GRILLES OF THE HEPHAISTEION[1]

(PLATE 81)

OBJECTS of value were usually kept in the pronaos and opisthodomus of Greek temples. To protect such objects grilles were placed between the columns and between the columns and antae in those parts of the temple. The Hephaisteion is typical of the disposition.

The photographs reproduced on Plate 81 (1 and 2) show the reader that the Hephaisteion had sills in contact with the columns and antae in question. Scratches and weather marks upon the stylobate on which the columns of the pronaos rested, and the stylobate upon which the columns of the opisthodomus still rest, give the exact location of the sills.[2] The traces of the sills against the columns and antae are so well preserved that there is no doubt but that the sills were of marble. The length of the sills and their cross section are easily determined (cf. Figs. 1 and 2). Further, the way the sills must have been cut to fit against both the columns and the antae can be worked out (cf. Figs. 3 and 4). Finally, the grilles themselves, from the traces they have left upon the columns and antae, are restorable with a fair amount of accuracy (cf. Fig. 5).

Please note from figures 1, 2, 3, and 4 that the sills between the columns and also those between the columns and the antae were wedge shaped. Obviously they were slipped into place from behind, after the columns were up. In the case of the contact with the antae, the inner portion of the antae bases had to be cut flush with the antae faces above before the sills could be set (cf. Pl. 81, 2 and Figs. 1 and 2); but the sills remained wedge shaped—compare their contacts with the columns.

[1] The writer wishes to thank Professor and Mrs. Homer A. Thompson and Mr. John Travlos for their valuable advice in the preparation of this article.

[2] Both columns of the pronaos are modern restorations and, consequently, give us no data for the grilles (A. K. Orlandos, *Ἀρχεῖον τῶν Βυζαντινῶν Μνημείων τῆς Ἑλλάδος, Τόμος Β′*, 1936, pp. 207-216). The bottom drum of the north column is ancient, but it does not come from the Hephaisteion. This bottom drum has a modern (?) indication for the abutment of a sill, but the indication is quite different from the sill cuttings in the columns of the opisthodomus, where the columns are *in situ*. Furthermore, the marble of the bottom drum in the pronaos is very inferior in quality to the marble used in the Hephaisteion. Fortunately, in the pronaos the antae, the stylobate blocks between them, the architrave blocks, and the north and south walls where they abut against the antae are *in situ*. In the opisthodomus the antae, the columns, the stylobate blocks, the architrave blocks, and the north and south walls are *in situ*. The cuttings in the bases of all the antae of the pronaos and opisthodomus are the same, and so are the essential traces left by the grilles on all four antae faces. Ample data are preserved to show that the sills and the grilles of both the pronaos and the opisthodomus were alike.

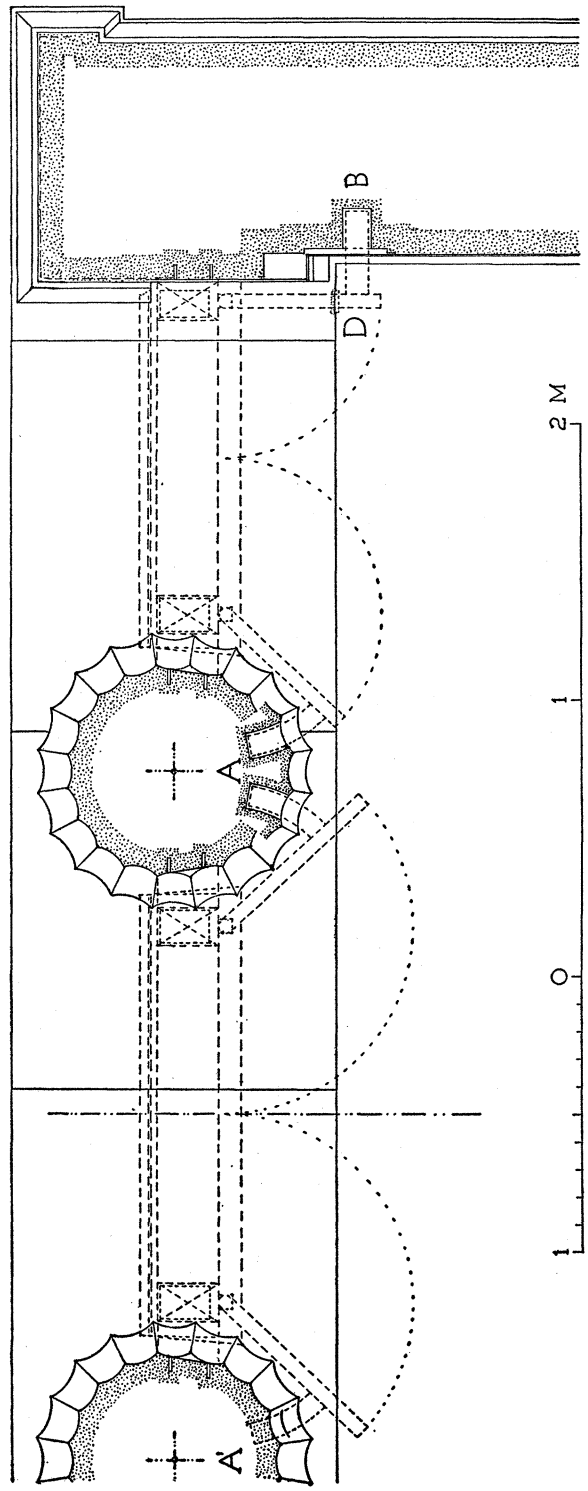


Fig. 1. Details of the Columns and North Anta of the Opisthodomus: Plan.

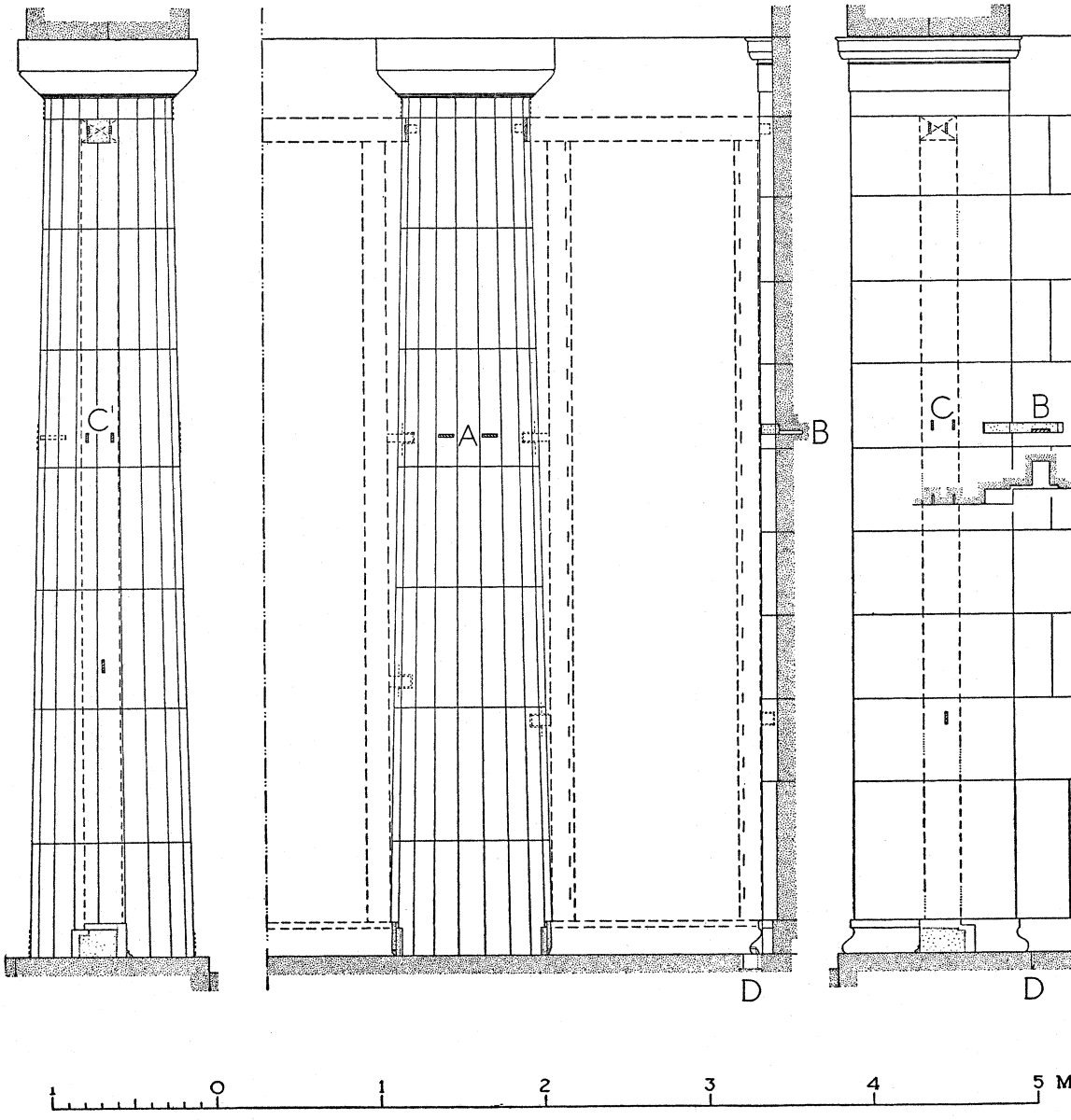


Fig. 2. Details of the North Column and North Anta of the Opisthodomus: Inside Elevation and Sections.

The workmanship for the contact of the sills with the columns and antae is so good that we may safely claim that the sills were not an after-thought, but an essential part of the temple.

Data for the grilles resting upon the sills are abundant.

Scratches and weather marks on the antae faces show how deep the jambs were and give the relation of the jambs to the sill (cf. Figs. 1 and 2).

The manner of doweling the jambs to the columns and to the antae is evident (cf. Figs. 1 and 2).

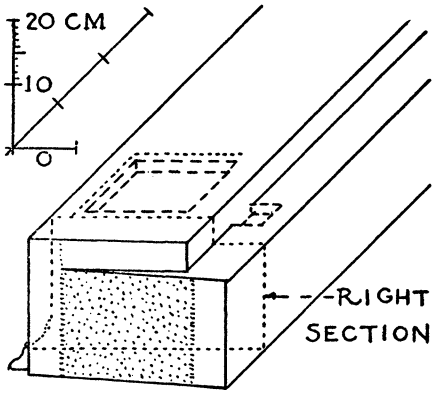


Fig. 3. End of a Sill in Contact with a Column: Restoration.

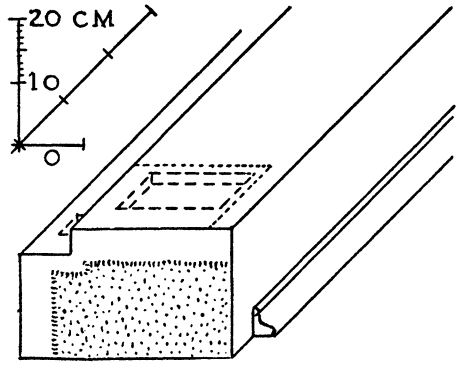


Fig. 4. End of a Sill in Contact with the Base of an Anta: Restoration.

There is reason for believing that the jambs were not made of marble, for, if that material had been employed, there would have been a horizontal joint between the jamb and the lintel and the top of the jamb would have been doweled to the columns and antae. All the dowel cuttings in the necking of the columns and all the corresponding cuttings in the antae are located well above such a joint. We may, therefore, safely say that the jambs were not of marble.

At the necking of the columns are proofs for a lintel over the jambs of the grilles. The position and size of the lintel can be accurately determined (cf. Figs. 1 and 2).

There are other indications that the lintels were not made of marble: (1) If the lintels were made of marble, the tops of the dowels attaching the lintels to the columns and antae would line with the tops of the lintels (cf. Fig. 2). All the fourteen existing dowel cuttings are located well below the tops of the lintels. (2) The cross section of the lintels was 0.11 m. x 0.22 m. The span of the lintel between the neckings of the columns on the axis of the temple was 1.78 m.; between the jambs the clear span was 1.23 m. The cross section and especially the height of a marble lintel of the above dimensions should be considerably greater for good structural design. In the fairly

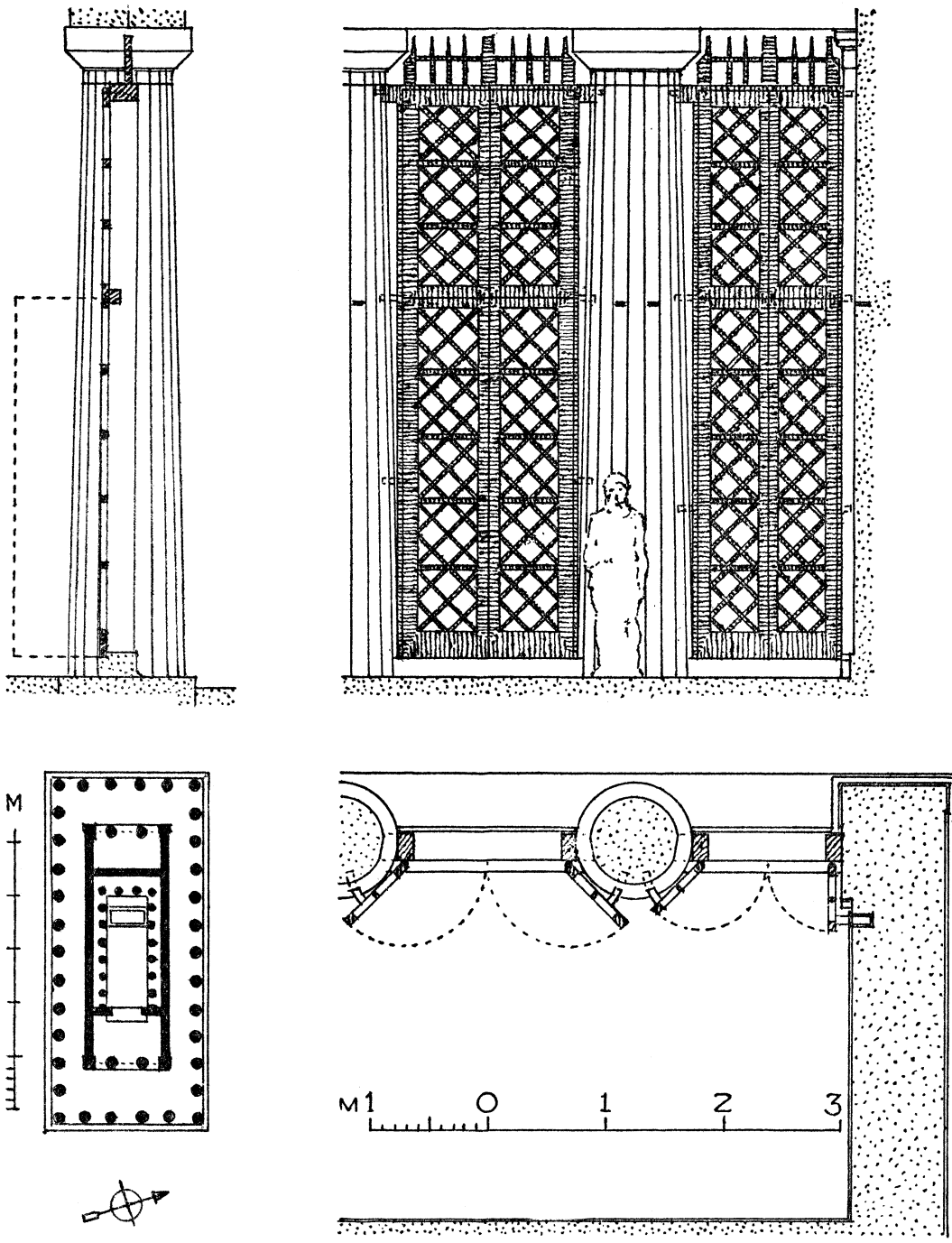


Fig. 5. Grille of the Opisthodomus: Restoration.

similar case of the south door of the five doors of the Propylaea of the Acropolis of Athens, where marble jambs and their lintel are still in place, the jambs are 0.11 m. x 1.02 m. in plan and 3.05 m. in height, and the lintel, which has an air space between it and the true lintel over the opening, is 0.32 m. high. The span between the jambs is 1.20 m. A marble lintel only 0.11 m. high is not possible for the Hephaisteion.

Of what were the jambs and lintels of the Hephaisteion made? The fact that the dowels at the necking of the columns are considerably above the bottom of the lintels is, surely, an indication that the jambs were mortised into the lintels, just as in the case of the rails of any wooden frame. A good wood, we believe, was the material used for both the jambs and the lintels. The position of the dowels at the necking of the columns (and the position of the corresponding dowels in the antae) is, perhaps, an indication that the lintels were made up of two timbers one above the other, the top of the lower timber (the bigger of the two) being in line with the top of the dowels. We believe, further, that the wood was sheathed with bronze plates. Consider the many ancient tripods the cores of which were sheathed with decorative bronze plates. Consider, also, the western door of the Parthenon, which had a heavy wooden frame with a metal covering ornamented with gold (*Hesperia*, Supplement III, pp. 74-79). We may add that in the case of the Hephaisteion the bronze sheathing would conceal the heads of the dowels which bonded the jambs to the columns and antae.

The traces of the grilles in the pronaos and opisthodomus of the Parthenon are so similar to the corresponding traces of the Hephaisteion that the grilles of the two temples must have resembled each other in many ways.[3] For example, from the similarity we may infer that the section through the jambs of the Hephaisteion was the same as the section through the lintel of the Hephaisteion (with the possible exception of the jambs in the smaller openings of the Hephaisteion, as suggested later on).[4] This section through the jambs would thus become 0.11 m. x 0.22 m. Such a section indicates, again, that the jambs, which had a total height of *ca.* 4.80 m., were not made of marble—the cross section is altogether too small for the height.

For a restoration of the valves of the grilles there are both data and conditions which the valves must have fulfilled:

1. Because the lintels and jambs were of wood probably sheathed with bronze, the valves were in all likelihood treated in the same way. That is, the rails would be of wood sheathed with bronze. The grillework within the rails may have been composed of hollow bars made by bending bronze plates into the desired shapes—this is the construction in use today when light but strong grille work is desired (such a construction was needed if the valves of the

[3] *Hesperia*, XI, 1942, pp. 354-364.
[4] *Hesperia*, XI, 1942, p. 357, Fig. 3, and *Hesperia*, Supplement III, Fig. 57.

Hephaisteion were to be opened easily: also a heavy valve would cause a big strain upon the jambs).

2. The sills had a rabbet against which the bottom rail of the valves struck. As the rabbet was on the inside, the valves swung inward.
3. The height of the movable valves is known quite accurately from the cuttings, in the columns and in the walls of the pronaos and opisthodomus, for the bumpers (cf. Fig. 1, A, A′, B and Fig. 2, A, B).[5] It will be seen from the position of the bumpers in relation to the valves that bumper and grille could have encountered each other only along the top rail of the valve, thus giving the height of the valve with a good deal of accuracy.
4. The same bumpers tell us that each opening had two valves and that the valves swung inward (confirming the data given by the rabbet in the sills).
5. The openings in the grilles must have been small enough so that boys could not crawl through them.

[5] The cutting at B, Figs. 1 and 2, also occurs at the south anta of the opisthodomus and again in connection with both antae of the pronaos. The deep portions of the cuttings can be nothing but cuttings for the metal bumpers of the valves of the grilles, similar to the cuttings for bumpers in the columns (cf. Fig. 1, A, A′, B, and Fig. 2, A, B). But the rest of the cutting at B, Figs. 1 and 2, is not so easily explained, for the cutting does not go as far as the jambs of the grilles—it apparently has nothing to do with the grilles. If we try to connect the cutting with the support of the near-by secondary lintel—the lintel at the top of the valves of the grille—we find that there should be a similar cutting in the adjacent column, to support the other end of the secondary lintel. In fact we should find similar cuttings in four places, two in each column. The two columns are well enough preserved to state definitely that they never had such cuttings. The cuttings may indicate the top member of some sort of shelving placed against the walls of the pronaos and opisthodomus. In such shelves small precious votive offerings, gold, important documents, and the like, could safely be locked up. Grilles in front of the pronaos and opisthodomus would not be needed unless they protected something valuable. The cutting shows, further, that the top member of such shelves would be anchored around the bumper dowel, probably to hold the shelves securely in place. The shallow rabbets at the ends of the cuttings in the opisthodomus (cf. Fig. 1 and 2, B) suggest that here such shelves were made of wood and sheathed with bronze. Similar rabbets in the pronaos do not exist. We may explain the omission of the shallow rabbets in the following way. In the pronaos the shelving could only run along the north and south walls on account of the door in the west wall (of the pronaos)—the door would be large, as it was the entrance into the cella of the temple. There would be no difficulty in snugly pushing the shelving into any necessary cuttings in the walls. In the opisthodomus, on the other hand, the shelving could, and probably did, run along all three walls. The shelving along the east wall would be the first to be put in place—an easy piece of work. As the shelving would be mitered in the northeast and southeast corners of the opisthodomus, the shelving of the north and south walls would have to be not only pushed slightly diagonally to avoid the anta but also revolved horizontally back into the cuttings in the walls. This operation would leave a small vertical gap at the west end of the shelving. These shallow rabbets, then, tell us that small pieces of metal sheathing projected from the shelving, their purpose being to conceal the vertical gaps.

For the storage of gold in the opisthodomus of the Parthenon, there were chests [*I. G.*, I², 314, ll. 14 ff., and 313, ll. 117 ff.].

6. At the top of the movable valves should be a secondary wooden lintel (between the jambs) for the top rail of the valve to strike against. The dowels at C and C′, Fig. 2, indicate the position of the secondary lintel, for the dowels ought to be placed at the level of the secondary lintel to receive the shock caused by the closing of the valves. Furthermore, the dowels at C and C′ should be level with the pivot at the top of the valve (cf. Fig. 5), to take care of the strain which every top pivot causes on its jamb (unless a wheel, running on the pavement, be placed beneath the valve).
7. The individual compartments of the movable valves and the compartments of the fixed portions of the grilles above the movable valves should be alike, if the grilles were to count as a unit from top to bottom (cf. Fig. 5).
8. The grilles between the columns were much wider than the grilles between the columns and the antae. In spite of this difference in width, the two grilles should resemble each other in design as closely as possible (cf. Figs. 1, 2, 5). The bottom diameters of the columns of the pronaos and opisthodomus of the Parthenon differ by 0.07 m., the diameters in the opisthodomus being the bigger. To have the valves of the grilles of the pronaos and the opisthodomus of the Parthenon exactly as wide as each other, the jambs of the grilles of the opisthodomus were made 0.035 m. slimmer than those of the pronaos.[6] Something of the same kind probably took place in the case of the central and side openings of the Hephaisteion, where the difference in width between the grilles is considerable (cf. Figs. 1, 2, 5). Fig. 2 gives an alternative study for slimmed jambs in the smaller openings, between the columns and antae. Slimmed jambs seem called for in these openings, for the valves, being a good deal smaller than the valves in the central openings, were consequently lighter—they might well have had slimmer jambs. By slimming the jambs here, the grilles of the two openings become as nearly as possible of the same width. In figure 5 the elevation of the smaller grille is drawn with slimmed jambs.
9. The distance between the marble architrave over the columns and the wooden lintel over the grilles amounted to 0.485 m. A thief would be able to climb the grille and to pass through such a space unless it were subdivided.

Fig. 5 is a restoration of the grilles, which combines these various features.

To prevent the valves, when open, from flapping about in the wind, bumper-fasteners at the bottom of the grilles (as in the case of the Parthenon) would be desirable. Unfortunately, the pavement blocks of both the pronaos and opisthodomus

[6] *Hesperia*, XI, 1942, p. 361, Figs. 7 and 8.

are lacking. There are, however, two indications that pavement bumper-fasteners existed:

1) Near the north anta of the opisthodomus (Figs. 1 and 2, D) there is a possible trace of a dowel in the anthyrosis of the east vertical face of the stylobate; and there are a few marks of the pointed chisel, in the stylobate, made by someone who wanted the metal dowel. The position of the dowel is correct for a bumper to hold the north valve.

2) Near the north anta of the pronaos there are traces of the pointed chisel similar to the traces in the opisthodomus; they are more pronounced.

Three sides of these dowel cuttings must have been in the lost floor blocks; the fourth side was the vertical joint between the floor blocks and the stylobates. Under such conditions there would be but few traces of the chisel upon the vertical anathyrosis of the stylobates. In the Parthenon the dowel cuttings for the bumpers occur in the vertical joints between the floor blocks and the stylobate blocks, and on some of the stylobate blocks there are traces of the chisel used in making the dowel cuttings.[7]

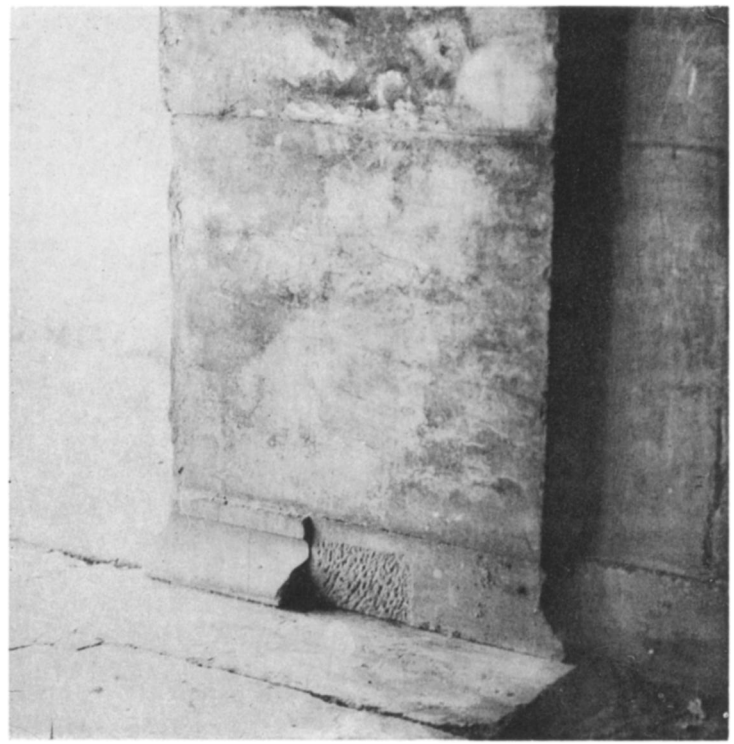
As already stated, the resemblance between the grilles of the Hephaisteion and those of the Parthenon is striking, so striking, indeed, that it is impossible to say which grille antedated the other. This is unfortunate; for, if we could say which grille was the earlier, the history of both temples would be somewhat better understood.

GORHAM PHILLIPS STEVENS

AMERICAN SCHOOL OF CLASSICAL STUDIES
AT ATHENS

[7] *Hesperia*, Supplement III, Fig. 54, and pp. 72-75.

1. North Side of the North Column of the Opisthodomus, Showing Contact between the Marble Sill of the Grille and the Bottom Drum of the Column



2. North Face of the South Anta of the Pronaos, Showing Contact between the Marble Sill of the Grille and the Base of the Anta