FOOTNOTES TO *PHEIDIAS AND OLYMPIA*

I. THE FLOOR BEFORE THE IMAGE

IN the official publication of the Temple of Zeus at Olympia Doerpfeld maintained that the interior of the cella of the temple had been altered after the building of the Parthenon for the installation of the chryselephantine image by Pheidias.[1] Although the weight of the arguments for and against separating the construction of the shrine and its statue depends primarily on other considerations, the unique flooring plays its unobtrusive but insistent part in all serious discussions of the problem. In an earlier study of the whole relationship of Pheidias to the temple I accepted the alteration theory to the extent of believing that the floor was later than the setting of the lowest drums of the interior colonnade.[1] A recent opportunity to visit the site resulted in

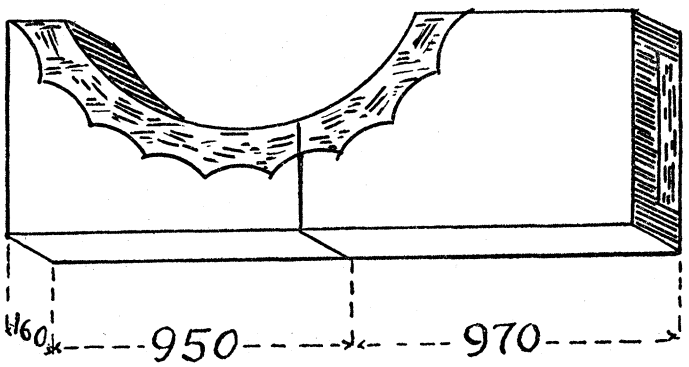

FIGURE 1. Section of white marble step block showing how it is fitted under the lowest column drum.

the conviction that the floor was already an integral part of the plan before the superstructure was begun, and that it was slightly modified only in the last stages of construction when an unforeseen mechanical difficulty rose during its installation.

It will be remembered that the first third of the floor of the central aisle consisted of whitish limestone slabs. In the second third their place was taken for an area 6.50 m. square by blue-black Eleusinian stone, laid some 0.10 m. below the normal level of the aisle. Around this square, 0.10 m. high, ran a border of white Pentelic marble. This served as a step on its eastern side, as the apparent " stylobate " for the interior columns on the north and south, and as a thin contrasting element between the dark pavement and the dark base of the image on the west.

[1] *Olympia, Die Ergebnisse,* II, pp. 16, 20.
[2] *Hesperia,* XXI, 1952, p. 329.

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This border is peculiar in its relation to the columns. Between them it occupies nearly half the width of the true stylobate; but instead of continuing under them for a similar distance the marble is cut away so that only a narrow arc, *ca.* 0.15 m. broad, intrudes under the outer circumference of the shaft (Fig. 1). Doerpfeld believed that the " rough " quality of the joining of these curved surfaces indicated that the Pentelic blocks had been inserted after the columns were in position.[3] It must be noted, however, that whatever crudities were apparent to the excavators in the 1880's are certainly not visible now; and that the tooling of the conglomerate surfaces against which the marble arcs fitted is cut with a neatness and precision that would have done credit to any craftsman working on this soft and friable material under ordinary conditions and which were virtually impossible under the handicap of working in a space only 0.16 m. high.

Furthermore, the top surface of the Pentelic blocks, where they undercut the columns, bears careful setting marks for the fluting of the shafts, a customary trouble if made in the normal sequence of a building operation, an expensive and useless nuisance if made when the columns were already complete.

One might be inclined to wonder why, if the marble blocks were put in place before the columns were set, they were hollowed out in this fashion. They must have arrived at Olympia from Athens as rough-cut rectangles straight from the quarries, which would have been more easily finished in simple, rectilinear form, and better prepared by their consistency than the soft native conglomerate to support the weight of half of the interior colonnade. Here however, Libon, the architect, clearly intervened. He was a native Elean, acquainted with the capacity of his native conglomerate. He was certainly unfamiliar with Pentelic marble as a building material. We know nothing of Libon beyond his nationality. In awarding their most important commission, the Eleans must have chosen a man of local distinction. Marble is not native to Elis; and in the Temple of Zeus it plays no structural part whatever except in the sima and the roof tiles which had nothing to support but themselves. The Eleans knew of marble elsewhere and had the money to import it from Paros for the architectural sculptures and from Naxos for the unprecedented tiles. But Libon, knowing a familiar material, was unwilling to trust the division of the weight of the interior colonnade to two different materials, one of which he did not know structurally. In marble there are lines of cleavage that do not exist in conglomerate. Conglomerate is softer than marble. The pressure of gravity over the years, the violent and unequal stresses of earthquakes undoubtedly shaped his opinion. He permitted the undersetting of the Pentelic step to a distance greater than necessary for surface finish, but not deeply enough to affect the foundations of his colonnade.

Thus, so far as the white marble rim is concerned there is sound evidence for normal, contemporaneous construction, and apparently nothing to militate against it.

[3] *Op. cit.*, p. 12.

The blue-black Eleusinian paving blocks show fine finish and execution. The outer ones fit slantingly under the Pentelic " stylobate " (Fig. 2) showing that they were laid first and that work progressed from the edges to the center. That they formed the final step in the realization of the whole interior was natural. The same forethought that the Greeks displayed in leaving the finish of surfaces to the end of the construction period prompted the floor-layers to postpone their work until all danger from falling blocks, chips, tools or timbers on this polished surface was over. The friability of Eleusinian limestone is eloquently demonstrated in the small fragments that are all that now remain of the famous floor and base.

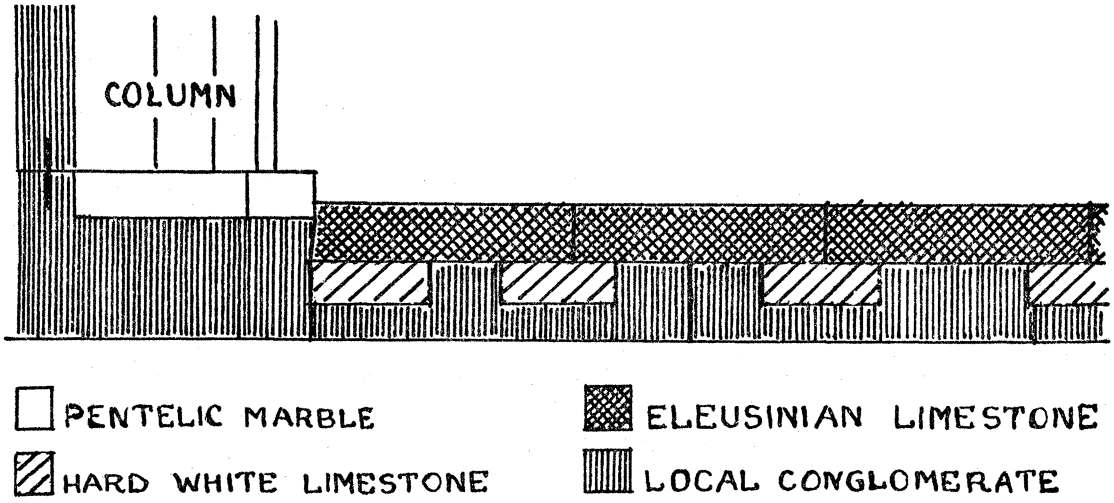

FIGURE 2. Vertical section of the floor in front of the image, showing the way in which the Eleusinian stone is bevelled under the Pentelic marble step, and how the hard white limestone blocks are set into the conglomerate foundations.

There is every indication that the blocks were finished without haste and with great care. Trouble seems to have arisen only when the workmen came to fit the individual slabs in place. They were large, measuring 0.93 x 0.93 x 0.22 m., and very heavy. It was apparently impossible to get a sufficiently firm purchase with the setting crowbars in the soft conglomerate foundation bed to work the pavement units into place, and resort was had to an improvised solution. Strips of re-used limestone were sunk into the original bedding along the lines of the north-south junctures of the Eleusinian slabs. On these are clearly seen the notches into which the setting crowbars took their grip and achieved the final placement of the floor.

They were not inserted to strengthen the conglomerate foundations. Rather, they weaken the blocks in which they rest by their deep intrusion (Fig. 2). They also increase the total weight on the lower courses which however remain as undisturbed by the alteration as the lowermost depths of the Pacific Ocean.

These limestone inserts were neatly fitted into the conglomerate. The only implication of haste is supplied by their obviously re-used character. In so carefully worked and expensive a building as the Temple of Zeus one would have expected new material specially ordered for the purpose. We may only infer that the discovery of the setting difficulties threatened a carefully-planned time schedule. Since no other structural elements depended on the completion of the floor, another type of time table must have been involved. The simplest inference is the date of the dedication of the temple and the image—460 or 456 B.C.

II. THE PEDESTAL

The pedestal of the great chryselephantine Zeus occupied almost all of the last third of the central aisle. It consisted of a solid poros core faced all-around with blue-black Eleusinian stone, a simple heavy projecting moulding of the same material fringing it at the top and at the bottom where it rested on the narrow step of Pentelic marble. Its height was reckoned at about one meter. Against its eastern face were affixed gold reliefs of the gods. Above rose the enormous mass of gold and ivory. Before it extended the broad black floor, shining with oil, within its neat narrow rim of Pentelic marble.

Miss Shoe, in her excellent monograph on *Dark Stone in Greek Architecture*,[4] has presented the essential phases in the development of the use of contrasting stone from the sixth century on. It is clear that it begins in Athens, some statue bases being made entirely in Eleusinian limestone, though the Peisistratean circuit wall of the Eleusinian sanctuary was relieved of the overwhelming gloom of this material by a narrow base of white marble. This was the formula used by Pheidias for the base of the Olympian Zeus.

In the second quarter of the fifth century,[5] the great altar of the Chians at Delphi continued this dominating use of dark, but set it off between two marble steps below and a narrow white marble crown above. Here the black material began to acquire a frame.

Postponing consideration of the pedestal of the Zeus for a moment, the next monument in question still brings us directly to Pheidias. In the fifties of the century he set his colossal bronze Athena Promachos on a base comprised of a low step of white marble, a broad band of Eleusinian stone, a broad heavy moulding of white marble carved with a big, firm egg-and-dart design capped with a low plinth of white marble.[6] Here the white marble extremes are encroaching markedly onto the dark limestone core.

[4] *Hesperia*, Supplement VIII, pp. 341 f.
[5] Shoe, *Profiles of Greek Mouldings*, p. 55.
[6] Stevens, *Hesperia*, V, 1936, p. 496.

The next, and vital, monument involves Pheidias as supervisor of the Parthenon. In essence the whole case for the late dating of the Zeus rests upon his supreme authority over this building, and arguments are drawn on similarities between the Parthenon and the Temple of Zeus to indicate that interior arrangements of the latter were based on his experience with the former. And yet not a single block of dark stone seems to have been used in the most famous of all Periklean buildings. From this sequence it would appear that Pheidias, having modified an earlier tradition in his base for the Promachos, abandoned it entirely in the setting of his Parthenos.

But the disappearance of the cult of contrast is a brief one. When it revives the emphasis has changed. Hardly was the Parthenon beyond the drafting-board stage than Iktinos, its architect, was proposing blue stone for basic and crowning motives in the Telesterion at Eleusis, completely reversing the scheme of the Chian Altar and the base of the Athena Promachos. And this was no transient experiment. Mnesikles soon came forward with the same revised formula, refined and amplified in the Propylaia. Only in the Erechtheion frieze, high up and firmly contained between white architrave and elaborate cornice, was the echo of the earlier emphasis on dark stone remembered as a background for applied relief sculpture. All these designs had the approval of the aesthetic overlord, Pheidias.

Turning back to Olympia, the spectacle of the broad glistening dark floor surmounted by the black pedestal relieved only by a narrow step of white is inconceivable after the inception of the Parthenon. I have earlier suggested that Pheidias was working at Delphi while the Chian altar was in process of construction.[7] Extant remains show that by the fifties of the century Pheidias had already curbed the emphasis on black stone in the pedestal of the Athena Promachos and abandoned it entirely in the chaste Pentelic whiteness of the Parthenon. It is no wonder that Miss Shoe, not questioning the late date for the Zeus, considers its pedestal anachronistic.[8]

The massive dominance of Eleusinian stone in both the floor and the pedestal of the Zeus at Olympia is entirely in keeping with the practice before 460 B.C. and specifically at variance with later datable pedestals by Pheidias himself. Thus, insofar as conclusions may be drawn from the use of materials, the Zeus was earlier than both the Athenas Parthenos and Promachos.

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[7] *Op. cit.*, p. 335.
[8] *Hesperia*, Supplement VIII, p. 349.