestal, Eleusinian Limestone

lip by means of which the face of the pedestal is carried above the level of its upper bed forms a distinctive characteristic; the lip is 0.05 m. wide at the top, but the back slopes down at about 45 degrees so that the width is 0.12 m. at the point where it joins the main surface of the bed; the height at the rear is 0.514 m., to the top of the lip 0.594 m. Satisfactory parallels for this curious method of setting the capping plinth are to be found in the pedestals in the temple of the Athenians on Delos and in the Tholos at Delphi,<sup>234</sup> both likewise of dark limestone, and both of the same period, 425-417 and just before 400 B.C. respectively.<sup>235</sup> The cuttings in the face of one block (A) were clearly intended for the attachment of statuettes made of metal, as on the base of the Zeus at Olympia, or of white marble as on the frieze of the Erechtheion.<sup>236</sup> This decoration was presumably confined to the front of the base; and this observation enables us to distinguish between the blocks, of which that prepared for relief decoration

must come from the front, the empty block from the ends or back.

A suggestion for the restoration of the base is given in Fig. 40. The block with the cuttings in the face being thereby designated as from the front of the pedestal, with the mitred joint at the left, it is evident that the corner joint opened toward the front, contrary to the practice in temple fronts.<sup>237</sup> But the corner joints, as also the

<sup>234</sup> *Exploration de Délos*, XII, pp. 189-194, figs. 245-250, pls. XVII, XXIV; the die of the pedestal is 0.45 m. high at the back, rising to 0.60 m. at the top of the lip, which is 0.55/0.06 m. wide; the face of the die has a sunken drafted margin at the bottom (Courby improbably inserts here a small moulding). *Fouilles de Delphes*, II, *Athena Pronaia* 2, pp. 19-20, pls. XXI-XXII; the die is 0.34 m. high at the back, rising to 0.523 m. at the top of the lip, which is 0.06 m. wide; the face of the die has a projecting footing moulding.

<sup>235</sup> It is now hinted that a later date will soon be advanced for the Tholos (*B.C.H.*, LXII, 1938, p. 377), primarily on account of the increased height to which the columns have been rebuilt. Pending the publication of more exact details I retain the date formerly accepted.

<sup>236</sup> *Olympia*, II, pp. 13-14; Stevens and Paton, *Erechtheum*, pp. 24, 194, 239-276; Pallat, *Jahrbuch*, LII, 1937, pp. 17-29.

<sup>237</sup> A similar scheme for the jointing of the orthostates may be observed in the altar of Athena

middle joint in the front face, would seem to have been sufficiently screened by the overlapping reliefs. From the diverse joints at the ends of the front block it is clear that the base was at least two blocks in length, in addition to the corners formed by the end blocks. A greater length would be out of proportion with the distance between the flank stylobates, a maximum of 3.810 m. which must include the projecting platform or plinth. The block with the cuttings for attaching sculpture, and so coming

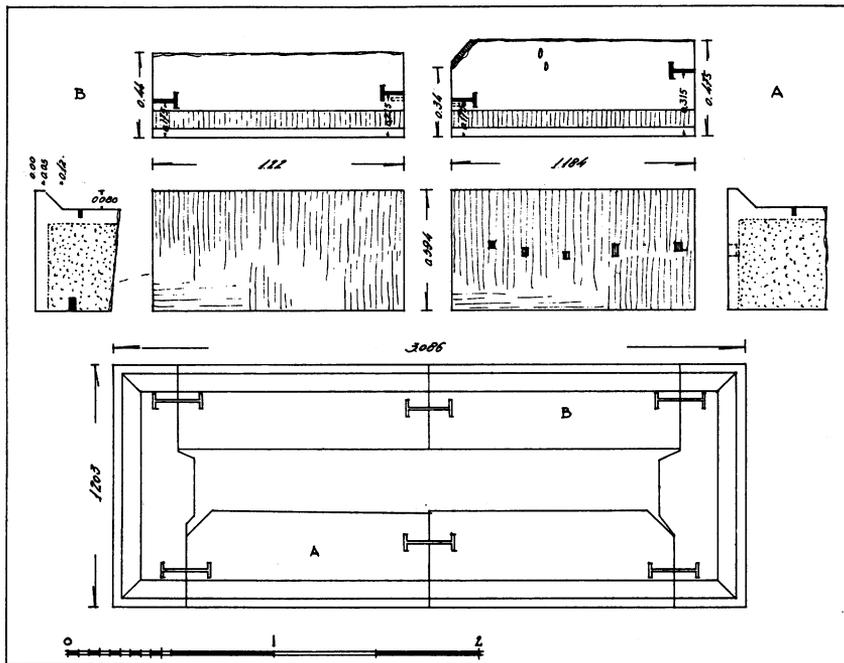


Fig. 40. Details and Reconstruction of Statue Pedestal

from the front, is 1.184 m. in length; the other is 1.222 m.; thus we may adopt the average of 1.203 m. The block from the front shows a mitre at the left end, and so adjoined the left corner piece, of which the width toward the front may be estimated as 0.34 m., identical with the distance behind the front at which the mitre begins. Thus the length of the pedestal would be about  $0.34 + (2 \times 1.203) + 0.34 = 3.086$  m., allowing a surplus of 0.724 m. which is adequate for the plinth projections at either end. For fixing the width of the base we have no positive evidence. We have assumed, however, that the base was intended for the two cult statues of the temple; and the resulting proportion suggests that it would be reasonable to make the end blocks

Hygieia on the Acropolis just inside the Propylaea; the end joints opened toward the east and west, i. e., toward the principal faces of the altar.

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identical in length with the front blocks, 1.203 m.,<sup>238</sup> though with specially cut joints adjusted to those of the front and rear blocks. The extant blank block is not such an end block, and must be placed on the rear; though it has no actual mitred joint, the fact that the clamp at its left end is nearer the face than is the case with the other clamp suggests comparison with the mitred front block, on which the clamp to the corner block is likewise only 0.18 m. from the face.

On the combined analogy of the base of the Zeus at Olympia, and of the pedestals in the temple of the Athenians on Delos and in the Tholos at Delphi, the crowning plinth may be restored with certainty in Eleusinian limestone. It would have been cut very thin at the outer edge to accommodate the die of the pedestal, and presumably would have been moulded; but farther back it would have been sufficiently heavy to support the bronze statues.<sup>239</sup> As to the material of the projecting plinth at the bottom, on which the die blocks rested, we cannot be so certain. At Olympia the corresponding member is dark; on Delos it is white; at Delphi the dark pedestal rests directly on a dark floor.

In placing the statue-base in the cella we have been guided by the fifth-century practice of setting the image well toward the rear. Placed so, the pedestal finds adequate support in the exceptionally heavy underpinning which we have seen reason to restore beneath this part of the floor of the nave. More specific is the existence of the pair of earlike projections at the west ends of the north and south inner column foundations; these, as we have noted, protrude 1.79/1.90 m. from the south wall and 2.08 m. from the north wall. Now that we have been able to restore the length of the statue pedestal as 3.086 m., it is evident that the remaining intervals between the ends of the pedestal and the wall planes were 1.573 m. on either side. Thus the pedestal would overlap the south "ear" by 0.22/0.33 m., and the north "ear" by 0.51 m.; and the adequacy of this support would be increased by the projecting lower step of the pedestal. There can be little doubt, therefore, that these "ears" were intended for the support of this pedestal or of a proposed predecessor, with the result that their exact position becomes of significance. As we have seen, they lie directly in front of the west inner column foundation, and extend eastward to a distance of 3.22 m. (north) or 3.50 m. (south) from the west wall plane. We have employed the evidence of these "ears" in favor of the larger column spacing, with the result that we have been able to locate the middle of an intercolumnar interval, and consequently the axis of the pedestal, at 9.500 m. from the east wall plane,<sup>240</sup> and so 2.645 m. from

<sup>238</sup> The thickness of the extant front and rear blocks, 0.475 + 0.44 m., yields a minimum of 0.915 m. for the width of the pedestal, a dimension which must have been considerably exceeded since front and back were not in contact with anathyroses nor were they clamped together.

<sup>239</sup> At Delos the capping stone is 0.250 m. high, diminished to 0.10 m. at the front, resting on the lip. At Delphi the height is 0.255 m., diminished to 0.072 m. at the front where only a moulding rested on the lip.

<sup>240</sup> I. e.,  $1.296 + (3\frac{1}{2} \times 2.344) = 9.500$  m.

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the west wall.<sup>241</sup> The front and rear faces of the pedestal that was finally inserted in the temple would then lie at distances of 3.246 m. and 2.043 m. from the west wall plane. The interval between the ends of the pedestal and the flank stylobates (1.210 m. from the flank walls) would be 0.362 m., and that between the back of the pedestal and the west stylobate (1.912 m. from the west wall plane) 0.132 m. The latter dimension furnishes the extreme limit for the projection of the lower step of the pedestal. Assuming that the back of the step was thrust against the rear stylobate and thus projected 0.132 m. from the die, the total dimensions of the lower step would be  $3.350 \times 1.467$  m.<sup>242</sup>

The front field of the pedestal, about 3.086 m. long and 0.594 m. high, was apparently occupied by a group of twelve figures. For block "A" has five holes for attachment, and the adjoining left corner block would have had room for one, making six figures at the left of the central joint. Such a composition, in the Pheidian tradition, is properly to be compared with those adorning the front faces of the pedestals of the Zeus at Olympia (the great gods)<sup>243</sup> and of the Athena Parthenos (the birth of Pandora)<sup>244</sup> by Pheidias himself, as well as of the Nemesis at Rhamnous (Helen brought by Leda to Nemesis)<sup>245</sup> by his pupil Agorakritos.

Of the statues which once stood on this pedestal it would scarcely be expected that a trace would be found. Yet something may now be said. At a point 10 m. to the southwest of the temple, well within the precinct wall, there appeared during the excavation an irregular pit cut in the soft bedrock.<sup>246</sup> It was full of the sand and earth characteristic of the ancient casting-pits which have been observed elsewhere in this region.<sup>247</sup> From the filling were removed many fragments of clay moulds for the casting of one or more probably two bronze statues of large scale. The style of the drapery is appropriate to the late fifth century; the fragmentary pottery found with the moulds is of precisely the same period. Sculpture of this scale and quality cast within the precinct of the temple is not likely to have been other than the cult statue or statues. The material and the date are eminently suitable for the bronze

<sup>241</sup> This position of the axis of the pedestal, as dictated by the foundation "ears" and also by the column spacing (see p. 92), holds true both for the present pedestal which was located with reference to the column spacing (the "ears" having been abandoned), and also for any earlier pedestal in connection with which the "ears" were planned. See, however, p. 73 with note 155, concerning a possible alternative explanation of the "ears," though it must be pointed out that even if this other explanation were accepted the pedestal would remain in the same position, as required by the columns, without the corroborative evidence of the "ears."

<sup>242</sup> Similar locations for the cult-statue pedestals, occupying nearly the entire width close to the back of the cella, occur in the Heraion and temple of Zeus at Olympia, and also at Tegea (Dugas and Clemmensen, *Tégée*, pls. 3-5) and Lykosoura (*Πρακτικά*, 1896, pl. 2).

<sup>243</sup> Pausanias, V, 11, 8.

<sup>244</sup> *Id.*, I, 24, 7.

<sup>245</sup> *Id.*, I, 33, 7-8.

<sup>246</sup> Shown in plan in *Hesperia*, VI, 1937, p. 399, fig. 2 at B.

<sup>247</sup> Compare the pit for the casting of a bronze statue to the south of the Temple of Apollo (*Hesperia*, VI, 1937, pp. 82-83).

statues of Hephaistos and Athena, the accounts for the making of which extend over the years 421/0-416/5 B.C. and are preserved on *I.G.*, I<sup>2</sup>, 370/371. There is good reason to believe that those statues were the work of Alkamenes (Cicero, *De deor. nat.*, I, 83; Valerius Maximus, VIII, 11, ext. 3).<sup>248</sup>

### THE SIMA OF THE ROOF

Among the marbles formerly accumulated within the temple, and removed therefrom in 1939, were three sima fragments (Inv. Nos. A 1094-1096); a fourth (Inv. No. A 1097) was discovered in a wall of one of the mediaeval graves in the west

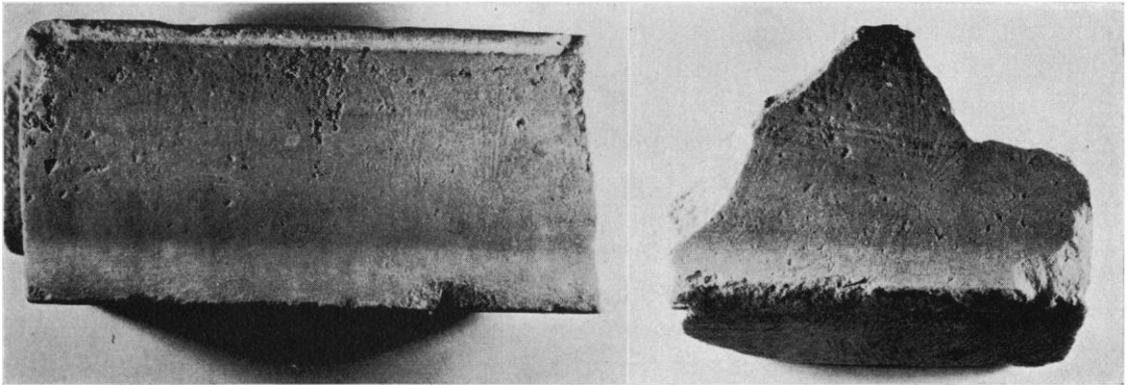


Fig. 41. Flank Sima (Inv. No. A 1094) and Raking Sima (Inv. No. A 1096), Showing Ornament

peristyle of the temple. In view of the inadequate studies of the roof as yet available, and also because of the identical character of the sima fragments which must belong to the temple of Ares,<sup>249</sup> it seems desirable to investigate these by-products of the excavation.

Three fragments at least, and probably also a fourth, may be assigned to the Hephaisteion, as follows:

Inv. No. A 1094 (Fig. 41), 0.53 m. long and retaining the left joint, distinguished by the acute angle at the bottom of the profile, was drawn by Penrose at the time of his first visit in 1846 and was rightly assigned to the flank of the temple.<sup>250</sup> It was also drawn in profile by Ivanoff in 1857/8, with the characteristic overlap of 0.04 m. at the left joint.<sup>251</sup> When G. P. Stevens in turn measured the profile in 1904 it lay on

<sup>248</sup> On these statues see also Plato, *Kritias*, pp. 109 C, 112 B; Pausanias, I, 14, 6; St. Augustine, *De civ. Dei*, XVIII, 12.

<sup>249</sup> *Hesperia*, IX, 1940, pp. 32-37.

<sup>250</sup> Penrose, *Principles*, 1st ed. (1851), p. 51, pl. 35 (repeated in 2nd ed., 1888, p. 73, pl. 35).

<sup>251</sup> Ivanoff, *Architektonische Studien*, I, pl. I.

the top of the Hephaisteion (Fig. 42, at right); and, while this is no guarantee that it had remained there since antiquity,<sup>252</sup> yet the very fact that this fragment was known for so many years, and was undoubtedly discovered on or near the Hephaisteion, in which it lay until 1939, affords a reasonable basis for assigning it to that structure, which it fits in size and style. The technical evidence which would have corroborated



Fig. 42. Raking Sima (Inv. No. A 1095) and Flank Sima (Inv. No. A 1094) on Top of Hephaisteion in 1904

the identification, namely, a dowel hole for attachment to the flank geison (at right angles to the face and cut directly through the tile from top to bottom, about 0.08 m. from the joint and 0.14-0.20 m. behind the front edge,<sup>253</sup> has been lost together with the rear portion of the tile.

<sup>252</sup> Penrose had a propensity for transporting fragments to the positions in which he thought that they belonged: e. g., the capital of the Nikias monument was carried from a Turkish cemetery outside to the top of the Acropolis and deposited by Penrose near the northeast corner of the Parthenon (*A.J.A.*, XIV, 1910, pp. 470-471, 483). Likewise the positive statement of Taylor in 1818 (*The Auto-Biography of an Octogenarian Architect*, I [1870], p. 124), that “none of the cimatum of the pediments remain,” and the negative inference from Woods in the same year (*Letters of an Architect from France, Italy, and Greece*, II [1828], p. 240), referring only to “a fragment of marble tile on the top,” might possibly be regarded as evidence that the two simas were not yet there; but this would not be a safe assumption. For Prestat, who at least as early as the time of Penrose studied the Hephaisteion for Gailhabaud (*Monuments anciens et modernes*, I, 1865—but the latest bibliographical reference for Athens is to Leake’s 1841 edition, excluding Penrose) not only mentions a tile on the top but also draws a section of the proper sima.

<sup>253</sup> These measurements are derived from the pairs of dowel holes 0.13/0.18 m. apart, the pairs spaced at intervals of 1.299 m. on centres, along both flank cornices of the Hephaisteion (see p. 114, note 263).

Inv. No. A 1095, 0.46 m. long and retaining the right joint, with a right angle at the bottom of the profile and so a raking sima, may be identified as a second piece drawn by Ivanoff in 1857/8, since it has on the bottom surface a little weathered hollow 0.017 m. behind the face exactly as he shows it.<sup>254</sup> And this piece likewise was seen by G. P. Stevens in 1904 on the top of the Hephaisteion (Fig. 42, at left). Again, therefore, we have a long history of association of this fragment with the Hephaisteion (in which it lay until 1939), and also the curious circumstance that it is unique in being of Parian marble, thereby excluding it from the temple of Ares (in which no Parian marble whatever was used, except possibly for the missing sculptural decoration), whereas in the Hephaisteion the indiscriminate mixture of Parian and Pentelic, as exhibited particularly in the flank mutular cornices just below the sima, might appropriately have been repeated in the sima as well. The piece has a trace of a projecting overlap at the right joint and so formed the lower side of a tile from a right slope. The technical evidence which would have corroborated the identification, namely, a dowel hole for the attachment to the raking geison (at right angles to the face, about 0.16 m. below the upper joint and 0.11-0.17 m. behind the front edge,<sup>255</sup> has been lost together with the upper end of the sima.

Inv. No. A 1097, of the complete length 0.639 m., has the bottom broken away so that the angle at the base of the profile cannot be measured, though the absence of a lion head between the two joints shows that it must be a raking sima. The place of discovery in a wall of one of the tombs in the west peristyle implies that it came from this temple; and the length accords reasonably well with the spacing of the raking sima joints of the Hephaisteion, 0.65 m. The rebate of 0.05 m. at the left joint and the trace of an overlap at the right joint indicate that it came from a right slope of a pediment.

Inv. No. A 1096 (Fig. 41), 0.36 m. long with the left joint preserved, again a raking sima fragment with the right angle at the bottom, formerly lay in the Hephaisteion and so raises a prejudice in favor of attribution to that structure. The left joint shows an overlap, indicating that it was the lower part of a left slope sima.

These four sima fragments form part of a series of seven such sima fragments, of which two (A 394, 439) have been assigned to the raking sima of the temple of Ares, and one (A 701) to a corner of the same temple. It may be noted that when these three fragments of the temple of Ares are aligned with the three raking sima

<sup>254</sup> Ivanoff, *loc. cit.* The only other surviving fragment showing any trace of such a rill is Inv. No. A 439 (assigned to the temple of Ares, *Hesperia*, *loc. cit.*), on which it is much less distinct and does not coincide with the dimension 0.017 m. given by Ivanoff. Inv. No. A 439, furthermore, was discovered in 1935 in the debris of house demolition 70 m. southeast of the temple of Ares, and so was probably inaccessible to Ivanoff.

<sup>255</sup> These measurements are derived from the dowel holes spaced about 0.65 m. apart along the edges of the raking cornices on both fronts of the Hephaisteion (see also *Hesperia*, IX, 1940, p. 34, note 75).

pieces (A 1095-1097) from the Hephaisteion, they are absolutely indistinguishable in profile. Likewise when a lion-head spout (A 700) which has tentatively been assigned to the temple of Ares (retaining the sima profile behind)<sup>256</sup> is aligned with the corner piece (A 701) and with the piece of flank sima (A 1094) from the Hephaisteion, the profiles are again found to be identical. Only on technical grounds can we assign Inv. Nos. A 394 and A 701 definitely to the temple of Ares, and A 1095 (of Parian marble) to the Hephaisteion; also, on account of the places of discovery, it would seem that A 439 belongs to the temple of Ares, while A 1094 and A 1097, perhaps also A 1096, would better fit the Hephaisteion. As for the two lion heads (A 272, 700) discussed in connection with the temple of Ares, either one or both could likewise be assigned to the Hephaisteion. The description and measurements of the profiles,<sup>257</sup> and also, so far as traces exist, of the painted ornament, apply equally well to both temples.<sup>258</sup> The traces of the painted palmette-and-honeysuckle are plainly visible on some of the blocks (A 1094, 1096, Fig. 38) when they are appropriately lighted. This curious identity is one more instance of the sort of evidence proving that a single architect was responsible for both temples.<sup>259</sup>

A strange fact, illustrated only by the flank sima piece Inv. No. A 1094 and apparently unique in Greek marble architecture, is the presence of the overlap of 0.04 m. at the left joint. Under normal circumstances this would be taken as evidence that the piece comes from the left slope of a pediment. But in this case the acute angle between the bottom and the face, so different from the right angle found on the true raking sima pieces, clearly demonstrates that we are concerned with a flank. Other incontrovertible evidence is the identity of the profile, including the acute angle at the bottom, with that on the lion head A 700, which could only have come from a flank,<sup>260</sup> and particularly the weathered and corroded trace of a cover-tile abutting against the back of the sima (Fig. 43).<sup>261</sup> The half of the cover-tile trace preserved is 0.115 m. wide, implying a total of 0.23 m.; the apex is 0.075 m. below the top of the sima, the obtuse edge 0.15 m. below. The fact that the cover-tile is centered on the rear joint of the sima, which is 0.04 m. to the left of the visible joint of the sima face, necessitates some discussion of an irreconcilable discrepancy.

<sup>256</sup> *Hesperia*, IX, 1940, p. 35, fig. 13 at left.

<sup>257</sup> The height of the astragal, given as 0.01 m. (*loc. cit.*, p. 32), should be corrected to 0.013 m.

<sup>258</sup> See *Hesperia*, IX, 1940, pp. 44, 47. It may be observed that the Hephaisteion profile drawn on p. 44, fig. 16, was enlarged from the very small sketches and measurements given by Penrose and Ivanoff, the original marbles being at the time inaccessible. The fact that the resulting profile was so nearly identical with that of the temple of Ares, disconcerting to me at the time, speaks well for Ivanoff's accuracy.

<sup>259</sup> See below, p. 153.

<sup>260</sup> *Hesperia*, IX, 1940, p. 33, fig. 12 (profile with sloping bottom).

<sup>261</sup> Similar traces appear on the backs of the flank simas of the Nike temple, which, however, have ordinary butt joints.

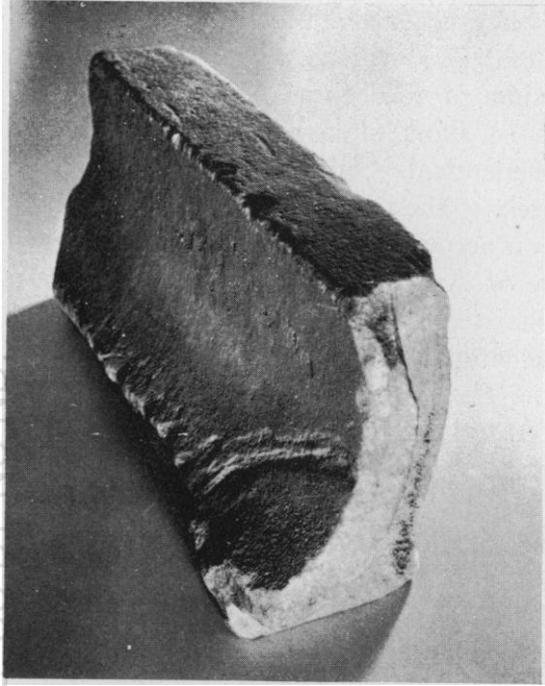


Fig. 43. Back of Flank Sima (Inv. No. A 1094), Showing Abutment of Cover Tile and Z Joint

The flank cornice, averaging 32.505 m. in length including the crowning mouldings,<sup>262</sup> was occupied by twenty-six sima blocks of which the two endmost joints, according to the pairs of dowel holes along the edge of the cornice, were only 0.665/0.67 m. from the corners of the cornice.<sup>263</sup> Thus the twenty-four intervening simas, corresponding approximately to the twenty-four flank metopes, covered 31.170 m. and averaged 1.299 m. in length; in fact, as shown by the pairs of dowel holes, they were obviously of this uniform length throughout, equivalent to  $3\frac{7}{8}$  Doric feet, and the spacing of the ordinary tiles was  $1\frac{5}{6}$  Doric feet, close to the favorite dimension 2 Doric feet. But, in view of the fact that this dimension of 1.299 m. disagrees with the unit of 1.291 m. ( $3\frac{3}{4}$  Doric feet) which was carried up from the bottom of the crepidoma to the top of the cornice,<sup>264</sup> it is evident that

<sup>262</sup> The actual measurement on the south flank is now 32.52 m., but this includes some slightly open joints.

<sup>263</sup> The pairs of dowel holes along the south flank cornice of the Hephaisteion show narrow intervals of 0.13/0.18 m. and so were 0.065/0.09 m. from the sima joints, running parallel to the joints and at right angles to the flank cornice. The wider intervals are 1.13/1.22 m.; the narrower and wider added together are always 1.26/1.34 m. (extremes found only in the easternmost interval) or rather 1.28/1.325 m., remarkable uniformity considering that there was no particular compulsion to locate the dowels at uniform distances from the joints. The raking sima dowels of the Hephaisteion are described in my previous article, *Hesperia*, IX, 1940, p. 34 with note 75; the corner sima dowels, *ibid.*, p. 36. These dowel holes were evidently studied in detail by Cockerell, who did not publish his results. The visitors of 1818 made additional observations. Woods (*loc. cit.*) says, "There are rows of cramp holes in pairs, on the top of the cornice, near the edge, having probably supported the ornamental tiles, or antefixae; and along the pediment are similar holes, disposed singly at equal distances, and at the top are some larger and deeper holes for fixing the acroterium. At the bottom of the slope of the pediment are several small holes, which perhaps fixed the ornament in that part." Taylor (*loc. cit.*) adds, "The marks of the situation of the ornamental tiles are visible along the flanks, one over each triglyph," with reference also to Cockerell's study of the holes on the pediment slopes. Strangely, Kinnard in the same year reports that "it is evident that above the lateral cornices there was no sima(!), while over the cymatium terminating the pediments, the plug-holes are apparent" (*loc. cit.*).

<sup>264</sup> On the flank cornice the angle blocks are 1.66 m. long, thus leaving between them an interval of 29.185 m. This in turn would allow twenty-two cornice blocks of 1.2915 m. besides the extra metope width of 0.772 m. which was shared between the two central blocks (theoretically 1.6775 m., actually 1.65/1.695 m. on the south flank).

the sima joints were not exactly superposed over the triglyph centres but were always outside them in greater or less degree as we approach the middle of the flank:<sup>265</sup>

Over first (angle) column	(0.466 + 0.260) — 0.665	= 0.061 m.	outside triglyph centre
“ second	“(2.622 + 0.061) — (2 × 1.299)	= 0.085 m.	“ “ “
“ third	“(2.581 + 0.085) — (2 × 1.299)	= 0.068 m.	“ “ “
“ fourth	“(2.581 + 0.068) — (2 × 1.299)	= 0.051 m.	“ “ “
“ fifth	“(2.581 + 0.051) — (2 × 1.299)	= 0.034 m.	“ “ “
“ sixth	“(2.581 + 0.034) — (2 × 1.299)	= 0.017 m.	“ “ “
“ seventh (middle)	“(2.581 + 0.017) — (2 × 1.299)	= 0.000 m.	“ “ “

These sima joints indicated by the pairs of dowels might be construed as those of the sima face or possibly as those of the tiles behind, differing, as we learn from the flank sima Inv. No. A 1094, by 0.04 m. If, however, the above-listed joints are those of the upper faces of the tiles, the sima joints would have been 0.04 m. nearer or further from the façades. In the former case, they would disagree with the triglyph centres even more, by 0.101 m., 0.125 m., 0.108 m., 0.091 m., 0.074 m., and 0.057 m. (from corner to centre); and since there was probably an ordinary butt joint at the central point of transition, the two central simas would each have been 1.356 m. long. In the latter and most improbable case,<sup>266</sup> the sima joints would first have been nearer the façades than the triglyph centres by 0.021 m., 0.045 m., 0.028 m., and 0.011 m., and then farther away by 0.006 m., and 0.023 m. (from corner to centre); the two central simas would have been only 1.276 m. long. Not only these irregularities (which would have affected also the lion heads) but also the method of construction with a pair of dowel holes (with due regard for the weakness of the overlapping tongue) suggest that the more solid portions of the Z-shaped joints and consequently the joints of the sima face are those given by the above measurements. The lion-head spouts, on the analogy of the terracotta sima from the Acropolis (cited below), would undoubtedly have been equidistant from the visible sima joints (and so approximately opposite alternate rows of cover-tiles, which stopped some distance behind), thus falling nearer the façades than the metope centres by 0.067 m., 0.079 m., 0.081 m., 0.0725 m., 0.064 m., 0.0555 m., 0.047 m., 0.0385 m., 0.030 m., 0.0215 m., 0.013 m., and 0.0045 m. (from corner to centre). The raking simas and corner blocks being placed first, the overlap would always have been toward the façade, thus locating the centres of the cover-tiles nearer the façades than the triglyph and metope centres by 0.101 m.,

<sup>265</sup> The endmost sima joint, 0.665 m. from the end of the cornice, falls 0.199 m. inside the face of the entablature or triglyph, and so 0.061 m. outside the middle of the angle triglyph. The cornice projection is 0.466 m., the triglyph width 0.519 m. The distance from the first to the third triglyphs is 0.041 m. greater than the usual dimension (2.581 m.) because of the widened endmost metopes.

<sup>266</sup> Improbable for the reason that the corner simas would undoubtedly have been laid first so that the overlap should always be toward the façade.

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0.107 m., 0.113 m., 0.119 m., 0.125 m., 0.121 m., 0.117 m., 0.1125 m., 0.108 m., 0.104 m., 0.100 m., 0.0955 m., 0.091 m., 0.087 m., 0.083 m., 0.0785 m., 0.074 m., 0.070 m., 0.066 m., 0.0615 m., 0.057 m., 0.053 m., 0.049 m., and 0.0445 m. (from corner to centre). Thus the fifty rows of pan tiles would comprise two central rows of 0.694 m., then on either side twenty-three rows of 0.6495 m., and the raking simas on the façade gables. Such were the irregularities into which the builders were led by their repetition of the raking joint construction on the flanks.

This peculiarity of flank jointing, which certainly occurred in the Hephaisteion, may well have appeared also in the twin temple of Ares, where the evidence is insufficient. As for the intervening temple at Sounion, the corner piece of sima demonstrates that it was replaced by ordinary eaves tiles on the flanks;<sup>267</sup> and in the final work at Rhamnous, with a sima on the flanks, the architect yields to the normal practice with butt joints. As for analogies for the rather perverted system employed in the Hephaisteion I can cite only one example at Athens, the terracotta flank sima of type XXI from the Acropolis,<sup>268</sup> dating from the last part of the fifth century. There are, however, three earlier examples from the western colonies, Korkyra and Kaulonia (in terracotta) and Akragas (in limestone, temple of Herakles).<sup>269</sup>

As for the roof tiles in general, the presence of marble simas on pediments and eaves, and the weathered traces of what seem to be marble cover tiles against the back of the flank sima, suggest that the entire roof was covered with marble. In fact, Woods in 1818 saw "a fragment of marble tile on the top,"<sup>270</sup> and small pieces of marble tiles accumulated inside the temple may come, in part, from this roof. It may be affirmed, in any case, that there is not the slightest evidence in favor of the repeated statements that the tiles were of marble only along the edges and of terracotta over the major portion of the roof.<sup>271</sup>

### SCULPTURED FRAGMENTS

Among the fragments of sculpture discovered during these operations three may be mentioned as of special significance, inasmuch as one of them seems definitely to belong to the metopes, and two may possibly come from the pediments.

<sup>267</sup> Orlandos, *Ἀρχ. Δελτ.*, I, 1915, pp. 14-22, fig. 19.

<sup>268</sup> Buschor, *Tondächer der Akropolis*, I, pp. 41-44; II, p. 73.

<sup>269</sup> Dinsmoor, *A.J.A.*, XXXVII, 1933, p. 175. For Korkyra see Rodenwaldt, *Korkyra, Archaische Bauten und Bildwerke*, I, figs. 42, 74-75, pl. opposite p. 104. For Kaulonia see *Mon. Ant.*, XXIII, 1916, col. 785, fig. 48; Van Buren, *Archaic Fictile Revetments in Sicily and Magna Graecia*, p. 87, no. 14, pl. II, fig. 6. For Akragas see Koldewey and Puchstein, *Gr. Tempel in Unteritalien*, p. 149, fig. 131a; Gabrici, *Mon. Ant.*, XXXV, 1933, col. 227, pl. 59-61, 63a.

<sup>270</sup> Woods, *loc. cit.*; the tile was seen also by Prestat before 1835 (Gailhabaud, *loc. cit.*).

<sup>271</sup> Graef, in Baumeister, *Denkmäler*, col. 1776; repeated by Koch, *Arch. Anz.*, 1928, col. 714. Sauer rightly opposed such a theory (*Theseion*, p. 9, note 1).

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The candidate for the metopes (Fig. 44) is a bearded male head of Parian marble (Inv. No. S 907), found on May 6, 1937, in the foundations of a Roman house of the fifth century after Christ to the east of the Tholos, about 85 m. southeast of the Hephaisteion. The piece is 0.145 m. in maximum height, 0.135 m. in width, 0.085 m. in thickness. The head is of the bestial—or ludicrous—Satyr or Centaur type, full-

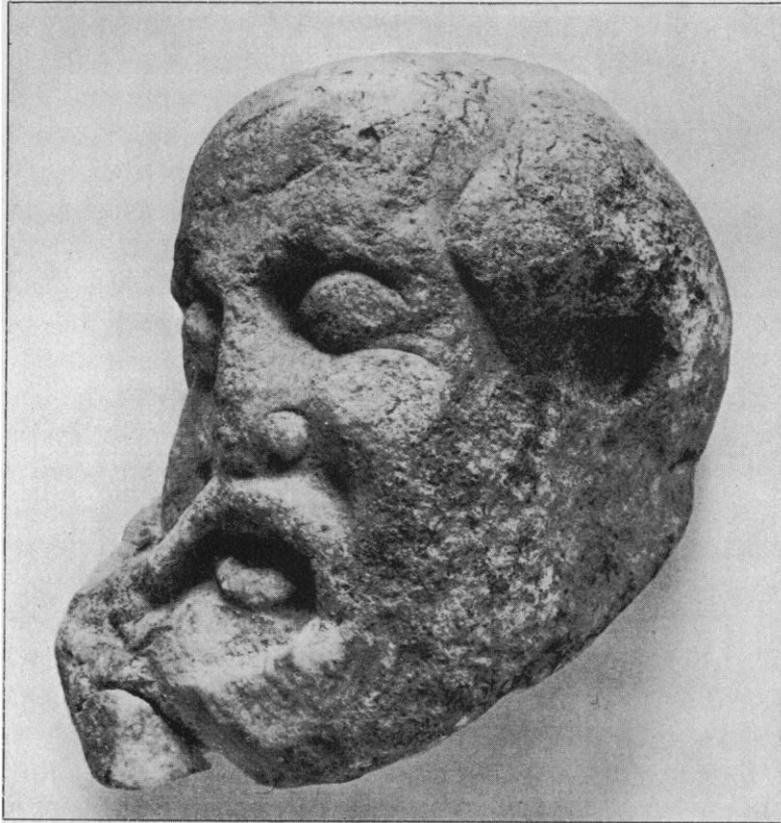


Fig. 44. Head of Eurystheus (Inv. No. S 907)

bearded, bald in front, the forehead wrinkled, with wrinkles also at the eyes and nostrils, the eyes popping wide open without carved eyelids—though a difference in the surface suggests a distinction in paint, the middle part of the eye being more strongly weathered. The right side of the face is carelessly worked, the right eye merely blocked out. The back of the fragment (Fig. 45) is a curiously wavy irregular surface as if worn by water. The whole gives the impression of being in relief, and yet of not having been broken from a relief—it was apparently a separately applied piece. This impression is strengthened by a group of four holes in the back, about 0.012 m. in diameter and 0.022 m. deep; of the lowest of the four holes only slight traces exist. The style associates it with the Hephaisteion, and the dimensions with the metopes of this

temple.<sup>272</sup> For instance, among the well-preserved heads in the north metopes (I-II), we find a maximum relief of 0.105 m. (ours being 0.085 m. in addition to fastenings behind), a height of 0.14 m. from bottom of chin to top of cranium (0.15 m. in ours),

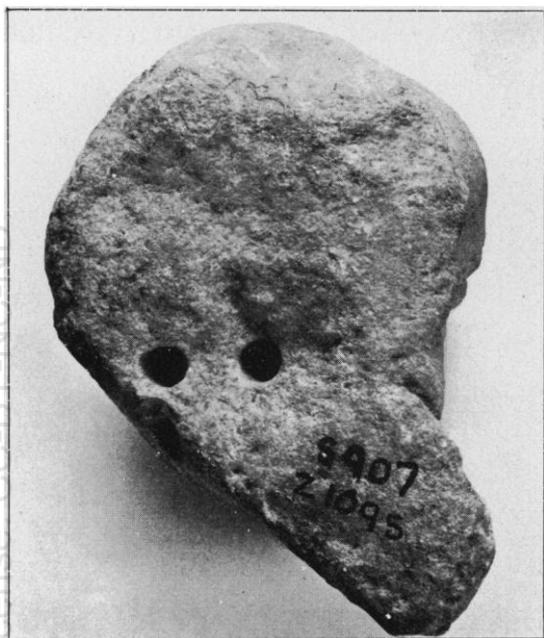


Fig. 45. Back of Head of Eurystheus

a height of 0.11 m. from bottom of nose to top of cranium (0.09 m. in ours), a width of 0.11/0.13 m. from back of cranium to forehead (0.11 m. in ours).

Examination of the eighteen metopes shows that the only one which could have contained such a head, particularly one separately applied, is the Eurystheus metope (Fig. 46) on the east façade (no. IV from the southeast corner). Here are slight remains of Herakles heaving the boar head-foremost down toward the open mouth of the pithos; and the pithos is perfectly preserved, rising 0.180 m. above the bottom of the metope, its top forming a level horizontal shelf and the very slightly convex body of the pithos protruding 0.11 m. from the background (Fig. 47).<sup>273</sup> Eurystheus is entirely absent; but in the top of the pithos is a hole 0.036 m. square and 0.044 m. deep, formed

by means of four drilled holes on each side of the square. This was undoubtedly intended to receive a vertical iron bar passing through the shoulders and head of Eurystheus; and we may infer that the bar was pierced by four horizontal holes, through which four pins or dowels extended forward to fasten the head firmly into place. In Fig. 48 the head is located with reference to a cast of the pithos and a model of the edge of the triglyph, and looks upward in ludicrous horror at the descending boar. The best analogy is the very fragmentary metope representing this scene at Olympia.<sup>274</sup>

A feminine right foot (Inv. No. S 737) of Parian marble, apparently from a pediment, was found on April 28, 1936, in a pithos 55 m. north of the northeast corner of the Hephaisteion, in rubbish of the late thirteenth or fourteenth century after Christ. The piece measures 0.145 m. from front to back, 0.13 m. in width, and

<sup>272</sup> Comparison with the heads in the frieze indicated that it was too large, and also would fit none of the figures.

<sup>273</sup> The Eurystheus metope has been studied in some detail by Miss Benton (*J.H.S.*, LVII, 1937, pp. 38-40). The new photographs by Miss Frantz give a much clearer indication of the condition.

<sup>274</sup> *Olympia*, III, pl. XXXIX, 7; Buschor and Hamann, *Skulpturen des Zeustempels*, pl. CIII b.

0.085 m. in height (Figs. 49, 50). A characteristic detail is the undercutting of the front of the plinth by means of a row of twelve horizontal drill-holes (in the part preserved), so that the upper half of the plinth with the toes overhangs 0.035 m. from the supporting portion which is here 0.018 m. high. On the outer side of the foot the



Fig. 46. Metope No. IV on East Front of the Hephaisteion: Herakles and Eurystheus

plinth is well finished and retains its full height of 0.045 m. to the bottom of the foot. We might suppose either that the projecting toes overlapped part of the contour of a shallow socket in the pediment floor, or that the recessed lower portion of the plinth was set in line with the raised edge of the pediment floor at one of the many points where this front edge was interrupted by the statue sockets (Fig. 51). The top of the foot is considerably weathered, especially toward the outer side, agreeing satisfactorily with the attribution to a pediment and suggesting that the figure was moving

somewhat toward the right, as seen by the spectator. But actual comparison of the fragment with the sockets in both pediment floors yielded no convincing combination; and this negative result raises considerable doubt in my own mind as to the propriety of attributing the piece to the Hephaisteion. The illustrations are to be regarded merely as suggestions of the possible use of the fragment.



Fig. 47. Detail of Metope No. IV, Showing Top of Pithos and Triglyph

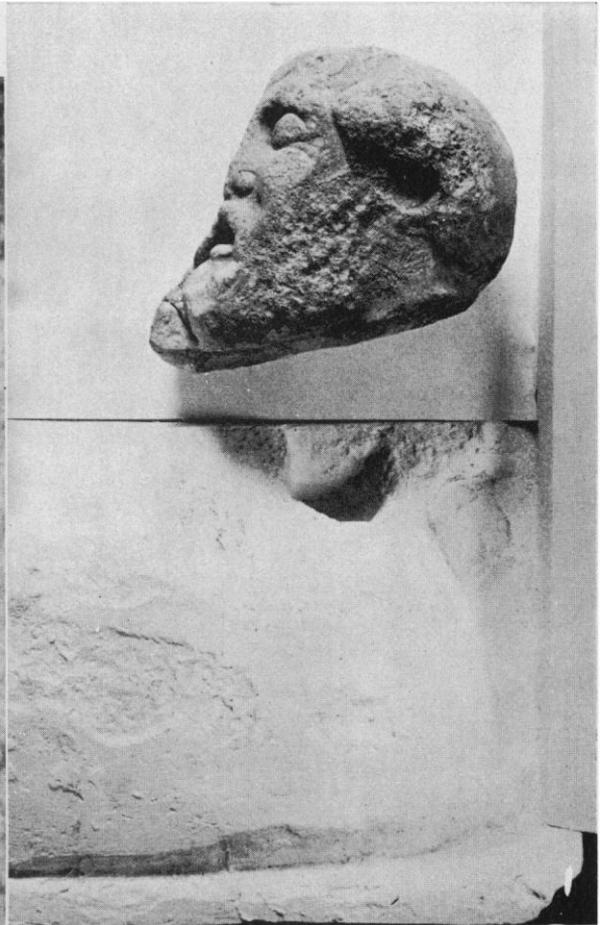


Fig. 48. Relation of Head of Eurystheus to Pithos and Triglyph

Still less probable, and so published here only because of its place of discovery, is a horse's hoof (Inv. No. S 785) found on June 8, 1936, in a cistern 40 m. north of the middle of the Hephaisteion, in black earth which probably represents debris of the time of Sulla. It is a front hoof (Fig. 52), but whether poised in air or pawing the ground is uncertain: the under surface is perfectly finished, but the fact that the tip is broken away might possibly suggest that it was attached to a plinth. It seems uncertain, also,

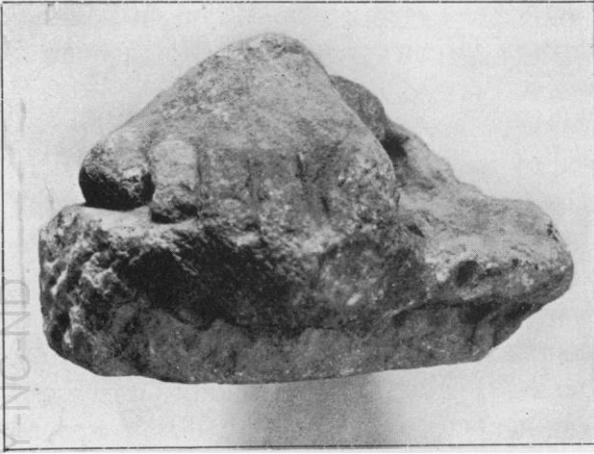


Fig. 49. Foot of Pedimental Figure  
(Inv. No. S 737), from Front



Fig. 50. Foot of Pedimental Figure,  
from Above

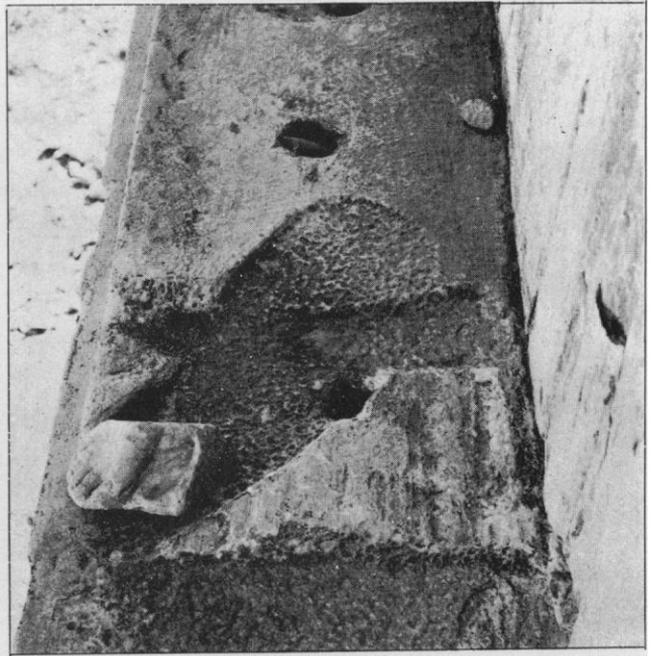
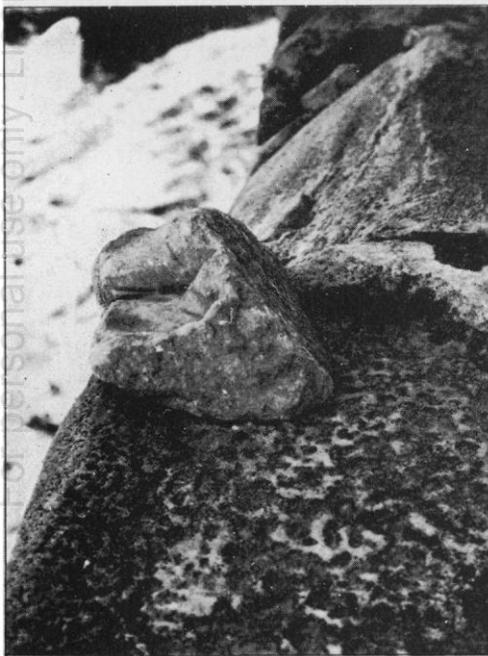


Fig. 51. Variant Adjustments of Foot to Pediment Floor Cuttings

whether the marble is Parian or Pentelic; the latter was my preferred opinion. In view of the absence of any sockets for equestrian figures or free-standing horses, I feel that this piece should not be associated with the Hephaisteion. It might possibly come from a Parthenon metope or from a votive monument.<sup>275</sup>



Fig. 52. Forefoot of Horse  
(Inv. No. S 785)

With regard to the pedimental sculptures, restored by Sauer in such unconvincing detail, I have elsewhere expressed my opinion that they were probably carried off by the Romans and so have left no traces in Athens.<sup>276</sup> The results of the examination of the two above-mentioned fragments are so negative as to give little cause for altering this view. But, in addition to these two fragments, it must be admitted that a more imposing piece has already been published, namely, a marble group of the fifth century apparently representing an "ephedrismos," the bodies found in 1934 in a well below the east front of the Hephaisteion, one head in 1936 in another well south of the temple.<sup>277</sup> It must be admitted that size, style, and material (Parian marble) all favor attribution to the Hephaisteion; but, unless a more satisfactory identifica-

tion can be suggested, it would seem that such a *genre* subject as an "ephedrismos" would be more suitable for a votive monument than for a temple pediment.

### RE-USED MATERIAL IN THE TEMPLE FOUNDATIONS

The fabric of the temple is extraordinarily free from re-used material. Among the recognizable pieces are four blocks of Pentelic marble in the lowest marble course (I) of the cella walls, three in the north (eighth, eleventh, and thirteenth blocks from the east)<sup>278</sup> and one (twelfth from the east)<sup>279</sup> in the south side (Figs. 17, 53).

<sup>275</sup> The possibility that it came from the temple of Ares, which seems to have had one or more mounted figures in the pediments (*Hesperia*, IX, 1940, p. 48), seems remote in view of the probable removal of such sculptures to Rome at the time of the Augustan reconstruction.

<sup>276</sup> Dinsmoor, *A.J.A.*, XLIII, 1939, p. 27.

<sup>277</sup> Shear, *A.J.A.*, XL, 1936, pp. 407-409, figs. 3-4; *Hesperia*, VI, 1937, pp. 376-378, fig. 42; cf. Thompson, *ibid.*, p. 68, note 1.

<sup>278</sup> This third capital in the north wall lies at the junction with the west cross-wall, and only one corner of it is visible from within the opisthodomos (Fig. 17).

<sup>279</sup> This is the second block east of the west cross-wall.

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They are cut down from unfinished column capitals and are closely uniform in dimensions, measuring respectively 1.297 m., 1.303 m., 1.233 m., and 1.315 m. across the abacus, 0.24 m., 0.245 m., 0.265 m., and 0.265 m. in the height of the abacus. Abacus

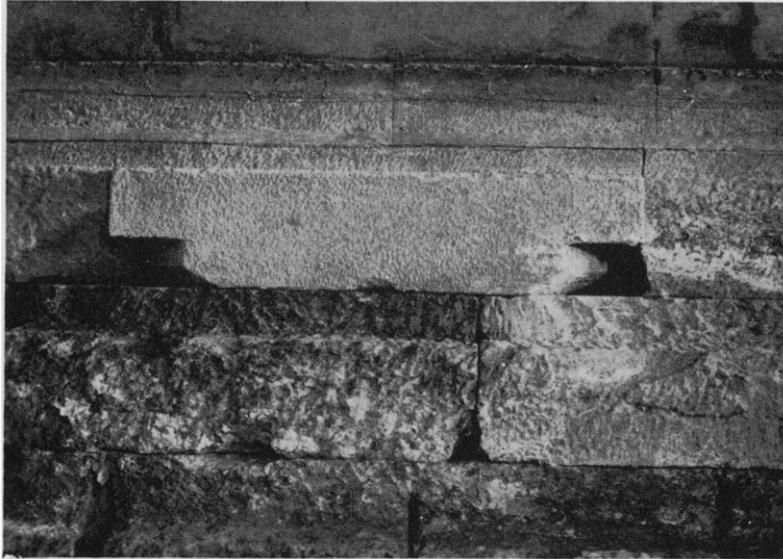


Fig. 53. Unfinished Capital in Course I near Northwest Corner of Cella

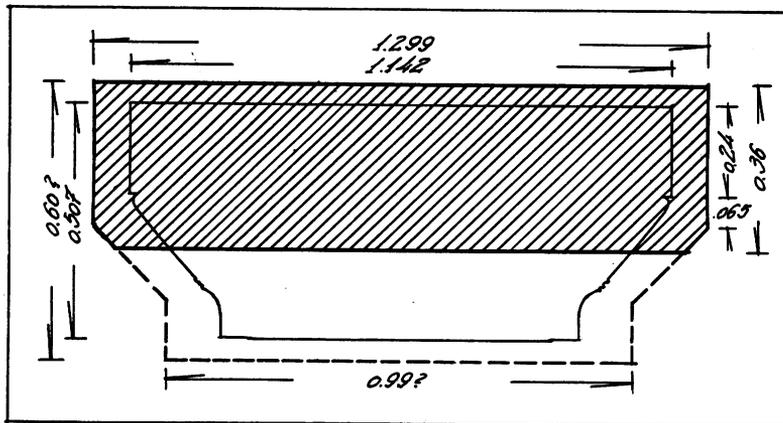


Fig. 54. Sections of Unfinished and Finished Capitals, Superposed

and echinus had been but roughly blocked out and the underpart had been cut away to fit the height of the course (I) in which the blocks now rest, viz., 0.36 m. The reason for the abandonment of the capitals is not apparent; it was due, we may suppose, to flaws or faulty cutting.

The most probable destination for the capitals was this temple itself. The dimensions accord well with this hypothesis, as will be clear from Fig. 54, where the profile of one of the unfinished blocks is combined with that of a column capital from the north peristyle. It will be seen that a generous margin was left for the finishing, though the margin would have been slightly less generous if one of the west front capitals or one of the corner capitals had been chosen for comparison.

In the foundation for the east wall of the cella the two northern marble blocks in course I are certainly re-used. This is clear from the working on the east faces of the blocks. The profile of the second from the north is illustrated in Fig. 55. The lower part of the face had been drafted for a height of 0.105 m. to its intended

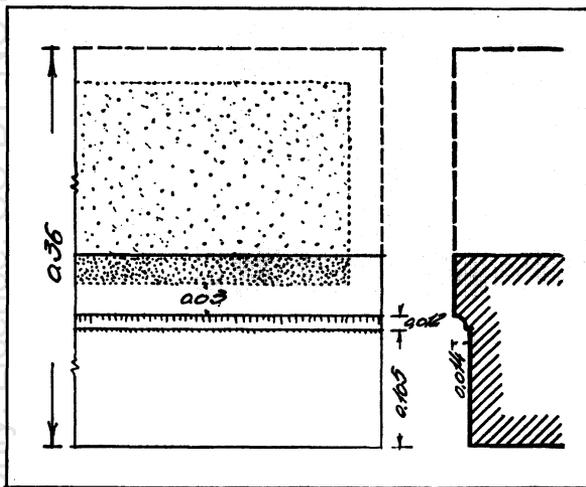


Fig. 55. Profile of Unfinished Stylobate Block in Course I of East Cross-Wall

finished surface; the upper part, projecting 0.014 m., retains a preliminary surface terminated below with a cavetto moulding 0.012 m. high. The face of the preliminary surface was lightly stippled with a smooth drafted margin 0.025/0.037 m. wide. Identical working on the face of the north block was mutilated by those who placed it in its present position, in order to effect a closer joint with the poros block to the east. Such treatment is appropriate to the faces of step or stylobate blocks during construction; good examples may be seen in the marble temple of Poseidon at Sounion where the faces of the two upper steps were left, presumably unfinished, in precisely this

condition.<sup>280</sup> Since the height 0.358 m. seems too great for blocks intended for the middle step of the outer peristyle (0.346 m.), it would seem that the first and second blocks from the north were intended for the outer stylobate (0.364 m. high); the lengths 1.202 m. and 1.283 m. are in accord with the stylobate block lengths of 1.075/1.375 m. (normally 1.291 m.), and the present widths of 0.638 m. and 0.943 m. merely signify that they have been cut down from stylobate blocks of which the finished widths would have been 1.162/1.179 m. The third block from the north, the middle one of the five, seems to be a similar stylobate block either upside down (with the outer face toward the east, the finished margin removed by the recutting of the top, and the stippled panel with drafted margins below and at both lateral edges reaching to the very bottom) or turned to show its original back (which is similarly treated

<sup>280</sup> *Ath. Mitt.*, IX, 1884, pl. XVI.

with a stippled panel in the stylobate blocks).<sup>281</sup> The length 1.198 m. (with drafted margins of the full width of 0.025/0.037 m. at both ends, showing that it has not been shortened) is likewise appropriate for the stylobate. The fourth block from the north, now 1.208 m. long, has obviously been shortened since the stippled panel lacks the margin at the north end; the margin is lacking also at the bottom, as if the diminution in height had been effected here rather than at the top; otherwise it resembles the middle block. The southernmost block, only 0.615 m. wide but 1.244 m. in length, retains no recognizable earlier surfaces (unless such be concealed in the west joint) but may well come from the same series.

The only other recognizable second-hand block in the foundations is that forming the "ear" in the lowest corner of the interior column foundations, near the northwest corner of the cella. This is a poros block 1.205 m. long, 0.40 m. wide and 0.60 m. high; what seems to have been the original face is toward the south, and the east end has a vertical anathyrosis 0.13 m. wide at the south edge, returning with a width of 0.09 m. across the top. A cavity 0.12 m. square and 0.19 m. deep is cut out of the top at the northeast corner, evidently the back, apparently in connection with its earlier use.

These few blocks, ten in number, nine of them evidently extra marble blocks intended for the present temple, the tenth an odd poros block picked up at random, give no authority for the assumption that there was an earlier monumental temple on the site. In fact, the very paucity of re-used material would imply the exact contrary.

### PRE-TEMPLE REMAINS

Various hypotheses have been advanced in the past as to actual remains of an earlier temple than that which we see to-day. Gurlitt and Dörpfeld had suggested, for instance, that it either had a predecessor of the same size or was begun in an earlier period and in different material, this being the explanation of the use of poros limestone rather than marble in the bottom step.<sup>282</sup> But it is quite impossible to accept such a theory; the uniformity of construction and dimensions shows that the euthynteria and bottom step of poros are of the same date and scheme as the marble step and stylobate,<sup>283</sup> and this is corroborated by the intentional difference in the darker material of the lower steps in the Older Parthenon and at Rhamnous. It has even been suggested that the metopes of the present temple, if found to be incompatible with other evidence pointing toward a later date, might have been prepared for the hypothetical earlier

<sup>281</sup> See p. 37.

<sup>282</sup> Gurlitt, *Das Alter der Bildwerke und die Bauzeit des sogenannten Theseion in Athen*, pp. 77, 89; Dörpfeld, *Ath. Mitt.*, IX, 1884, p. 336, note 1; Harrison and Verrall, *Mythology and Monuments*, p. 115; Reisch, *Jahreshefte*, I, 1898, p. 85; Sauer, *Theseion*, p. 237; Judeich, *Topographie*<sup>1</sup>, pp. 326-327 (later abandoned).

<sup>283</sup> Koch, *Arch. Anz.*, 1928, cols. 706, 710.

temple.<sup>284</sup> But the necessity for supporting such an inherently improbable solution is now avoided by the evidence of the excavation showing that the architectural construction of the present temple is as early as the style of the metope sculptures. And the ever-present possibility that older foundations might appear at a lower level has now been forever settled by the negative evidence resulting from the clearing of bedrock.

Actual excavation has shown, in other words, that the present temple was planted, by no means on the summit of the hill, but rather on its northwestern shoulder, and that the pre-temple ground level as recovered within the area of the temple slopes down steeply toward north and west. The irregular surface of the bedrock was for the most part covered by a very thin layer (about 0.05 m.) of grayish earth, and above this by a thicker layer (as much as 0.40 m.) of hard tramped reddish earth, the original top of which, wherever preserved, was blackened by fire and in places covered by ash to a depth of several centimetres, probably evidence of the destruction wrought in 480/79 B.C. Above this ash lay the debris from the construction of the present temple.

The accumulated earth above the bedrock produced a meagre yield of pottery in which the various ages from the Protogeometric period to the early fifth century are about equally represented. Fragments of a very large Protogeometric hydria (Inv. No. P 14,819), found in the disturbed filling of the tombs along the south side of the cella interior, doubtless came from a burial of that early period which had been overlaid by the temple, forming part of a cemetery on the hilltop to which belonged a number of other early graves discovered in 1936.<sup>285</sup> To a later period belongs a mass of once splendid painted pottery which was exposed on the surface of bedrock 7 m. to the west of the temple in 1936,<sup>286</sup> showing traces of fire which may be associated with the destruction of an earlier sanctuary in 480/79 B.C. To alterations after 480 B.C. must be attributed some of the debris containing intrusive material used to level up the inequalities of the rock surface; in these were found such secular material as discarded ostraka of Aristeides, Hippokrates, Kallixenos, Kydrokles, Megakles, and Themistokles (all used before 480 B.C.).<sup>287</sup>

It is now clear that no substantial building could have preceded the familiar temple on the site. No trace of earlier foundations has appeared under the cella, the porches, or the peristyle; nor do the slight patches of earth accumulation, which suggest unbroken continuity down to the date of the present temple, show signs of disturbance by earlier foundations. Though such negative evidence might be regarded as inconclusive in view of the much disturbed state of the site, it is strongly confirmed

<sup>284</sup> Harrison and Verrall, *Mythology and Monuments*, p. 116; Judeich, *Topographie*<sup>2</sup>, p. 327, note (later abandoned).

<sup>285</sup> *Hesperia*, VI, 1937, pp. 364-368.

<sup>286</sup> *Ibid.*, pp. 344-345, fig. 9.

<sup>287</sup> *Ibid.*, pp. 344-345.

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by the absence of re-used material in the temple foundations. Only outside the temple, running into the north flank not far from the northwest corner (Fig. 1 at E), do we see an oblique bed cut in the rock, meaningless with reference to the present temple and, therefore, presumably older; its line, however, was not picked up again within the peristyle. It will be noted that this line is nearly at right angles to the west wall of the precinct;<sup>288</sup> perhaps, therefore, it once formed the north boundary of the precinct, though this is mere conjecture.

The above is the sum of the new evidence for the question as to whether the sanctuary is older than the present temple. We have found evidence for an earlier sanctuary of Hephaistos only in the charred deposit on the earth which implies that there was something inflammable on this site at the time of the Persian occupation, and in the potsherds antedating the temple and of a quality which suggests that some of them, at least, are remnants of dedications rather than of ordinary household ware. The traces of fire suggest a sanctuary before 480 B.C.; the potsherds would suggest that it continued in use after the retirement of the Persians and down to the date of the erection of the present temple. Presumably, however, any earlier structure was of light construction which has left no substantial remains. Presumably, furthermore, it was not located exactly on the present site but more to the south where the natural summit of the hill lies, and where the rock has been scraped off,<sup>289</sup> so that no traces have survived; as we have noted, it may have been parallel to the west wall of the precinct or to the disused rock-cut trench at right angles, so that its orientation would have been quite different from that of the present temple. It seems evident that the earlier shrine, whether it continued to exist down to the age of Perikles as a fire-swept war-ruin like the Older Parthenon or, as seems probable, was reconstructed in temporary form after 479 B.C., contained no heavy foundations which could have tempted the builders of the new temple to utilize them as in the cases of the Older Parthenon and the temple at Sounion. In consequence the new temple of the age of Perikles was erected quite independently, and with a different orientation, though we may infer that the remnants of the old structure were permitted to survive beside it, in conformity with the usual Athenian habit, at least until the completion of its successor. When the summit of the rock was dressed off to the level of the new euthynteria, however, this process obliterated forever the traces of a primitive sanctuary which probably inspired the allusions of Plato (*Kritias*, pp. 109C, 112B) to the antiquity of the cult of Athena and Hephaistos as the patrons of artisans, a cult of which he placed the mythical beginnings, perhaps mistakenly, on the Athenian Acropolis.

<sup>288</sup> *Ibid.*, p. 399, fig. 2. Though the actual precinct walls are of the early third century B.C. (*ibid.*, p. 398), it is evident that the line of the west wall, bordering the ancient street, must be older.

<sup>289</sup> See p. 31.

## NEW EVIDENCE FOR DATING THE TEMPLE

The excavations have provided a certain amount of external evidence for the date of the present temple, a welcome supplement to the stylistic criteria on which scholars hitherto have been obliged to rely. The new material comes from the undisturbed earth filling and rubbish deposits both inside and outside the temple, and contemporary with its erection.

A little pottery was found inside the cella and beneath the flooring of the peristyle among the working chips of the temple and in the earth brought in to support the floors. This material is fairly consistent in date, being chiefly of the first quarter of the fifth century; the latest need be little if at all later. Unfortunately, so much of the earth filling had been removed to make room for the mediaeval graves that the residue, a very small proportion of the original content, yielded only a slight quantity of fragmentary material; it would be unsafe to infer more than that it forms a date *post quem* for the temple.

More specific evidence is to be had from the pottery found with masses of working chips of Pentelic marble which were exposed close above bedrock in pits and crannies to the south of the temple, to the southwest and to the west, extending as far at least as the line of the modern street. The largest and most helpful of these deposits came to light in a pit 33 m. to the southwest of the southwest corner of the building. The pit was cut in bedrock to a maximum depth of 1.70 m.; it is square and measures *ca.* 3.00 m. to the side. Whatever its intended purpose, it would seem never to have been used, but to have been re-filled shortly after its original digging with broken bedrock, working chips of Pentelic marble and fine sand such as may have been employed in the polishing of marble. The lines in the filling indicate that the material was dumped in from the north, i. e., from the side toward the temple.

It may be questioned whether these working chips can be certainly associated with the temple. The answer is in the affirmative. The temple would seem to have been the only sizeable marble structure on the hilltop; the chips are found in appropriate proximity to it and they are not likely to have been brought uphill from any other enterprise simply to be dumped; they are of the same material as the main fabric of the temple; the tooling on them is identical with that on the temple; among the chips are fragments from the working of column drums of the size of those in the temple; and, finally, the pottery found with the various lots of debris is consistent in date and is of the general period to which the building may be assigned on stylistic grounds. As a sample of the evidence from the marble chips, we may present here all the pieces that have been catalogued from the square pit to the southwest of the temple, first those that had to do with the actual working of the stones and then those of use for dating.

## A. WORKING CHIPS AND MATERIALS (Nos. 1-4)

1. Inv. No. A 707 (a) and (b). Two fragments from the working of column drums.<sup>290</sup> Fig. 56. Greatest width, 0.21 m. and 0.14 m., respectively; diameter estimated, 0.92 m. and 1.00 m., respectively. Pentelic marble.

The top of the larger piece is rough-picked; its beveled edge (0.02 m. wide) and side are worked with a broad chisel, like dove work, forming diagonal hatching on the side. The smaller piece is dressed on the side with a toothed chisel; and on the side is also a scratched horizontal line to which the drum was to have been cut down.

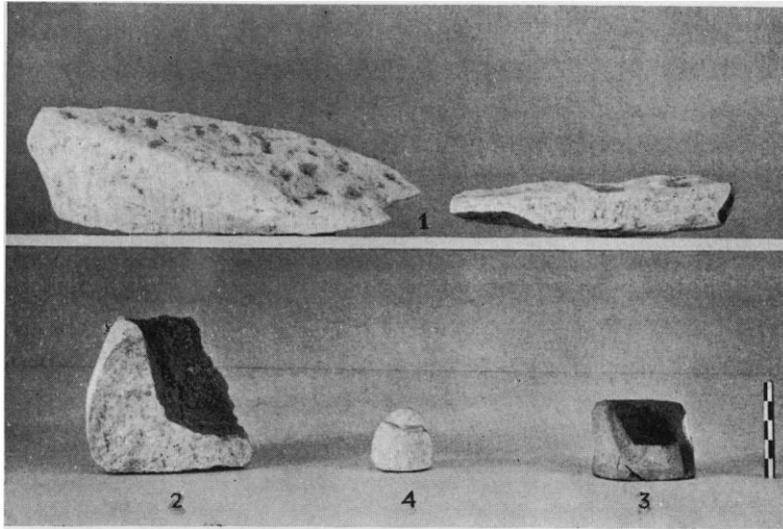


Fig. 56. Building Debris from Erection of Temple

2. Inv. No. ST 153. Fragmentary stone bowl. Fig. 56. Height, 0.083 m.; greatest diameter estimated, 0.18 m. Poros. Rudely cut from gray poros like that used in the euthynteria and bottom step of the peristyle; walls 0.04 m. thick at bottom, tapering up to sharp lip of which diameter estimated 0.05 m. less than at base or 0.13 m.; good flat bottom, only 0.015 m. thick near centre. To its interior still clings a little red miltos, doubtless of that used on the straight-edges in dressing the blocks.
3. Inv. No. P 9458. Fragmentary terracotta bowl. Fig. 56. Height, 0.04 m.; diameter, 0.052 m. Trimmed from the tip of a large plain coarse amphora with a stonemason's toothed chisel. Inside are traces of red miltos.
4. Inv. No. ST 174. Stone weight. Fig. 56. Height, 0.032 m.; elliptical, diameter, 0.032-0.035 m. Poros. Roughly trimmed from granular brownish poros like that used in the foundations of the peristyle and below marble in the cella walls. The groove around the top, 0.023 m. above the bottom,

<sup>290</sup> Other chips of column drums preserved from the same context range between 0.095 m. and 0.13 m. in length.

indicates that the weight was suspended on a string, so that it was conceivably used as a plumb-bob for rough work around the temple.

The remainder of this section, devoted to the description and interpretation of the terracotta objects, is the work of Miss Lucy Talcott, who has kindly consented to its incorporation with the rest of the material bearing upon the Hephaisteion.

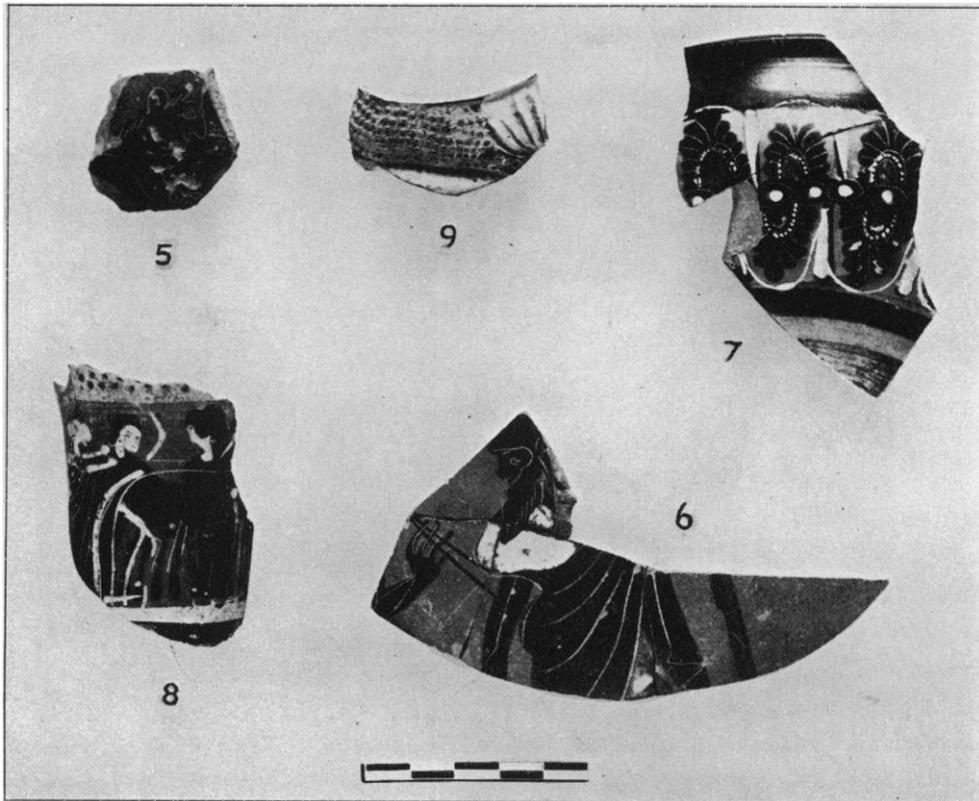


Fig. 57. Black-figured Sherds

B. BLACK-FIGURED AND RED-FIGURED POTTERY (Nos. 5-21)

5. Inv. No. P 9460. Fragment of Black-figured Amphora. Fig. 57.  
Height, 0.035 m.; width, 0.032 m.

Small fragment from shoulder, broken all around. Preserved is a male head, right; applied purple for the hair. The profile is incised against an uncertain object, once white: an abduction scene? Peleus and Thetis? The diagonal lines at the lower right corner of the fragment may be fingers of a clenched hand; cf. Graef-Langlotz, *Vasen der Akropolis*, I, no. 1172, pl. 66. Middle of sixth century.

6. Inv. No. P 9459. Fragment of Black-figured Oinochoe. Fig. 57.  
Greatest width, 0.116 m.

Four joining fragments from the shoulder of a round-bodied oinochoe, type III; cf. Richter-

Milne, *Shapes and Names*, fig. 118. Thin red wash inside. There remains much of the figure of Dionysos, right, looking back left; he wears fillet, chiton and himation, and carries a drinking horn. Behind him, the hand and forearm of an attendant satyr, playing the double flutes. White for chiton and horn; red, faded, for fillet, beard, and for dots and stripes on the himation. Sketchy work of early fifth century.

7. Inv. No. P 9461. Fragmentary Black-figured Band Cup: Palmettes. Fig. 57.

Diameter at lip estimated *ca.* 0.21 m.

The fragment illustrated, mended from two pieces, gives part of the rim and side; several additional fragments include one handle and part of the floor with a reserved disk at its centre. The lip is gently concave. In the handle-zone, a double chain of encircled palmettes, the intervening lotuses each a single petal only. White: the encircling arcs, the lotus petals, the dots at the centre of each chain link, and the small dots around the hearts of the palmettes. Red: the hearts. Uncertain added color on some of the palmette petals. First quarter of fifth century.

8. Inv. No. P 15,865. Fragment of Black-figured Lekythos. Fig. 57.

Height as preserved, 0.064 m.

From a chimney lekythos, the wall sharply concave. Above the scene a double row of dots on a white ground; below, a white band; at the lower edge of the fragment the trace of a wet-incised line. The scene, so crudely drawn as to be almost unrecognizable, involves a chariot, right, and three female figures, two of them standing behind the horses, the third holding the reins: a goddess mounting a chariot. There is a little incision. White for the women's flesh and for the legs and tail of one horse.

Third decade of fifth century. Miss Haspels, who has kindly examined a photograph, assigns the piece to the following of the Haimon painter (cf. Haspels, *Attic Black-figured Lekythoi*, p. 137, first paragraph) and compares the lekythos from Chaironeia (*op. cit.*, p. 135, note 1). She places it later than the Haimon-Douris grave (*op. cit.*, p. 133), nearer to 470 than 480, contemporary with the latest work of the Haimon painter and with the Emporion painter (*op. cit.*, p. 167, middle).

9. Inv. No. P 9476. Fragment of Head Vase. Fig. 57.

Greatest width, 0.044 m.

A small fragment preserving part of the frontal roll of hair over the forehead and a bit of a kerchief to the right. The hair is indicated by small nodules covered with purple paint, the kerchief by applied white. Good black glaze on the inside along the upper edge as preserved.

From the break at the top, the fragment should be from a kantharos or else from an oinochoe of the type found in the Providence group (Group L in Beazley's "Charinos," *J.H.S.*, XLIX, 1929, pp. 56 ff.). The broad roll of forehead hair, with its small, thickly and rather irregularly set dots, suggests the same comparison, *loc. cit.*, p. 59, figs. 10, 11. The plastic kerchief, taking the place of the chequered sakkos, is a rarity. Early fifth century.

10. Inv. No. P 9468. Red-figured Plaque.<sup>291</sup> Fig. 58.

Greatest dimension, 0.059 m.; thickness, 0.009 m.

The fragment comes from the centre, near the top, of a rectangular plaque; above the scene, a bit of a reserved border. Two warriors in combat: of the one to the right there remains a thigh, part of his chiton, corselet and spear, and most of his Boeotian shield, its device two snakes flanking a rosette. His opponent carries a round shield, seen from within, the left hand grasping the strap;

<sup>291</sup> In connection with this and the succeeding red-figured fragments I am indebted to Mr. Beazley no less for his unfailing help than for permission to cite here new attributions and associations which will be included in the forthcoming *Attic Vase-Painters*.

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above the strap, a trace of the cord. Near the top of the fragment are traces of two suspension holes, 0.013 m. apart, with remains of black glaze on the insides of both. Between and below the pair is a larger drilled hole, not part of the original plan. The back is plain and smooth.

Relief contour throughout except for the round shield; its rim is outlined by two incised concentric circles; a third such circle, outside the two, has been glazed over. Also incised are the petals of the rosette, the markings on the snakes, and two fold-lines on the chiton. The centre of the rosette is red, as is the spear-shaft ring, and the eye of the angered snake. Very thin brown for the chiton and for the shield-cord. No reserving bands were used.

The use of incised detail connects our fragment with the earliest masters of the red-figured technique and in particular with Psiax ("The Menon Painter": Beazley, *Vases in America*, p. 6; Smith, *New Aspects of the Menon Painter*, p. 39, note; Richter, "The Menon Painter = Psiax," *A.J.A.*, XXXVIII, 1934, pp. 547 ff.; XLIII, 1939, pp. 645 ff.; Richter, *Red-figured Athenian Vases*, pp. 14-17). Our piece has not his quality; there is nothing of the characteristic "brooding smoothness" (Smith, *op. cit.*, p. 40) in the curves. At most we may compare such lesser works as the bilingual cups in Munich and New York (Hoppin, *Handbook*, II, pp. 398-9 and Richter, *Red-figured Athenian Vases*, no. 2, p. 17 and pls. 2, 8, 179). The snakes recall the Munich eye-cup (Smith, *op. cit.*, p. 3), but a pair yet more like ours, one somnolent, the other darting fangs, appears on a black-figured hydria in Munich, F. R., III, p. 228, fig. 110. The plaque belongs to Psiax's time but is by another experimenter; how lately he had departed from black-figure methods the absence of reserving stripes, no less than the incised detail, may suggest. About 520-510.

11. Inv. No. P 9469. Red-figured Kantharos. Fig. 59.

Height as preserved, 0.047 m.; diameter of base, 0.056 m.; diameter of bowl as preserved, *ca.* 0.14 m.

Two joining fragments preserve the plain torus foot, much of the rounded lower wall, and the spring of one handle sharply concave in section. On either side is a pursuit scene: A, a warrior with scalloped chiton, greaves, and spear is about to overtake a woman who runs toward the left. On B, less well preserved, the scene is the same, save that the pursuer's legs are nude and the flight is to the right. Both women wear full-belling chitons, the hems bordered with a ladder pattern. Careful relief contour throughout; brown for inner drawing on the legs, for fold-lines on the dresses, and for shading in the reserved squares of their hem-patterns. The greave bands on A are purple. The glaze is a lustrous black with some metallic splotches and a stacking mark around the lower wall outside; the base is reserved, with a broad band of glaze around its concave underside.

The shape is Beazley's Form D (*Att. V.*, p. 4; *Vases in Poland*, p. 28, the list in note 3, and see the addenda, p. 80; cf. also Caskey, *Attic Vase-Paintings*, p. 18). To the list Beazley now adds besides the three Agora examples (the present item; the black example, No. 22 below; and the later version, black with decoration in added clay paint, *Hesperia*, IV, 1935, p. 501, fig. 19) a piece in Ferrara by the Penthesileia painter, from Spina, Tomb 308: A, satyrs and maenad; B, satyr.

Our kantharos comes early on the list, next after the less careful example in Paris (Louvre G 248: *Vases in Poland*, p. 28, note 3, "about 480; recalls the Brygos painter"). It is contemporary with the earlier work of the Pan painter; compare the puffed-out petticoats on his hydria in London (Beazley, *Pan-Maler*, no. 44, pl. 5, 1) and on his oinochoe also in London (*ibid.*, no. 62, pl. 5, 2); also the border of Medusa's dress on the first of these.

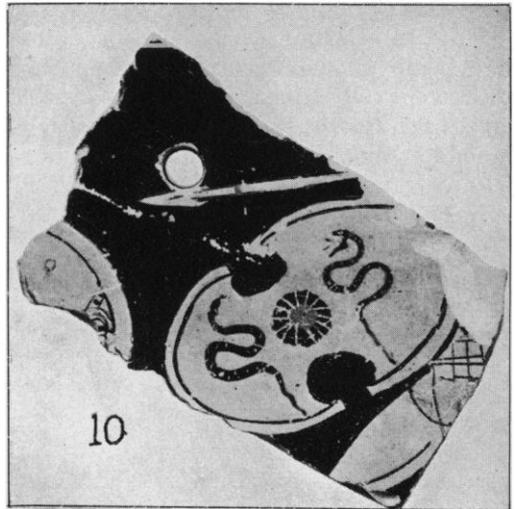


Fig. 58. Red-figured Plaque (Actual Size)

**12.** Inv. No. P 9462. Red-figured Calyx Krater. Fig. 60.

Height from bottom of cul to lip as restored, 0.345 m.; diameter at lip as restored, 0.375 m.  
Rim, walls, and handles fragmentary, put together with plaster; nothing of the base remains.

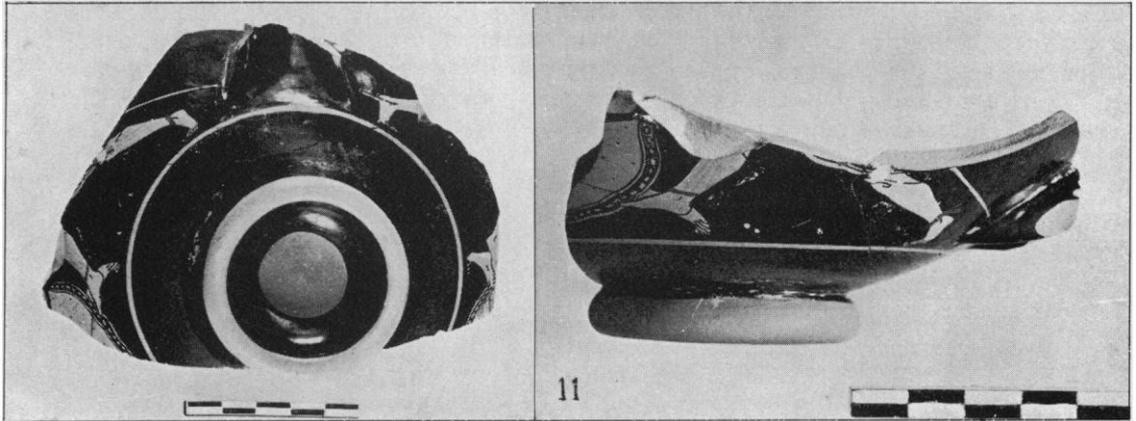


Fig. 59. Red-figured Kantharos, Bottom and Side

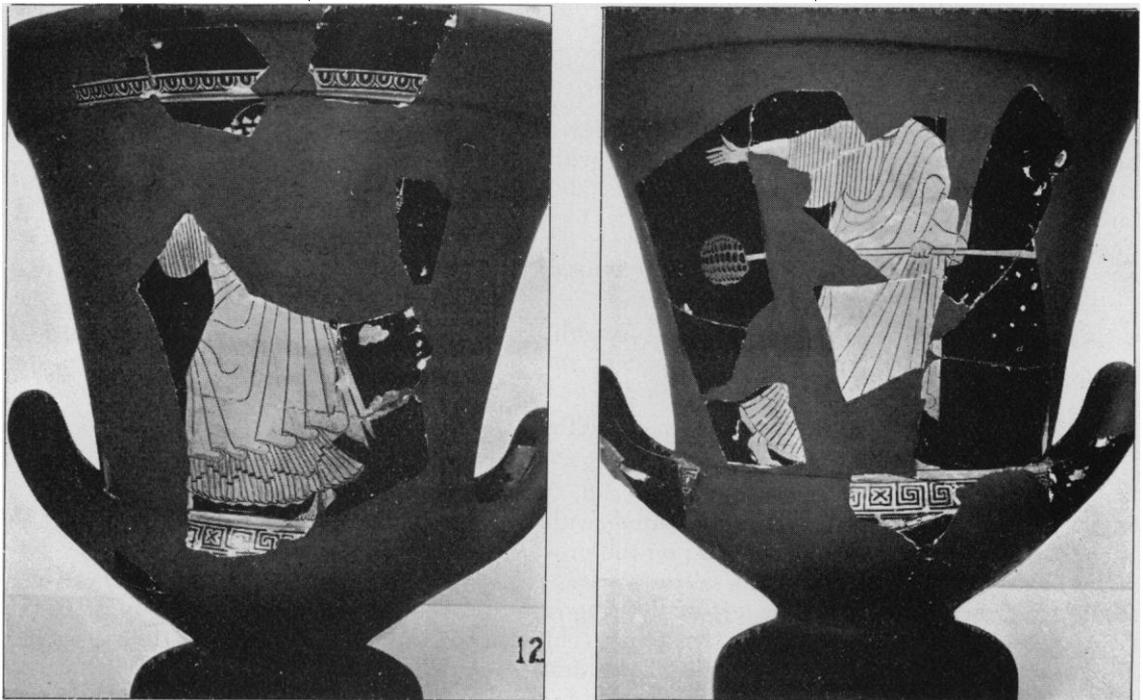


Fig. 60. Red-figured Calyx Krater by the "Hephaisteion Painter"

Three rivet holes show that the vase was broken and mended in antiquity. On either side, a single running figure; the ivy-wreathed personage of face A could be either Dionysos or a maenad like her of face B. The fingers of the left hand, preserved on a small unconnected fragment, clasp a

slender object. (Although the height of this fragment in the vase wall is determined by its curvature its position horizontally is conjectural; a suggestion is provided by two rivet-holes, one in the fragment itself, another in the wall below.) Around the lower edge of the rim, an egg-and-dot band; at the top of the cul, a maeander with saltire squares; there was no ornament at the sides. The insides of the handles and the handle-spaces are reserved; a reserved line below the rim inside. Relief contour is sparingly used: on A, as preserved, for the sole and heel of the left foot and for the line of the drapery over the right knee; on B for the stem of the thyrsos near its head, only. There are considerable traces of the preliminary sketch and some remains of a red wash on the reserved surfaces. A purple ribbon binds the ivy wreath.

The painter of the vase, a mannerist of about 470, is now named by Beazley the Hephaisteion painter, after the associations of our krater. Beazley's list of his works follows:

1. Berlin F 2188. Stamnos. Medea: Helbig, *Homerische Epos*, p. 357; side view: Jacobsthal, *Ornamente*, pl. 96 a; A: Neugebauer, *Vasen*, pl. 57; A: Brendel, *Schafzucht*, pl. 60, 2.
2. Athens, Agora P 9462. Calyx krater. Here No. 12, fig. 60.
3. Athens, Agora P 8776. Bell krater fragments. A, Youth leaving home.
4. Ferrara. Column krater, tomb 745. A, Maenad; B, Maenad.

Near it, a stamnos, Leiden 18 G 32. Side view: Jacobsthal, *Ornamente*, pl. 94 a. A, Dionysos with satyr and maenad; B, (Achilles with Thetis and Patroklos?).

13. Inv. No. P 8533. Fragments of a Red-figured Volute Krater. Fig. 61.
  - a) rim fragment: height, 0.09 m.; width, 0.11 m.; diameter at rim estimated *ca.* 0.30 m.
  - b) wall fragment: height, 0.064 m.; width, 0.053 m.

On the broad lower member of the rim, a double band of encircled palmettes alternating with palmette-like lotuses flanked by spirals; on the projecting lip above, a maeander with saltire squares; the top of the lip is reserved. A trace of the handle-attachment remains at the left of the fragment. Of the battle scene on the body of the vase only a small fragment is preserved: a warrior (chiton, cuirass, and sword-sheath) falls backwards on his shield; behind the shield a little of the drapery of a female figure (chiton and himation). Relief contour for the scene, and partially for the ornament. Thin brown lines, close set, shade both the chitons. The two pieces are associated on the basis of the fabric and of the glaze which has a greenish tinge outside. Inside, on the rim piece, thick black, fairly lustrous; below likewise black, but duller.

What remains of the composition suggests a scene like that on the Tyskiewicz painter's Boston calyx krater (*Att. V.*, p. 113, 1; Jacobsthal, *Ornamente*, pl. 62; Richter-Milne, *Shapes and Names*,

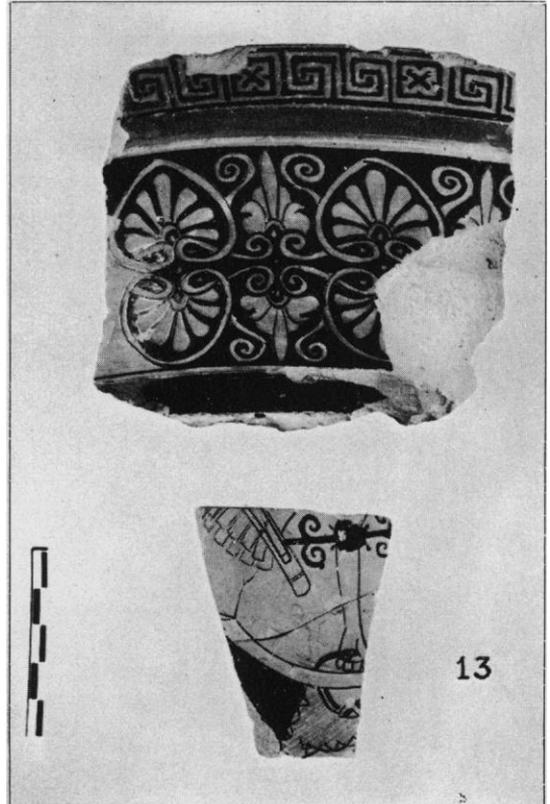


Fig. 61. Red-figured Volute Krater Fragments

fig. 56) where the falling Aineas is protected by Aphrodite. The rim ornament could be his, and the shaded drapery, but the drawing is by a feebler hand. About 490-480.

14. Inv. No. 9470. Red-figured Lekythos. Fig. 62.

Height as preserved, 0.076 m. ; diameter of base, 0.046 m.

The lower part, mended from several pieces. A woman in chiton and himation stands right; before her a wool basket; behind, on the wall, an alabastron. No relief contours; the wool in the basket is purple. The broad ground line is scraped, the edge of the foot, and its underside, reserved. The vase has been burned, as have several other small pieces of lekythoi from our deposit.

Near the painter of the Bowdoin Box (*Att. V.*, pp. 138-143), the scene something as Oxford, *C.V.A.*, pl. 38, 4 (*Att. V.*, p. 140, 56), the style rather more as pl. 63, 12. On the painter, most recently, *J.H.S.*, LIX, 1939, p. 7, nos. 16-20.

15. Inv. No. P 9465. Fragment of Red-figured Column Krater. Fig. 63.

Height, 0.04 m. ; width, 0.06 m.

From the shoulder; inside, streaky brown. A youthful figure wrapped in a himation which envelops the right arm all save the raised right hand looks left toward a second figure (left hand only) who holds out a present, a piece of meat perhaps or, as Beazley suggests, a purse. In the field above, in added purple, [K]A[v]O≤; purple also for the fillet. Relief contours throughout; relief lines under black for the locks of hair around the face; brown wash on the purse.

Mannerist work of about 480-470. Beazley assigns the piece to the Pig painter, or near, and remarks that it also recalls the Gergenti painter.

16. Inv. No. P 9466. Fragments of a Red-figured Pelike. Fig. 63.

a) Width, 0.083 m. b) Width, 0.055 m.

Two wall fragments; on the smaller, part of the lower maeander border. Preserved is part of a ram, right, and of his rider, a boy or man wearing a short (leather?) jerkin. Partial relief contour; thinned glaze for the wool. Inside, streaky brown wash.

The subject suggests the Louvre pelike G 536 (Pottier, *Vases antiques du Louvre*, pl. 155; in *Att. V.*, p. 241, 5, assigned to the painter of the Berlin Perseus, but now to be attributed to the Geras painter). There two flute-playing peasants ride the one on a ram, the other on a goat. Our vase may have shown some such scene of country festival. Early classical style.

17. Inv. No. P 9463. Red-figured Fragment. Fig. 63.

Height, 0.034 m. ; width, 0.044 m.

From the flattish shoulder of a closed pot, very likely a Nolan amphora. The head and shoulder of a girl, a maenad, looking right; the right arm hangs down; the left was extended. She wears a sakkos (a trace of its projecting back part remains along the upper edge of the fragment), disc earring, thin chiton, and around her shoulders an animal's skin neatly knotted. No relief contour; the hair runs to brown; brown wash on the skin and fine brown fold-lines on the chiton. The lines of the eye are not quite closed at the inner corner.

Assigned by Beazley to the Pan painter.

18. Inv. No. P 9467. Fragment of Red-figured Skyphos. Fig. 63.

Width, 0.06 m.



Fig. 62. Red-figured Lekythos

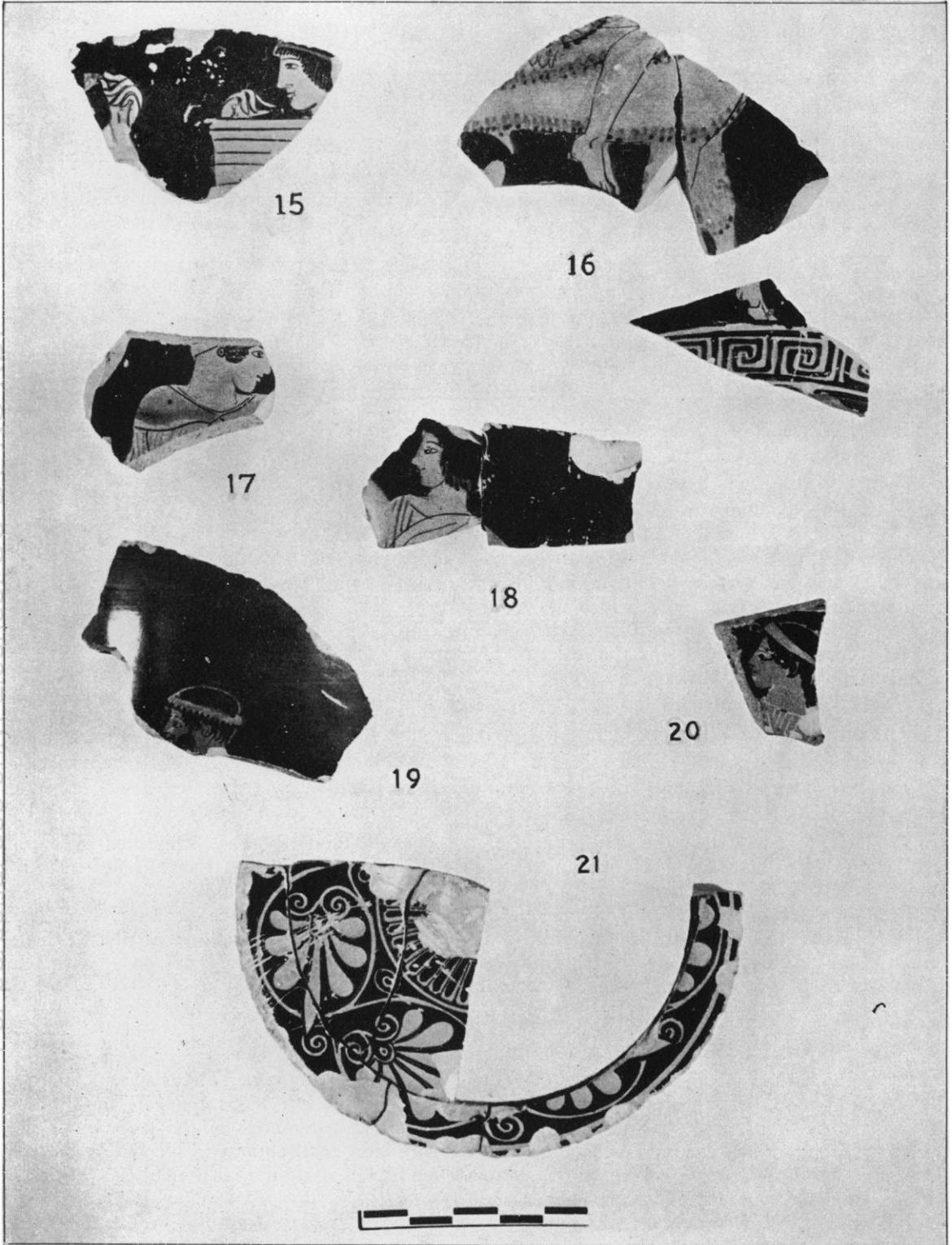


Fig. 63. Red-figured Fragments

A rim piece from a heavy-walled skyphos, Type B, preserving the head and shoulders of a short-haired girl (chiton and himation) left. A second small piece, not illustrated, gives part of the upper arm, with a trace of the drapery, of a second figure. Relief contours; brown fold-lines on the chiton.

Early classical style, deriving from the latest work of Douris; compare the treatments of eye and drapery on his New York cup, *Att. V.*, p. 207, 110; Richter, *Red-figured Athenian Vases*, no. 59, pls. 63, 64.

19. Inv. No. P 15,866. Fragment of Red-figured Pelike. Fig. 63.

Height, 0.042 m.; width, 0.067 m.

From the base of the neck; several plain glazed wall fragments also preserved. A male head, bearded, and bound with a heavy fillet, looks left. A row of dots along the lower edge of the fillet. No relief contour. Outside the glaze is fired red, streaked with a little black; inside, it is a greenish gray. About 480.

20. Inv. No. P 9464. Red-figured Fragment. Fig. 63.

Height, ca. 0.033 m.; width, 0.023 m.

A small bit from the concave shoulder of a closed pot, perhaps a pelike; the trace of a reserved border above. A woman's head, left, her long hair bound by a broad fillet; she wears chiton and himation. No relief contour; the drawing glaze has chipped considerably.

Assigned by Beazley to the Mykonos painter, an early classical painter so called from a big nuptial lebes, one of several, in Mykonos.

21. Inv. No. P 8985. Red-figured Pyxis or Kylichnis lid.<sup>292</sup> Fig. 63.

Diameter, 0.11 m.; height, 0.016 m.

Five joining fragments give about half the circumference of the lid, and a quarter of its top; a non-joining piece from the edge is not illustrated. The central knob is broken off; the top of the lid has broken out at its junction with the rim. The top is not quite flat, but slopes down slightly towards the knob. The overhanging rim, its face concave, joins at a sharp angle. On the top, slanting palmettes around a zone of tongues; on the face of the rim, maeanders in twos or threes, separated by cross squares with dots at their corners. Beneath, the edge of the rim is reserved, its inner face and the outer edge of the underside glazed, the space within reserved and decorated by two glazed circles set close together; a trace of a third remains near the centre. Relief contour for the palmette pattern.

From a pyxis of Form A, in shape no doubt close to the two pyxides in London, E 772 and E 773 (*Att. V.*, p. 318, 1; F. R., pl. 57, 2, and *Att. V.*, p. 268, 19; F. R., pl. 57, 1; cf. Buschor in F. R., III, p. 310). The arrangement and general character and quality of the ornament is also similar, though on the London pieces the central petal of the palmette does not pierce the encircling arc; on this arrangement cf. Jacobsthal, *Ornamente*, p. 200, and the references there. Second quarter of fifth century.

### C. PLAIN GLAZED AND HOUSEHOLD WARES (Nos. 22-28)

22. Inv. No. P 9471. Black-glazed Kantharos. Fig. 64.

Height, 0.05 m.; diameter at lip, 0.108 m.

Most of the upper wall and the tops of both handles missing; restored in plaster. Simple torus base-ring, rounded wall, strap handles. The underside of the base ring is reserved, and the space within it; a rough black circle and dot at the centre. Traces of stacking on the floor inside. On the shape see the red-figured kantharos, No. 11 above, here repeated in an unpretentious version.

<sup>292</sup> For the name kylichnis, see Milne, *A.J.A.*, XLIII, 1939, pp. 247-254.

**23.** Inv. No. P 9475. Black-glazed Saltcellar. Fig. 64.

Height, 0.034 m.; diameter, 0.07 m.

Part of wall and base missing. False base-ring formed by a continuation of the sides; steep wall with convex profile. Poor black glaze, entirely chipped from inside and much worn outside.

Many saltcellars very like ours in shape and proportions come from the upper filling of the Rectangular Rock-cut Shaft (cf. *Hesperia*, VII, 1938, p. 364) in a context to be dated from about 500 to shortly before 480; but most of these are more carefully made. After the middle of the century the same little bowls tend to become smaller (*Hesperia*, IV, 1935, p. 476, fig. 1, no. 46 gives the type); and, towards the end of the century, notably shallower, while at the same time the false ring foot disappears in favor of a flat bottom. The present piece lacks the crispness of the Agora examples from the first quarter of the century but, on the basis of the comparative material available, it should be little if any later than they.



Fig. 64. Plain Glazed and Household Wares

**24.** Inv. No. P 9472. Partly Glazed Lid. Fig. 64.

Height, 0.07 m.; diameter, 0.083 m.

A deep conical lid with plain down-turned rim and large discoid knob set on a short stem. The outer edge of the knob is slightly raised; at its centre is an inverted conical depression; there is a moulded ring around the stem. Inside, the lid is glazed with firm dull black, the edge of the rim only reserved. On the reserved exterior, broad and narrow bands of black glaze, with an incised line through the glaze at the shoulder. The underside of the knob and the moulded ring are glazed. Carefully turned and finished; a few missing fragments added in plaster.

A lekane lid, made to serve no less well, when stood on its knob, as a stemmed bowl. The shape goes back to conventional black-figured types; the same neat finish and glaze bands are found on partly-glazed plates and one-handlers from the first half of the fifth century. There are many such fragments among the uncatalogued potsherds from our deposit; compare also *Hesperia*, V, 1936, p. 343, fig. 10 (Inv. No. P 5139), and two pieces from a deposit associated with the Tholos (Inv. Nos. P 10,821 and P 12,233).<sup>293</sup>

**25.** Inv. No. P 9473. Round-mouthed Oinochoe with Glaze Bands. Fig. 64.

Height to lip, 0.072 m.; diameter, 0.154 m.

Many fragments of wall and mouth missing, along with the top of the handle; put together

<sup>293</sup> The former is *Hesperia*, Suppl., IV, p. 126, fig. 94 d (of about 470), the latter *ibid.*, p. 37, fig. 30 a (ca. 490-480).

with plaster. Low slightly flaring ring base; squat body; round mouth with thickened lip; strap handle. The body is reserved, covered with a very thin brownish wash. Dull black glaze, somewhat worn, on neck and lip inside and out; also for a band around the body at the handle-attachment and around the foot; smears of glaze on the handle. The inside of the body is unglazed.

Household pitchers of this sort have not appeared in Agora contexts after the middle of the fifth century; cf. *Hesperia*, VII, 1938, p. 386, no. 18. An example very like ours, but slightly plumper, comes from a kitchen dump associated with the Tholos and datable about 470.<sup>294</sup>

**26.** Inv. No. P 9474. Partly Glazed One-handed Bowl. Fig. 64.

Height, 0.078 m.; diameter as restored, 0.183 m.

The handle and much of the wall and rim are missing; a trace, however, of the handle-attachment remains and sufficient of the opposite wall to show that it had no mate. The handle as restored should possibly be more uptilted. A deep bowl on a low base concave beneath; torus rim. Dull brown glaze, worn, on inside and on rim; a band of red brown around the wall below the handle and another around the base.

The shape of the bowl differs in no way from that of the small semiglazed kraters standard for the second quarter of the fifth century (cf. *Hesperia*, V, 1936, p. 343, fig. 10, and other unillustrated pieces from the same deposit), but this piece is remarkable in having only one handle and that set well up against the rim, thus resembling the smaller semiglazed bowls or one-handlers of the same time.

**27.** Inv. No. P 8535. Glaze-banded Stamnos. Fig. 65.

Height as restored without base, 0.445 m.; diameter as restored, 0.435 m.; diameter at lip, 0.30 m.

Much of the wall is missing and all of the foot; the handles also, save for traces of their attachments. Restored in plaster in so far as the profile is secure. A large stamnos, its neck and shoulder forming a continuous curve. The flat-topped projecting rim is rounded on the underside and slightly undercut. Save

on the reserved top of the rim the pot is covered inside and out with a red glaze wash. The same red, thicker, is used inside for a wide band around the top of the neck; on the rim for the edges and the underside; and on the shoulder for two bands just below the handle-attachments.

The profile of shoulder and rim suggests the coarse pithoi of the sixth and early fifth centuries as seen on a number of unpublished Agora examples, but the more modest size, the handles and the use of glaze entitle our pot to the more formal name. In default of close comparisons we may note the much smaller stamnos from the Marathon mound, *C.V.A.*, Athens, pl. 11, 7, and an unpublished piece in the Agora from the Rectangular Rock-cut Shaft; to both of these Vanderpool called my attention. The present piece is characteristically Attic as to fabric, and the use of glaze bands and washes is like that on the oinochoe, No. 25 above, and on many other local household shapes.

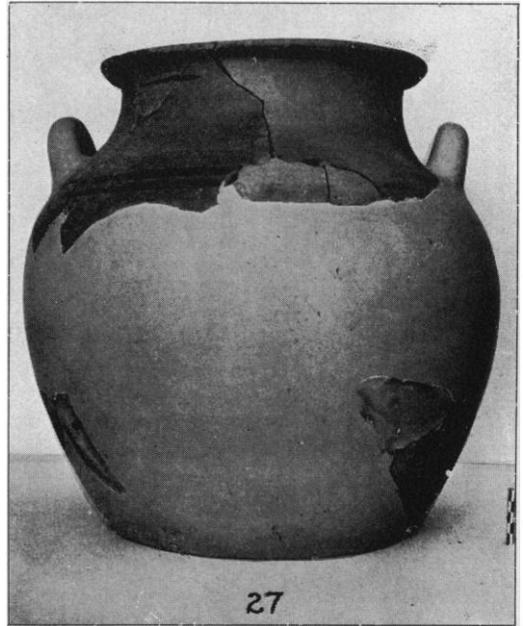


Fig. 65. Glaze-banded Stamnos

<sup>294</sup> See *Hesperia*, Suppl. IV, p. 126, fig. 94 b (Inv. No. P 10,822).

## 28. Inv. No. SS 6618. Small Plain Amphora with Stamp. Fig. 66.

Height as preserved, 0.11 m.

A single fragment preserves the neck, one handle, and much of the shoulder, with the start of the wall below the shoulder; nothing of the lip remains. Neck and shoulder form a continuous

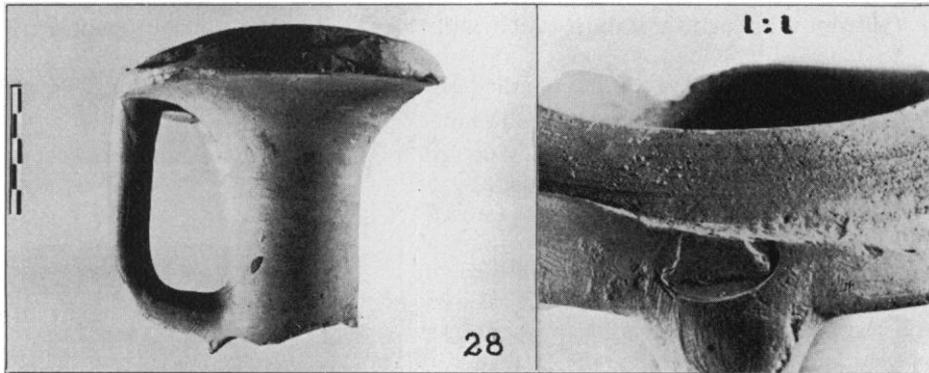


Fig. 66. Small Amphora with Stamp (Detail Actual Size)



Fig. 67. Stamp on Wine Amphora (Actual Size)



Fig. 68. Ostrakon of Kallias

curve, the shoulder sharply concave, its edge forming a remarkably sharp angle with the wall. The lower attachment of the handle is at the shoulder edge, and the stamp, of which the lower part is broken away, is set on the wall just below. Fine pink clay with a purplish cast, apparently Attic; remains of a light buff slip inside and out.

There is no exact parallel for this piece on the Agora shelves, but a few other small, almost miniature, wine jars with equally angular and unfamiliar profiles and of similar fabric have appeared in deposits of pre-Persian times (cf. Inv. Nos. P 8858; P 8859; P 13,803). Two of these, a little larger than ours, have sharply tapering walls and a high conical foot on which the jar stands solidly. From our deposit comes another such foot which appears to have belonged to an amphora similar to the fragment illustrated but slightly larger. An amphora of the same shape and size as the two

examples mentioned, save for a slightly lower rim and foot, has been found at Olynthos (*A.J.A.*, XXXIX, 1935, p. 241, fig. 42), and another somewhat similar, found at Rheneia, is to be seen in the museum at Mykonos. None of these jars is stamped. With our device V. R. Grace compares the stamp on an amphora of Chian type found in an Agora deposit of the third quarter of the fifth century (*Hesperia*, IV, 1935, p. 496, fig. 17, no. 85, and see under *Hesperia*, III, 1934, p. 303, no. 1). This impression, here Fig. 67, shows a kantharos, and suggests a possible interpretation of our fragmentary stamp, perhaps a skyphos of the ordinary stout-walled Attic sort. In default of closer parallels the stamp is of no particular assistance in fixing the date of our liqueur bottle; an instance of a stamp on a wine jar, apparently a gem impression, is known as early as the first quarter of the fifth century (*Hesperia*, VII, 1938, p. 606, fig. 28).

#### D. INSCRIBED SHERDS (Nos. 29-39)

**29.** Inv. No. P 9477. Fragment of Laconian Roof Tile: Ostrakon of Kallias Kratiou. Fig. 68. Length, 0.112 m.

A fragment of a concave roofing tile, glazed brown on the upper surface; the name scratched through the glaze.

Kallias son of Kratios is known only from this ostrakon and from one other (Inv. No. P 15,706, found in the Agora in 1939 in a context of the third century B.C. including but little earlier material). On the latter the father's name appears in the genitive in the usual way; for the patronymic in the nominative, as here, we find a parallel on an ostrakon of Themistokles (Inv. No. P 15,352, also found in 1939). The letter forms on both ostraka of Kallias show close correspondence to those most commonly found on the long series of ballots naming Themistokles, Aristides, and Kallixenos, known to have been cast at the ostrakophoria of 483 (cf. *Hesperia*, IV, 1935, p. 369, fig. 25; many additions in 1939). These forms may be contrasted with those used on votes later cast against another Kallias, the athlete, son of Didymias (*A.J.A.*, XXXIX, 1935, p. 179, fig. 6, and cf. *Hesperia*, V, 1936, p. 40; VII, 1938, p. 361; with Kallias likewise in the dative). It seems probable that the political activity of Kallias Kratiou belonged to the decade 490-480.

**30.** Inv. No. P 9483. Fragment of Red-figured Calyx Krater: Graffiti. Figs. 69 and 70 *b*. Height, 0.048 m.; width, 0.057 m.

From the rim of a large calyx krater decorated with a band of slanting palmettes. The ornament is a common early classical type; letters and symbols apparently meaningless are scratched in the reserved bands above and below it (Fig. 70 *b*).

**31.** Inv. No. P 9481. Fragment of Kylix Foot: Ostrakon ? Fig. 69.

Diameter of foot estimated not less than 0.07 m.

A small fragment preserving part of the torus edge, reserved; black glaze above and below. The inscription is on the underside.

The fragment strongly suggests an ostrakon; compare the hoard of ostraka of Themistokles found on the North Slope of the Acropolis (*Hesperia*, VII, 1938, pp. 228 ff., figs. 60 ff.); the profile of our fragment is that of the commonest variety there (*loc. cit.*, fig. 60, I). A restoration [Μεγακλῆς Ἴπποκρ]άτος would neatly fill the space provided, and the letter forms correspond well with those seen on other ostraka of Megakles in the Agora collection (*Hesperia*, II, 1933, p. 461, fig. 10; V, 1936, p. 40, fig. 39). [Κυδροκλῆς Τιμοκρ]άτος might be another possibility. (Note that a number of additional examples with this name have appeared since Raubitschek's discussion, *Jahreshefte*, XXXI, 1939, Beiblatt, cols. 24-25.)

**32.** Inv. No. P 9480. Kylix Foot: Graffito. Fig. 69.

Diameter of foot estimated *ca.* 0.065 m.

A neatly made base, the edge concave in profile and reserved, the top of the foot plain black,

the glaze particularly lustrous. Inscribed on the underside. For the initials, AR, cf. Hackl, *Merkantile Inschriften auf Attischen Vasen*, pp. 36-37; also Graef-Langlotz, *Vasen der Akropolis*, II, p. 127, no. 1522.

33. Inv. No. P 8534. Skyphos Handle: [Ostrakon of Menon of Gargettos. W. B. D.] Fig. 69. Length preserved, 0.034 m.; diameter of handle, ca. 0.016 m.

The stump of the handle with a trace of the rim from a stout skyphos of Attic type much as *Hesperia*, V, 1936, p. 340, fig. 8, centre below—a shape represented by many fragments among

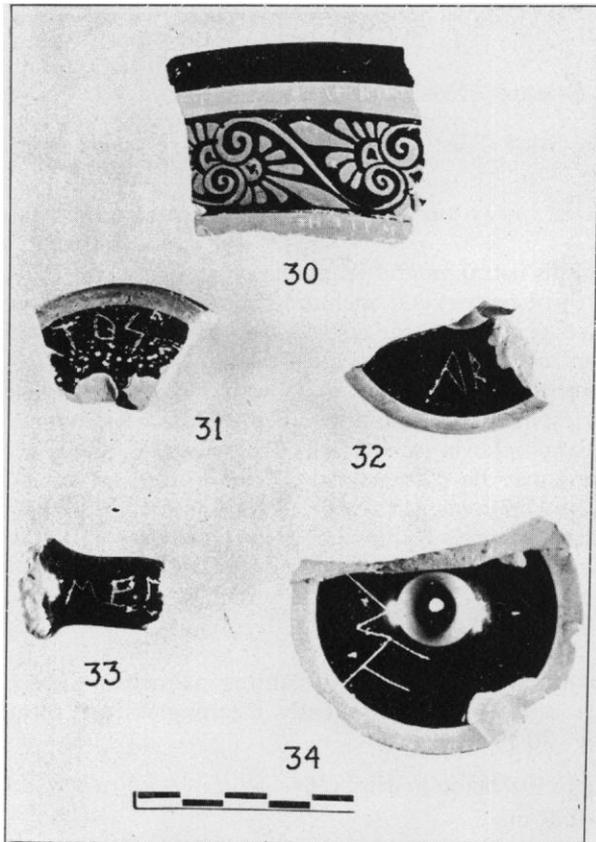


Fig. 69. Inscribed Sherds

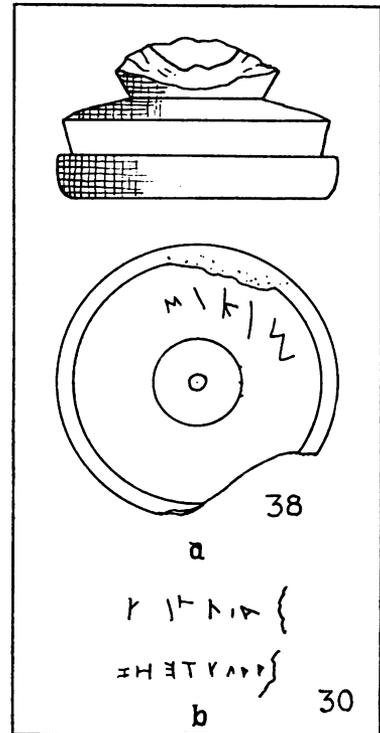


Fig. 70. Inscribed Sherds  
(Nos. 30, 38)

the uninventoried pottery from our deposit. Excellent black glaze. The inscription runs along the outer side of the handle, upside down with respect to the skyphos. [It may be restored Μέν[ον Γαρύ.]; cf. No. 39 below. W. B. D.]

34. Inv. No. P 9479. Kylix Foot: Graffito. Fig. 69. Diameter of base, 0.065 m.

The base, inscribed on the underside, is similar to No. 32 above, but with a reserved circle around the top surface. The ligature ΜΕ perhaps stands for Menon, [but not as an ostrakon].

35. Inv. No. P 9482. Inscribed Sherd. Fig. 71.

Greatest dimension, 0.053 m.; thickness, 0.009 m.

From the wall of a semiglazed krater, something similar to No. 26 above, but larger.

Brownish clay, dull red glaze inside only. The inscription runs vertically up the side of the pot. Its arrangement, and the repetition of the conjunction, suggests a list or account of some sort, possibly a list of names: IOΣ KAI -- ΣA KAI -- ION EBE -- EBENET.

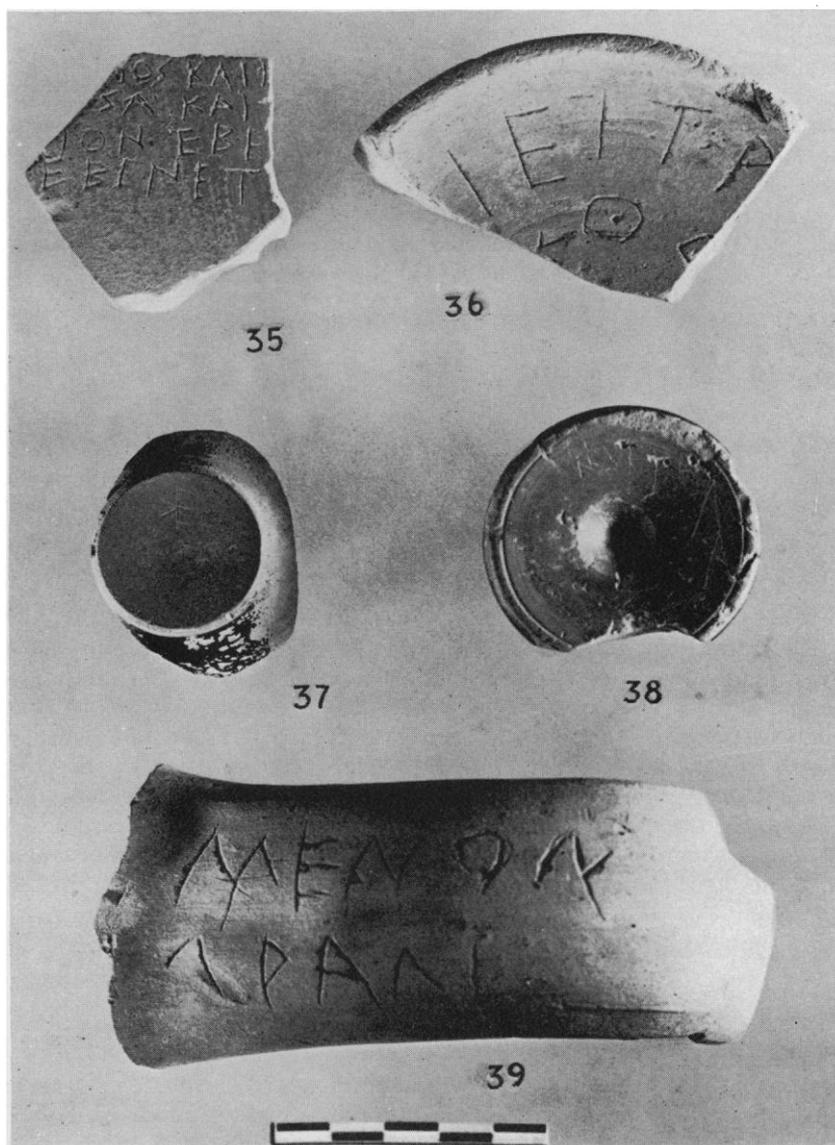


Fig. 71. Inscripted Sherds

**36.** Inv. No. P 6818. Krater Base: [Ostrakon of Diitrephes. W. B. D.]. Figs. 71 and 76. Greatest dimension, 0.08 m.; diameter of foot estimated, *ca.* 0.11 m.

From the base of a semiglazed krater again similar to No. 26 but larger. Here too the foot is not a ring base, but is gently concave beneath. This treatment is fairly common for such bowls in the second quarter of the fifth century; compare the bases illustrated in *Hesperia*, V, 1936, p. 346. The inscription, on the underside of the foot, ran in two concentric circles. [See Appendix, p. 163.]

37. Inv. No. P 15,868. Base of Small Olpe: Graffito. Fig. 71.

Height as preserved, 0.022 m.; diameter of foot, 0.031 m.

Disc base with rounded edge; the underside slightly concave. What remains of the walls is sufficient to suggest a rather plump bulging shape. Worn black glaze on walls and upper part of foot. Neatly inscribed on the bottom,  $\Sigma$ .

Disc-footed olpai appear on the Agora shelves in deposits of Persian times, but they are not common. In the second half of the century, when the foot has become the rule, it is less carefully made and more angular in profile than in our fragment, and the body of the pot tends to be more slender. Typologically therefore a date in the second quarter of the fifth century would suit our fragment; it might better be earlier than later, as the letter forms further suggest. Hackl, *op. cit.*, pp. 45-46, lists a number of examples of a somewhat similar ligature reading kappa beta and occurring on late black-figured vases. Compare also Graef-Langlotz, *Vasen der Akropolis*, II, p. 128, no. 1522 (N 434). [An identical ligature  $\Sigma$  occurs on a skyphos base from the ramp below the Propylaia of the Acropolis. W. B. D.]

38. Inv. No. P 15,867. Lekythos Base: Graffito. Figs. 71 and 70 a.

Diameter of base, 0.047 m.

Base in two degrees, the lower, and the top of the foot glazed, the upper and the underside reserved. With the very angular profile (Fig. 70 a, above) compare the bases of lekythoi by the Emporion painter, dated about 470 (Haspels, *Attic Black-figured Lekythoi*, pl. 48, 3-5, and cf. p. 167). The inscription, intended to be read either way up, is lightly scratched on the underside.

39. Inv. No. P 9478. Amphora Handle: [Ostrakon of Menon of Gargettos. W. B. D.]. Fig. 71.

Length of handle, 0.105 m.; width of handle, 0.05 m.

The broad, rather flat handle of a storage amphora, the clay a purplish pink to brown, with a light buff slip. The inscription  $\text{MENON APAAI}$ , heavily scratched on the top of the handle after firing, appears to be complete. [It is undoubtedly to be restored as  $\text{Μένων Γαργέ(ττιος)}$ , with the alpha and rho interchanged and the epsilon curtailed. Instead of assuming that this is a mere graffito or mark of ownership, therefore, it becomes necessary to regard it as an unfinished or abbreviated ostrakon, particularly in view of the existence of two other ostraka with this name, coming from the outer Kerameikos but not yet published in detail, illustrated by Kirchner, *Imagines*, nos. 29-30, pl. 12, and also because of the actual mention of an ostracized Menon by Hesychius, *s. v. Μενωνίδα*. We may, therefore, identify No. 33 as another ostrakon of the same person; and the problem assumes an importance which requires treatment in the Appendix, p. 161. W. B. D.]

#### E. LAMPS (Nos. 40-42)

40. Inv. No. L 2833. Banded Lamp. Fig. 72.

Height, 0.02 m.; diameter as restored, 0.078 m.

Part of one side remains, with a trace of the nozzle. Restored in plaster. A shallow lamp with flattish rim projecting slightly on the outside, the bottom slightly concave: Broneer's Type II (Broneer, *Corinth*, IV, part ii, *Terracotta Lamps*, p. 32, fig. 14, no. 12). Black glaze on the floor, for two bands on the rim, and around the nozzle. A common early fifth-century variety in the Agora; the banded decoration is not confined to this type; cf. *Hesperia*, VIII, 1939, p. 231, fig. 27.

41. Inv. No. L 2834. Black-glazed Lamp. Fig. 72.

Diameter as restored, 0.08 m.

Most of the bottom and back part remains with the stubs of the handle; the front part restored in plaster. Rounded wall merging into sharply down-curved rim; very low flat raised base; handle round in section. Excellent black glaze over all, worn around the edges of the base.

Broneer's Type IV (cf. the profile, *ibid.*, no. 18). The handle, round in section instead of the ordinary strap, is unusual, and suggests the U-shaped handles of the later Type V. Such handles however are not conclusive; another appears on a lamp of Type II (Inv. No. L 3415) found in a well near the centre of the Tholos in a context of pre-Persian times, *Hesperia*, VIII, 1939, pp. 229-30; and still another on a variant of Type IV (Inv. No. L 1194), from the upper filling of the Rectangular Rock-cut Shaft (cf. No. 23 above).

42. Inv. No. L 3961. Black-glazed Lamp. Fig. 72.

Height, 0.021 m.; diameter as restored, 0.077 m.

A single fragment preserves the nozzle and part of the rim, wall, and base; the back part is restored in plaster, but without the handle. Rounded wall; broad low, flat base. Black glaze inside

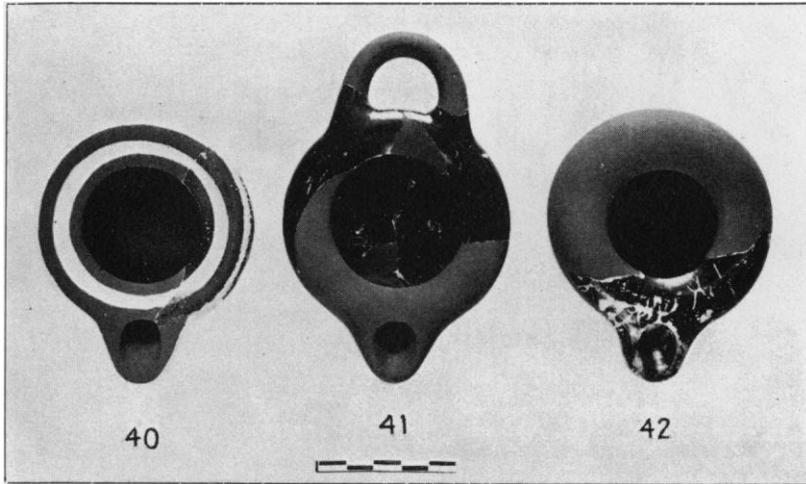


Fig. 72. Lamps

and out except on the base; the glaze considerably cracked. Similar to the preceding, but with a broader base and slightly deeper body.

The shallow variety of Type IV, common throughout the fifth century, shows very little change before the last quarter of the century. At that time the nozzle becomes notably longer than in the example illustrated here, which shows the type standard for our deposit. It is worth noting that among the uninventoried lamp fragments those certainly identifiable as to type belong nine to Type II and eighteen to Type IV. Type II is the commonest single type among Attic lamps of the first quarter of the fifth century found in the Agora; in the second half of the century Type IV takes a similar precedence. In our deposit the proportion of one type to the other is that which we should expect to find in the period of transition, the second quarter, namely, of the century.

F. TERRACOTTA FIGURINES AND MOULDS (Nos. 43-49)

43. Inv. No. T 1384. Terracotta Figurine. Fig. 73.

Height as preserved, 0.067 m.

A draped female figure seated rigidly on a throne, her feet on a footstool, left hand pressed close to thigh, right drawn across lap. All above the waist, and the left side of the throne, missing. Fine pinkish buff clay with buff surfaces; no remains of color.

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The archaic seated-goddess type, particularly common on the Acropolis; cf. Winter, *Typen fig. Ter.*, I, p. 48, 5; Casson-Brooke, *Catalogue of the Acropolis Museum*, II, pp. 355 ff. Similar pieces have been found in various parts of the Agora Excavations; see the mould, *Hesperia*, II, 1933, p. 185, fig. 1 at right. For new material from the North Slope of the Acropolis comparable (though much of it earlier) with this and the following items, see *Hesperia*, IV, 1935, pp. 199 ff., figs. 7-11, and VII, 1938, pp. 201-2, figs. 35-36. On dating and classification, most lately, Knoblauch, *Studien zur archaisch-griechischen Tonbilderei*, p. 175, and pp. 180 ff., D, groups 1 and 2; also Sedgwick, *Ἀττικὰ Πήλινα Εἰδώλια*, pp. 48 and 51.

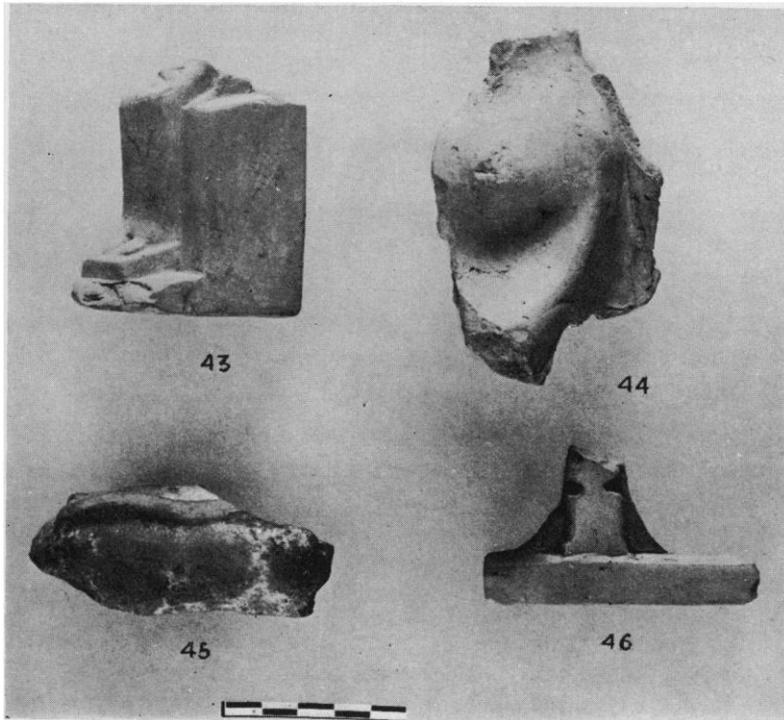


Fig. 73. Terracotta Figurines

44. Inv. No. T 1383. Terracotta Figurine. Fig. 73.

Height as preserved, 0.09 m.

A seated figure similar to the last, but somewhat larger; the arm pressed close to the side. Only the upper left side of the figure remains, head, legs, and throne gone. Clay buff to red; no remains of color. The clay was first pressed thin into the mould, then the concavity was filled out with more clay, though a hole was left through the middle.

45. Inv. No. T 989. Terracotta Pig. Fig. 73.

Length as preserved, 0.082 m.

The upper part of a pig with raised spine and red ears. Buff clay; considerable remains of white. Hollow; mould made. Pigs in the Agora are rarities and their distribution seems inconclusive, so far as sanctuary or cult relationships are concerned. One very like ours, but smaller and carefully handmade, comes from a pre-Persian well at the northwest foot of the Areopagus along with a quantity of seated goddesses of the Acropolis type, like Nos. 43 and 44 above.

46. Inv. No. T 1385. Terracotta Plaque. Fig. 73.

Length preserved, 0.074 m.; height as preserved, 0.043 m.

Apparently a scrap from a relief plaque on which a throne or couch was represented. Of this the lower part of one leg remains. Fine buff clay; a red wash along the bottom edge of the plaque. Compare the Acropolis fragments of the types of nos. 1337 and 1330 (Casson-Brooke, *Catalogue*, pp. 419-421). That our piece shows some sort of bed seems probable; the profile of the leg is the same as that seen on the fragments of a wooden couch found in the Agora in a sixth century context.

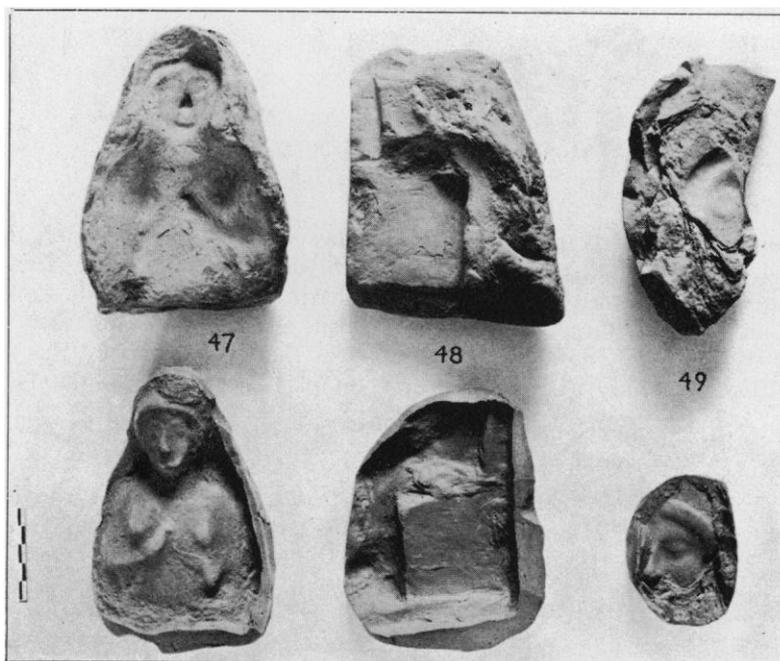


Fig. 74. Terracotta Moulds and Casts

47. Inv. No. T 1381. Mould for Terracotta Figurine. Fig. 74.

Height as preserved, 0.147 m.; width, 0.103 m.; thickness, 0.056 m.

The mould for a standing female figure holding a dove to her bosom in her right hand. Broken away below the waist and somewhat chipped. The mould worn and the features indistinct. Very massive fabric of flaky clay fired dark gray at core, buff on surface. An archaic type only less common than the seated goddess; cf. Winter, *Typen fig. Ter.*, I, p. 58, 3; Casson-Brooke, *Catalogue*, p. 370.

48. Inv. No. T 1380. Mould for Terracotta Figurine. Fig. 74.

Height as preserved, 0.14 m.

The mould for a figurine of seated goddess type similar in size and style to No. 43 above. One side only remains, and that broken away above and much chipped. The back of the throne projects. Flaky clay, fired dark gray at core and very massive.

49. Inv. No. T 1382. Mould for Head of Terracotta Figurine. Fig. 74.

Height as preserved, 0.145 m.

Broken away below on right side; inner surface much chipped. There remains the mould for

the left side of a woman's face, broken away below the nose; above, a heavy roll of hair and a stephane. Massive fabric similar to the last two. Probably the mould for the head of a figure such as No. 47.

The presence of moulds in our deposit may suggest that these terracottas are debris from a coroplast's workshop in the near vicinity of their finding place. We know that potters clung to the slopes of Kolonos (*Hesperia*, VI, 1937, p. 20; and cf. the amphora damaged in making, *Hesperia*, VII, 1938, p. 377, fig. 12, and unpublished material from the upper filling of the same deposit). Moulds, however, have been found in deposits throughout the length and breadth of the Agora and our present examples—few in number and very badly battered—provide no definite indication that they were used on the spot.

#### G. MISCELLANEOUS OBJECTS (Nos. 50-56)

50. Inv. No. MC 337. Loomweight. Fig. 75.

Height, 0.065 m.; greatest width, 0.046 m.

A stubby truncated pyramid of coarse pinkish clay with many impurities, the surface somewhat smoother; a single piercing towards the top. On one face a circle 0.02 m. in diameter, its circumference made up of tiny arcs punched with a sharp tool. Considerable signs of wear.

This weight and the next are strays in our deposit, apparently earlier than any of the other material. Similar weights come from Agora contexts of the late eighth and the seventh centuries; cf. *Hesperia*, II, 1933, p. 602, fig. 70, and *Hesperia*, Suppl. II, 1939, p. 192, fig. 142.

51. Inv. No. MC 338. Loomweight. Fig. 75.

Height, 0.053 m.; width, 0.038 m.

A slender truncated pyramid with slightly concave sides, made of brownish clay red at the core, smooth at the surface. A circle 0.014 m. in diameter is punched on one face; cf. No. 50 above.

52. Inv. No. MC 610. Loomweight. Fig. 75.

Height, 0.055 m.; width, 0.047 m.

A broad pyramid, made of fine pinkish buff clay, the surface carefully smoothed; unglazed. Cf. No. 53, below.

53. Inv. No. MC 611. Loomweight. Fig. 75.

Height, 0.054 m.; width, 0.04 m.

Truncated pyramid of fine pinkish buff clay with smooth surface, pierced near the top. A streak of black glaze, worn, over the top and down the two unpierced sides.

This loomweight and the preceding illustrate the type characteristic for our deposit. A number of other examples not inventoried vary somewhat in size and proportions and in the use of glaze, but all follow the same general scheme. No. 52 is broader than most; No. 53 has the proportions which become standard in Athens by the first quarter of the fifth century and continue with but slight variations to the end of the fourth (*Hesperia*, III, 1934, p. 326, fig. 9; p. 336, fig. 17; and cf. p. 475).

54. Inv. No. MC 336. Loomweight. Fig. 75.

Height as preserved, 0.047 m.; width, 0.052 m.

Only a fragment of one side remains. Fairly fine light red to buff clay, the surface carefully smoothed; unglazed. Twice pierced, well down from the top: part of one hole remains at the top of the fragment near the right edge. On the preserved face, carefully incised in the unbaked clay with the aid of a small round-ended punch and a blunt stick, a palmette with spirals, presumably topped, above the suspension holes, by a second perhaps slightly smaller.

To judge from the position of the suspension holes the proportions of the weight were more squat and square than those of either No. 52 or 53. For the palmette with its volutes compare the painted loomweights from the Acropolis, Graef-Langlotz, *Vasen der Akropolis*, I, p. 262; later weights often carry palmette stamps, but our careful incised decoration is unusual. The arrangement of the palmettes is a common one in vase-painting; cf. Jacobsthal, *Ornamente*, pls. 77 ff., for instance the Syleus painter's stamnos, pl. 102 b (*Att. V.*, p. 160, 1).

55. Inv. No. MC 339. Spindle Whorl. Fig. 75.  
Diameter, 0.055 m.; thickness, 0.018 m.

A simple disc, shaped by hand, rather flatter on one side than on the other, pierced through the centre. Fairly fine pinkish buff clay with remains of a lighter slip. On the upper, rounded face, deeply scratched while the clay was still soft, an alpha.

56. Inv. No. A 708. Fragment of Water Pipe. Fig. 75.

Inner diameter at rim estimated, *ca.* 0.15 m.; outer diameter, *ca.* 0.19 m.

A small piece from the end of the pipe, with a covering joint. The rim is flaring and slightly convex on the outside, with a short projection at the inner edge of the joint surface. Below the rim outside, two narrow ridges. Clean pink to buff clay; dull red glaze on the outside of the rim and just below it, and for a band lower down; lighter red waterproofing inside.

H. A. Thompson compares the profile of this water pipe with that used for the first drain of the Tholos.<sup>295</sup> The shallow projection at the inner edge and the ridges below the rim provide almost exact parallels. Our pipe belongs to a slightly larger series, and the glaze wash inside suggests that it was intended to carry fresh water. In date, however, it should be closely contemporary with the Tholos drain, that is, about 470.

It will be remarked that this material is in an extremely fragmentary condition but that the figured pieces show, over a considerable range in date, a quality generally higher than that found in ordinary household deposits of the same periods in the Agora. The condition indicates that the material, intended for use as filling during building operations on the temple, was a secondary dump. Part of it must have come from accumulations dating from the first quarter of the fifth century. The two plaques (Nos. 10 and 46) and to a certain extent also the figured fragments of high quality, might be taken to suggest a sanctuary. The burned lekythoi on the other hand (cf. No. 14) undoubtedly came from graves and indicate the Dipylon cemetery as another

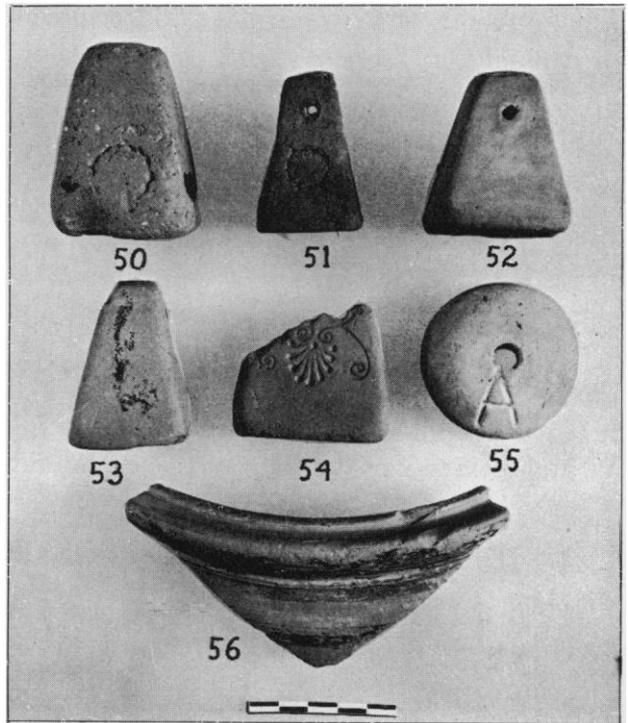


Fig. 75. Miscellaneous Objects

<sup>295</sup> See *Hesperia*, Suppl. IV, p. 88, fig. 67.

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possible source; they might have belonged to graves disturbed during the defense measures of 480 B.C.

The time at which the pit was filled is however considerably later than this. Among the figured fragments are several which belong to early classical times; of them we can only say that they were made no later than the middle of the century (cf. Nos. 16, 18). For the lamps also, the graffiti, and the various small objects a lower limit in the second quarter of the century must be assigned. Among the plain black and the coarser wares the pieces sufficiently complete to be illustrated are a meager lot; but a much greater variety of shapes is represented by the uninventoried fragments. Here are kylikes, stemless cups and skyphoi, cooking pots, partly-glazed kraters and one-handed cups, braziers, a wash-tub, wine-jars. As with the figured wares many types belong to Persian and pre-Persian times, but the later pieces find close parallels in Agora deposits of the second quarter of the century (cf. under No. 24 above). For the deposit as a whole the evidence as to date is consistent; the latest pieces may be as late as the middle of the century [this being particularly true of the ostraka Nos. 33, 36, and 39; see Appendix]; but there is nothing to suggest any time after 450 B.C.

#### CHRONOLOGICAL POSITION OF THE TEMPLE

The date associated with the present temple has ranged, during the past century, over the sixty years between 475 and 415 B.C. The extreme dates were founded upon theories of identification. Those who believed that Kimon's transfer of the bones of Theseus from Skyros to Athens in 476/5 B.C. (Plutarch, *Theseus*, 35-36; *Kimon*, 8) was the occasion of the foundation naturally took this earliest view.<sup>296</sup> The lowest limit was based upon the attribution to Hephaistos and Athena Hephaisteia, whose festival was reorganized in 421 B.C. (*I.G.*, I<sup>2</sup>, 84), and whose statues were erected between 421/0 and 416/5 B.C. (*I.G.*, I<sup>2</sup>, 370-371). Between these limits, and within the age of Perikles, the prevailing opinions now fall into four groups. Many would prefer to date each stage of the temple (architecture and sculpture) slightly before the corresponding stages of the Parthenon and so about 450-445 B.C.;<sup>297</sup> others would

<sup>296</sup> Chandler, *Travels in Greece* (Dublin, 1776), p. 75; Stuart and Revett, *Ant. of Athens*, III (1794), ch. I, pp. 1-2, accepted by Kinnard, *id.*, 2nd ed., III (1827), p. 66, note b; Leake, *Topography of Athens* (1821), p. 394, and *id.*, 2nd ed. (1841), p. 498; Pittakis, *Ancienne Athènes* (1835), p. 80, and *Ἀρχ. Ἐφ.*, 1838, pp. 71-75; Curtius, *Arch. Zeit.*, I, 1843, col. 106; Beulé, *Les Monnaies d'Athènes* (1858), p. 36; Gailhabaud, *Monuments anciens et modernes*, I (1865); Adler, *Arch. Zeit.*, XXX, 1873, p. 109 (begun 468/7 but finished about 440 or even 429 B.C.); Schultz, *De Theseo* (1874); Semper, *Der Stil*, 2nd ed., II, p. 415; Penrose, *Proc. Roy. Soc.*, LIII, 1893, p. 383; LXV, 1897/8, pp. 372-374; *Trans. Roy. Soc.*, CLXXXIV, 1893, p. 825; CXC, 1897, p. 65 (obtaining 466 B.C. by means of fallacious astronomical calculations).

<sup>297</sup> Petersen, *Die Kunst des Pheidias* (1873), pp. 221, 224; Brunn, *Sb. Mün. Akad.*, 1874, II, pp. 51-65; Wachsmuth, *Stadt Athen*, I, p. 360; Julius, *Annali dell'Inst.*, L, 1878, pp. 202-210; Murray, *Gaz. arch.*, V, 1879, p. 246, note 3, and *History of Greek Sculpture*, 2nd ed., I, pp. 275-292;

place the sculpture between the metopes and frieze of the Parthenon and so about 445-440 B.C.;<sup>298</sup> others again would make it contemporary with the later years of the Parthenon, 440-432 B.C.;<sup>299</sup> and, finally, a last group would bring it down toward the lower limit, definitely later than the Parthenon, 432-421 B.C.<sup>300</sup>

Much of this evidence is stylistic and hence to a certain extent subjective. Architectural grounds for dating the temple before the Parthenon have been sought in the greater height of "Semper's norm" or in the greater heaviness of the entablature with the relation to the column height or axial spacing,<sup>301</sup> or in the development of profiles,<sup>302</sup> or in the analogy between the Hephaisteion and the Older Parthenon both in the Ionic base moulding at the foot of the wall and in the lowest step of a different material in the crepidoma.<sup>303</sup> On the other hand, the slenderness and wide spacing of the columns,<sup>304</sup> and the increasing Ionic influence traceable in the wall base and in the Lesbian cyma of the epistyle of the porches,<sup>305</sup> have been interpreted as architectural reasons for dating this temple later than the Parthenon. Equally divergent are the judgments based upon the sculpture; some point out that the style of the

Furtwängler, *Ath. Mitt.*, V, 1880, p. 34, and *Meisterwerke*, p. 72, note 1 = *Masterpieces*, p. 46, note 1; *Sb. Mün. Akad.*, 1899, pp. 293-296; Katterfeld, *Die griechischen Metopenbilder*, pp. 34-37; Hill, *A.J.A.*, XVI, 1912, p. 553; Kjellberg, *Studien zu den attischen Reliefs des V. Jahrhunderts v. Chr.*, pp. 78-82; Koch, *Arch. Anz.*, 1928, cols. 720-721; Shoe, *Greek Mouldings*, pp. 43, 45, 51, 59, 87, 105, 108, 128, 166, 169-171, 173, 175-177, 181; Benton, *J.H.S.*, LVII, 1937, p. 40.

<sup>298</sup> Overbeck, *Gr. Plastik*, 4th ed., I, p. 463; Smith, *British Museum Catalogue of Sculpture*, I, p. 219; Demangel, *Frise ionique*, pp. 320-322; Judeich, *Topographie*<sup>2</sup>, pp. 78, 367 (though the frieze perhaps later, and the dedication in 421 B.C.).

<sup>299</sup> Bötticher, *Bericht über die Untersuchungen auf der Akropolis von Athen im Frühjahr 1862*, p. 189; Gurlitt, *Das Alter der Bildwerke und die Bauzeit des sogenannten Theseion in Athen* (1875; while the date assumed for the "Theseum" is there given as 450-440 B.C., this is predicated upon beginning the Parthenon one decade too early); Dörpfeld, *Ath. Mitt.*, IX, 1884, p. 336 (cf. Fabricius, *ibid.*, p. 347); Graef, in Baumeister, *Denkmäler*, III, col. 1778; Harrison and Verrall, *Mythology and Monuments*, pp. 115-116; Müller, *Die Theseusmetopen vom Theseion zu Athen in ihrem Verhältniss zur Vasenmalerei* (1888); Collignon, *Sculpture grecque*, II, p. 77; Frazer, *Pausanias*, II, p. 154; Robert, "Marathonschlacht," *Hall. Winckelmannsprog.* 18, pp. 75, 88; Sauer, *Theseion*, pp. 207-213; Bulle, *Phil. Woch.*, 1899, 846; Amelung, *Neue Jb.*, 1900, p. 12; Judeich, *Topographie*<sup>1</sup>, p. 326 (but dedicated 421 B.C.); Kekule, *Die griechische Skulptur*, 3rd ed. (1922), p. 98; Klein, *Gesch. der griechischen Kunst*, II, pp. 106-107; Studniczka, *Jahrbuch*, XXXI, 1916, p. 230; Fougères, *Athènes*, p. 132.

<sup>300</sup> Orlandos, *B.C.H.*, XLVIII, 1924, p. 318; Dinsmoor, Anderson and Spiers, *Architecture of Ancient Greece*, pp. 126, 193; Robertson, *Greek and Roman Architecture*, pp. 118, 328; Richter, *Sculpture and Sculptors of the Greeks*, p. 33 (2nd ed., p. 43).

<sup>301</sup> Julius, *Annali*, L, 1878, pp. 205-206; Semper, *Der Stil*, II, p. 415.

<sup>302</sup> Julius, *loc. cit.*, pp. 206-209; Shoe, *Greek Mouldings*, p. 108.

<sup>303</sup> Hill, *A.J.A.*, XVI, 1912, p. 553.

<sup>304</sup> Graef, in Baumeister, *Denkmäler*, III, col. 1778 (cf. Gurlitt, *Das Alter der Bildwerke*, pp. 57-78).

<sup>305</sup> Dörpfeld, *Ath. Mitt.*, IX, 1884, pp. 336-337; Harrison and Verrall, *Mythology and Monuments*, pp. 115-116; Graef, *loc. cit.*

metopes is earlier than those of the Parthenon, and that the west frieze was influenced by the south metopes but is earlier than the frieze of the Parthenon.<sup>306</sup> Others, however, adduce equally weighty arguments for regarding the inner friezes, and hence the whole temple, as later.<sup>307</sup> The epigraphical evidence sought in the mason's signs on the ceiling coffers, which include some archaic forms, is likewise ambiguous since there are also later forms intermingled, the masons apparently having included all sorts of forms with the purpose of increasing their repertoire.<sup>308</sup>

On the literary side, now that we may unhesitatingly regard the temple as that of Hephaistos, we may cite the evidence with regard to this cult at Athens, to which the earliest surviving allusion is perhaps that of Herodotos (VIII, 98) mentioning the torch race in the festival of Hephaistos, though this date is limited only by the time of compilation of his history. Also somewhat ambiguous in date is the allusion, in the Athenian decree enforcing uniform money, weights, and measures (cf. *I.G.*, I<sup>2</sup>, p. 295),<sup>309</sup> according to a new fragment found at Aphytis, to Athena and Hephaistos either as the gods to whose sanctuary money is owed or, more probably, paid as a tithe to the divinities of the mint and other metalworking under whose guardianship the new fiscal measure was to be placed.<sup>310</sup> A sum of 3647½ drachmai was in the treasury of Hephaistos in 429/8 B.C. (*I.G.*, I<sup>2</sup>, 310, line 139), and a sum of 7748 drachmai was borrowed by the state from Hephaistos in 423/2 B.C. (*I.G.*, I<sup>2</sup>, 324, line 85),<sup>311</sup> giving a definite date *ante quem* for the cult. Following these come the above-mentioned decree reorganizing the cult in 421 B.C. (*I.G.*, I<sup>2</sup>, 84) and the statue accounts of 421-415 B.C. (*I.G.*, I<sup>2</sup>, 370-371).

In view of these uncertainties, the archaeological evidence yielded by excavation assumes paramount importance. The results have been discussed in the foregoing sections, and the general conclusion that "the building was at least begun by the middle of the fifth century" has already been foreshadowed in the published reports.<sup>312</sup> The analysis of the pottery found with the building debris shows that the record

<sup>306</sup> Arguments for the early dating of the sculpture are given by Petersen, Brunn, Julius, Murray, Furtwängler, Katterfeld, Kjellberg, Koch, and Benton (see note 297 above).

<sup>307</sup> Arguments for the later dating of the sculpture and particularly of the friezes are given by Bötticher, Gurlitt, Müller, Collignon, Sauer, Bulle, Amelung, Kekule, Judeich, Klein, and Studniczka (see note 299 above).

<sup>308</sup> On the dating of the coffer letters see Ross, *Das Theseion und der Tempel des Ares*, pp. 55-56; Adler, *Arch. Zeit.*, XXX, 1873, p. 109; Wachsmuth, *Stadt Athen*, I, p. 360; Gurlitt, *Das Alter der Bildwerke*, pp. 75-76; Bates, *A.J.A.*, V, 1901, pp. 40-45.

<sup>309</sup> Tod, *Greek Historical Inscriptions*, no. 67; Meritt, Wade-Gery, and McGregor, *Athenian Tribute Lists*, I, p. 579, T 69.

<sup>310</sup> Robinson, *A.J.P.*, LVI, 1935, p. 153; Segre, *Clara Rhodos*, IX, 1938, pp. 161-163; Meritt, Wade-Gery, and McGregor, *loc. cit.*; Thompson, in *H.S.C.P.*, Suppl. I (1940), pp. 208-209. For the probable date, see below, p. 153.

<sup>311</sup> Meritt, *Athenian Financial Documents*, p. 141.

<sup>312</sup> Shear, *A.J.A.*, XL, 1936, p. 190; *Hesperia*, VI, 1937, p. 345.

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terminates in the fourth or fifth decade of the fifth century, about 460 or at any rate no later than 450 B.C. The datable decorated pieces, however, are of exceptionally good quality and appear in many cases to be sanctuary dedications rather than the ordinary household ware which might have been broken and thrown away day by day. As such, we might expect this pottery to have had a longer life; and even the latest pieces might well have survived manufacture by five or ten years before they were destroyed.<sup>313</sup> Much of the undecorated household ware and three ostraka seem to be even later, in the fifth decade of the century.<sup>314</sup> This being the case, we may descend without difficulty to about 450 B.C., the earliest date which our stylistic criteria would permit to be assigned to the profiles of the mouldings and the sculpture of the metopes.

In this connection it is perhaps worth recalling, in spite of the possibly tenuous nature of the argument, that the astronomical evidence connecting the direction of the temple axis and the presumable day of the festival of Hephaistos (the last of Pyanopsion), points to October 17, 449, as the only suitable foundation day between 460 and 435 B.C.<sup>315</sup> Corroborative evidence comes also from the above-mentioned Athenian decree with regard to money, weights, and measures; for, in addition to the new fragment from Aphytis mentioning Athena and Hephaistos, another new fragment of a copy from Kos seems to have lettering even closer in date to the original, and from this lettering, as well as from the historical conditions, Segre concludes that the date of the original was 449 B.C.<sup>316</sup> With so many indications pointing in this direction, we may safely adopt 449 B.C. as the date of the beginning of the temple.

This conclusion fits perfectly a comparative study of the Hephaisteion with respect to the three other temples by the same architect, the so-called "Theseum architect," as discussed in connection with the temple of Ares.<sup>317</sup> We have found that their relative sequence—Hephaisteion, Sounion, temple of Ares, Rhamnous<sup>318</sup>—when fitted between the limits of 449 and 432 B.C. suggests for the earliest of his works,

<sup>313</sup> For analogies on the Athenian Acropolis, see Dinsmoor, *A.J.A.*, XXXVIII, 1934, pp. 432-437.

<sup>314</sup> See p. 150 and Appendix.

<sup>315</sup> Dinsmoor, *Proc. Amer. Phil. Soc.*, LXXX, 1939, pp. 125-127, 131-132, 163-164.

<sup>316</sup> Segre, *Clara Rhodos*, IX, 1938, pp. 166-174; the date accepted by Meritt, *Athenian Tribute Lists*, I, p. 579, T 69. See, however, Robinson, *Trans. Am. Phil. Assn.*, LXIX, 1938, p. 43, note 1.

<sup>317</sup> Dinsmoor, *Hesperia*, IX, 1940, pp. 44-47.

<sup>318</sup> Thus I abandon Orlandos' sequence Rhamnous, "Theseum," Sounion (*B.C.H.*, XLVIII, 1924, p. 318; followed by Robertson, *Greek and Roman Architecture*, p. 328), and also my own former proposal Rhamnous, Sounion, "Theseum" (Anderson, Spiers, Dinsmoor, *Architecture of Ancient Greece*, pp. 126, 193), both predicated upon Dörpfeld's assumption that the "Theseum" must be later than the Parthenon. On the other hand, I return to Dörpfeld's relative sequence—but not to the absolute dates—of the "Theseum" and Sounion (*Ath. Mitt.*, IX, 1884, p. 336, note 1; followed by Harrison and Verrall, *Mythology and Monuments*, p. 116), as amplified by Demangel (*Frise ionique*, pp. 322-323): "Theseum," Sounion, Rhamnous.

the Hephaisteion itself, about 449-444 B.C.<sup>319</sup> In my previous article enough has been said, for the purpose of restoration and dating, to give some indication of this nameless architect's tendencies in design; other observations, with one exception, would fall outside the scope of this investigation.

We have noted that in the case of the Hephaisteion the architect hesitated to come to a final decision regarding the internal subdivision of the cella building and the exact dimensions of the cella itself. Perhaps he increased its width and raised its floor level;<sup>320</sup> at any rate he diminished its length, and this in two successive stages, after the foundations had been laid.<sup>321</sup> All these alterations of scheme suggest intervals of uncertainty, pauses while the architect was making up his mind. The fact that there was some sort of delay seems to be evidenced also by the peculiar nature of the foundations. The inner column foundations are quite distinct from those of the cella walls and were clearly built up later in trenches excavated within the cella for the purpose, and rest on ledges cut on the inner faces of the flank wall foundations. But the additional fact that these ledges for the inner column foundations were cut, at least in part, before the inner linings of the cross-wall foundations were actually laid, has been demonstrated by the fact that the north ends of both cross-walls rest on the ledge cut on course *b* of the north flank wall. This alteration occurred at the moment of the change between pronaos schemes A and B, and at this moment may well have occurred a pause—whether of a few weeks or a year or more the evidence is insufficient to decide. At any rate, in view of the general practice of working inward from the exterior, and with the understanding that the wall blocks for the cella building may have been ordered and delivered long before the final position of the cross-walls was determined, it is apparent that the redesigning of the cella may well have been postponed to 446 or even to 445 B.C.

This condition of affairs permits us to explain certain stylistic difficulties. For the use of internal colonnades seems to be foreign to the style of the "Theseum architect." He never repeated the scheme in his other works at Sounion and Rhamnous, nor, as far as we can tell, in the temple of Ares in the Agora. He was, furthermore, apparently opposed to such a treatment, inasmuch as he intentionally omitted it from the temple at Sounion even though it had existed in the earlier temple which he there

<sup>319</sup> I now feel that the date of 444 B.C. (hitherto merely an approximation, *Hesperia*, IX, 1940, p. 47) for the beginning of work at Sounion and consequently—with due allowance for the Athenian conception of iteration of office and also for the position of the architect as craftsman—for the virtual completion of the architecture of the Hephaisteion, has been unexpectedly confirmed by a calendar coincidence. For the poros temple at Sounion, concentrically located under the present temple and with the same axis, seems to have had its axis laid out on the festival of Pyanopsion 8 = October 31, 498 B.C., fitting the sunrise on that day. And it so happens that on Pyanopsion 8 = October 30, 444 B.C., the same calendrical and astronomical conditions would have been repeated, a coincidence which, though not a necessary factor (witness the discrepancy in the case of the Parthenon), might appropriately have suggested the beginning of reconstruction at this moment.

<sup>320</sup> See pp. 38-39, 43, 70.

<sup>321</sup> See pp. 56-57, 93.

replaced.<sup>322</sup> On the other hand, the internal colonnade of ambulatory plan enframing the cult pedestal, and particularly the mannerism of the central column on axis,<sup>323</sup> is so essential an element of the style of Iktinos as expressed at Bassai and in the Parthenon that it would be surprising to see it planned in the Hephaisteion, by another architect, even before it had appeared in these two temples by Iktinos. We may now infer that the system in the Hephaisteion was an imitation, rather than a forerunner, of Iktinos: it was apparently inserted at the moment of the change to pronaos scheme B—as we have seen, it hardly fits scheme A—and so at a date when interior colonnades of ambulatory plan already existed, at Bassai in stone, in the Parthenon still on paper.

Finally, the insertion of this internal colonnade as an afterthought may possibly enable us to explain an apparent contradiction. The inner faces of the cella walls, and those of the pronaos and opisthodomos, were clearly waterproofed (at the time of erection) and roughened for the reception of a stucco ground upon which were to have been executed great mural figured compositions, comparable to those on wood-sheathed walls so favored by Polygnotos and Mikon. The presence of the internal colonnade, so close to the walls, bisecting them vertically and subdividing them into many panels laterally, would have been thoroughly incompatible with such paintings. And, in fact, examination of the wall surfaces makes it evident that they were never covered by ancient stucco or any other ground; in other words, the proposed mural paintings were never executed. The solution probably is that, as the wall blocks seem to have been brought to the site before the redesigning of the shortened cella with interior colonnades, so these wall blocks were even finished on the ground with the stippled panels and smooth margins long before erection. Such an unusual procedure seems to be corroborated by the unique treatment of the wall blocks with relieving margins on the bottom; these indicate that, as contrasted with the usage in all other known marble structure of the Periclean age, the wall blocks never had preliminary surfaces—the final surfaces were the preliminary surfaces. It must be admitted that much of the preparation for painting was done after the interior colonnades were planned—

<sup>322</sup> Staïs ('Αρχ. Έφ., 1900, pp. 116-117, pl. 6) reports that the interior column foundations are bonded into the old temple foundations and so are contemporary; on the other hand the absence of any remains of interior colonnades belonging to the later temple implies that they were omitted. Another fact of importance is that the foundations are merely for two rows of columns without the ambulatory return which would undoubtedly have been employed if such columns had been used in the later temple.

<sup>323</sup> It would be interesting if we could obtain more exact information as to the treatment in the later temples with ambulatory schemes, as those of Artemis, Themis, and Aphrodite at Epidauros (Πρακτικά, 1906, pp. 92, 107, 111), and that of Zeus at Stratos (Orlandos, 'Αρχ. Δελτ., VIII, 1923, pp. 1-51; Picard and Courby, *Recherches archéologiques à Stratos*, 1924); these as published, with inadequate data, show four columns across the rear, avoiding one on axis. Four columns, to be sure, seem to have been employed at Nemea, in spite of the fact that the resulting spacing across the rear, about 2.23 m., is much less than that of about 2.80 m. on the flanks (Vallois and Clemmensen, *B.C.H.*, XLIX, 1925, pp. 4-6, 10-11, pl. I-II).

i. e., during the erection of the cross-walls and flank walls; for the stippling on the flank walls betrays full recognition of the positions of the cross-walls, which were bonded and clamped into the flank walls course by course, and it is also evident that the lead waterproofing was poured during the actual erection. We may infer, however, that the stippling was done on the ground and the waterproofing during erection, even after project C was designed, either in accordance with the earlier contract and specifications which were no longer valid, or because it was still hoped in some quarters that the mural painting would not be incompatible with the interior colonnades.

Even the revised scheme with interior colonnades was not fully executed at the time; the plan for a monumental pedestal remained in abeyance—the foundations forgotten below the floor—and its place may have been occupied for a quarter of century by an earlier statue taken from the modest sanctuary which has left us no remains apart from broken votive pottery. Just so, in the temple of Zeus at Olympia, the cella probably housed the primitive statue of Zeus which belonged in the Heraion (Pausanias, V, 17, 1) until Pheidias arrived and squeezed in his chryselephantine masterpiece. The two extant blocks of the pedestal of the cult statues in the Hephaisteion, in a technique characteristic of the last quarter of the fifth century, so perfectly agree with the date of the expense accounts of 421-415 B.C. as to confirm the identification of the temple as the Hephaisteion, despite the seeming discrepancy of the earlier date 449-444 B.C. now to be assigned to the temple itself.

We may conclude with a brief consideration of the historical setting of the Hephaisteion. The time of its beginning, 449 B.C., was a year which saw political events destined to have a lasting effect upon the monumental development of Athens. In the spring of that year<sup>324</sup> is to be dated the signature of the Peace of Kallias,<sup>325</sup>

<sup>324</sup> Diodoros (XII, 4) gives the date as 449/8 B.C. (archonship of Pedieus), and most have accepted this archonship and have adopted the date 448 B.C. (references as given below). But Wade-Gery assembles cogent reasons for assuming that Diodoros was here, as often, slightly in error and that the date was really 450/49, in the winter or the spring of 449 B.C. (*J.H.S.*, LII, 1932, p. 223; *B.S.A.*, XXXIII, 1932/3, p. 112, note 1; *H.S.C.P.*, Suppl. I, 1940, pp. 149-150). The date immediately after the battle of the Eurymedon, suggested by Plutarch (*Kimon*, 13, 4-6) because of his misunderstanding of Kallisthenes, is clearly preposterous.

<sup>325</sup> On the Peace of Kallias see Herodotos, VII, 151 (mentioning the embassy of Kallias but not the Peace); Isokrates, *Panegyri*. (IV) 118-120, *Areop.* (VII) 80, *Panath.* (XII) 59-61 (mentioning the Peace but not Kallias by name); Ephoros as paraphrased by Diodoros, XII, 4 (mentioning the Peace, Kallias, and the date); Demosthenes, *Rhod.* (XV) 29, *Fals. Legat.* (XIX) 273-274; Didymos on Demosthenes, col. 7, line 73; Kallisthenes, *Hellenika*, fr. 16 (from Plutarch, *Kimon*, 13, 4, in Jacoby, *F. Gr. Hist.*, II B, p. 646); Theopompos, *Philippika*, XXV, fr. 154-155 (from Harpokration, *s. v.* Ἀττικοῖς γράμμασιν, and Photios and Suidas, *s. v.* Σαμίων ὁ δῆμος, in Jacoby, *op. cit.*, II B, p. 570); Lykourgos, *Leokr.* 72-73; Aristodemos, 13 (in Jacoby, *op. cit.*, II A, p. 501); Krateros (as cited by Plutarch, *Kimon*, 13, 6); Plutarch, *Kimon*, 13, 4-6; Pausanias, I, 8, 2 (mentioning the statue of Kallias); Aristides, XIII, pp. 249, 277, and XIV, p. 325 (ed. Dindorf); Harpokration, *s. v.* Ἀττικοῖς γράμμασιν; Photios, *s. v.* Σαμίων ὁ δῆμος; Suidas, *s. vv.* Καλλίας, Κίμων, Σαμίων ὁ δῆμος. For modern treatments, see Rehdantz, *Lykurgos' Rede gegen Leokrates*, pp. 174-181;

an event which, as a consequence of the besmirching efforts of the ancient propagandist<sup>326</sup> Theopompos, was too often regarded as apocryphal,<sup>327</sup> but now has been completely rehabilitated.<sup>328</sup> One immediate result of the Peace must have been a decision that it was unnecessary to collect the Delian tribute for the sixth year (449/8 B.C.); for the list which holds the seventh place is labeled the eighth, and that which holds the sixth place is not only unique in lacking its serial number but, furthermore, so resembles that of the eighth year as to seem to be its immediate predecessor, of 448/7 B.C., thus exactly dating the omitted year.<sup>329</sup> Another consequence of the Peace was the decision of Perikles to convene a Panhellenic Congress for the purpose of debating the rebuilding of the sanctuaries burned down by the Persians, the completion of vows made to the gods in the course of the Persian Wars, and the freedom of the seas.<sup>330</sup> The failure of the Congress, due to the rivalry and jealousy of other states, in particular Sparta, brought home to Athens the necessity of making its own

Koepf, *Rh. Mus.*, XLVIII, 1893, pp. 485-511; Frazer, *Pausanias*, II, pp. 89-90; Schwartz, *Hermes*, XXXV, 1900, pp. 108-126; Meyer, *Forschungen zur alten Geschichte*, II, pp. 4-6, 71-82; Perrin, *Plutarch's Cimon and Pericles*, p. 193; Beloch, *Gr. Gesch.*<sup>2</sup>, II 1, p. 177, note 2, and II 2, pp. 212-213, 386; Kroll, in Pauly-Wissowa, *R.E.*, X, col. 1696; Hiller von Gaertringen, *I.G.*, I<sup>2</sup>, Fasti, p. 281; Walker, *C.A.H.*, V, pp. 87-88, 469-471; Meyer, *Gesch. d. Alt.*<sup>3</sup>, IV, pp. 579-582, note 1; Wade-Gery, *A.J.P.*, LIX, 1938, p. 132, note 7; *id.*, *H.S.C.P.*, Suppl. I, pp. 121-156.

<sup>326</sup> Note the accusation as a "vitriolic pamphleteer" by Antipatros the Magnesian, fr. 1 (from *Epist. Socrat.* 30, in Jacoby, *op. cit.*, II A, p. 36, line 14).

<sup>327</sup> The failure of Herodotos and Thucydides to mention the Peace has been cited as evidence against its authenticity, a negative argument which loses its force when other omissions in their histories are tabulated. The apparent antedating of the event by nearly two decades in Kallisthenes, as interpreted by Plutarch, and the direct accusation that the documentary publication of the peace treaty was a forgery, as leveled by Theopompos, have increased the doubts of modern scholars. For presentations of the sceptical viewpoint see Rehdantz and Walker, as cited.

<sup>328</sup> Wade-Gery has most recently explained the doubts and difficulties, and argues that a forged publication on marble in the fourth century would be unthinkable.

<sup>329</sup> Wade-Gery, *B.S.A.*, XXXIII, 1932/3, pp. 101-112; Meritt, *Documents on Athenian Tribute*, pp. 61-97; *id.*, *Athenian Tribute Lists*, p. 175. This conclusion is disputed by Gomme (*Cl. Rev.*, LIV, 1940, pp. 65-67, cf. Dow, *A.J.A.*, XLV, 1941, p. 642), but seems inescapable.

<sup>330</sup> Plutarch, *Perikles*, 17 (from Krateros; cf. Cobet, *Mnemosyne*, I, 1873, p. 113; Wilamowitz, *Aus. Kydathen*, p. 8, note 8; Koepf, *Jahrbuch*, V, 1890, p. 268, note 1). The date of the Congress has sometimes been placed as early as 460 (Schmidt, *Zeitalter des Perikles*, I, p. 47; Holm, *Gr. Gesch.*, II, p. 272; Wilamowitz, *Aristoteles und Athen*, II, p. 340, note 15) or 459 B.C. (Koepf, *Jahrbuch*, V, 1890, pp. 269-271), or, conversely, after 445 B.C. (Curtius, *Stadtgesch. v. Athen*, p. 139; Keulen, *Mnemosyne*, XLVIII, 1920, pp. 239-247), or even as late as 439 B.C. (formerly Busolt, *Rh. Mus.*, XXXVIII, 1883, pp. 150-152). Since the time of Grote, however, the Congress has generally been assigned to the period of the five years' truce with Sparta (451-446) and to the portion of this period before the beginning of the Parthenon in 447 B.C.; the preference has been for 448 or 448/7 B.C. See Furtwängler, *Meisterwerke*, p. 163 = *Masterpieces*, p. 423; Busolt, *Gr. Gesch.*<sup>2</sup>, III, 1, pp. 444-449; Beloch, *Gr. Gesch.*<sup>2</sup>, II, 1, p. 179, note 1; Perrin, *op. cit.*, p. 237; *I.G.*, I<sup>2</sup>, Fasti, p. 282; Judeich, *Topographie*<sup>2</sup>, p. 77, note 3; Walker, *C.A.H.*, V, pp. 93-94; Meyer, *Gesch. d. Alt.*<sup>3</sup>, IV, pp. 658-659; Wade-Gery, *J.H.S.*, LII, 1932, p. 216, note 47. Wade-Gery now adopts the first half of 449 B.C. (*H.S.C.P.*, Suppl. I, p. 150).

decisions and of taking the initiative with regard to these three vital questions. The freedom of the seas could be guaranteed only by resumption of the financial collections from the Delian Confederacy, a measure which was carried through for 448/7 B.C.<sup>331</sup> The rebuilding of the burnt sanctuaries, particularly urgent in Attica which had suffered in this respect more than any other state—her chief sanctuaries having been in ruins for thirty years—was prepared by the abrogation of the oath sworn just before the battle of Plataia in 479 B.C.,<sup>332</sup> an oath which, like the Peace of Kallias, has been branded as apocryphal by Theopompos and nearly all modern commentators.<sup>333</sup> The abrogation of the oath of Plataia, a sequel to the failure of the Congress, must itself

<sup>331</sup> This is inferred from the above-mentioned dating of the sixth list by Wade-Gery and Meritt.

<sup>332</sup> On the oath of Plataia see Ephoros, as paraphrased in Diodoros, XI, 29; Theopompos, *Philippika*, XXV, fr. 153 (from Theon, *Progymn.* 2, in Jacoby, *F. Gr. Hist.*, II B, p. 569); Lykourgos, *Leokr.* 80-81; the fourth century stele from Acharnai, Robert, *Études épigraphiques et philologiques*, pp. 307-308, pl. II (with corrections by Prakken, *A.J.P.*, LXI, 1940, pp. 62-65); Cicero, *De re publ.*, III, 9; Pausanias, X, 35, 2-3. For modern treatments see Rehdantz, *op. cit.*, pp. 171-174; Koepf, *Jahrbuch*, V, 1890, pp. 271-277; Furtwängler, *Meisterwerke*, p. 166, note 2 = *Masterpieces*, p. 421, note 5; Holleaux, *R. Phil.*, XIX, 1895, pp. 109-115 = *Études d'épigraphie et d'histoire grecques*, I, pp. 187-193; Frazer, *Pausanias*, V, p. 440; Meyer, *Forschungen zur alten Geschichte*, II, p. 97, note 1; Bates, *H.S.C.P.*, XII, 1901, pp. 319-326; Perrin, *Plutarch's Cimon and Pericles*, p. 194; Hitzig-Blümner, *Pausanias*, III, pp. 822-823; Busolt, *Gr. Gesch.*<sup>2</sup>, II, p. 654, note 3, and III, p. 358, note 3; De Ridder, *R.É.G.*, XXXI, 1918, pp. xlv-xlv; Perdrietz, *R.É.G.*, XXXIV, 1921, p. 59; Paton, *Erechtheum*, p. 448, note 4; Judeich, *Topographie*<sup>2</sup>, p. 72, note 2; Kolbe, *Jahrbuch*, LI, 1936, pp. 27-28; Meyer, *Gesch. d. Alt.*<sup>3</sup>, IV, p. 350, note 1, cf. p. 391, note 1; Robert, *op. cit.*, pp. 307-316; Wade-Gery, *H.S.C.P.*, Suppl. I, p. 125, note 1.

<sup>333</sup> The failure of Herodotos to mention this oath has been cited as adverse to its authenticity, as well as the silence of Isokrates (*Panegyri.*, IV, 156) while referring to a similar oath of the Ionians. Stronger than this negative evidence is the direct accusation by Theopompos that the oath is apocryphal. In consequence most modern authorities have doubted the authenticity of the oath; cf. Rehdantz, Koepf, Furtwängler, Frazer, Meyer, Busolt, Judeich, Kolbe, and Robert. But such oaths were of normal occurrence: such were sworn not only by the Ionians (Isokrates, *loc. cit.*) but also by the Greeks before Thermopylai (Herodotos, VII, 132) and at the Isthmos (Diodoros, XI, 3, 3; cf. Polybios, IX, 39). Also the scurrilous argument of Theopompos loses its force when we recall that it occurs in the very book in which he makes the same claim against the Peace of Kallias; if the latter can be authenticated, so, it would seem, can the former. Again, it is to be noted that, by a coincidence, the Peace and the oath are both mentioned by Lykourgos (*Leokr.*, 72-73, 80-81); and Robert's suggestion that the discussion of the oath in the *Leokrates* may have been interpolated by a later editor seems all the more incomprehensible in view of his own publication of the stele of Acharnai, almost exactly contemporary with the speech and containing two oaths (the ephebe oath and the military oath of Plataia) in the very order in which they are mentioned by Lykourgos (*Leokr.*, 76, 80-81). As in the case of the stele from which Krateros copied the treaty of peace (note 328), so also the fourth century stele of Acharnai can hardly be regarded as a forged publication. The long survival of burnt temples is recorded by Pausanias and others; and even the very fact that one of the three purposes of the Panhellenic Congress was to permit the rebuilding of the burnt temples, presupposes the existence of the oath. The omission of specific reference to burnt temples in the stele of Acharnai may be due to the fact that this clause had been abrogated in 449 B.C. (though Robert, *op. cit.*, p. 313, concludes differently, the clause referring to burnt temples not yet having been *invented*). In any case, I can only agree with Bates that the oath of Plataia is authentic.

have been enacted before the summer of 449 B.C., since the Strasbourg Papyrus (*Anonymus Argentinensis*) refers to another decree moved by Perikles at some time during the archonship of Euthydemos (or Euthynos, 450/49 B.C., a term which ended according to my calculations on June 21, 449 B.C.),<sup>334</sup> proposing that money accumulated by the Delian Confederacy should provide the means of rebuilding the temples.<sup>335</sup> The first measure taken under the new conditions was probably the erection of an altar of Peace in the Agora, near which were eventually set up a statue of Kallias and the well-known group of Eirene and Ploutos by Kephisodotos.<sup>336</sup> At the same time probably came the decree for the building of a new temple to Athena Nike (*I.G.*, I<sup>2</sup>, 24), symbolizing the Athenian interpretation of the agreement with Persia, and proposed by a certain Glaukos rather than, as has sometimes been appropriately but incorrectly assumed, by Hipponikos the son of the Kallias who negotiated the Peace.<sup>337</sup> We may infer that this decree was passed in the summer of 449 B.C., either in the last days of the archonship of Euthydemos or in the first days of that of Pedieus, in any case in sufficient time, if the project had been carried through, to have permitted the laying out of the axis (the cornerstone ceremony) at sunrise on the morning of the Panathenaic festival on July 19 of that year.<sup>338</sup> A companion project under the new dispensation was evidently the designing of the new Hephaisteion, sufficiently early in the archonship of Pedieus to permit the laying out of its axis on the morning of the Hephaisteia on the last day of Pyanopsion, October 17, 449 B.C. The Hephaisteion was begun according to schedule and carried forward with several internal changes, as we have seen. At about the same time was begun the temple on the Ilissos, a realiza-

<sup>334</sup> Dinsmoor, *Proc. Am. Phil. Soc.*, LXXX, 1939, pp. 169-171; *Archon List*, p. 209.

<sup>335</sup> On the Strasbourg Papyrus (a commentary on Demosthenes, XXII), see Keil, *Anonymus Argentinensis* (1902); Wilcken, *Hermes*, XLII, 1907, pp. 374-418; Laqueur, *Hermes*, XLIII, 1908, pp. 220-228; Judeich, *Topographie*<sup>2</sup>, p. 77, note 3; Wade-Gery, *J.H.S.*, LI, 1931, pp. 84-85; *id.*, *J.H.S.*, LII, 1932, p. 223; *id.*, *H.S.C.P.*, Suppl. I, p. 150; Meritt, Wade-Gery, and McGregor, *Athenian Tribute Lists*, p. 572 (T 9). I follow the interpretation of Wade-Gery as confirmed by Meritt.

<sup>336</sup> Aristophanes, *Peace*, 1019; Pausanias, I, 8, 2; Plutarch, *Kimon*, 13, 6. See also Wilamowitz, *Aus Kydathen*, p. 120.

<sup>337</sup> On the restoration [Ἡππών]ικος see Körte, *Hermes*, XLV, 1910, pp. 623-627; Hiller von Gaertringen, *I.G.*, I<sup>2</sup>, 24, and *Fasti*, p. 281; Judeich, *Topographie*<sup>2</sup>, p. 218, note 1; Welter, *Jahrbuch*, LIV, 1939, *A.A.* col. 14; Schlaifer, *H.S.C.P.*, LI, 1940, p. 257. But in 1924 I read the name of the proposer of the motion as [Γλ]αῦκος, a reading of which West informed Tod, so that references to it appeared in *Greek Historical Inscriptions* (1933), no. 40, and likewise in Wade-Gery, *J.H.S.*, LI, 1931, p. 78, note 80, and *H.S.C.P.*, Suppl. I, p. 152, note 2 (also in Schlaifer, but without acceptance). Since I have never had occasion to publish the evidence, I may here note, briefly, that it is as follows: the bottom of a vertical hasta forming the fourth letter from the last in the proper name, interpreted by Körte as iota, might equally well have been tau, upsilon, or even phi; but before this appears the bottom of the fifth letter from the end, hitherto unnoticed, forming slanting strokes which could only have come from alpha or gamma. The combination of these facts indicates [Γλ]αῦκος as the most probable solution; a less probable alternative would be [Πάρ]ακος. See also Meritt, *Hesperia*, X, 1941, p. 309.

<sup>338</sup> Cf. references in note 334.

tion in marble of the model and specifications mentioned in the decree for the temple of Athena Nike;<sup>339</sup> but the actual erection of the Nike temple was indefinitely postponed (and finally even altered and adjusted to new surroundings)<sup>340</sup> in favor of a larger and more glorious project, the reconstruction of the entire Acropolis as a monument of the final peace. It was in realization of this greater project that, presumably on the occasion of the Panathenaic festival on July 28, 447 B.C., the Parthenon itself was begun, with the resulting interplay upon the design of the slightly older Hephaisteion which constitutes not the least interesting of the new details revealed by our investigation.

<sup>339</sup> As for the identification of the temple on the Ilissos, as yet nameless, there have been conjectural modern attributions to Demeter in Agrai, or to Artemis Agrotera or Artemis Eukleia, or to Athena or Zeus ἐπι Παλλιδίῳ. But none of these has anything in its favor except an approximate topographical suitability.

<sup>340</sup> A theory that the Nike temple was actually erected at the middle of the fifth century was a natural consequence of the discovery of the decree in 1897, but it is so contrary to the architectural and sculptural style that it cannot be seriously entertained. Recently, a compromise opinion has been offered by Welter (*Jahrbuch*, LIV, 1939, *Arch. Anz.*, cols. 13-14), to the effect that, if not the actual temple, at least its foundations and the bastion walls were erected in their present form at about 448 B.C. and so before the great Periclean program, which would have caused temporary abandonment of the work until 432 B.C. when the marble construction is supposed to have been resumed. This interpretation is shown to be impossible, however, by the relation between the temple and the neighboring Propylaia, the latter erected in 437-432 B.C. at a time when not only the temple but also its foundations and the present bastion were as yet nonexistent, and when the ground level of the old bastion still was, and was intended to continue to be, far lower than the present marble pavement and the present temple steps and foundations.

## APPENDIX: THE DATES OF THE OSTRAKA

To the discussion of the ostraka listed as Nos. 29, 31, 33, 36, and 39, in the foregoing analysis of the pottery, it now seems desirable to add a few notes because of their chronological importance.

Kallias the son of Kratios (No. 29) is known only from the two ostraka mentioned above, so that his date (suggested as about 483), and the question of whether he was actually ostracized, are both uncertain.

Megakles the son of Hippokrates, who may have been named on No. 31, was the well-known nephew of Kleisthenes (Herodotos, VI, 131), a victor at Delphi (Pindar, *Pyth.*, VII and schol.), and the second to be ostracized, in 486 B.C. (Aristotle, *Ath. Pol.*, 22, 5; cf. Lysias, XIV, 39; Ps. Andokides, IV, 34; Isokrates, XVI, 26).<sup>341</sup> Nine other ostraka are known, two from the Acropolis (*I.G.*, I<sup>2</sup>, 908. 1-2) and seven from the Agora.<sup>342</sup>

Kydrokles the son of Timokrates, the alternative candidate for No. 31, is known from six other ostraka, one from the Acropolis (*I.G.*, I<sup>2</sup>, 914. 1)<sup>343</sup> and five from the Agora.<sup>344</sup> From the places of discovery, both on the Acropolis and in the Agora, it is clear that the date must be pre-Persian and so in one of the seven years 487-481 B.C. (there being no ostracism in 480 B.C.).<sup>345</sup> But we do not know whether Kydrokles was actually ostracized; if he were, it must have been in one of the otherwise unoccupied years 482 or 481 B.C.<sup>346</sup>

Menon of Gargettos (Nos. 33, 39) is commemorated not only on these two ostraka but also on two others found in the outer Kerameikos (Kirchner, *Imagines*, nos. 29-30, pl. 12), one with the Ionic gamma but the three-stroke sigma, the other with the Attic gamma but the four-stroke sigma. Menon was actually ostracized according to Hesychius (*s. v.* *Μενωνίδαι*), apparently quoting from some comic poet,<sup>347</sup>

<sup>341</sup> Kirchner, *P(rosopographia) A(ttica)*, no. 9695; Pauly-Wissowa, *R.E.*, XV, 126, no. 4; Carcopino, *L'Ostracisme athénien* (2nd ed., 1935), pp. 143-148.

<sup>342</sup> Shear, *Hesperia*, II, 1933, p. 460, fig. 10; V, 1936, p. 39, fig. 39; VI, 1937, p. 345; VII, 1938, p. 361.

<sup>343</sup> Graef-Langlotz, *Vasen der Akropolis*, II, no. 1318, as recognized by Raubitschek, *Jahreshefte*, XXXI, 1939, Beiblatt, col. 24.

<sup>344</sup> Shear, *A.J.A.*, XXXIX, 1935, p. 179; *Hesperia*, VI, 1937, p. 345; VII, 1938, p. 361.

<sup>345</sup> Aristotle, *Ath. Pol.*, 22, 8 (archonship of Hypsichides, 481/0 B.C., return of the ostracized).

<sup>346</sup> The known ostracisms are of Hipparchos (487), Megakles (486), Alkibiades (485), Xanthippos (484), Aristeides (483), the last being in the fourth year before Hypsichides (481/0 B.C.), but not necessarily, as generally assumed, in the archonship of Nikodemos (483/2 B.C.).

<sup>347</sup> Meineke, *F(ragmenta) C(omicorum) G(raecorum)*; IV, p. 645, no. 161; Kock, *C(omicorum) A(tticorum) F(ragmenta)*, III, p. 413, no. 72; the latter reference, omitted by Kirchner and also by Obst (in Pauly-Wissowa, *R.E.*, XV, 926, no. 5), I owe to Raubitschek. See also Bergk, *Kleine philologische Schriften*, II, pp. 289-290.

though he is ignored in the comprehensive studies of ostracism.<sup>348</sup> Nor have we any information as to his identity, apart from the fact that the lettering seems to be of the middle of the fifth century. Another Menon of Gargettos, about a century later (*I.G.*, II<sup>2</sup>, 2389),<sup>349</sup> would have been a descendant. It is clear that the ostracized Menon must have been an Athenian, so that we need not consider the Thessalians or other non-Athenians of this name,<sup>350</sup> probably not even the Pharsalian who may have been given citizenship because of his assistance to Kimon in 476 B.C.<sup>351</sup> It seems evident, furthermore, that he must have been an Athenian of political or social prominence, and so is not likely to have been the potter of this name (in any case too early) who signed a red-figured amphora in Philadelphia<sup>352</sup>—collaborating with a painter who is variously known, though not with complete unanimity, as the Menon Painter or Psiax<sup>353</sup>—nor the sculptor who behaved so treacherously toward Pheidias.<sup>354</sup> Among other Menons of Athens, the majority are too late<sup>355</sup> or belong to different demes.<sup>356</sup> The only suitable individuals would seem to be the Menon who appears in a “kalos inscription” on a red-figured lekythos at Bologna<sup>357</sup>—possibly the same as the “Menon kalos” on an Olynthian roof tile<sup>358</sup>—and the Athenian archon of 473/2 B.C.;<sup>359</sup> these may be, not only identical with each other, but also the very individual mentioned on our ostraka. For the Bologna lekythos has been variously attributed to the Diogenes Painter<sup>360</sup> or to the Foundry Painter;<sup>361</sup> and since it bears also the phrase “Diogenes kalos” it is

<sup>348</sup> See Carcopino, *L'Ostracisme athénien*, and works therein cited.

<sup>349</sup> Kirchner, *P.A.*, no. 10079.

<sup>350</sup> Pauly-Wissowa, *R.E.*, XV, 924-927, nos. 3, 4, 8, 10-12, 14.

<sup>351</sup> *Ibid.*, no. 2; Demosthenes alternatively claims both that he did (XXIII, 199) and that he did not (XIII, 23) receive citizenship.

<sup>352</sup> Hall (Dohan), *Museum Journal* (Philadelphia), V, 1914, pp. 32-33, 35-36; Hoppin, *Handbook*, II, p. 202, no. 1; Beazley, *Att. V.*, p. 9, no. 4.

<sup>353</sup> See bibliography on p. 132 (No. 10), to which add Beazley, *Att. V.*, pp. 9-10, 467; *J.H.S.*, XLVII, 1927, pp. 91-92; XLIX, 1929, p. 109; LI, 1931, pp. 119-120; *Attic Black-Figure*, p. 42; Langlotz, *Gnomon*, IV, 1928, p. 325; Schweitzer, *Jahrbuch*, XLIV, 1929, p. 120; Kraiker, *Gnomon*, VII, 1931, pp. 538-540; Gross, *Würzburger Studien zur Altertumswissenschaft*, XIII, 1938, pp. 47-69; Richter, *A.J.A.*, XLV, 1941, pp. 587-592.

<sup>354</sup> Plutarch, *Perikles*, 31, 2, 5; *R.E.*, XV, 926, no. 7 (proposed as the identification by Bergk, *loc. cit.*).

<sup>355</sup> Such as three on sepulchral lists of the end of the fifth century, *P.A.*, no. 10065 (*I.G.*, I<sup>2</sup>, 960, line 5), *P.A.*, no. 10067 (*I.G.*, I<sup>2</sup>, 951, line 8), and *P.A.*, no. 10068 (*I.G.*, I<sup>2</sup>, 964, line 94); also *P.A.*, nos. 10069 (Xenophon, *Mem.*, II, 7, 6), 10070-10072, and add. 10071a-b; also *R.E.*, XV, 927, no. 17 and perhaps no. 13 (the garbled name of the Olympic victor of 400 B.C.).

<sup>356</sup> Such as *P.A.*, nos. 10073-10078, 10080-10085, and *R.E.*, XV, 926, nos. 6, 9.

<sup>357</sup> Kirchner, *P.A.*, no. 10064; Pauly-Wissowa, *R.E.*, XV, 927, no. 16; Klein, *Die griechischen Vasen mit Lieblingsinschriften*, 2nd ed., p. 102; Hoppin, *Handbook*, I, p. 455, no. 5; Robinson and Fluck, *A Study of Greek Love-Names*, pp. 60-61, 151.

<sup>358</sup> Robinson, *A.J.A.*, XXXIX, 1935, p. 224, fig. 19; Robinson and Fluck, *op. cit.*, p. 61.

<sup>359</sup> Diodoros, XI, 52, 1; argum. Aeschylus, *Pers.*; Kirchner, *P.A.*, no. 10066; Pauly-Wissowa, *R.E.*, XV, 924, no. 1.

<sup>360</sup> Hartwig, *Meisterschalen*, p. 387.

<sup>361</sup> Hoppin, *loc. cit.*

brought into association with other vases mentioning Diogenes, such as the kylix in Berlin by the Foundry Painter,<sup>362</sup> an alabastron at Taranto attributed to the same,<sup>363</sup> an amphora in the British Museum by the Diogenes Amphora Painter,<sup>364</sup> and a kylix in Oxford either attributed to Onesimos or placed between him and the Antiphon group.<sup>365</sup> In any case, the period of "Menon kalos" seems to be fixed as the decade 490-480 B.C. In other words, Menon would seem to have been about twenty years younger than Themistokles, who was born about 525 B.C., whose exact contemporary Leagros was "kalos" in 510-500 B.C., and who was himself archon in 493/2 B.C. and ostracized probably in 472/1 B.C. On this analogy, if Menon were born about 510-505 B.C., he might have been "kalos" in 490-480 B.C., archon in 473/2 B.C., and ostracized shortly before 450 B.C.

Dietrephes the son of Nikostratos (No. 36) is now recognized by Raubitschek by means of the letters *-ειτρ-* in the outer circle and *-κοσ-* in the inner. It might seem tempting to restore the inner name as [Ἡερμόλν]κος on the analogy of the votive base of the *volneratus deficiens* by Kresilas on the Acropolis (*I.G.*, I<sup>2</sup>, 527); in such case the outer name would be restored as [Δ]ειτρ[έφος] just as the father of Xanthippos is named first in the genitive on another ostrakon (*I.G.*, I<sup>2</sup>, 909. 2). But Raubitschek's restoration (Fig. 76) clearly shows that, while a final *-κος* would force the inner name too far toward the left, the use of *-κοσ-* near the beginning would be more suitable; and inasmuch as we already know a Nikostratos II the son of Dietrephes I (Thucydides, III, 75; IV, 53, 119, 129-130; V, 61; Diodoros, XII, 72, 8; 79, 1), it seems clear that such must be the restoration. Since this Nikostratos II—apparently of Skambonidai if we identify him with the Nikostratos mentioned by Aristophanes (*Wasps*, 81, 83) in 422 B.C.<sup>366</sup>—was general in 427, 424, 423, and 418 B.C., being killed in the last year at the battle of Mantinea (Thucydides, V, 61, 74), we must infer that he was a brother of that Hermolykos, also a son of Dietrephes I, whose votive offering on the Acropolis was

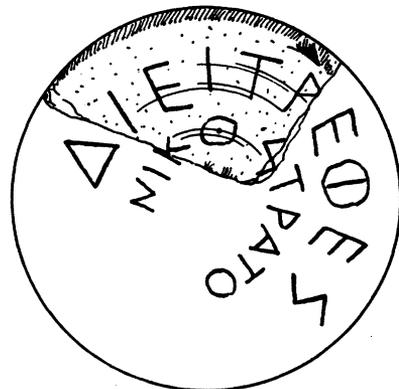


Fig. 76. Ostrakon of Dietrephes

<sup>362</sup> Beazley, *Vases in America*, p. 94; *Att. V.*, p. 187 (top), no. 2; Hoppin, *Handbook*, I, p. 454, no. 1.

<sup>363</sup> Hoppin, *loc. cit.*, p. 459, no. 19.

<sup>364</sup> Beazley, *Vases in America*, p. 52; *Att. V.*, p. 111, no. 1; Hoppin, *Handbook*, I, p. 206, no. 2; *C.V.A. Brit. Mus.*, III I c, pl. 4, 2a-b.

<sup>365</sup> Beazley, *Vases in America*, p. 89, no. 20; *Att. V.*, p. 172; Hoppin, *Handbook*, I, p. 416, no. 17; *C.V.A. Oxford*, III I, pl. 2, 5.

<sup>366</sup> The identity of the Nikostratos of Aristophanes and the general of Thucydides was denied without adequate reason by Beloch, *Attische Politik seit Perikles*, p. 324, and Kirchner, *P.A.*, nos. 11011, 11051, but is admitted by Schäfer, in Pauly-Wissowa, *R.E.*, XVII, 542.

the bronze statue by Kresilas (*I.G.*, I<sup>2</sup>, 527), of the middle of the century, mentioned also by Pliny (XXXIV, 74) and Pausanias (I, 23, 3-4). The latter, however, characteristically mistook Diitrephes I for his grandson Diitrephes II, a favorite butt of the comic poets (Aristophanes, *Birds*, 798, 1442; *Heroes*, fr. 4 = 307; <sup>367</sup> Kratinos, *Cheirones*, fr. 8 = 233; <sup>363</sup> Plato, *Heortai*, fr. 6 = 31 <sup>369</sup>), who by 414 B.C.,

“First a phylarch, then a hipparch, till from nothing he of late  
Has become a tawny cock-horse, yea, a pillar of the state,”

was already a youthful general and participated in the campaigns of 413 and 411 B.C. (Thucydides, VII, 29; VIII, 64); we may infer that he was the proposer of a decree in 408/7 B.C. (*I.G.*, I<sup>2</sup>, 118) and, perhaps even the archon of 384/3 B.C.<sup>370</sup> This Diitrephes II may have been the son of either brother. In any case, the father of Diitrephes I is now shown by the ostrakon to have been Nikostratos I rather than, as has been assumed,<sup>371</sup> Hermolykos I (son of Euthynos) who was a victor in the pankration, fought at Mykale in 479 B.C., and was killed before Karystos seven years later (Herodotos, IX, 105; Pausanias, I, 23, 10); as a matter of fact, we possess no actual evidence that this pankratiast was related to Diitrephes in any way. We can only affirm that, as the maturity of Diitrephes II was apparently 414-383 B.C., and that of his father Nikostratos II and his uncle Hermolykos (or vice versa) about 450-418 B.C., so the grandfather Diitrephes I might well have been a candidate for ostracism shortly before the middle of the century, about seventy years before the archonship of the grandson.

The ostraka of Menon and Diitrephes, for which the available evidence demands a date little before the middle of the century, become most important items of the ceramic material, corroborating the date *post quem* for the temple as about 450 B.C.

<sup>367</sup> Meineke, *F.C.G.*, II, p. 1071, no. 4; Kock, *C.A.F.*, I, p. 471, no. 307 (from schol. Aristophanes, *Birds*, 798).

<sup>368</sup> Meineke, *F.C.G.*, II, p. 152, no. 8; Kock, *C.A.F.*, I, p. 83, no. 233.

<sup>369</sup> Meineke, *F.C.G.*, II, p. 626, no. 6; Kock, *C.A.F.*, I, p. 608, no. 31 (from schol. Aristophanes, *Birds*, 798; Suidas, *s. v.* Διτρέφης).

<sup>370</sup> *I.G.*, II<sup>2</sup>, 1407, 3064; Diodoros, XV, 14; Dionysios, *ad Ammae.*, I, 5 (p. 727 R); *Vit. Aristot. Marciana*, p. 428, 14 (Rose). This archon is regarded as a different person by Kirchner, *P.A.*, nos. 3755, 3756 (with add.), and *R.E.*, V, 545, nos. 2, 3.

<sup>371</sup> Six, who has studied the history of the family (*Jahrbuch*, VII, 1892, pp. 185-188), makes this suggestion. See Pauly-Wissowa, *R.E.*, V, 545 (Diitrephes); VIII, 892 (Hermolykos); XVII, 542-543 (Nikostratos). See also Kirchner, *P.A.*, nos. 3753-3756 and add. 3755-3756 (Diitrephes), 5163-5164 (Hermolykos), 11011, 11051 (Nikostratos).

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