

JOINT RAILWAY STATION,
HOWRAH, CALCUTTA.

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ARCHITECT.

The Palace at Knossos, Crete.

ALTHOUGH the first visit to Knossos was made by Dr. Evans as far back as 1894, in which year he was able to purchase a portion of the property, it was not till 1900 that he succeeded in acquiring the whole site. The excavations were commenced in March of the same year, and have been carried on since with so much energy and dispatch as to have brought to light the remains of a palace covering an area of nearly 500 feet square, almost equal in extent to that of the Houses of Parliament.

The palace was built on a slight eminence, about two-thirds (including the great central court) crowning the crest of the hill; the remaining third occupying a slightly lower site on the slope of the hill (see Fig. 1).

The great central court, measuring 200 feet by 86 feet, runs nearly north and south, and the largest portion of the palace is on its west side; portions of the eastern block are built on a level

some 24 feet below the pavement of the central court.

The walls of the western side of the palace consist of a basement about eight feet in height, the floor of which is a little below the level of the central court. Those of the eastern side of the palace consist in part of two storeys, which together make up the 24 feet above referred to. The superstructure on both sides which contained the principal halls of reception probably rose to about the same height on each side. A series of terraces existed on the east side, and the lower building, which seems to have formed part of the palace, is a bustion, the walls of which are about 50 feet below the level of the central court.

In consequence of the great thickness of the walls of the basement of the western block and their close juxtaposition, the large plan which we publish is not at first very easy to read, and as a matter of fact, it probably resembles

that of the basement of most buildings from which, failing other evidence, it would be difficult to scheme out the plan of a superstructure. In the palace of Knossos, however, two other considerations have to be taken into account. Firstly, the greatest width which could be floored or even roofed over without intermediate supports was 18 feet, and there is only one hall of that dimension in the palace, that in front of the "hall of the double axes"; and, secondly, the superstructure built with rubble masonry in clay mortar, framed together and bonded with timber, required foundation or basement walls of exceptional thickness. Broadly speaking, it would seem that the west wing of the palace was the public portion, including the entrance portico from the west court, "the corridor of the procession," the south terrace with its double portico, the south propylæa leading to the megaron, and the throne-room: the east wing was the private or residential portion.

There would seem to have been two principal entrances to the palace, one in the centre of the north front, the other from the south-west corner of the west court, which Dr. Evans considers to have been the agora, where the Minoan King met his subjects. It was a large open square, the western limit of which has not yet been explored, and probably responded to that feature which in French palaces is known as the "Cour d'honneur." In support of his theory Dr. Evans calls attention

to the stone bench (Fig. 2) built into and forming part of the masonry of the west wall, where, sheltered in the early part of the day from the rays of the sun, the king's subjects could await his summons. A similar stone bench has been found in the palace at Phaestos, excavated by the Italians, in front of a terrace wall also on the west side. The northern entrance, Dr. Evans points out, "represents the main point of intercourse between the palace and the city on the one hand, and the port on the other. Two lines of ancient roadways in fact here converge—one leading to a region which we know to have been covered with prehistoric houses, the other pointing north in the direction of the sea, where traces exist of an ancient haven some four miles distant." This is the only part of the palace in which there is evidence of some kind of fortification, and the road of access is dominated by towers and bastions, whilst other provisions in the plan of the inner or western corridor suggest that its passage was properly protected. The slope of the ground on the east and south side (the floor of the south terrace rose from 10 to 12 feet above the ground) may have been considered a sufficient protection on those sides, and the western court was probably enclosed with a wall.

Dr. Evans' theory as to there having been "four main entrances roughly answering to the points of the compass" is not borne out by the

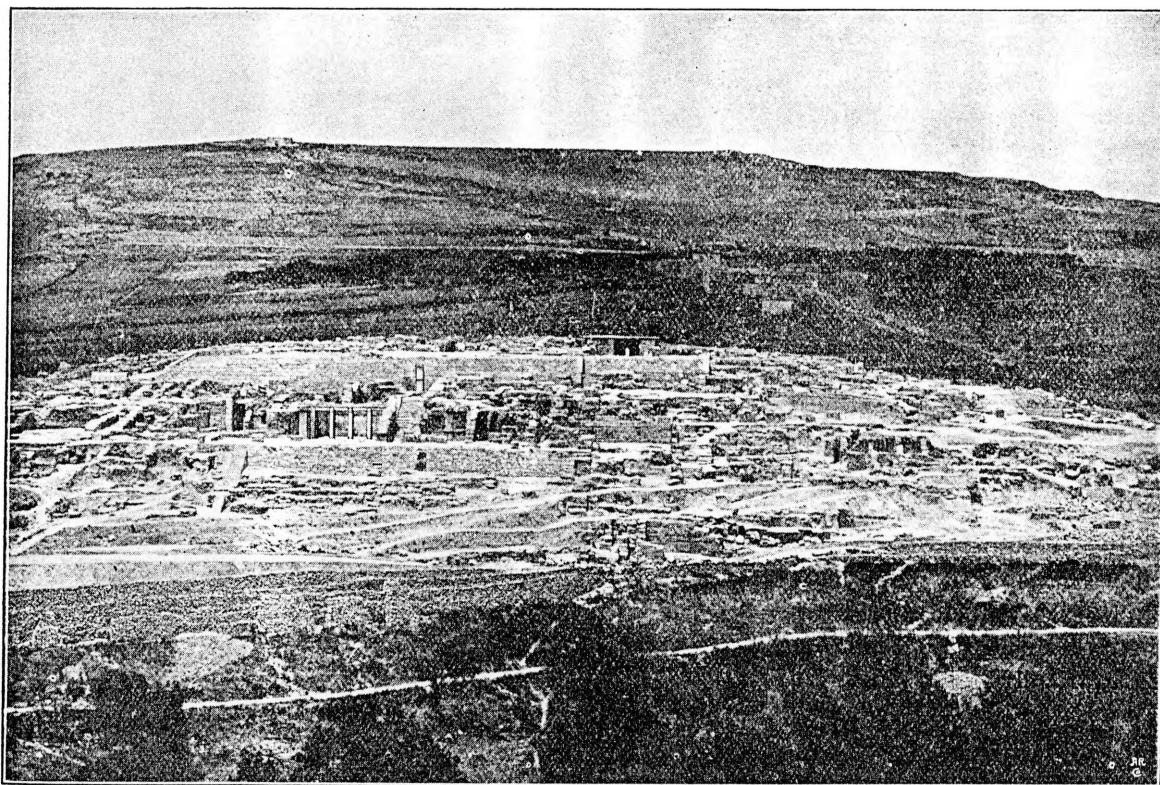


FIG. 1.—RUINS OF THE PALACE OF KNOSSOS, CRETE, AND GENERAL VIEW OF THE REMAINS ON THE EAST SLOPE.

(By permission. From the "Annual" of the British School at Athens.)

plan, as the north-west entrance corridor leads first to the south terrace, the propylæum in front of the great hall can only be reached from that terrace, and on the east side the entrance to the "hall of the double axes" is from a terrace to which so far no direct approach has been found (see Fig 1). Although at first sight the plan with its great central court and main entrance at the north end, and the relation of the walls all built at right angles to one another, resembles that of a Roman palace, which suggests its having been set out symmetrically or on a well-considered programme; a further study shows that it differs widely from the Roman principles of symmetry and central axes. The walls of the west front jut out into the western court at varying distances. In the central court there are projecting blocks at the north-east and south-west corners, and the entrance passage is not quite in the axis of the central court. In this respect, however, it is more in accordance with Greek principles where the work was set out on the spot to suit the site and requirements, and the entrance portico and blocks of building were placed without any regard for that symmetry which seems to have been all important to the Roman builder. The far greater picturesque grouping of the various buildings, as suggested in the plan, recalls that which we find on the acropolis at Athens, and in the sacred enclosures at Olympia, Delphi, and other shrines of Greece, rather than in the palaces of the Cæsars, or the Thermæ of Rome. It is, however, precisely this which renders a clear description all the more difficult, increased by the fact that the upper floors which contained the great halls have all perished,

so that it is only by the most minute examination of the upper part of the walls remaining, that Dr. Evans has been able to suggest the probable plan. In this he has been partially assisted by the parallel afforded in the palace at Phaestos, also in Crete, which has been explored by the Italians during the last two years.

With the exception of its construction to which we shall return later on, and one hall to which the title of throne room has been given, there are no architectural features in the basement storey of the western block which it is necessary here to enter into. They consist of an endless series of storerooms and magazines which in their solid masonry and general construction were far superior to that of the ephemeral materials of which the upper floors were built. Curiously, however, it is probably owing to this latter fact that Dr. Evans' discoveries have been made; a fierce conflagration apparently burnt all the timber of the roofs and columns, and subsequent rain crumbled away all the walls* and virtually buried the palace. The inhabitants returned to plunder the palace and search for the treasures, but the stone substructures were too heavy to be moved and have consequently remained *in situ*. Had the upper part been built in stone the palace would not have been buried in the same way, and within a couple of centuries the materials would all have been taken away to use up in the erection of other buildings.

The principal state entrance was in the south-west corner of the west court through a portico of one column in antis.† This arrangement is found elsewhere here, and at Phaestos. The architect having settled the width of the portico, preferred to use one column as an intermediate support (if the span was not too great) instead of encumbering the entrance with two columns. At Phaestos the antæ or responds of the portico to the great megaron project six feet from the side walls so as to retain as it were the one column, although in the rear wall there was a central doorway beyond. In the

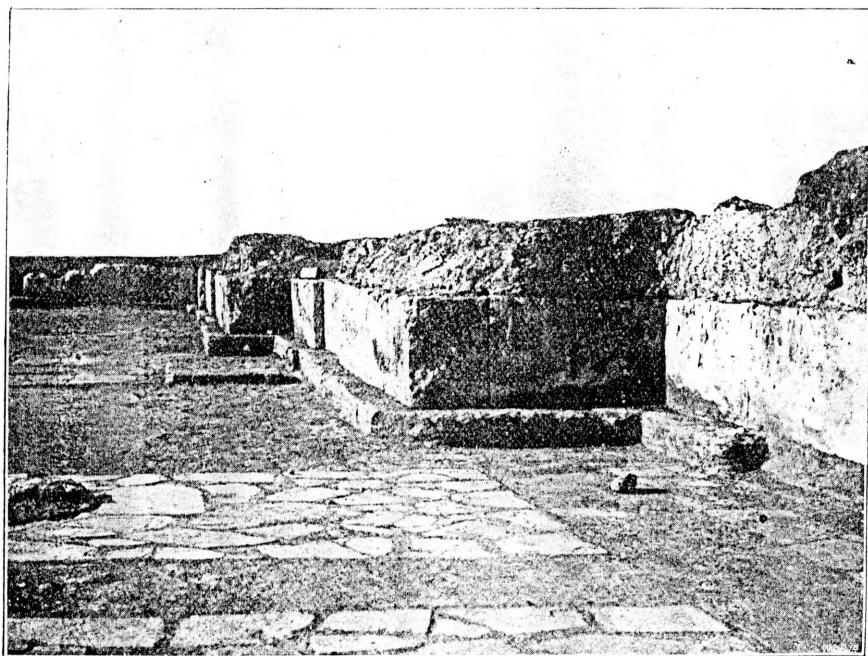


FIG. 2.—WESTERN COURT AND GREAT GYPSUM WALL.
(By permission. From the "Annual" of the British School at Athens.)

* These in some cases carried with them portions of the fresco painting with which they were decorated, for as it would appear from Dr. Evans' description the finest of these have been found in the basement corridors.

† The evidence of the columns lies in the stone base still *in situ* measuring 3 feet in diameter and 4 in. high: throughout the palace, all the columns were in timber and raised on stone bases.

rear on the right of the portico was the guard room, and on the left a passage 10 feet wide, called by Dr. Evans "the corridor of the procession," the walls having been decorated with paintings representing a state procession. This corridor led to a terrace 28 feet wide and 165 feet long so far as it has been traced. Dr. Evans thinks there is evidence of its further extension, which would be necessary if only to give access to the central court. This terrace, facing the south, was probably roofed over with a peristyle (Fig. 3), carried by two rows of columns which would form a sufficient protection from the sun when at its zenith. At a distance of 85 feet from the west end of the terrace is the axis of the propylæa leading to the great megaron, which seems to have consisted of a portico of one column in antis. The stone base no longer existed, but traces were found of the antæ projecting four feet from the side walls, which suggested an arrangement like that at Phaestos.* In the rear of this portico was a wall pierced with three doorways, the sill of the right hand one only existing. At a distance of 4 feet 6 inches beyond the doorways and on either side of the propylæa walls were found the bases of two other columns. The width between these walls was 30 feet, far too great a span to roof over without intermediate supports. It is probable therefore that there were three other columns

and a pier on each side forming a double avenue similar to that which has been found at Phaestos, except that there, owing to the greater width across the central avenue, viz., 24 feet, the aisles only could have been roofed over. This would bring the four columns and pier in a line with the end of the walls as found. Beyond this was an open court, called the Court of the Altar by Dr. Evans, the stone base of an altar having been found in a rectangular recess on the right of the court. The level of the court of the altar is about 5 feet below that of the great megaron, portions of the upper walls of which were found by Dr. Evans. He assumes therefore that, as at Phaestos, there was a flight of stone steps (of which all traces are now gone) leading up to a portico of one column in-antis. Here the antæ measured 8 feet on the right hand side and 6 feet 6 inches on the left, and the wall in the rear had two doorways only. These led into a hall 24 feet deep and 36 feet wide, whose roof was carried by three columns down the centre.* Two doorways in the rear of the megaron opened into a cross corridor leading from the upper long gallery on the right (which rises above the corridor of the magazines), and on the left to a door giving access to a flight of eight steps descending into the central court. This flight of steps, in the centre of which was a single column, formed the approach to another long room crossing the palace, in the centre of which was found the lower portion of a wall; this may only have been a stone bench, but Dr. Evans suggests that it carried a central line of three columns. There was no necessity, structurally speaking, for them, as the hall was only 16 feet wide, and, as we have pointed out, there is a hall 18 feet in width whose roof was carried without intermediate supports. The question of the admission of light to these halls is too large a question to take up here; but Dr. Evans' proposition of a well for light on the left scarcely seems probable, in view of the fact that there is a cross wall below in the basement; the well for light would surely have been carried down to the lowest floor. The only alternative for obtaining light is that which is suggested in the great Roman Thermæ, where the halls, rising above the side passages and smaller rooms, have clearestory windows over the same. The only other rooms shown on the plan are apparently state bedrooms, which might be occupied by the king's guests if our theory as to the residential portion of the palace being in the eastern block is correct.

* In the palace at Phaestos there were no substanchions to the megaron, so that the bases, sills of doorways, and foundation of walls have all been preserved.

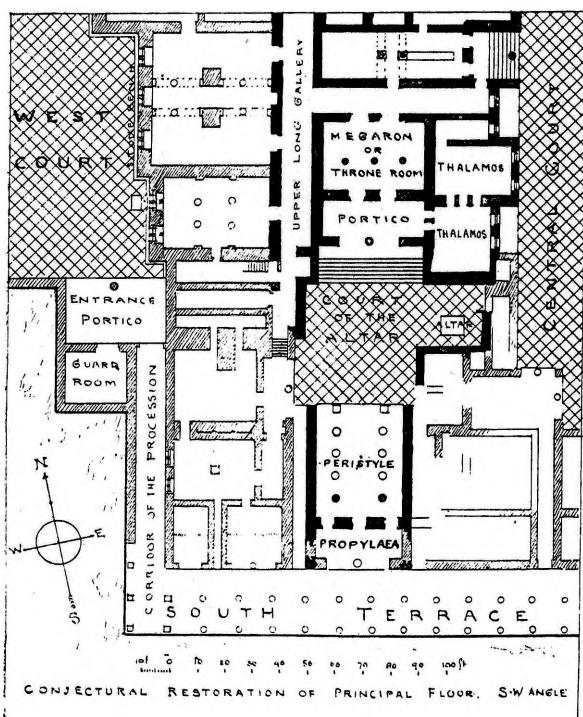


FIG. 3.—WESTERN BLOCK.

Portions blacked-in taken from Dr. Evans' restoration.
Portions hatched, taken from general plan
Portions outlined, conjectural restoration.

* They are not quite central, perhaps to give more room for a throne in the rear. Dr. Evans points out here that the hearth as found at Tiryns and as described in the Homeric poems has not been found either here or in the palace at Phaestos.

The lower portion of the walls of the west front, about 6 feet high, are in two thicknesses of gypsum blocks, each 18 inches thick, with a core of rubble and clay between of 3 feet. They still carry in parts the remains of a superstructure in rubble masonry and clay mortar, which shows that an upper storey existed consisting either of lofty halls or of two floors with staircases of wood.

The only other hall which it is necessary here to describe is that which Dr. Evans calls "the throne room." This was one of the first important discoveries made in 1900. Through four doorways facing the central court one descends five steps to an ante-room, and thence through two doorways on the right to a room measuring 20 feet long by 12 feet 6 inches wide, in the centre of which, against the wall on the right hand side, was a stone seat with back to it of very original design.* On the same side of the room and returning at the end is a stone bench. The great

* A cast of the same was in the Winter Exhibition of the Royal Academy.

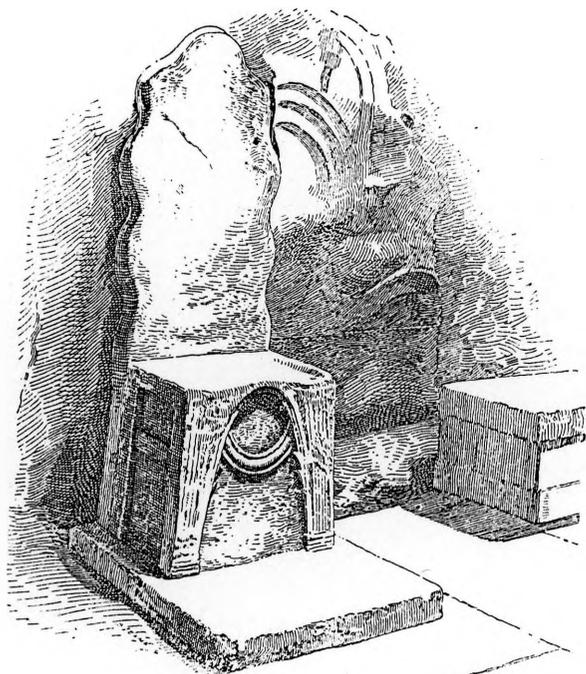


FIG. 5.—THE THRONE.

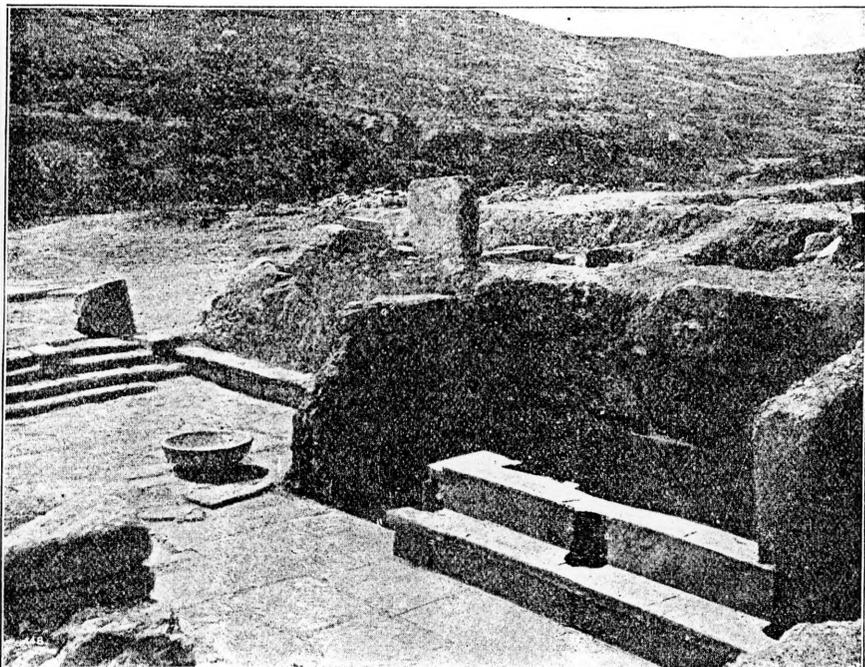


FIG. 4.—ENTRANCE TO THRONE ROOM ON LEFT. WELL-HOLE PARAPET AND BENCH, SHOWING SOCKETS FOR WOODEN COLUMNS.

(By permission. From the "Annual" of the British School at Athens.)

megaron in the palace at Phaestos is called the throne room, and the much larger size of the megaron here would incline us to think that Dr. Evans' "throne room" was more probably used for cabinet councils. A room 20 feet long would not accommodate more than twelve councillors seated, with the Prime Minister presiding on his chair of state. In front of the throne (Fig. 5) is an open court or well-hole, the floor of which is sunk about 2 feet below the level of the throne room, and is approached by steps. It is not deep enough for a bath, and as there is no outlet drain for the water must have been filled and emptied by slave labour. It may, as Dr. Evans suggested, have had fish in it. This court for light was divided from the throne room by a low wall (Fig. 4) with three columns in timber, the sockets of which were sunk into a stone bench on which either the secretary or notaries of the council might have sat. Beyond the throne room was a small room in which was found a pedestal lamp showing how it was lighted.

The communications between the west and east blocks of the palace have not yet been ascertained either at the south or north end of the central court. From the thickness of the walls we may assume that buildings in one or two storeys were carried across the north entrance.

R. PHENÉ SPIERS.

(To be continued.)

formed by the late Sir Gilbert Scott for his academy lectures, and a small library of architectural works, and with a considerable collection of diagrams relating to building construction, and samples of building materials and models.

THE ARCHITECTURAL SCHOOL,
UNIVERSITY COLLEGE, LONDON.

BY THE LATE T. ROGER SMITH.

At University College, London, lectures on Architecture as a Fine Art, and on Construction, have been given since 1841 every session by professors, each of whom have been operating architects—Professors Donaldson, Hayter Lewis, and Roger Smith. The original direction given by Donaldson has been more or less followed by his successors. The pupils of architects formed the main source of supply to the classes, and they came there to get some systematic knowledge of the history of Architecture and of the materials used in building, and the mode of utilizing them. The ordinary custom has been to have a senior and a junior class, and a lecture in each class in each division weekly, so that it took two years

for a student to pass through. Professor Lewis continued this with a one year's course, and in the present regime this method has been adhered to.

There has been no drawing school till latterly, when means to open an evening drawing class were furnished by the liberality of the Carpenters' Company, but it was not a success. The same company has furnished teachers for evening classes in estimating and measuring, and also in drawing building construction. These have been successful.

The general result has been a moderate amount of fairly sustained success. Excellent relations between the professors and the students have been the rule, and many old students are now prosperous architects in full practice, including at least one of the newly appointed professors. A few Japanese students, one Chinese, one Indian, and a few ladies have attended the classes.

No attempt has been made to turn this course into what the Architectural Association furnishes—namely, a complete curriculum full of information of all sorts that may come in usefully; and as a consequence since the Architectural Association courses have been set up the popularity of this College has gone down.

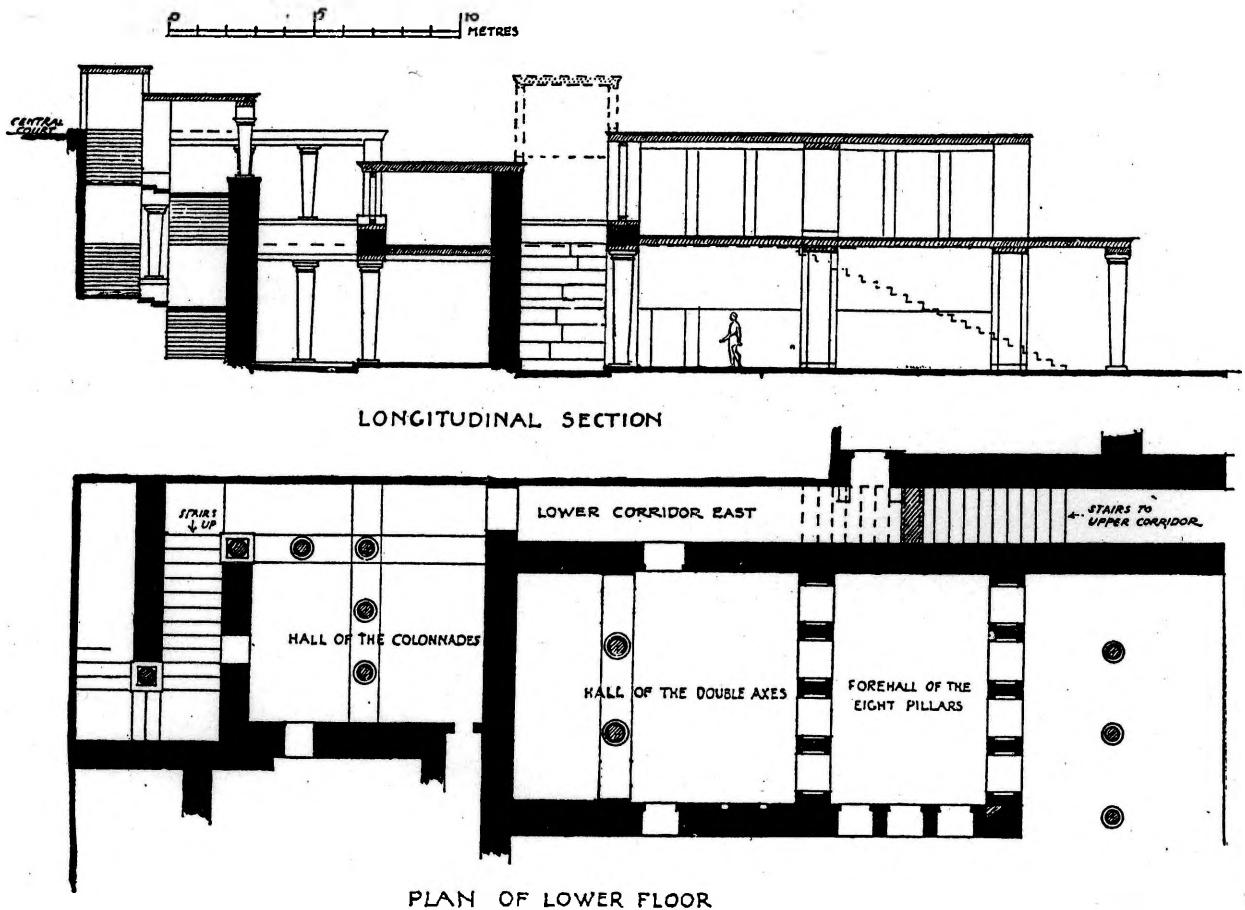
The Palace at Knossos, Crete.

(Second and Concluding Article. For First Article see May Number.)

COMING now to the eastern block of the palace, the floor of the north or right hand side, including the room of the olive press, is some fifteen feet above that on its south side, and may be still regarded as a basement, there being no halls or residential rooms in it. Over "the room of the olive press" and "the corridor of the bays" was, according to Dr. Evans, probably the King's Megaron, which, judging from the basement walls, had (A) a portico of one column in-antis facing the central court, (B) a vestibule, and (C) a great hall, 45 ft. by 38 ft., with three columns across the centre. Assuming the room of the olive press to have been about 10 ft. high, the level of the floor of the Megaron would be the same as the megaron or throne room in the western block.

The most interesting portion of the whole palace, however, is the south-east block, because here we find the actual living rooms of the Minoan King and Queen. Its preservation is probably due to the fact that it was built on ground at a much lower level, and was buried by the falling in, of the superstructure, in the same

way as the stores and magazines of the rest of the palace. The principal hall faced a terrace about 35 ft. wide, which we may assume was planted with trees and laid out with flower beds; there would appear also to have been other terraces below (see Fig. 1). The hall to which we refer measured about 27 ft. wide by 18 ft. deep, and was the largest room of the palace without intermediate supports. It was enclosed on the east and south sides with a peristyle, and had no fewer than eleven doors (see Fig. 6, reproduced from Mr. Theodore Fyfe's restoration); seven of these led out to the Peristyle, the other four to a room which Dr. Evans calls the "hall of the double axes"—from the marks on its limestone blocks; this room being lighted from a court beyond and divided from the same by two columns in-antis. These two rooms, the outer one opening on to a terrace and the other one lighted from the court, would seem to be the withdrawing-rooms, especially as, out of the further room on the left, is a door opening to a passage leading direct to a room called the Queen's Megaron, which seems to have been her boudoir; this room was lighted on the



(From R.I.B.A. Journal.)

FIG. 6.—HALLS ON EAST SLOPE. PLANS AND RESTORED SECTIONS OF THE QUADRUPLE STAIRCASE, THE HALL OF THE COLONNADES, AND THE MEGARON OF THE DOUBLE-AXES.

south side by three windows facing a narrow court and had on its east side an open portico, with two columns and responds, facing another court. There were four openings on this side, one towards the north being the doorway, the other three had a stone bench between, which projected to form a seat on both sides, viz., in the megaron and in the portico. The room in the rear on the west side was a bathroom, and further west a room supposed, on account of its stone floor, to have been a treasury or jewel room. Beyond this treasury, and reached by a passage from the Queen's Megaron, is a room in which a stone couch was found and, on its east side, that which Dr. Evans states is the nearest approach to a modern w.c. as yet found on any ancient site, viz., a chamber 7 ft. deep and 4 ft. 6 in. wide, on the side walls of which were grooves in which were fixed the sides of a seat; beyond the grooves the stone floor ceased leaving an open trench which communicated direct with a horizontal drain, 2 ft. high and 1 ft. 6 in. wide, covered over with stone slabs and taking the drainage and wastes from other parts of the palace. In front of this chamber and outside the same, was a square hole, originally covered over with a stone slab which, when raised, allowed the closet to be flushed.

From the Queen's Megaron a private staircase in stone led to upper chambers probably containing the sleeping apartments of the queen.

On the west side of the court in the rear of the "Hall-of-the-double-axes" is another court with a peristyle on two sides, called the "hall of the colonnades" on plan, and a staircase in four flights beyond. The plan and section through staircase and court are shown in Fig. 6, and sections through the court showing each front facing the same in Fig. 7, these being conjectural restorations made by Mr. Theodore Fyfe, and based on the actual remains. In Fig. 7 the north wall shows the solid stone balustrade or parapet of the upper gallery, which was found in-situ, and gave Mr. Fyfe his evidence for the actual thickness of stone balustrade (2 ft. 11 in.), and consequently the size of the square abacus surmounting the column which carried it, and the beams across the peristyle. The height of column, base, and capital was 11 ft. 2 in. The stone base was 2 ft. in diameter, which, allowing a margin of $3\frac{1}{2}$ in., gave 1 ft. 5 in. for the lower diameter of the column; with these dimensions Mr. Fyfe has restored the column in accordance with the proportions shown in the "Temple fresco," to which we shall return again. On the parapet of this stone balustrade were

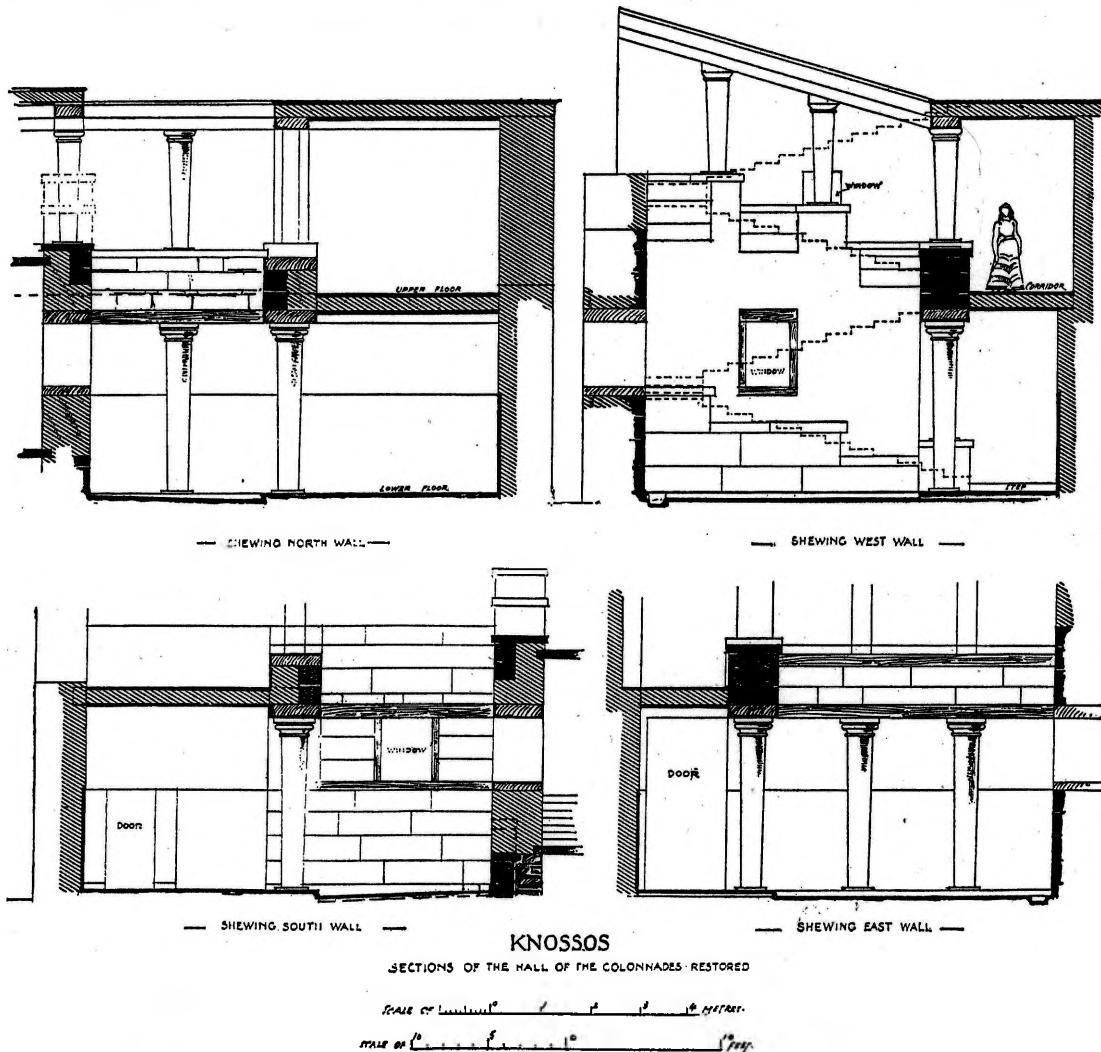
put the bases of an upper order, which Mr. Fyfe has restored, taking his height from that which would be reached by continuing the upper flight of the quadruple staircase (for which there was clear evidence) so as to bring it to the level of the great central court. This stone staircase, in four flights, is the most exceptional find of the whole palace, and, as Dr. Evans remarks, "is probably unparalleled in the history of excavation; flights of stairs one above another being unknown even in Pompeii." The flights are 6 ft. wide with a central wall newel, 3 ft. thick, which allows of three steps on the return, as shown in Fig. 6. The steps have a rise of $5\frac{1}{2}$ in., and a tread of 1 ft. 6 in. They consist of solid slabs of stone built 7 in. into the wall on each side, and the upper step is bedded about 6 in. on the lower one.

The west wall (Fig. 7) shows that the staircase was lighted as regards the lower flight by a window overlooking the court and the upper part through an open peristyle of columns resting on a solid stone balustrade, rising in two tiers, and following the rake of the stairs, an arrangement which, as Dr. Evans observes, "anticipates in some re-

spects the effect of an Italian renaissance palace," a happy suggestion which will recall to many travellers similar features throughout Italy.

The upper flight of the staircase probably led into the portico of the Megaron, and the four flights show that there existed in this portion of the palace three storeys, viz., ground, first and second floors. The stone staircase still in situ, by the side of the two great halls referred to, led to a first-floor corridor, which was continued up to the staircase of four flights already mentioned.

As will be seen from the plan in the first article, there are still further researches to be made, especially in the two parts marked "earlier buildings," and already this year at some distance north east of the palace has been found a house of fine construction with the remains of two storeys and three flights of stairs. The most remarkable discovery of this year, however, is that which has been made on the north-west side of the west court, a description of which was communicated to the *Times* a short time ago. No plan has yet been published, but we gather from the description that, in the examination of the northern boundaries of the west court, a second



(From R.I.B.A. Journal.)

FIG. 7.

paved court at a lower level was found with a flight of steps or seats on the south and east sides somewhat similar to those we referred to in the first article as existing at Phæstos, but of much greater extent and importance. On the east side there were eighteen steps occupying a breadth of 35 ft. On the south side the flight was broader (50 ft.) but of less height. According to Dr. Evans, "the principal function for which this stepped area was designed was certainly of a spectacular nature." The plan is not fully systematized, "but," as Dr. Evans states, "we have here the germ of all future theatres. It seems to grow out of the informal use for sitting purposes of the spacious stepways in vogue in the Minoan palaces." At the junction of the double flight and at the south-east angle was a bastion with a paved platform, which may have served as a kind of Royal Box for the Minoan king and queen and their courtiers.

Up to the present no certain date has been given to the palace. "The best chronological data," Dr. Evans states, "are supplied by the lid of an Egyptian alabastron found near the northern bath. The lid has a beautifully cut cartouche of King Khyan of the fifteenth dynasty, who is supposed to have reigned about the eighteenth century B.C." The perfection of the work of the palace, in its architecture and decoration, points at, as Dr. Evans states, "long centuries of earlier development." There are also the remains of an earlier palace of about 2100 B.C., and fragments of vases found which may go back to 2800 B.C. Others of Egyptian vases of diorite and obsidian dating from the 4th millenium B.C., and lastly stone weapons and implements, primitive pottery, and idols, which carry back still further the first occupation of the site.

THE MYCENÆAN ORDER.

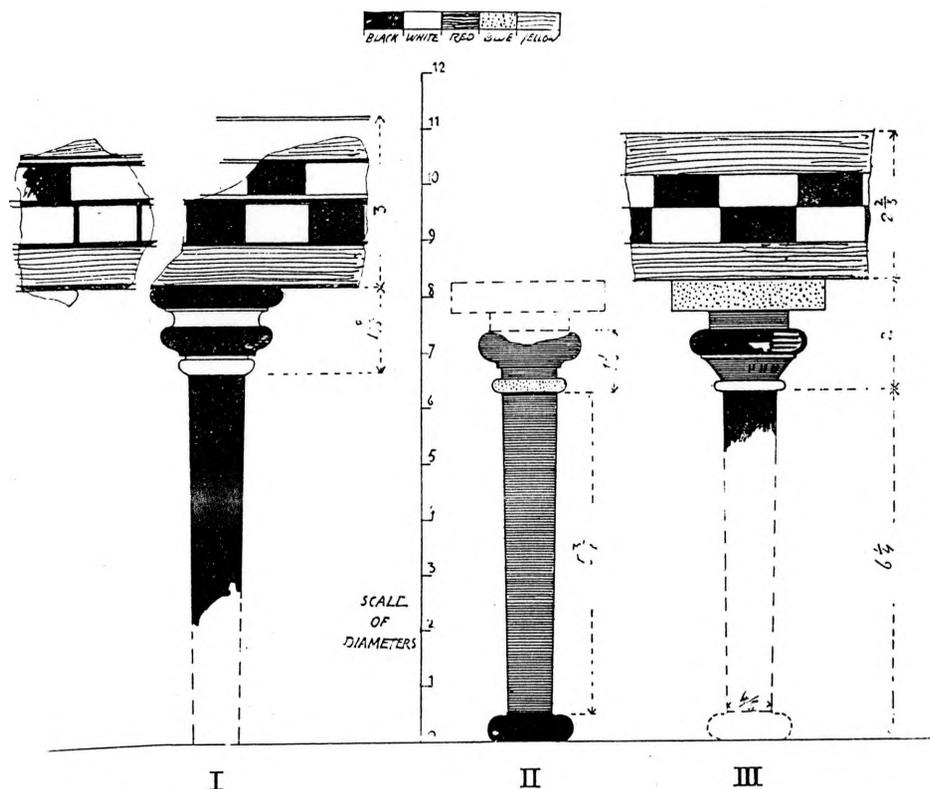
We have already referred, in speaking of Mr. Fyfe's conjectural restorations, to columns which, following the traces of their bases and the thickness of the stone balustrade they supported, he has reversed; in other words, turned them upside down, the diameter being greatest at the top. Prior to Dr. Evans's discoveries, the only actual evidence of this singular reversal was shown (1) in portions of and traces, on the wall of the semi-detached shafts which flanked the entrance doorway of the tomb of Agamemnon, (2) in a fragment (4 ft. 3 in. high) of a semi-detached shaft on one side of the entrance to a second tomb which has been called after Mr. Schliemann, and (3) in the representation of a column in the bas-relief over the Lion gate, all at Mycenæ. In all these examples, however, the order employed was purely

decorative, in which it might have been permissible to reverse the diameter. Messrs. Perrot and Chipiez, however, in their conjectural restoration of the portico-in-antis of the Megaron, at Tiryns,* accepted and reproduced them as actual detached columns, and the truth of their restoration is borne out by the representations in what is known as the "Temple fresco," at Knossos, to which we shall return later on. The same fresco shows one of the capitals of the columns without a square abacus, so that the column and superstructure in the bas-relief of the Lion gate may be taken as a conventional representation of the order complete, viz., a shaft with capital supporting a beam on which rest the round logs (shown in a series of four circular disks), which carried the flat mud roof. The earliest example of a temple in which it would seem that columns of wood were at first employed to carry the entablature, afterwards being replaced by others in stone, is the Temple of Hera, at Olympia. When the Germans excavated the Altis, at Olympia, the columns and capitals found on the site of the Temple of Hera (which was of the Doric order) were so varied in their diameter and profiles as to suggest that they were of many periods, dating from the sixth century down even to Roman times. This fact, coupled with an accidental note by Pausanias, in which, describing this temple, he says: "One of the columns of the Opisthodomos is in oak," has led archæologists to the conclusion that when first built (according to Dr. Dörpfeld, in the eleventh century B.C.) all the columns employed were in timber, and that where a column showed signs of deterioration it was replaced by one in stone.† It does not follow, however, that when changing the material the Greeks copied the same form in stone—a shaft or single balk of timber would be equally capable of supporting a superincumbent mass with the lesser diameter at the bottom,‡ but in stone and built in a series of drums, it would no longer have the same resistance to crushing weight which a balk of timber would possess, and, further, the new material (stone) was much heavier and had to carry its own weight. In replacing the timber shaft with a stone column they would seem to have retained the same width of the upper diameter necessary, with the echinus moulding and

* "Art in Primitive Greece," Vol. II., Fig. 298.

† Similar transformations are said to have taken place in two other ancient temples attributed to the seventh century B.C., viz., in the archaic Temple of Hera, at Argos, and in the Temple of Apollo, at Thermon, in Ætolia. In the latter case the peristyle of the temple had five columns on the eastern front, fifteen on the flank, and a row of columns down the centre of the cella.

‡ We are informed by timber experts that the trunk of a tree when stripped of its bark and utilised as a column or support weathers much better if reversed.



(From R.I.B.A. Journal.)
 FIG. 8.—THE MYCENÆAN ORDER, BASED BY MR. FYFE ON THE REPRESENTATIONS IN THE "TEMPLE FRESCO."

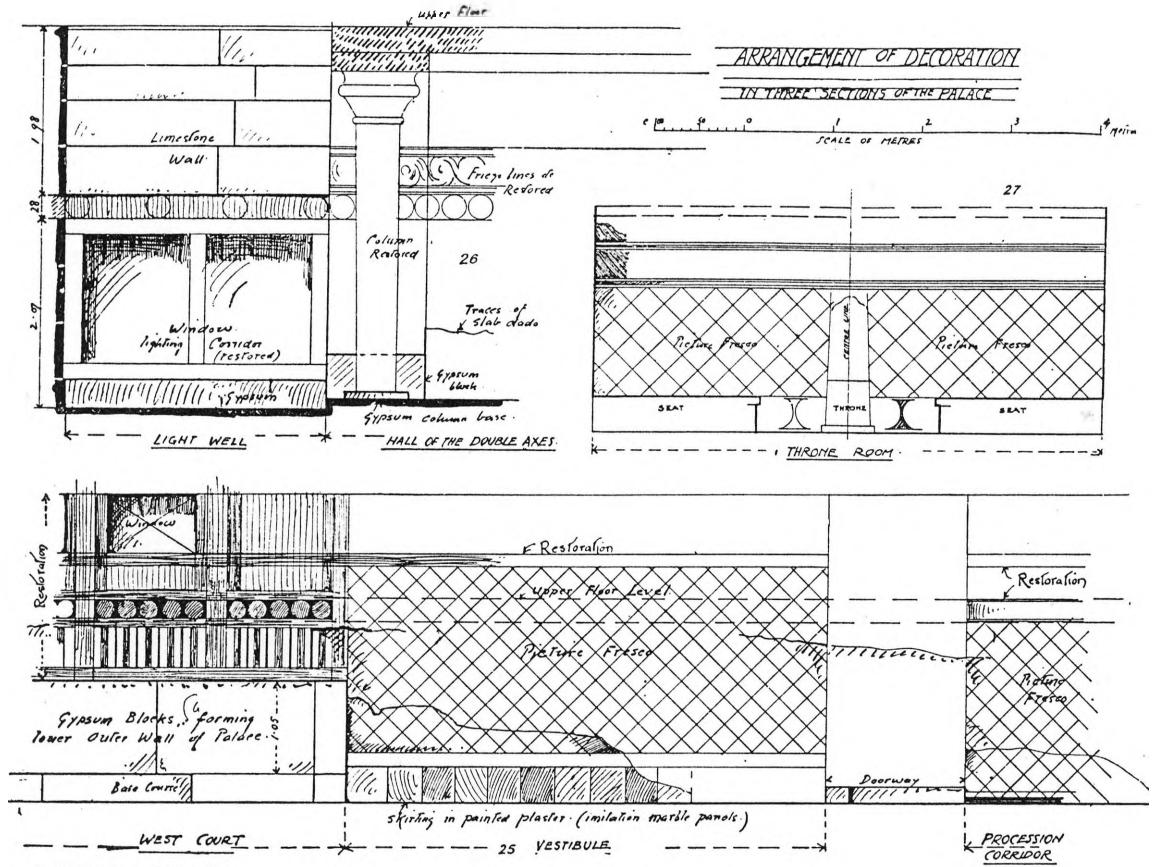
abacus, to carry the entablature,* and increased the lower diameter so as to cover an area slightly greater than that of the original raised stone base which was in consequence cut away. If the column seen by Pausanias had lasted a century or two longer the Germans might have found in the opisthodomos the original stone base. This reasoning is purely hypothetical, but it suggests the solution of an important problem, viz., the transition from the reversed Mycenæan column in timber to the earlier stone columns as found in Syracuse.

What we have called "the Mycenæan Order" is shown in a fresco discovered at Knossos, of which a reproduction in colour was published in the "R.I.B.A. Journal" of the 20th December, 1902. This fresco which was found in a room to the north of the Palace, represents, in the centre, a portico of two columns in antis raised aloft, flanked by two other porticos of one column in antis at a lower level. In Fig. 8 is a reproduction from Mr. Fyfe's drawing of the columns shown in the fresco with their bases and capitals. The brilliant colours of the fresco were purely decorative, and did not represent the materials employed, but the chequer pattern of black and white above the architrave suggests a stone construction as actually found in the court of the quadruple staircase. The capital

of the right-hand portico is crowned with a square abacus which is not shown in the left-hand example, and Mr. Fyfe in his restorations utilizes the former for the ground floor order and the latter for that of the upper story. As the base drawn in the central portico of the "Temple fresco" is much higher than those found in the actual remains, Mr. Fyfe assumes that the capital shown was also exaggerated in size. The relative proportion of the upper diameter to the column including capital and base is about $6\frac{1}{2}$ diameters, and the diminution of the lower diameter about one 6th of the upper. The intercolumniation of the eastern peristyle works out as 2.22 of the upper diameter, and 2.67 of the lower diameter of the shaft, the base we have stated is always in stone and varies from $3\frac{1}{2}$ in. to in. in height (those at Tiryns are barely $1\frac{1}{2}$ in.). The mouldings of the capital were, according to Mr. Fyfe, probably in wood finished with stucco.

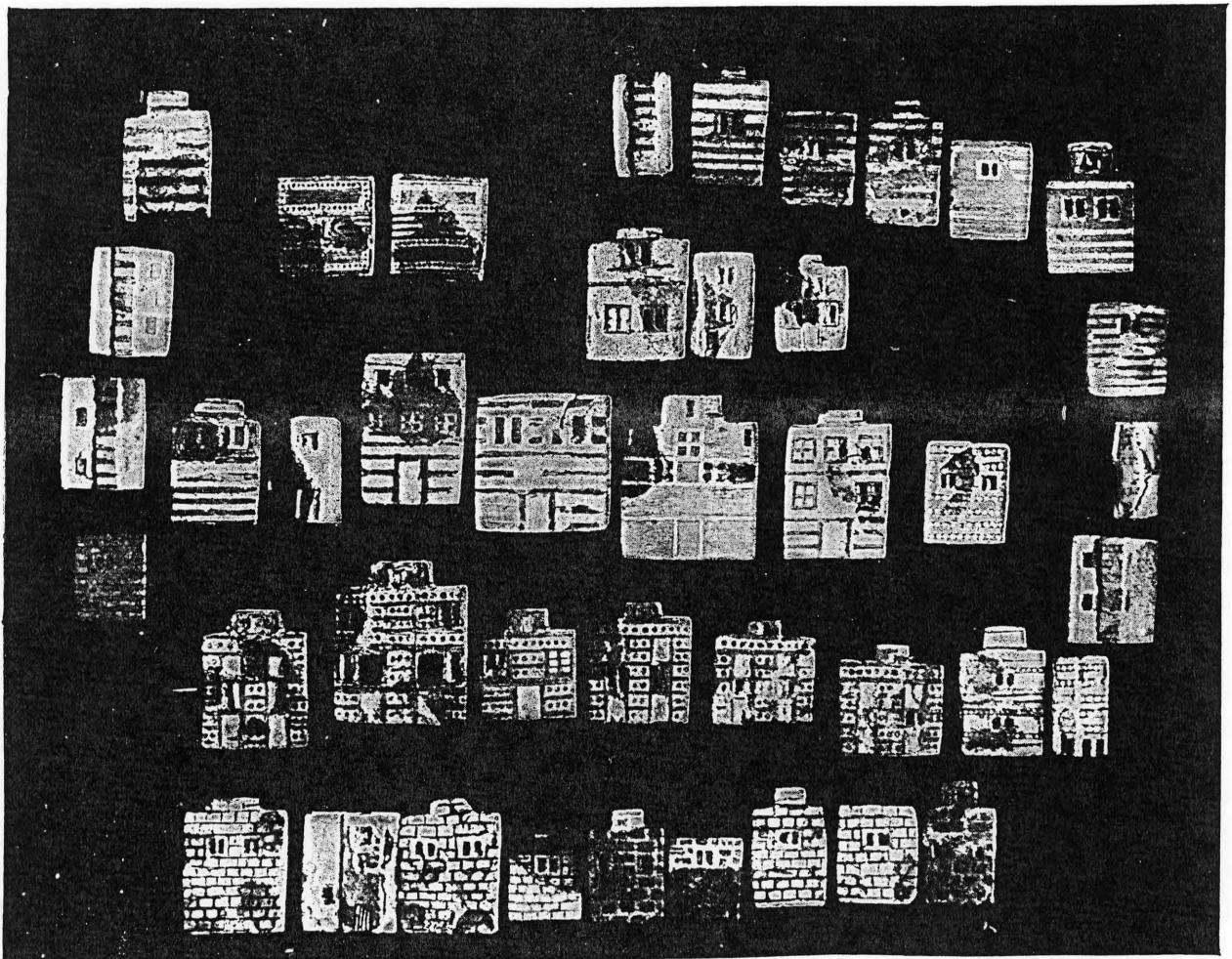
We have already pointed out that the thickness of the wall carried by the columns and capital in the quadruple staircase court necessitated a beam of sufficient width not only to support the wall, but the beams across the peristyle which rested direct on the abacus of the capital; the lesser diameter of the lower part of the shaft was stone by the bases. The Mycenæan architect had already ascertained that with the lesser diameter at the bottom the shaft was quite equal to the support of the superstructure and by so employing it, he

* In these three temples just mentioned the architrave and other parts of the entablature are assumed to have been in timber, on account of the wide inter-columniation.



(From R.I.B.A. Journal.)

FIG. 9.—RESTORATIONS (PARTLY CONJECTURED) BY MR. FYFE.



(From "Annual," British School at Athens.)

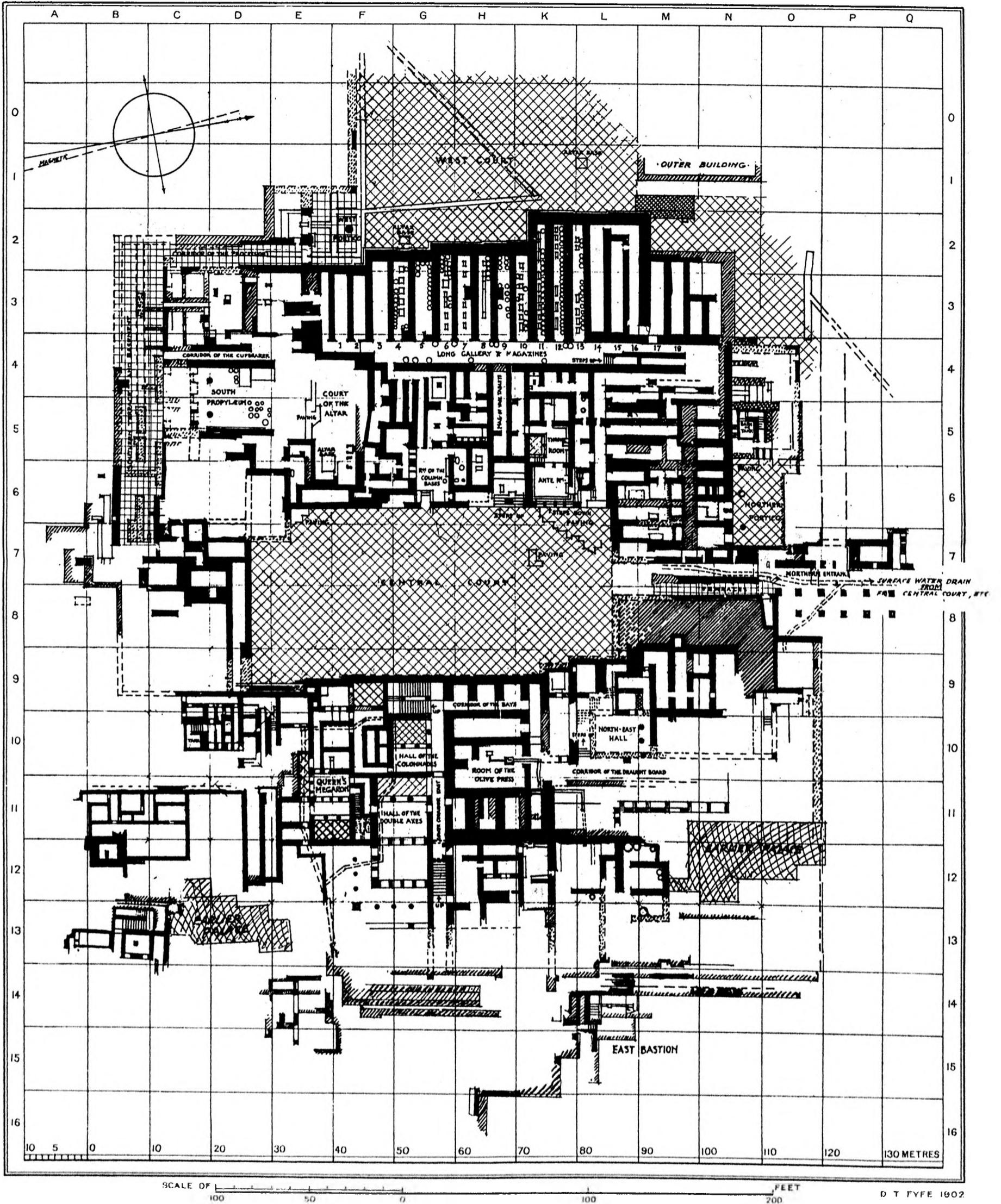
FIG. 10.—PLAQUES OF PORCELAIN MOSAIC WITH REPRESENTATIONS OF HOUSES AND TOWERS.

obtained a wider intercolumniation at the bottom, requisite for free passage between the columns with their stone bases and more light from the courts. In fact he adopted the same principle as that which is found in the legs of chairs, where the greater dimension of the upper portion is necessary for the framing into the seat of the chair, and the smaller diameter at the bottom for less interference with those who are moving about in the room.

In Mr. Fyfe's drawing, Fig. 9, is shown an elevation of the gypsum blocks, which formed the substructure of the walls of the principal floor of the western palace, and above them, a restoration of the lower portion of the walls of the latter. This restoration is based on a representation of the ordinary houses, Fig. 10, of the ancient town of Knossos on a series of plaques, which would seem to have decorated a wooden chest similar to that of Cypselus, in the Temple of Hera at Olympia described by Pausanias. The houses are represented as having two or three storeys, viz., a ground floor with entrance doorway, a first floor with windows framed in timber and having each a mullion and transom, and a second floor with square windows only. Some of the houses suggest a stone construction with regular courses of masonry, others have a range of circular disks at the floor level, and it is these latter that Mr. Fyfe has reproduced in his restoration, the disks representing the ends of the circular logs which carried the floor and were carried through the walls to bind together the outer and inner framing

of timber. In order to preserve the timber and the core of the wall (which was in rubble masonry with clay mortar) Mr. Fyfe assumes that the outer and inner surfaces of the walls were covered with stucco; on the inside of the rooms they painted the fresco decorations of which many remains have been found. On the outside they indicated by a series of painted disks the ends of the round logs. This system of decoration based on a constructive feature was carried farther to the south propylæa, where a frieze of sculptured rosettes ran round the portico. Although it has long been recognised that beams of timber were, in Mycenaean structures, laid horizontally on the top of walls to carry the beams of the roof, and elsewhere to tie the walls together, the complete framing of timber which Mr. Fyfe has shown goes beyond what has been hitherto surmised in buildings erected in crude brick, or in rubble masonry and clay mortar. When one takes into consideration the immense amount of timber which formed an integral part of the construction in the framing of the walls and floors of the palace at Knossos, and in the ceilings and roofs, the great fire (which is supposed by Mr. Hogarth to have taken place about the year 1000 B.C.) must have wrecked completely the whole palace, and as we have already suggested, accounts for the preservation to our day of what has proved to be the most remarkable archæological discovery ever made.

R. PHENÉ SPIERS.



SKETCH PLAN OF THE PALACE OF KNOSSOS.