A MYCENAEN FOUNTAIN ON THE ATHENIAN ACROPOLIS

Introduction

One of the most difficult problems confronting the military engineers of ancient times was to provide the fortified cities with a sufficient supply of drinkable water, which could not be cut off or contaminated by the enemy in time of siege. History records many instances of capitulation due to a shortage of water,¹ and Greek literature abounds in references to the high value placed upon water by the ancients.² In this, as in so many other ways, the Mycenaean builders showed their foresight and inventive skill. Not many strongholds of the late Bronze Age have been sufficiently excavated to elucidate this fact, but these show clearly that the problem of water supply was seriously considered.

Mycenae offers one of the best examples of the engineers’ ingenuity in meeting this problem. The spring from which the city received its supply was at some distance from the acropolis and separated from it by a ravine. In the earlier period, while the lords of Mycenae felt secure in the knowledge of their military strength, it was sufficient to pipe the water within convenient reach from the citadel and to provide communications through a small postern gate in the wall opposite the open fountain. But such an arrangement would be of no use in a time of siege, nor could water be stored in sufficient quantities for the needs of the population housed within the walls. This would include not only the royal household with its entourage of retainers and guards; but the whole population of the city, with no other effective protection than the walls of the citadel, would doubtless take refuge at such times within the acropolis. The engineers who built the last extension to the fortress of Mycenae made provisions for just such an emergency as this, for it was at that time that the underground stairway was built connecting the fountain directly with the citadel.³

¹ In Thucydides alone there are numerous references to cases in which both the besiegers and the besieged suffered great distress from lack of water: Thucyd. i, 126; iv, 26, 31, 98; vi, 100; vii, 4, 78, 84, 87. Sure access to water was, of course, one of the main factors to be considered in the planning of any military operation; see Kromayer, Ant. Schlachtfelder, III, pp. 517 ff.
² The most quoted passage is Pindar’s Olym. I, 1: “Αρσενον μην ἔδωκ, and the same idea is repeated in Olym. III, 42: ἀρσετέων μὴ ἔδωκ. See also Christ’s commentary on the former passage, Pindari Carmina, p. 3. Utterances like these may appear as absurd exaggerations to people living in countries where water is more plentiful, but not so in Greece. In Greek country districts today a good spring is commonly presented as the chief attraction of a given village and as a special inducement for strangers to visit the place.
Fig. 1. North Slope of the Acropolis, Situation Plan
At Tiryns the water supply was probably in the plain at some little distance from the acropolis, and the inhabitants of the city would have been at the mercy of an enemy who could get near enough to take possession of the fountain. When the last extension to the fortification was made a barbican was constructed protecting the approach to the water supply, which thus became included within the fortified area of the acropolis. Yet, both at Tiryns and Mycenae the sources of water, being outside the fortification wall, were not entirely free from the danger of falling into the hands of the enemy.

In Athens the remains of the Mycenaean citadel are comparatively meager, and hitherto nothing has been known about the water supply of that period. But in the 1937 and 1938 campaigns of excavation on the North Slope of the Acropolis the unexpected discovery of a stairway leading down to an underground fountain enabled us to determine how the wall builders of Mycenaean times provided the citadel with water. Favored by the physical features of the Acropolis rock, and undeterred by the mechanical difficulties involved, they secured for the residents of the Acropolis a supply of water of sufficient quantity for as large a population as the citadel could house. This supply was probably approached only from the Acropolis, and thus safe from hostile attacks.

The slopes of the Acropolis, especially on the north side, have undergone frequent changes, due to the forces of nature as well as to the intervention of man. The hard limestone rests on a comparatively soft layer of clayey rock which disintegrates easily and washes down the slope, leaving the harder rock to overhang round the edges. As a result of this erosion cracks are formed in the limestone, and large pieces break away from time to time. The largest of these cracks is on the north side, a little to the west of the Erechtheion (Fig. 1 and Plate XI). It extends from east to west for a distance of some 35 m., and the width varies between 1 and 3 m. At an early date, probably before the Acropolis became inhabited, the outer piece of rock broke away and slid down the slope a little, but at the top it rests

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5 The excavation in the underground passage was financed by appropriations from the excavation funds of the American School, and in the spring of 1938 an additional donation was made by Mr. Willard V. King for the completion of the work.

The exploratory work in the spring of 1937 was supervised by Miss Dorothy Schierer, and in the campaign of 1938 Mr. Nathan Dane II was in charge. The other members of the excavation staff in 1938 were Carl Roebuck, who supervised the work on the slope; and Miss Margaret Hill and Mrs. R. Howland, who kept the inventories of finds. The plans and sections were made by Mr. H. Johannes and completed by Mr. Wulf Schäfer. The drawings for Figures 6, 16, 25, 90, 97, and 99 are by Mr. Schäfer, that for Figure 10 by Miss Elizabeth Wadhams, and those for Figures 20 and 98 by G. V. Peschke. Most of the photographs were made by Messrs. Hermann Wagner and Saul Weinberg, but a few were by different members of the excavation staff. I am indebted to Miss Dorothy A. Schierer and Mrs. Bronner for valuable help in the preparation of the manuscript and to Professor J. P. Harland for many helpful suggestions.
against the main mass of the Acropolis rock. For this reason the fissure is practically closed at the top, and the Acropolis wall is built partly over it. Only at one point does the whole width of the wall rest on the smaller piece of rock, leaving an opening into the cleft inside the fortification. There are at present two other entrances halfway down the slope, one from the east (Fig. 2 X) and one from the west, and at the beginning of our excavation it was possible with some difficulty to pass from one end to the other.

The passage was investigated and partly cleared by Kavvadias and the results published in 1897. Before that time the whole underground passage was almost unknown. The mouth of the cave at the eastern entrance was closed by a wall of modern construction, demolished in the excavations of 1896-7. A Turkish inscription, built into the wall, showed that the cave was closed up at a late period, probably during the Greek War of Independence. The western end of the passage was filled with earth to the top, and the only approach seems to have been from the Acropolis, where the descent could be made by means of some late steps still in place. These Kavvadias dated in Frankish or Turkish times. He describes a flight of nine steps, the lowest of which was partly of wood. Two wooden beams and five of the steps are still in place. But Kavvadias found a second flight of five steps at a lower level, built like the upper flight and probably dating from the same late period. Between the lowest step of the upper flight and the highest step of the lower flight there was a sheer drop of 6.50 m., where a moveable ladder may have been used and pulled up after each ascent.

In the outer wall, closing the east entrance, Kavvadias found some insignificant fragments of sculpture and inscriptions. Although he does not describe the excavation of the passage in detail, it is evident that he also removed the lower flight of steps. When our excavations began we found, ca. 6 m. west of the east entrance, the rubble foundations of this stairway with what seems to have been the lowest of the five steps (Fig. 3). Built into this construction were several fragments of inscriptions, some pieces of sculpture, including part of a metope from the Parthenon, and a few architectural fragments.

In 1933-34, when the supporting walls were built which now conceal much of the rock on the North Slope, the entrance to the cave was narrowed, the fill at the east end of the passage was removed to a considerable depth, and the resulting

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6 Ἀρχ. Ἐφ., 1897, pp. 26-32; Πρακτικά, 1896, pp. 17 ff.; 1897, pp. 10 ff.; Kavvadias and Kawerau, Ἀνασκαφή τῆς Ἀκροπόλεως, pp. 45 ff.; Judeich, Topographie von Athen, pp. 301 ff.; Jane Harrison, Primitive Athens, p. 72, fig. 22.

7 The photograph for Figure 3 was taken in 1934 before the construction of the supporting walls. The foundation appears in another photograph taken in 1934 and published in Hesperia, IV, 1935, p. 131, fig. 15.


Fig. 2. View of North Slope, Showing Area Cleared in 1938 and Entrance to Mycenaean Fountain
hollow filled with stones. In this condition the underground passage remained until the beginning of our excavation.

The reason for undertaking a new investigation in this place was twofold. The discovery of the sanctuary of Eros and Aphrodite in 1931 and its identification with the early cult place of Aphrodite in the Gardens had added new weight to the suggestion that the underground passage with its primitive descent from the Acropolis was used by the Arrephoroi on their nightly mission to the Peribolos of Aphrodite. On the chance that some undisturbed fill containing votive objects might be left at the bottom of the passage, it seemed worth while to examine the nature of this fill, which might throw some further light on the rites connected with the Arrephoria. In this respect our expectations were not fulfilled. Scattered bits of terracotta figurines of different periods were found in the upper layer, but nothing that could be connected with any particular cult. Probably all the fragments had come down with the fill from the Acropolis. A secondary reason for clearing the passage was the probability of discovering fragments of inscriptions and sculpture from the Acropolis, and from this point of view the undertaking was well worth the effort. But the most important result of the excavation was wholly unexpected, the discovery of a Mycenaean stairway leading from the Acropolis through the cleft in the rock to a copious underground water supply at a depth of ca. 40 m. below the Acropolis level.

The Excavation

Our excavation was begun in April, 1937. At first a pit was dug, directly west of the late foundation for the stairway (Fig. 3) referred to above (the following spring the remaining part of this foundation was removed). Below a mixed deposit of late date at the top the Mycenaean fill was reached, mixed to a slight degree with Geometric and later sherds. A large number of stones and flat slabs were found in the fill. At a depth of ca. 7.50 m. (+ 125.65 m.) the stones became so numerous and so large that it was impossible to proceed further in this narrow pit. Consequently a new pit of larger dimensions was begun a little farther to the west, and at the same time the west end of the passage was investigated. At the close of the season the second pit had reached a depth of ca. 7.50 m. (+ 125.65 m.), but the work continued with a few men during the summer until a depth of ca. 17 m. (+ 116.15 m.) had

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10 *Hesperia*, I, 1932, p. 52. The suggestion was first made by Kavvadias, Ἀρχ. Ἑφ., 1897, p. 31, but in an earlier article he had suggested that the more western descent on the North Slope was used for this purpose, Παραπτικά, 1896, p. 19.

11 Kavvadias also reported the discovery of some objects of a similar nature, Ἀρχ. Ἑφ., 1897, p. 32.

12 Depths are calculated from the level at which our excavations began, which is 133.15 m. above sea level. The numbers preceded by a plus sign denote heights above sea level, based on the levels indicated on the plans in Kavvadias and Kawerau, Ἀνασκαφή τῆς Ἀκρόπολεως.
Fig. 3. East Entrance to Cave before Construction of Supporting Walls in 1934
been attained (Fig. 4). The first recognizable steps appeared at a depth of ca. 11 m. (+ 122.15 m.) in the second pit. These were the slanting lower steps of flight V (see below, p. 335). Not until the better preserved flights VI and VII came into view was it possible to conjecture what purpose the underground passage had served.

Fig 4. Deep Pit Dug in 1937

At the point where the first steps of the stairway appeared the pottery from the fill was no longer mixed with sherds of later periods. Single sherds of Geometric ware and even later pieces were discovered to a depth of 7 m., but these are too few to have any bearing on the date of the fill. They had probably been washed down by water, which pours down from the Acropolis during heavy rains.
It became evident that the bottom of the ancient shaft could not be reached from the narrow pit in which we were operating in the summer of 1937, and the work was suspended for the season. The clearing of the western extension of the passage revealed that the fill here had a depth of only 1 to 2.50 m., becoming gradually deeper toward the east as the shaft with the stairway was approached.

The work was resumed on March 18, 1938. The whole extent from the east entrance as far as the deep pit of the preceding season was then excavated. When the level of the first pit was reached, it became clear that the stones, which the year before had impeded our progress at this point, were part of the collapsed upper flights of steps. In addition to the stones from the stairway large boulders, rolled down from above, and pieces of rock, broken off from the sides of the chasm, made excavating in this section both difficult and hazardous. The two largest of these, weighing several tons, which completely blocked the passage at one point, had to be broken up with sledge-hammers and removed in small pieces. When the campaign closed on June 15, 1938, the water level had been reached at a depth of 21 m. (+112.15 m.), and no further progress was possible without the removal of the water, which seemed to fill up faster than it could be taken out. But during four weeks in June and July, while no work was being done, the water level sank ca. 15 cm.

An attempt to lower the level of the water by pumping proved futile, for the flow was greater than the capacity of the pumps. Five barrels, each with a capacity of 0.227 c.m., were then placed at the bottom of the cistern, and these were quickly filled by bailing. In this way it was possible to remove all the water at once, so that digging could proceed for a few minutes until the hole was again filled with water. The barrels were then emptied by pumping and the process repeated. Somewhat to our own surprise we discovered that, although the hole in the middle of the shaft filled up very fast, after a day’s bailing and digging there was a net gain in the lowering of the water level of from 5 to 15 cm. This made it possible to continue, at a slow pace, to dig the remaining fill, and at the end of August, 1938, the absolute bottom was reached. The water continued to flow with increased force from a hole at the bottom of the shaft until it reached a certain level, but the total lowering of the water level amounted to over 2 m. At the beginning of the rainy season the water rose again, until in March, 1939, it was considerably higher than the original level of the previous season.

During the winter of 1937-38 a great deal of water washed down from above, partly filling our pit with mud and stones, and a large marble block was at one time hurled down from the Acropolis. The steps of flight VII were slightly injured by this block, but fortunately no serious damage was done. The opening from the Acropolis was later covered with timbers to prevent the recurrence of similar acts.

Because of the great depth and the tortuous line of the descent three pumps were installed at different levels. Only hand pumps were used, for the limited space at the bottom would hardly have permitted the installation of an engine while the digging continued.
The Stairway

The descent from the Acropolis into the underground passage begins at the northwest corner of the heavy foundation for a small square building, which by some scholars has been identified as the House of the Arrephoroi 15 (Plate XI and Fig. 1). A stairway of modern construction (Plates XI and XII, A) descends toward the east to the opening into the cleft, and at the lower level are the remains of a stairway (Plates XII, XIII, B, and Fig. 5) with a westward descent, dated by Kavvadias in Frankish or Turkish times. The masonry is a hard rubble, made with lime mortar, and the steps are mostly re-used marble blocks. Only five steps are preserved. The rubble foundation on which they rest has no support from below, but is held in place by being wedged in between the two sides of the chasm. Underneath are two wooden beams, still in good condition, which were probably placed there as support for the masonry while the stairs were being constructed. To the east of the descent from the Acropolis the chasm is closed, partly by masonry of mediaeval and modern date, and partly by a huge piece of rock. Above the stairs is a vault (Plate XII, C), built of rubble like the foundation for the steps and probably of the same date.

15 A description and identification of the building is given by Stevens, Hesperia, V, 1936, p. 445, fig. 1, 21, and pp. 489 ff. Cf. also Picard, L'Acropole, Le Plateau Supérieur, etc., pp. 16 ff., who points out that the plan of the square building is suitable for a small temple or treasury.
The traces of the ancient stairway begin ca. 1 m. above the highest preserved step of the mediaeval stair. On the south side of the cleft a row of cuttings for steps (Plate XIII, D-E) is comparatively well preserved. They are shallow depressions of rather irregular shape, descending in a gentle slope toward the west.

Although in a few places the face of the rock is so crumbly that the cuttings have almost disappeared, it is possible to determine that there were approximately twenty-five steps in the first flight. The width of the cleft at the top is now 1.35 m., but originally it was somewhat less. On the north side (Fig. 5) the face of the rock was dressed back at some period subsequent to the construction of the Mycenaean stairway, and the cuttings for the three upper steps on that side were then removed. The
cleft widens somewhat below this point but narrows again toward the foot of the first flight. The cuttings for the lowest eight steps are preserved on the south side, but there are no corresponding cuttings on the north side of the cleft. A little below the cuttings on the south side is a natural ledge (Plate XIII, E), which may have been utilized as support for the construction of the stairway at this point. The steps cannot here have extended to the opposite face of the cleft, for this would have blocked the descent from the first to the second flight, and the absence of the cuttings on the north side indicates the presence of a landing at the turn of the stairs (see conjectural restoration of the stairway at this point as shown in Figure 6).

The cuttings for the second flight begin ca. 0.30 m. below the ledge on the south side of the cleft and descend with a gentle decline toward the east. The slope is not altogether uniform. The deviations are due to the nature of the rock, which in a few places is too rough and crumbly to give sure support to steps. There were approximately forty steps in the second flight, but for the last ten there are no cuttings preserved on the north side. The width of the chasm is here over two meters. It is possible that some cuttings have disappeared through the weathering of

Fig. 7. Cuttings for Steps at the Foot of Flight II, South Side of Cleft
the rock close to the entrance of the cave, but it is more likely that an artificial support was constructed on the north side, leaving room for the descent to the next flight below. The masonry of the modern supporting wall now partly covers the north side of the passage.

For the construction of the upper two flights there is no other evidence than the shallow, step-like cuttings (Fig. 7) on either side of the chasm. These were evidently intended to serve as anchorage for wooden steps, cut to fit exactly the span between the cuttings and inserted with sufficient force to make further support from below unnecessary\(^{16}\) (Fig. 6). Until the beginning of our excavation in 1937 it was generally supposed that the two flights described above constituted the whole stairway, the purpose of which was to provide communications between the Acropolis and the cult places on the North Slope. Doubtless this part of the descent remained in use in connection with the cults throughout classical times, but the nature of the cuttings permits us to date them at a much earlier period than was formerly supposed. The cuttings, very shallow and irregular in shape, show no chisel marks or square corners (Figs. 5 and 7), and altogether they convey the impression of having been made by tools of stone\(^{17}\) rather than of metal. They contrast strongly with the numerous cuttings of classical times along the North Slope and on the Acropolis itself.

The second flight of steps stops abruptly at a depth of ca. \(+131\) m. (Plate XIII, F, and Fig. 7). From the bottom of the mediaeval stair down to this level the sides of the cleft are very nearly vertical (see section, Plate XII) and only about one to one and a half meters apart. This made the type of wooden stairs described above suitable for the upper section of the descent. Moreover, since this part was well above the ground level at the east entrance to the cave and the circulation of air kept the place dry, there was less danger of destruction from the decay of the wood. In such a place, the wood, if of good quality, would last for centuries, as is shown by the beams still in place beneath the mediaeval masonry.

Below the level at the east entrance the opposite conditions prevailed. The rock here inclines toward the north at an angle of ca. 35 degrees, to a depth of \(+120.50\) m., and the average width of the passage is rather more than two meters. Here it is possible in most places to walk along the rough southern side of the cleft without the use of a ladder. It is likely that all this part had to be excavated by the original builders of the stairway, as is shown by the conditions in the western extension of

\(^{16}\) The practicability of this type of stairs was demonstrated during our investigation of the passage. In order to measure and study the whole descent wooden ramps were constructed along the lines of the ancient cuttings but at a slightly lower level. The ramps were made of planks supported on cross beams (seen in Figure 7, right), which were wedged in between the two faces of the cleft in the manner of the original steps and anchored in natural depressions of the rock.

\(^{17}\) That stone tools were used for such purposes in Mycenaean times has been pointed out by Kurt Müller, *Tiryns*, III, p. 177, who was able to determine that the large limestone blocks of the fortification were dressed by stone hammers.
the passage, where undisturbed natural fill was reached at a depth of only 1 to 2.50 m. The same seems to have been the case at the east end. The length of the shaft excavated by the Mycenaean engineers for the purpose of the descent measures ca. 10 m. from east to west at the top, decreasing rapidly toward the bottom.

Of the third flight of steps—the first below the level of the cave—the only remaining traces are nine cup-shaped depressions cut in the face of the rock on the south side of the cleft (Plate XIII, G-H, and Figs. 8 and 9). They are ca. 0.20 m. in diameter and from 0.02 to 0.10 m. deep. The outer edge is, as a rule, fairly sharp, but in a few cases it is roughly broken away as if by accident. The interaxial distance varies between 0.60 and 1.10 m. They form a slightly curving line with a westward slope, even more gentle than that of the first and second flights. From the bottom of flight II (Plate XIII, F) to the first of the cuttings for flight III (Plate XIII, G) there is a drop of ca. 4 m. It is likely that the lowest steps of flight II,
the landing between the two flights, and the upper steps of flight III were supported by masonry resting on the natural fill of the cave itself, where the two faces of the cleft come very close together. No trace of this construction is preserved.

At the west end of the line of cuttings for flight III (Plate XIII, H), there was a third landing. A little more than a meter below the westernmost cutting of the third flight, and a little farther west are two similar cuttings (Plate XIII, J, and Fig. 8, J), only about a half meter apart and aligned horizontally. These were evidently made for the support of the landing. The fourth flight, descending toward the east, is represented by three cuttings, one of which is partly hidden under the stone steps still preserved in situ (Plate XIII and Figs. 8, 12, 13) at the bottom of the flight. Only three steps remain, and the topmost of these is slightly tilted from its original position.
The steps are made of a grayish blue marble, which flakes off into flat slabs like slate. These have been broken up into the proper size and shape, with no marks of tooling left along the edges. A hard deposit of reddish color, ca. 1 to 5 cm. in thickness, covered the tread of the steps when first uncovered. This may have been added purposely to render the steps less slippery, but more likely it was formed by an accidental accumulation of earth washed down by rain from the sides of the chasm and trodden down by the feet of the water carriers. The steps are laid in a mortar of yellow clay and supported on a substructure of loose rubble. This rubble masonry is constructed of rather small stones, carelessly thrown in with a liberal use of earth mortar, which differs both in color and consistency from the mortar bedding for the steps.

Although the slope at this point is rather gentle and the surface rough, it is

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Fig. 11. View of Passage, Looking Down, During Course of Excavation

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A similar use of yellow clay in the construction of a stairway is reported by Wace at Mycenae, B.S.A., XXV, 1921-23, p. 45.
obvious that no secure foundation for the steps could be made with this kind of masonry alone. The cup-like depressions, one of which was found behind the rubble underneath the preserved steps, must have served some purpose in connection with the construction of the stairway. They are, as a rule, not at the outer edge of the steps, but more than halfway in, and _ca._ 0.90 to 1.25 m. below the tread of the step directly above each cutting. In several of the depressions were found small quantities of a soft, dark substance, obviously decayed wood; and in the rubble construction at several points were clear traces of decayed wooden beams, running approximately parallel to the line of the stairway and following the descent of the steps. At the foot of the fourth flight the excavations revealed a heap of stones and marble slabs in complete disorder, concealing the steps of flight V and the landing below flight IV. Figures 10 and 11 show the condition of the stairway at this point before the débris from the collapsed upper flights had been removed and the preserved steps of flights IV and V uncovered.

Fig. 12. Flights IV and V as Found
The landing below flight IV (Plate XIII, K, and Figs. 8 K, 12 K and 14 K), measuring ca. 1.40 x 1.60 m., is preserved in its original condition. It is made of several slabs of irregular shapes roughly fitted together. Below the landing are preserved six steps of the fifth flight (Figs. 8, 12-14) descending toward the west. These were found in their original order but sloping sharply toward the north, their south ends resting on a slight, partly artificial, ledge in the rock (Figs. 12 and 13). The rubble substructure had collapsed, but the clay mortar and the weight of the slightly overlapping slabs were sufficient to hold the steps together and prevent them from falling down into the shaft below. We were able to raise the steps to a horizontal position (Figs. 14 and 15), supporting them temporarily with ropes tied to a wooden beam, while a concrete slab was laid underneath for their permanent support. In the removal of the collapsed rubble masonry a few sherds were discovered, valuable for the dating of the stairway (see p. 346, note 24). Two pairs of cuttings in the
rock were found underneath this flight. The upper two (Plate XIII, L, L', and Fig. 15), somewhat larger than the others, are ca. 1.25 m. below the tread of the step directly above. Their position in relation to the stair indicates that they were intended for the same purpose as the cuttings for flights III and IV. The two smaller cuttings (Plate XIII, M, M', and Fig. 15), aligned horizontally at a still lower level, were probably made for a different purpose (see p. 345).

![Fig. 14. Flights V and VI, After Steps Had Been Raised](image)

In the construction of flights III, IV, and V the builders faced a difficult problem. The technique used in the upper flights of steps was not suitable here, partly because wooden steps could get no safe purchase on the overhanging north face of the rock, and partly because of the greater width of the passage. Furthermore, since this was all underground and exposed to a great deal of moisture throughout the whole year, a stairway constructed entirely of wood could not be expected to last very long. This obvious fact, however, seems to have troubled the builders less than the difficulties
of construction. The most satisfactory solution, to cut a stairway in the side of the rock, was probably beyond their technical ability. But it is likely that the element of time, too, was an important factor in the choice of construction, for there is every reason to believe that the underground fountain was part of a general program of defence against impending danger to the city. The construction they devised can

19 In Tiryns, too, wood was used extensively in moist places, e.g., in the bathroom and in the deep magazines west of the court. Müller, *Tiryns*, III, pp. 180 f., suggests that the wood may have been covered with tar to protect it against decay.
hardly be called satisfactory, but it served the purpose for the time, and part of it remains in its original condition to the present day.

From the cuttings in the rock and from the actual remains of steps and sub-

structure it is possible to determine how these flights were constructed. The cup-like cuttings in the south face of the cleft must have been made for the purpose of anchoring the stairway to the steeply sloping rock. The shape and spacing of the holes would seem to indicate that they were intended as anchorage for the lower ends
of upright wooden posts, whose upper end would lean against the overhanging north face of the cleft. This would be a likely explanation if the holes were cut at the outer edge of the stair, but wherever the steps are preserved it is obvious that an attempt was made to cut them as far in as possible and at the proper distance below the steps so as to be approximately in the middle of the substructure. Some of the cuttings are so far from the outer edge of the stair that beams resting in them would be in a nearly horizontal position and thus could get no purchase against the overhanging rock on the other side of the cleft.

From practical experiments with a model of approximately one tenth the actual size of the stairway the reconstruction seen in Figures 16-18 evolved. Long horizontal beams were held together by upright posts at intervals of slightly less than a meter.\(^{20}\)

\(^{20}\) This is a common type of construction in house walls of the Mycenaean period; see Wace, \textit{B.S.A.}, XXV, 1921-23, pp. 42, 88 ff. and fig. 20. Even the spacing of the beams in the South House
The total absence of metal spikes indicates that the posts were joined to the beams by halving, and placed on the outside so as to hold the beams in place. A transverse tie would be similarly fastened at its outer end to the middle of each post and its inner end notched to fit into the cuttings in the face of the rock. The distances between the holes show the spacing of the upright posts, and probably the horizontal beams were equally spaced so as to form a succession of squares. The whole framework, imbedded in the loose rubble construction, would hold the masonry together; and the transverse ties, firmly anchored in the holes and held down by the superposed mass of rubble, would be sufficiently strong to prevent the stairs from slipping down the slope. In the model shown in Figures 17 and 18 the notched tie, of about the thickness of a middle finger, when inserted into the small hole, became so firmly fixed that it could not be removed except by breaking the wood or by lifting it out of the hole. As long as the wood remained in good condition and the weight of the masonry held these ties in place there was no danger that the stairs would collapse. Its duration would depend very largely on the kind of wood used, but the dampness in the lower part of the passage is so great that even the best kind of wood could not be expected to last very long.

About 1.50 m. below the bottom of the fifth flight, the slope of the main mass of rock changes, as seen in Plate XII. Here it turns at almost right angles, continuing with a pronounced southward slope, and the corresponding face of rock on the other side of the cleft follows in the same direction. This change in the slope necessitated a change in construction. Since the stairway obviously could not be built on the overhanging face of rock on the south side of the cleft, it became necessary to bridge over to the opposite side. The last three steps of flight V are missing (the short steps seen in Figure 14 are not ancient), but the landing which bridged the cleft at this point remains together with the next step below. It seems to have been supported on a wooden beam, a cutting for which is visible on the south side (Plate XIII, N, and Fig. 15 N). The north end of the beam must have rested on one of the steps of the next flight. When the wood decayed, the two slabs slid down slightly, but the cleft at this point is so narrow that they did not fall into the shaft below. They have now been raised to a horizontal position and are supported on an iron beam. Flight VI seems to have consisted of only three steps, in addition to the landings. The overhanging rock at the turn of the stairs is here so low that one must stoop to reach the next flight, and it must have been difficult to carry pitchers of water beyond this point (see p. 345).

at Mycenae, 0.80-0.85 m., corresponds rather closely to that in the stairway as revealed by the distances between the cuttings in the rock. At Tiryns the wooden network was much closer, Müller, op. cit., pp. 181 f.

21 Similar transverse ties were used in Tiryns, where strangely enough no upright beams appear to have been used; cf. Müller, loc. cit.
On the north side of the cleft the natural rock at this level is sufficiently soft to enable the builders to level off the surface so as to secure horizontal beddings for the foundations. The substructure for flight VII does not consist of soft rubble held together by wooden beams, but of solid masonry still in a good state of preservation. All five steps of this flight remain in their original position (Figs. 8 and 19). They are higher than the preserved steps above, \textit{ca.} 0.25 m. as compared with 0.15-0.20 m., and the tread is comparatively narrow, \textit{ca.} 0.26 m. The width of the stairs at this

Fig. 18. Model of Stairway, Showing Details of Construction
point is only 0.75 m., about one fourth less than that of flight V. At the narrow landing below the fifth step is a large projecting piece of rock, which seems to have been there when the stairway was in use.

The eighth flight (Fig. 19), consisting of four steps, is preserved in its entirety.

As in the preceding flight the steps are high and the width of the stairs is only about 0.45 m., as compared with 1 m. in flight V. The lowest step is a large block, 1.55 m. in length, supporting the weight of the upper three steps. The bedding on which it rested had largely disappeared and this caused the stone to settle to such an extent that it had to be supported to prevent the collapse of the whole flight.

From the bottom of flight VIII to the level of the water (at the close of the excavation in August, 1938) there is a sheer drop of ca. 8 m. Originally there was a
well shaft, ca. 2 m. in diameter, cut in the soft clayey rock on which the limestone cap of the Acropolis rests. The shaft seems to have been approximately circular, but the original edges have caved in, except for a small section in the northwest side. It was filled with a rather soft earth, containing a great deal of pottery, as well as marble slabs and stones from the collapsed stairway above. In the lower part were well-marked layers of a hard, rust-colored deposit 22 marking the various levels of water. In this fill were numerous holes formed by decayed beams (Figs. 20 and 21), with bits of wood and pieces of bark adhering to the edges. The largest of the beams (Fig. 20) had a length of ca. 3.45 m. and a diameter of ca. 0.20 m., but some were short pieces, a few centimeters in thickness. The beam holes were mostly circular, or

22 A chemical analysis of this deposit, made by Miss M. Farnsworth, shows an iron oxide (Fe₂O₃) content of 12.3%.
semicircular, in section, showing that they were formed from tree trunks, either whole or split through the center. A few, however, were practically square in section, and one hole, of no great length, appears to have resulted from a short piece of flat plank.

At first it was thought that these beams had to do with wooden stairs, reaching from the lowest flight of stone steps to the level of the water, but upon closer examination this hypothesis seems improbable. No intelligible order of the beams could be observed, beyond the fact that in many cases they were oriented east to west. A few holes pointed down as if caused by upright beams leaning against the sides of the shaft. The most likely explanation is that the beams and planks were used for shoring up the sides of the shaft. This would explain the irregular arrangement of the holes and also the prevailing orientation, the east and west sides being the weakest because of the east-west orientation of the cleft. The necessity for precautions of this nature was impressed upon us repeatedly during the process of excavation.

At the bottom the circular shaft opens into a small reservoir, ca. 4 m. in diameter (see plan, Plate XII). The edges are so poorly preserved that the exact form is not very clear, but it seems to have been shaped like a bee-hive with a deep pit in the center.
(Plates XII and XIII). A small portion on the north side still retains its ancient fill. This is the better preserved side, but at the close of the excavations several new cracks developed in the stereo above the reservoir, which made it inadvisable to remove the earth from beneath the crumbling rock.

It is not certain how the water was reached from the lowest flight of stone steps, but it is possible that a wooden ladder was used for a short while or was, at least, intended. A heap of rubble masonry (Plates XII and XIII, O), similar to the substructure for flights IV and V, is preserved at the north side, and this may have been made for the support of a landing on which the ladder stood. A marble slab (Plates XII, XIII, P) like that used for the steps was lying on the rubble, but it is uncertain whether it was in situ where found or had fallen from above. A wooden ladder or stair might have been placed on this platform, its top leaning against the long slab at the foot of flight VIII.

If this was the original arrangement, it is unlikely that it continued in use very long. The inconvenience of carrying water up the steep steps of the ladder and past the abrupt overhang above flights VI and VII, would necessitate alterations. From a platform constructed below flight V it would be possible to draw water with the use of a rope, and at this point are two horizontally aligned holes in the south face of the cleft (Plate XIII, M, M' and Fig. 15, M, M'). The beams on which the platform rested were probably placed in these holes. This is the highest level from which a rope can be let down vertically into the reservoir. Possibly an overhead pulley or some similar device was used at this point to facilitate the raising of the water jars.

It is obvious that the problem of construction taxed the mechanical ingenuity of the builders to its limit, and the result was not altogether successful. They were probably familiar both with wooden ladders and with ordinary stone stairs, but difficulties arose in trying to adapt these types of construction to a steep underground chasm, where wood was likely to rot and the surface of the rock was too steep to provide support for stone foundations. The upper two flights seem to have caused very little trouble, and the wooden stairway with the steps anchored firmly in the sides of the cleft was both serviceable and lasting. New steps could be added whenever the wood became impaired through wear or decay, and it is likely that this part of the descent, repaired from time to time, remained in use throughout antiquity. Ordinary stone stairs, on the other hand, were common, and for these a particular type of marble was used, which, so far as I know, is not found in the vicinity of Athens. At the present time a similar stone, used extensively in Athens for steps and pavements, is quarried on the island of Tenos. It is more likely, however, that the slabs used for the stairway were brought from the island of Euboia, where a similar stone is still quarried near a small village, called Marmari, ca. 6 km. north of

\footnote{In our excavation of the shaft we were faced with the same problems as the original builders and the users of the water, and throughout our work a platform at this level was in constant use.}
Karystos. It required considerable skill to break up the slabs into the right shapes and sizes for the steps. The edges are comparatively straight and sharp, and in no case is there any trace of tooling. The clay mortar in which the slabs were laid was sufficiently hard and adhesive to hold the stones in place, as is shown in flight V, where the steps were firmly held together after the rubble underneath had collapsed. Wherever the surface was level so as to offer a secure bedding for the substructure, as in flight VII, the stairway is still in excellent condition.

The slope of the rock is so steep in most places that in all probability the stairs collapsed as soon as the wood decayed, and this is likely to have taken place not many years after its construction. They may have been mended for some time, but it is unlikely that they remained in use for long. A maximum duration of twenty-five years is a generous estimate. The potsherds found in the rubble under the steps are of the same type as the bulk of the pottery thrown into the hole after the stairway collapsed.\textsuperscript{24} The same is true of some better preserved pots, found at the very bottom of the reservoir, where they were left while the well was still in use. A small deposit of pottery, including two large amphorae and a kylix, probably used as a lamp, were found at the foot of flight IV (Fig. 22 and Fig. 8 Q), where they may have been placed just before the destruction. They certainly cannot have come down with the later fill. Thus we have ceramic evidence to fix the date of the original construction of the stairway, of the period of its use, and of the time of its destruction; but the period of use was so short that no chronological difference in the pottery can be observed. The date will be discussed more in detail in the final section, but it is important in this connection to bear in mind that very little time elapsed between the construction of the stairway and its final abandonment.

**The Pottery**

After the lower part of the stairway had collapsed and the water supply was no longer accessible, the underground passage seems to have become a general dumping place, which accounts for the immense accumulation of potsherds from the fill. The bulk of the pottery probably dates from the time of destruction and somewhat later, yet no distinction in date can be made between the pottery thrown into the cavern after the destruction of the stairway and that left there while the fountain was still in use. The vases found at the very bottom and in the deposit below flight IV (see p. 395) are certainly earlier than the destruction of the stairs, as is shown by the fact

\textsuperscript{24} Among the recognizable shapes, represented only by small fragments, are unpainted kylikes (Shape 7 b and c), one pyxis (Shape 15), skyphoi (Shape 3), cups with two horizontal handles (Shape 9), and, most numerous, larger vessels, probably water jars. Although in most places a slight contamination would have been possible, the sherds found in the collapsed substructure beneath the steps are so numerous that a preponderance of earlier sherds, had it existed, would have been easily detected. Actually very few sherds of early Mycenaean pottery came to light here.
that several of these vases were found practically complete. They are mostly large vessels, amphoras or hydriai, suitable for carrying water. The only other type of vessel that can be definitely associated with the period of use are some undecorated kylikes, one of which is complete (see p. 377). The pottery thrown in after the collapse of the stairway is very fragmentary. The vases were probably in all cases broken before thrown away, and rarely or never were all the pieces of a broken vessel thrown down together. The fragments of a particular vase may in some instances have been thrown down at different times, and in some cases they became scattered and mixed with the earth and rubbish, most of which immediately fell down to the bottom of the pit, while some of it was left higher up the cleft on projecting ledges of rock or on the remaining parts of the stairway. If the hole had consisted of a vertical shaft, the accumulated earth should have been found in a stratified order, for it is perfectly clear that the deposit had never been disturbed by human agency since the fountain went out of use. The fill of the last fifteen meters was of uniform date, as is indicated by the scattered sherds of certain vessels found at greatly varying depths, in some cases as much as eight meters apart. It is only at the upper levels that

Fig. 22. Pottery Deposit at Foot of Flight IV
a distinct difference in the pottery could be observed, but at no level was there anything like a sequence of stratified deposit.

Although immense quantities of sherds came from the fill, only a comparatively small number of vases have been put together and restored. An attempt has been made, so far as practicable, to restore at least one specimen of each determinable shape, in order to show the range of the potters' repertoire in Athens at this time. Some well-known and perfectly certain shapes are represented only by small fragments, and in such instances it has seemed preferable to refer to published examples rather than to restore most of the vase in plaster. The coarse, undecorated pottery, large quantities of which were discovered, is too fragmentary to repay detailed study. In most cases the shapes of this pottery are of slight importance, but a few of the more characteristic types are discussed below.

In describing the shapes of the decorated vases it seems advisable to include in the discussion the decoration of each type, because in many cases the relation between the shape and the decoration is of fundamental importance. This is not due to any subtle fitting of designs to the shapes of the vessels, but to an arbitrary, though rather rigidly fixed, distribution of patterns. Certain elements of decoration occur on vases of many different shapes, but in other instances only a particular design or combination of designs occurs on a given type of vessel. Although in many cases the decoration consists of nothing more complicated than a more or less stereotyped arrangement of horizontal lines, or alternating painted and reserved bands, a particular scheme is adhered to for each shape. Because of these conventions it is sometimes possible to distinguish sherds of closely related vessels, even when no such distinction can be made from the profile of the sherds.

There is a considerable variety in clay and fabric among the pottery from the fill of the passage. For the decorated ware and for all smaller vases a rather fine clay is employed, usually of a buff color but with considerable variation of shades. The surface is smooth and covered with a clay wash of the same color as the biscuit. In some lightly fired examples the surface is mealy and the decoration is in poor condition. This is by far the most common type of clay used both for the decorated and undecorated vases. A very few sherds of vases decorated in the "close style" are made of the greenish-buff clay which is typical of this class of vases. Usually the fabric is thin and tends to flake off, but the glaze is, as a rule, well preserved. A third variety is comparatively common. The biscuit is brick red and rather coarse and gritty, and it is covered with a white slip over which the decoration is applied. Usually the slip is too thin to conceal the gritty surface of the clay, but in a few cases it is applied so thickly that the vase has acquired a smooth surface as if covered with enamel. Only a few shapes, mostly large open vessels, such as kraters and bell-shaped bowls, belong to this variety.25 A fourth variety, very coarse and gritty and usually unslipped and undecorated, is used for the plain household ware.

25 The white slip is a common feature on Cypriote pottery and on vases from Asia Minor and the Aegean Islands, where it continues to a late period.
The glaze likewise varies to a great extent. The typical brown or reddish glaze of Mycenaean pottery is used for most of the better vases, but a growing tendency away from the brown and toward the black may be observed. A few sherds have decorations rendered in an opaque white paint on a black ground. There is no marked deterioration in the quality of the glaze among the later sherds. The skyphoi with reserved bands and the shallow bowls with one or two handles (Shapes 8 and 9), which represent a late phase among the pottery from the passage, are often decorated with a glaze of excellent quality, still in good condition. On some of the smaller skyphoi, which are glazed all over, the glaze is often dull and rather poor, but these are probably not much, if at all, later than the bowls with reserved bands. Many of the kylikes are covered with a very poor glaze which has largely peeled off, and the same is true of a large percentage of decorated sherds of larger vessels.

The bulk of the pottery belongs to a late phase of the late Mycenaean period (L. H. III C), but a few sherds are earlier. One or two tiny fragments seem to be Neolithic (Fig. 23 a-d), and about a dozen pieces are Early Helladic (Fig. 23 e-k). The Middle Helladic period is likewise represented by a few sherds of gray Minyan (Fig. 23 l-o) and matt-painted (Fig. 23 q-u) ware. One small fragment (Fig. 23 p)
preserves the feet of a bird. Typical examples of all these periods from the North Slope excavations have been published in earlier reports, and only a few of the more important fragments from the underground passage are shown in Figure 23. The sherds of early Mycenaean pottery, some typical examples of which appear in Figure 24, are also too small and too few to have any bearing on the date of the fill.

Fig. 24. Sherds of Early Mycenaean Pottery

To the earlier phases of late Mycenaean, L. H. III, A and B, probably belong some of the better sherds, but the distinction is not easily drawn. Even in the case of better preserved vases the arrangement of late Mycenaean ware into definite chronological groups is largely conjectural, and no such division of the fragmentary material from our excavation is possible. Among the late Mycenaean pottery thirty shapes can be distinguished with certainty, but many others are doubtless represented by smaller sherds.

27 Cf. Blegen, Prosymma, p. 424. Recently an attempt has been made by Mackeprang (A.J.A., XLII, 1938, pp. 537-559) to fix the limits of the three phases of late Mycenaean pottery first established by Forsdyke, Br. Mus. Cat. of Prehist. and Aegean Pottery, pp. xl-xliv.

The most common shape among the larger vases is the large bowl or krater with two horizontal handles, flat base, broad rim (Fig. 25 a-h), usually flat on top with a wide projection toward the outside and often decorated with painted designs. A bridged spout, projecting from the rim, is a common feature, but is not invariably found on vessels of this kind.

In spite of the large number of sherds of this shape, in no case is enough preserved to justify a restoration. The shape, which is well known from other sites,²⁸

²⁸ Comparatively few examples from the Peloponnesos have been published. There is one from the graves at the Argive Heraion (Blegen, Prosymma, II, p. 23, fig. 124, no. 231), and this has a high foot and no spout. There is not a single example from the chamber tombs at Mycenae published by Wace, but one was found in the Granary (Wace, B.S.A., XXV, 1921-23, p. 49, b). The warrior vase from Mycenae is a well-known late example of the type (Furtwängler-Loeschke, Mykenische Vasen, XLII, XLIII). Two examples from Asine (Persson, Asine, p. 301, fig. 207, 5 and 6) came from the settlement, none from the chamber tombs. The shape, with or without spout, is common among the pottery from Kephallenia (Marinatos, 'Αρχ. Εφ., 1932, pls. 4, 5, 8-11).
did not become common until near the end of the Mycenaean period. Some fragments of similar kraters were found in the excavations on the Acropolis, and some nearly complete specimens came from the Mycenaean houses on the northeast slope. The frequent occurrence of this shape at Athens and its rather rare occurrence at most Peloponnesian sites should probably be explained on the basis of chronological

![Fig. 26. Fragments of Kraters, Shape 1, with Decorations on the Rim](image)

rather than local differences. Comparatively little pottery has been found in the Peloponnesos of the period at which the stemless krater was a common shape.

A peculiar feature of the fragments from our excavation is the decorated rim (Fig. 26). The patterns consist of simple dashes and blobs, zigzags on a reserved band, the broken-rope pattern, alternating rows of concentric half-circles, reserved triangles filled with concentric half-circles or with series of diminishing chevrons,

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30 *Hesperia*, II, 1933, p. 369, fig. 42.
31 For a discussion of this pattern see under skyphos, p. 363.
32 This is a common pattern on vases decorated in the close style; see Persson, *Asine*, pp. 397, fig. 260, 3; 360, fig. 233, 5; Mackeprang, *A.J.A.*, XLII, 1938, pl. XXV, 6-8.
and hour-glasses between cross lines. Several fragments have below the rim single or double raised bands with slanting notches producing the effect of ropes (Figs. 25 g, h, and 27 a-f). This plastic decoration may have been borrowed from coarse pottery, such as storage jars, where it occurs frequently (see Fig. 80). It survives on early Protogeometric kraters as a simple raised band without notches.

Fig. 27. Fragments of Kraters, Shape 1, with Plastic Decoration

The handles are usually bow-shaped and applied horizontally just above the widest part of the body, a few centimeters below the rim. One fragment of peculiar shape, shown in Figure 27 g, is from a double handle terminating in a highly stylized bull's head in the middle. This type of handle, which is found on the warrior vase

33 This is probably derived from the double-axe-butterfly pattern, which has a long history in Cretan-Mycenaean art (see Evans, Palace of Minos, IV, pp. 292 ff.). It occurs in metope formation on early Mycenaean pottery (Mylonas, 'Ἐλέναιακά, Α', p. 116, fig. 94; Blegen, Prosymna, II, fig. 655, etc.), and continued to be used as a major design to the end of the Mycenaean period (Marinatos, 'Ἀρχ. Ἐφ., 1932, pl. 10, no. 149) and even later (Hall, Vrokastro, p. 162, fig. 98). As a subordinate element of decoration it is common on Geometric pottery and on early Orientalizing ware (cf. Schweitzer, Ath. Mitt., XLIII, 1918, pp. 56 ff.; Payne, B.S.A., XXIX, 1927-28, pp. 294 ff.).

from Mycenae,\textsuperscript{35} is more common in the Geometric period. The spout (Fig. 28), commonly found on bowls of this type from Athens, is set just below the rim by which it is bridged over at the base.

The decoration comprises a wide range of patterns. A very common type consists of two or three painted bands at the widest part of the body and a broad wavy line at the level of the handles\textsuperscript{36} (Fig. 28, \textit{a} and \textit{b}). The more elaborate decorations are usually arranged in zones, divided into so-called metopes by vertical bands of multiple lines, or by zigzags between two or more vertical lines (Fig. 29, \textit{a}-\textit{l}).\textsuperscript{37} Occasionally somewhat more elaborate division lines are used (Fig. 29, \textit{m, n}), and in some late examples these vertical stripes have grown to be the main decoration.


\textsuperscript{36} Cf. \textit{Hesperia}, II, 1933, p. 369, fig. 42.

\textsuperscript{37} The use of the vertical lines of zigzags between straight lines is pointed out by Kraiker and Kübler, \textit{op. cit.}, p. 143, as a new element in the Protogeometric style of decoration. It is, however, common on the pottery from our excavation.
A fine example of that kind is shown in Figure 30. On two broad painted bands between thin multiple lines are rows of opposing concentric half-circles rendered in the reserved technique, a rare type of decoration appearing at this time as an early precursor of the red-figured style. On either side of the whole decorated band is a fringe of small loops.

Fig. 29. Fragments of Kraters, Shape 1, Showing Types of Division Lines

Among the elements surviving from the earlier Mycenaean pottery the most common is the spiral (Figs. 31 and 32), which appears in various combinations, usually with some fillers in the triangular space formed by the outer coil of the spiral and the connecting line. Some of these fillers are in the form of debased papyrus flowers (Fig. 31 c, d, f). Two small sherds of a krater (Fig. 32 j, k) have spiral designs in the reserved technique. The center of the spiral is often filled with some

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38 There are several examples of this kind of decoration; see below, p. 420; cf. Heurtley, Q.D.A.P., V, 1936, p. 93; Kourouniotes, Ἀρχ. Εφ., 1914, pp. 107-108, figs. 13, 14, etc. It occurs more commonly on vases of the transitional period and on Protogeometric pottery from the Kerameikos, Kraiker and Kühler, op. cit., pp. 111-112, 141, 176; fig. 10, pls. 29 (no. 523), 63, etc.

motive: a solid circle, the Maltese cross (Fig. 33 e), or the hour-glass pattern (Fig. 32 f, g). In combination with the last of these there are often rows of dots outlining the spirals and the other curvilinear designs (Fig. 31 c, d, f, and 32 f). The dotted outline, a common feature in early Mycenaean designs, is a sign of lateness in L. H. III pottery, as is also the hour-glass pattern, and both elements are found on Submycenaean and Protogeometric pottery.40 The spirals are often combined with

vertical patterns like those described above. A common combination consists of a series of inverted papyrus flowers between vertical lines, flanked by spirals from which large loops extend to either side. The design taken from the papyrus flower appears in varying stages of degeneration, examples of which appear on Figure 33. In the earliest examples (Fig. 33 a-d) there is still an unmistakable resemblance to the naturalistic rendering of the flower, but gradually the motive is simplified, until only a row of chevrons (Fig. 33 h, i) remains. Checkerboard patterns, arranged in vertical zones, are often combined with other motives (Fig. 34). A common pattern

Fig. 31. Fragments of Kraters, Shape 1, Decorated with Spiral Designs

Fig. 32. Fragments of Kraters, Shape 1, Decorated with Spiral Motives
Fig. 33. Fragments of Kraters, Shape 1, Illustrating Degeneration of Papyrus-Flower Motive

Fig. 34. Fragments of Kraters, Shape 1, Decorated with Checkerboard Patterns
Fig. 35. Fragments of Kraters, Shape 1, Decorated with Loop-Patterns

Fig. 36. Fragments of Kraters, Shape 1, Decorated with Degenerate Floral and Marine Motives
Fig. 37. Fragments of Kraters, Shape 1, Decorated with Figures of Birds and other Motives

Fig. 38. Fragments of Krater, Shape 1, Decorated in the Figured Style
of rather late origin consists of double or multiple loops \(^{41}\) depending from the rim and often met by similar loops in the reverse order from below (Fig. 35). These loops, in some cases almost semicircular in form, gave rise to the concentric half-circles, the most common element of decoration on Protogeometric pottery.\(^{42}\) Among the less common motives are triangles filled with a net pattern (Fig. 37 a, b) and arranged in single rows or combined so as to form the hour-glass design. Various floral motives (Fig. 36) appear in degenerate form, usually arranged in metopes. In some cases these are indistinguishable from the marine motives, such as the nautilus and the octopus (Fig. 36). Most of these go back to more naturalistic designs common in the Palace Style of decoration in the second Late Helladic period.

Of particular interest is the figured style of decoration which enjoyed a short vogue at the end of the Mycenaean period. On the fragments from the North Slope appear figures of birds with long feet and ducks' heads (Fig. 37 f-j), and a quadruped of uncertain species (Fig. 38 c). Often these designs, particularly the quadruped, are applied over the linear decoration (Fig. 38), as if they were an afterthought on the part of the vase painter. This type of decoration,\(^{43}\) especially common on vases from Rhodes and Cyprus, did not at this time develop into a successful naturalistic style, but died out together with most of the decorative motives on Mycenaean pottery. It all but disappears in the period of Protogeometric art,\(^{44}\) and the animals on early Geometric vases are too stylized for comparison. One might almost say that the decorators of Protoattic pottery took up the animal designs where their predecessors of late Mycenaean times had left off. The similarity is very striking.

2. Stemmed Kraters. Figure 39.

Closely related to the preceding shape is the stemmed krater with turned-out rim (Fig. 25 j-n) and with two flat handles extending from the rim to the widest part of the body. The spout is rarely found on this type. It is a common shape at other

\(^{41}\) It occurs on a three-handled jar from the Argive Heraion (Blegen, _Prosymna_, II, fig. 351, no. 790); on some sherds from Delphi (Lerat, _B.C.H._, LIX, 1935, p. 373, fig. 24, 7-9); and on a squat skyphos from Knossos (Mackeprang, _A.J.A._, XLII, 1938, pl. XXVII, 3). There are various theories, not all convincing, about its origin (cf. Heurtley, _op. cit._, p. 94).

\(^{42}\) An intermediate stage in the development from the Late Mycenaean loops to the compass-drawn concentric circles on Protogeometric pottery appears on Submycenaean vases (see Marinatos, 'Ἀχωρίς Ἑφ.,' 1932, pls. 4, no. 5; 6, nos. 33, 36, 38, 41; 11, no. 179; Wide, _Ath. Mitt._, XXXV, 1910, p. 27, fig. 3). For a discussion of the motive see Payne, _B.S.A._, XXIX, 1927-28, p. 269. On the earliest Protogeometric vases the half-circles are often drawn by hand (Kraiker and Kübler, _op. cit._, p. 145; pls. 44, 61, 63, etc.).

\(^{43}\) The use of human and animal motives on L. H. III pottery is discussed at some length by Wace, _Chamber Tombs at Mycenae_, pp. 176 ff., with references to the literature.

\(^{44}\) A few examples of animal figures on Protogeometric vases are exhibited in the Kerameikos Museum in Athens; see Kraiker and Kübler, _op. cit._, p. 207; pls. 56, 58, Inv. 560; and cf. Payne, _B.S.A._, XXIX, 1927-28, p. 297, fig. 42.
Mycenaean sites, especially in Rhodes and Cyprus, but very few pieces from our excavation can be identified as belonging to it. In the case of small fragments it is often impossible to distinguish between this shape and the preceding, but as a rule the rim is different. On the stemless krater (Shape 1) it is nearly always flat or convexly curved on top, whereas the rim of Shape 2 is a continuation of the side of the vessel, which first turns in near the top and then flares out sharply to form the rim proper. Although this distinction is commonly applicable, some variations occur, and in a few cases the rim of Shape 1 occurs on Shape 2 and vice versa.

The fragments shown in Figure 39, which have been identified on the basis of the rim profile, may not all belong to this shape. There is one large piece of an undecorated krater, with the flat, vertical handle preserved (Fig. 39, e).


The most common of all the shapes from the fill of the passage is the skyphos with gently out-curving rim, horizontal handles attached at the widest part of the

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45 The type is very common in Aigina (see Welter, Aigina, p. 26, fig. 30), but the stemless krater, our Shape 1, is not represented among the Mycenaean pottery in the Aigina Museum; and some of the fragments from the Acropolis seem to belong to this shape.

46 Cf. Blegen, Korakou, p. 65, fig. 91.

47 Cf. Blegen, Korakou, pp. 48-49, figs. 64 and 65, and p. 60, fig. 83.
body, and a low base. This shape is more commonly referred to as a "deep bowl," \(^48\) but that term is unsatisfactory. It is no deeper in proportion than the preceding two shapes and its similarity to the classical skyphos, especially the Attic type, is sufficiently close to justify the use of this name for the Mycenaean prototype. Moreover, a later form of the same vessel, in use throughout the Geometric period and commonly called skyphos, is the direct ancestor of the skyphos of classical times. It is a late shape with no close relations among the vases of early Mycenaean times.\(^49\) It does not become common until the very end of the Mycenaean period, but it continues with some modification in the early Iron Age. Like the preceding two shapes it occurs but rarely in Mycenaean tombs,\(^50\) but is common in Submycenaean and Protogeometric graves.

The variations in shape are slight. In some cases the body is nearly spherical, as in Figure 44 a, but no chronological development of the shape can be observed among the material from the North Slope. All the recognizable bases are low, whereas in Submycenaean examples of the type the base is, as a rule, considerably higher.

The decorations found on the skyphoi comprise many elements which occur on the kraters, but several new patterns occur. In general the decorations fall into five categories:

a. Horizontal designs. These consist of rows of very small patterns such as zigzags or wavy lines, single or multiple (Fig. 41 a-d); broken-robe patterns, often called "running dog,"\(^51\) either by itself or between wavy lines (Figs.

\(^{48}\) Blegen (Korakou, pp. 48, 62, 63; Prosymna, I, p. 451) and Wace (Chamber Tombs at Mycenae, p. 172) group the three shapes, 1, 2, and 3 together and call them deep bowls or kraters. Mackeprang (op. cit., p. 544) distinguishes between deep bowls, our Shape 3, and large bowls, our Shapes 1 and 2.

\(^{49}\) Mackeprang (op. cit., p. 539, and pl. XXII, 4) points to certain examples with one handle as illustrating the earliest appearance of the type. I can see no reason for assuming that these are earlier than the more common two-handled variety. Among the Mycenaean pottery from the Acropolis in the National Museum there is a late skyphos with one handle and rather high foot. It is not earlier than the Granary Class, as is shown by the reserved section including the foot and lower part of the vase.

\(^{50}\) Numerous skyphoi, usually with a high foot, have come to light recently in Submycenaean graves in Kephallenia (see Marinatos, ‘ΑΡΧ. ΕΦ., 1932, pp. 1-47, and pls. 7, 9, 12). The shape is also common at Delphi (Lerat, B.C.H., LIX, 1935, pp. 341 ff., and pls. XXI, 1-4; XXIV, 1-20).

\(^{51}\) This is a favorite pattern on late Mycenaean ware (see Blegen, Prosymna, I, p. 426, and II, fig. 125, no. 239; Lerat, B.C.H., LIX, 1935, p. 339, and p. 337, fig. 1, 11, 12, 15; p. 342, fig. 3; p. 367, fig. 20, 15-17) and it continues in vogue on Protogeometric and Geometric pottery (Payne, B.S.A., XXIX, 1927-28, p. 270, fig. 32, 24, and p. 273, fig. 33, 17) and even on early Orientalizing ware (Payne, loc. cit., p. 279, fig. 34, 19-21). It is, of course, related to the guilloche pattern, which may have developed from it. If angulated the rope pattern becomes a meander, but see Eilmann, Labyrinths, pp. 38 f., 52 f.; and Kraiker and Kübler, op. cit., p. 176, note 2. That the motive originated as a rope pattern is evident from more carefully rendered examples (Lerat, loc. cit., pl. XXIV, 11 and 18; and Wace, Chamber Tombs at Mycenae, pl. XXXIII, 3), but it is not unlikely that the running-spiral design contributed toward its development (cf. Blegen, Korakou, p. 42, fig. 57). It is found also on early Mycenaean pottery, Wace, op. cit., pl. V, 15; Mylonas, 'Ελευσινακά, p. 117, fig. 95, and p. 123, fig. 101.
40 b, and 41 e-g); rows of single or double loops (Figs. 40 a, and 41 l, m); eyelets between wavy lines (Fig. 41 h, j); rows of reversed N’s (Fig. 41 n); dotted scale patterns (Fig. 41 o, p), etc.

b. Designs applied vertically. These comprise an infinite variety of patterns, including most of those found on the large kraters. Common among these are the zigzags or chevrons between two or more straight lines (Fig. 42), but scale patterns (Fig. 43 e and d), rows of diminishing chevrons (Figs. 43 b, 44 b, 47 b-e), cross-hatched diamonds (Fig. 43 b), etc., also occur. Spirals with large lateral loops, and often with some kind of vertical design in the middle, are common (Figs. 44 a and 45 b). On one fragment (Fig. 45 a) a crude figure of a bird fills the triangular space above the spiral. This is the only recognizable animal motive on sherds of this type of vessels, unless what remains of the decoration on two fragments from a skyphos of the close style (Fig. 46 m, n) may be so regarded. Broad streamers (Fig. 47 f-m), probably derived from lily patterns, and nautili, degenerated beyond recognition (Fig. 46 a-c, f, k), are the only other elements which can be traced back to naturalistic motives. One small sherd (Fig. 47 r) shows a design of uncertain nature in the reserved technique.

c. All the designs discussed above are applied on the upper half of the vase, which is set off from the lower portion by means of one or more horizontal lines, and in most cases there is a painted stripe at the rim. A large number of vases have no other exterior decoration than these horizontal bands (Figs. 25 a)

52 This design has been interpreted as a degenerate octopus pattern, Wace, B.S.A., XXV, 1921-23, p. 47, pl. V, f; Heurtley, Q.D.A.P., V, 1936, p. 95.
Fig. 41. Fragments of Skyphoi, Shape 3, Decorated with Horizontal Designs

Fig. 42. Fragments of Skyphoi, Shape 3, Decorated with Vertical Patterns
48 d, f, 49 a), but usually the handles, the base, the lip, and the entire inside are also painted. In some cases the whole lower portion of the vase as well as the rim is covered with paint and only a broad zone in the upper half is left reserved (Fig. 48 a-c). Occasionally there are horizontal lines at the bottom of this zone (Fig. 48 e, g). This variety forms the transition to the next group.

Fig. 43. Fragments of Skyphoi, Shape 3, Decorated with Vertical Patterns

d. A large number of skyphoi are entirely covered with paint on the outside, except for the base and one or more reserved bands, usually below the level of the handles (Fig. 49 b). This decoration, the reverse of c, seems to have developed at a slightly later date. The bulk of sherds belonging to this type came from the upper layers, but a few came from farther down. It is an important fact that no skyphoi with reserved bands came from the houses along the northeast stairway, whereas Group c was very common.\textsuperscript{58} Group d is found among the earliest of the Submycenaean skyphoi from the Kera-

\textsuperscript{58} See Hesperia, II, 1933, p. 369, fig. 41.
meikos,\textsuperscript{54} but these seem to be slightly later than those from our excavations. The shape is less graceful, the handles heavier, and the reserved bands are at a lower point on the vase. The original function of these bands, to set off the upper decorated zone from the lower part of the vase, is forgotten; and on the latest examples they have become a meaningless tradition, applied at a point where they tend to impair the tectonic character of the vase.

e. In the last group the whole vase, within and without, except the reverse of the base, is covered with a dull black or grayish brown glaze (Fig. 49 c). Most skyphoi of this group are small, and the base is less flaring than is the case on the preceding groups, but there is no appreciable modification in the shape of the body.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{image.png}
\caption{Two Skyphoi, Shape 3, Decorated with Vertical Patterns}
\end{figure}

Groups d and e show the latest stage in the development of the skyphos, as represented by the material from the North Slope. The skyphos continued in vogue in the subsequent periods, but the shape underwent a gradual change. The base grew higher, until it received the developed Protogeometric form of a truncated cone (see Figure 85 n), and the body became somewhat higher in proportion to its diameter. The development is clearly illustrated in the series of skyphoi from the Athenian Kerameikos.\textsuperscript{55}

\textsuperscript{54} Kraiker and Kübler, \textit{op. cit.}, pp. 70-71, pl. 22, Inv. 434, 445, 458.

\textsuperscript{55} See Kraiker and Kübler, \textit{op. cit.}, pp. 70 ff., 147, 174, and pls. 22, 23, 30, 34, 48, 49, 67, 68. The low base occasionally occurs with Protogeometric skyphoi. In the collection of antiquities housed in the Town Hall at Skyros there is a fine specimen with large compass-drawn concentric circles on either side, but the base is low and the shape of the body is the same as on skyphoi of the Mycenaean period. Other Protogeometric skyphoi in the same collection have the normal base (see Dawkins, \textit{B.S.A.}, XI, 1904-05, p. 79, fig. 3 c). The use of the compass and multiple brush, on the other hand, is not an infallible sign of late date (see p. 403, note 139), and it is not impossible that the Skyros skyphos is late Mycenaean.
Fig. 45. Fragments of Skyphoi, Shape 3, with Spiral Designs

Fig. 46. Fragments of Skyphoi, Shape 3
Fig. 47. Fragments of Skyphoi, Shape 3, with Various Kinds of Decoration

Fig. 48. Fragments of Skyphoi, Shape 3, Decorated with Horizontal Bands and Stripes
Fig. 49. Skyphoi, Shape 3, Granary Class

Fig. 50. Spouted Bowl, Shape 4

Fig. 51. Two Shallow Bowls, Shape 4
4. **SHALLOW BOWLS OR BASINS.** Figures 50-52.

Another common shape is the shallow bowl or basin, with flat rim (Fig. 25 o-r) projecting on the outside, horizontal handles attached just below the rim, and flat base. A short spout, open or bridged, is a common feature, especially in the larger examples of the type (Fig. 50). The rim is often decorated with dashes, cross lines, chevrons, etc. As a general rule the outside is unpainted, but the rim and the inside are covered with paint. A reserved circle is usually left in the center of the bowl (Fig. 51 b), and in some cases the inside is decorated with alternating painted and reserved bands. A large piece of a bowl related to this shape is decorated on the outside with a debased form of marine animal \(^{56}\) (Fig. 52). The fragment offers an excellent example of the deterioration of a one-time naturalistic design. In this case, two bodies, each with two tentacles, are combined with a cusped diamond pattern and two dotted lozenges to form a series of ornamental units. Such elaborate decorations are very rare on bowls of this kind. The fragment also differs from the more normal type in the shape of the rim (Fig. 25 r), which is slightly flaring but is not flat on top.

Most specimens of this shape, especially those of large size, show signs of rubbing in the interior, and in some cases the bottom is worn thin. It is obviously a vessel designed for practical use, as is shown by the type of decoration and by its common occurrence in excavations of settlements \(^{57}\) and its rare appearance in tombs. The shape \(^{58}\) is reminiscent of stone mortars like that shown in Figure 94.

![Fig. 52. Fragment of Bowl, Shape 4, Decorated with Debased Marine Motive](image)

5. **BELL-SHAPED BOWLS.** Figures 53-54.

A rather common shape, represented by several fragments, is the bell-shaped bowl with flat rim usually with a slight projection toward the inside (Fig. 25 s-v),

\(^{56}\) For a discussion of the origin of this design see Persson, *Asine*, p. 402 and fig. 264, and cf. Blegen, *Zygouries*, p. 146 and fig. 137.


\(^{58}\) A related shape of late date with almost vertical sides and flat bottom, common at Delphi (Lerat, loc. cit., pp. 343 ff., figs. 4 and 5) and Kephallenia (Marinatos, *Αρχ., Εκθ.,* 1932, pls. 7, nos. 91, 31 a, 32 a; 8, no. 108, etc.), and found more rarely at other sites (Blegen, *Prosymna*, II, figs. 126 and 696, no. 234), seems not to have been in use in Athens.
two horizontal handles, and flat base (Fig. 53). The rim is usually decorated with a variety of patterns (Fig. 54), similar to those found on the rims of kraters, Shape 1. The most common is the zigzag pattern on a reserved band, but rows of dashes, alternating with plain sections, concentric half-circles, and triangular designs, also occur in various combinations. These patterns are sometimes applied in white paint on a black ground (Fig. 54 c, f, s, t).

The most common decoration, apart from the rim patterns, consists of painted and reserved horizontal bands (Figs. 53 and 54 p) both on the inside and on the outside. In some cases a shining black or brown glaze with a metallic lustre covers the whole inside. In a few cases more elaborate patterns occur. One small fragment (Fig. 54 q) preserves part of two fishes, and four pieces of another bowl (Fig. 54 s-v) have traces of decorations, probably some animal motives, applied in a dull white paint on a lustrous black ground.\(^{59}\) The rim pattern is executed in the same technique.

The shape was fairly common in Athens, and it occurs at many other Mycenaean sites.\(^{60}\) Undecorated examples with less flaring sides have been found in the Argolid,\(^{61}\) but the shape is especially common in Rhodes,\(^{62}\) where some examples have been found with human figures attached to the rim.\(^{63}\) Sometimes false spouts are similarly added. Bronze vessels of related shapes are also found, often with wish-bone handles and side spout.\(^{64}\)


An interesting shape, whose origin can be traced to vessels of other material, is the large tankard with flat base, sides contracted at the middle, and a small loop-

\(^{59}\) This type of decoration, a reversion to a L. H. I technique, enjoyed a brief period of popularity in late Mycenaean times. See Lerat, B.C.H., LIX, 1935, p. 339, and p. 337, fig. 1; Wace, Chamber Tombs at Mycenae, pp. 179-180; Blegen, Zygiourics, pp. 139, 140, fig. 131. It continues into the Submycenaean period (see Marinatos, Αρχαία χάρακτες, 1932, p. 35) and then disappears to be revived several centuries later; cf. Payne, B.S.A., XXIX, 1927-28, pp. 275 f.

\(^{60}\) Persson, Asine, p. 405, fig. 265, 6; Wace, B.S.A., XXV, 1921-23, pls. X a, XI h, 1. There are numerous examples in the Aigina Museum.

\(^{61}\) Blegen, Zygiourics, p. 156, fig. 148; Persson, op. cit., p. 415, fig. 270, 12.

\(^{62}\) Cf. Maiuri, Annuario, VI-VII, p. 103, fig. 21, and figs. 38, 42, 43; Zervos, Rhodes, capitale du Dodécanèse, fig. 244.

\(^{63}\) Maiuri, loc. cit., figs. 65, 99, 101.

\(^{64}\) Persson, Royal Tombs at Dendra, pls. XXX and XXXI, 4, 6, and pp. 92-95, figs. 67, 68; Asine, p. 393, fig. 257.
Fig. 54. Fragments of Bell-Shaped Bowls, Shape 5

Fig. 55. Tankards, Shape 6
handle (Fig. 55). The decoration is generally applied in two zones, separated by a painted band, usually slightly raised. Simple vertical lines of zigzags and other linear designs are most common, but a few fragments preserve traces of more elaborate decoration. One piece of a base (Fig. 56 m), which seems to belong to a similar vessel, has a pattern of spirals and probably the figure of a fish painted on the bottom.

![Fig. 56. Fragments of Tankards, Shape 6](image)

The shape has derived from a smaller mug of nearly cylindrical form which makes its appearance in the Late Helladic II period. The development of this shape has been discussed by Professor Blegen, who derives it from prototypes of the Vaphio-cup shape. It is probable, however, that the two shapes developed independently. The small cup of the Vaphio-cup shape never has the handle attached at the middle but always at the rim, as in the metal cups, and the raised dividing line is always below the middle. Furthermore, only the upper zone carries the main decoration, whereas the narrow part below the raised band is usually ornamented with simple parallel

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65 See Wace, *B.S.A.*, XXV, 1921-23, p. 80, pl. XIV h, i; and especially *Chamber Tombs at Mycenae*, p. 166, note 13, where reference is made to other examples.

66 *Prosymna*, I, p. 431, and II, figs. 100, 109, 141, 254; *Zygouries*, pp. 138-139, fig. 130, 1.
lines. The cylindrical mug, on the other hand, has all the features of the tankard: the same kind of handle, the raised line in the middle, and the decoration divided into two equal zones. The prototype of this shape is rather to be sought in vessels like the wooden stoup with bronze mountings from the tholos tomb at Dendra. Here we find the same cylindrical shape of the body, the same type of handle, and, above all, the metal hoop which gave rise to the raised band at the middle. Metal vessels of the Vaphio-cup shape were found in the same tomb, showing that the two forms existed side by side.

Tankards of the shape seen in Figures 55 and 56 have been found at most late Mycenaean sites, but never in large numbers. In Crete the shape continues into the period of transition to the Iron Age.


Fragments of three kinds of kylikes were found.

a. The first is a goblet on low and usually rather thick stem, and with two handles. This variety, a near relative to the Ephyrean goblet, was more common in the Late Helladic II period, but continued into the later period. Several bases and stems are preserved (Fig. 57 a-d), but in no case is the rim preserved with the lower part. They are often decorated with a grayish brown paint applied in horizontal bands or covering the entire vessel.

b. The second variety has a tall stem which merges gradually into the conical body of the vessel. Two vertical handles extend from the lip down. The only complete example of this type is undecorated (Fig. 58 a), but numerous decorated fragments of similar kylikes have been found (Fig. 57 e-o). In most cases the decoration consists of horizontal bands on the body, whereas stem and foot are glazed all over. A peculiar type of decoration, very common among the sherds from our excavation, is illustrated in Figure 57 e-g. The whole body is glazed with the exception of a broad vertical stripe along the line of each handle. This type of decoration on kylikes seems to be peculiar

67 Some of the gold cups from Mycenae have decorations in the lower zone, usually differing from those above the raised line (cf. Karo, Schachtgräber von Mykenai, pl. CXXIV). In a single instance (ibid., pl. CXXV) the same kind of decoration is applied both above and below the raised line, but even here the lower zone is narrower than the upper.
68 Persson, Royal Tombs at Dendra, p. 52, fig. 31.
69 Ibid., pls. II, XVI.
71 Numerous fragments were found in the earlier campaigns on the North Slope, Hesperia, II, 1933, p. 363 and p. 364, fig. 36; VI, 1937, p. 558, fig. 13.
Fig. 57. Fragments of Kylikes, Shape 7

Fig. 58. Three Undecorated Kylikes, Shape 7
to Athens, where it is common.\textsuperscript{72} One fragment of a stem (Fig. 57\textit{o}) is decorated with a spiral band like a barber's pole. Vertical lines also occur on some fragments from the body of the vase. No examples of kylikes with swollen or ringed stem came to light.\textsuperscript{73}

c. The third variety (Fig. 58\textit{b, c}) has short stem, off-set rim, and a single handle. All the kylikes of this type are unglazed.

Several unglazed examples of the second and third varieties are blackened from burning on the bottom and on the sides of the interior. In some cases the black has penetrated into the clay so as to be clearly visible even after the fragments have been cleaned in a diluted bath of hydrochloric acid. One complete kylix of the third variety (Fig. 58\textit{b}), showing discoloration from burning, was found together with two well preserved amphoras in a deposit at the foot of flight IV (see p. 395). It must have been employed for some purpose while the fountain was in use, but it is hardly likely that it was brought down to serve as a drinking cup. It is probable that these vessels were employed as lamps, held in the hands of the water-carriers. This use would explain the blackening in the interior of many of the kylikes. Perhaps animal fat or some resinous mixture was used rather than olive oil, for which open vessels like these would be less suitable. Small clay lamps are unknown from Mycenaean times,\textsuperscript{74} but it is not improbable that some of the small vessels originally intended for other purposes were occasionally so used.

8. Cups with One Horizontal Handle. Figures 59\textit{a} and 60.

Closely related in shape to the preceding is the small cup, resembling the kylix of Type \textit{b}, but without stem and with a single horizontal handle similar to the handles on the skyphoi. No whole vase of this shape has been found, and it may be questioned whether there were one or two handles, but the former alternative is the more likely. Among the numerous handles preserved there are no two that could belong to the

\textsuperscript{72} A feeding-bottle from Kourtes, Crete, with somewhat similar decoration is illustrated in \textit{A.J.A.}, V, 1901, pl. IX, 16.

\textsuperscript{73} This is a late feature, found on kylikes from a few sites; cf. Heurtley, \textit{Q.D.A.P.}, V, 1936, p. 102; Persson, \textit{Asine}, p. 299, fig. 206, and p. 300, no. 4; Gjerstad, \textit{Studies on Prehistoric Cyprus}, p. 222, goblet no. 3, and p. 228; Marinatos, 'Αρχ. Εφ., 1932, p. 32. Some fine examples of kylikes with ringed stem have come to light in the recent excavations on Ithaka. I am indebted to Miss S. Benton for kindly showing me the proof of her article on this pottery, soon to appear in the \textit{B.S.A.}

\textsuperscript{74} The large open lamp made in imitation of stone lamps (Wace, \textit{Chamber Tombs at Mycenae}, pl. XLIII, 46-48; and Blegen, \textit{Prosymna}, I, p. 455) were obviously not intended to be carried about. Very few lamps of any kind, except stone lamps, are known from the Mycenaean period (see Broneer, \textit{Corinth}, IV, ii, \textit{Terracotta Lamps}, p. 5; Marinatos, 'Αρχ. Εφ., 1932, p. 34), although small terracotta lamps had been in use in the Neolithic period and later.
Fig. 59. One-Handled Cups, Shapes 8 and 12

Fig. 60. Fragments of One-Handled Cups, Shape 8
same vase. The base is much like that of a skyphos, but is more concave underneath. The inside of the vase is, as a rule, covered with glaze, with the exception of a reserved circle in the center (Fig. 60 j, k). On a few fragments there is also a narrow reserved band a little below the lip. The outside is decorated with horizontal lines (Figs. 59 a and 60 a-h, l). Usually there is a rather broad stripe at the lip or slightly below, one or two lines below the level of the handle, and a single stripe just above the base. The shape, which combines the features of skyphos and kylix, was common in Athens, but I know of no exact parallels from any other excavation in Greece, nor were any found in the Mycenaean houses on the northeast slope of the Acropolis.

Fig. 61. Two Cups, Shape 9

A one-handed cup, slightly more squat and less conical in shape, and probably of earlier date, which has come to light in tombs from Attica, may be regarded as the direct predecessor of the type. Cups of somewhat similar shape with two, one, or no handles, are also common in Cyprus, but it is likely that the shape originated in Attica.


Another vessel, likewise related to the kylix, is the small cup with off-set rim, low base, and two horizontal handles attached slightly below the rim. The exterior

75 A vase of unknown provenance published by Furtwängler and Loeschcke, Mykenische Vasen, pl. XXII, 161, is a close parallel to ours in shape, but the decoration is different. This example, too, has only one handle. Small cups resembling skyphoi, but with one handle, were also found in tombs at the Argive Heraion, Blegen, Prosymna, II, fig. 126, no. 246; fig. 484, no. 976; but these are deeper in proportion to their diameter and the rim is different.

76 I am indebted to Mr. Frank Stubbings for calling my attention to these, and for showing me his manuscript of an unpublished article on late Mycenaean pottery from Attica.

is generally unglazed except on the lip (Figs. 61 b and 62 a) and on the top of the handles, but one fragment (Fig. 62 d) has a wavy band below the rim. The inside is decorated with concentric bands, usually arranged in pairs. There is some variation in the number and disposition of these bands, which are never found on the outside.

Fig. 62. Fragments of Cups, Shape 9

These cups resemble the preceding in size and in the shape of the base, but the stereotyped decoration in each case makes it easy to distinguish the sherds of the two types of vases. The profile of the rim and the shape of the body may have been derived from the one-handled kylix, Type c. The shape is known from other Greek sites.\(^{78}\)

\(^{78}\) Several examples from Mycenae are decorated on the interior like those from our excavation (Wace, B.S.A., XXV, 1921-23, p. 33, fig. 9 c, pl. XI k). Undecorated bowls of somewhat similar shape but shallower, less angular in profile, and without the raised base have been found in the Argolis (Blegen, Prosymna, I, p. 425; II, p. 55, fig. 239, no. 1062, etc.; Wace, Chamber Tombs at Mycenae, pls. XVII, 29; XXXI, 51; Persson, Asine, p. 370, fig. 240, 61, 62). Two examples from Asine are partly glazed (ibid., fig. 240, 63, 64). A single specimen of the earlier undecorated variety came from the Mycenaean houses on the northeast slope of the Acropolis, but none of the fully developed type.
but the earlier examples are mostly undecorated. Again, as in the case of the preceding shape, it is Cyprus that offers most numerous parallels.\(^7^9\)

10. **CUPS WITH OFF-SET RIM AND ONE VERTICAL HANDLE.** Figure 63 a.

A single specimen is preserved of a shallow bowl or dish, with the rim set off from the body as in the preceding shape, a single vertical handle attached to the rim, and a low flat base. It is really a stemless kylix of Type c, somewhat more squat than the stemmed kind, and like the latter it is unglazed. Unless the base is preserved the fragments are indistinguishable from those of 7 c. The cup shown in Figure 63 a was pressed out of shape in the firing. The same type of vessel was found in the houses on the northeast slope, but the shape is not common.

![Fig. 63. Two Cups, Shapes 10 and 11](image)

11. **SHALLOW CUPS WITHOUT HANDLES.** Figure 63 b.

A comparatively rare shape in the period to which our pottery belongs is the undecorated shallow cup or dish with slightly incurving rim, low base, and no handle. Only a single specimen is preserved. The shape was in use throughout Mycenaean times.\(^8^0\) One example came from the houses on the northeast slope.

12. **SMALL CUPS OF TEA-CUP SHAPE.** Figures 59 b and 64 a-d.

This variety of cup, which is deeper than the preceding four shapes, is closely related to the skyphos. It has a single vertical handle and a low flat base. The profile

\(^7^9\) The Cypriote examples with one or two handles are late (Daniel, *loc. cit.*, p. 63, II d, e; pl. I, 51, 28, 27; Gjerstad, *op. cit.*, pp. 221-222, nos. 11 and 12; and cf. Walters, *op. cit.*, nos. C 659-673).

\(^8^0\) See Blegen, *Prosymna*, I, p. 424. At Mycenae it begins in L. H. I, but seems to grow rare in L. H. III (Wace, *B.S.A.*, XXV, 1921-23, p. 151). The earlier examples are somewhat deeper in proportion to their diameter (*ibid.*, p. 150, fig. 33 c).
describes an inward curve above the middle, but the rim has an outward bend. Several fragments were found but none with the base preserved. The shape has been restored (Fig. 59 b) from some cups of similar shape found on the northeast slope. One complete specimen was discovered on the Acropolis. The decorations consist for the most part of broad painted bands, but one fragment (Fig. 59 b) has a degenerate spiral pattern. Spouted cups of the same shape are common at other sites. The shape, which is derived from the shallower cup of early Mycenaean times, continued with some variations to the end of the seventh century. In the Protogeometric and Geometric examples of the shape there is usually a high base in the form of a truncated cone as on the skyphoi (see p. 367, note 55).

\[81\text{ Graef-Langlotz, } \textit{Ant. Vasen von der Akropolis zu Athen, I, pl. 5, no. 181. For the shape see Blegen, } \textit{Prosyna}, \textit{I, p. 429, and Korakou, p. 65, fig. 92; Wace, } \textit{B.S.A., XXV, 1921-23, pl. XI, f-g, i-j.}
\[82\text{ There are several examples, most of them rather small, in the Museum at Aigina. See also Blegen, } \textit{Prosyna}, \textit{I, p. 434; II, p. 43, fig. 192, no. 874, and p. 142, fig. 572, no. 805.}
\[83\text{ Cf. Young, } \textit{Hesperia, VII, 1938, pp. 413-414 and fig. 1, D6-D8.}
\[84\text{ Kraiker and Kübler, } \textit{op. cit.}, \textit{p. 174, pls. 36, 37.} \]
13. **Cups with High Handle.** Figure 64 e-h.

A few recognizable fragments belong to shallow cups with high-swung handles, plain or decorated with stripes. Inasmuch as this type of handle is found with cups of different shapes, the exact type to which each fragment belongs is uncertain.85 The large fragment in Figure 64 e with decorations on the inside may belong to this shape.

14. **Ladles.** Figure 64 j-m.

A vessel closely related to the preceding, but perhaps used for a different purpose, is the ladle with high loop-handle, hemispherical body, and slightly flaring lip, usually unglazed. Only two handles and a few other fragments were found in the fill of the fountain, but the shape is common among the pottery from the houses on the northeast slope.86 It appears as early as the Middle Helladic period,87 and remains practically unchanged till the end of the Mycenaean age.

15. **Pyxides.** Figures 65 k-p and 66 a.

A rather rare type of vessel in the Mycenaean period is the pyxis with vertical sides, flat bottom, slanting shoulders, and raised rim around the opening. Two flat vertical handles, projecting above the shoulders and extending more than half way down to the bottom, are applied to the side of the vessel. The decoration on the preserved fragments consists of horizontal bands on the shoulder and above the base, and of vertical wavy lines (Fig. 65 p) or horizontal rows of heart-shaped loops (Fig. 66 a) on the body of the vessel. The latter design occurs on some vases of this shape found in a house close to the earlier postern gate of the Acropolis.88 It is a simplified form of a double spiral pattern which appears at an early date and is especially common on vases of the Palace Style and other early Mycenaean ware.88

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85 For the shape see Blegen, *Prosymna*, pp. 427-428; and cf. Zygouries, p. 154, fig. 144; Mylonas, ‘Ελευσινακά, Α’, p. 135, fig. 114.
86 *Hesperia*, II, 1933, p. 371, fig. 44 c. For the shape see Blegen, *Prosymna*, II, figs. 125, no. 235 and 534, no. 1046. The astoundingly large number of ladles found in Submycenaean tombs on Kephallenia (Marinatos, ‘Αρχ. Α,’ 1932, pp. 32-33, pls. 8, nos. 100-107, and 13, nos. 254-260, 281-284) testify to the popularity of the shape at the end of the Bronze Age.
The shape is of special interest. Although it occurs with a different kind of handle at other mainland sites,\(^{90}\) it is nowhere so common as in Athens.\(^{91}\) Its origin may be traced to Crete, however, where the earliest example has been found.\(^{92}\) It continued into the Submycenaean and Protogeometric periods, but the later examples are as a rule higher in proportion to the depth. Sometimes they are also provided with three short feet. The distinguishing feature is the handle, which retains its original form in the early Iron Age, though in some cases the ends extend to the bottom of the vase. Other types of handles also occur with pyxides of the same shape. Late examples have been found in the Athenian Kerameikos,\(^{93}\) in Aigina,\(^{94}\) at Pylos in

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\(^{90}\) Cf. Blegen, *Korakou*, p. 70, fig. 101; Goldman, *Eutresis*, p. 189, fig. 263, 1.


\(^{92}\) At Gournia, Mackeprang, *A.J.A.*, XLII, 1938, pl. XXVI, 7.

\(^{93}\) Kraiker, *Arch. Anz.*, 1932, p. 202, fig. 8; 1934, p. 230, fig. 21 (second shelf on the right); Kraiker and Kübler, *Kerameikos*, I, pl. 61, Inv. 533.

\(^{94}\) There is a fine example in the Museum with lid preserved. Both lid and pyxis are decorated with zones of cross-hatched triangles. I am indebted to Dr. G. Welter for kindly showing me the unpublished pottery in the Aigina Museum, and for allowing me to take notes and make references to this material.
Messenia, and at Ialysos in Rhodes. The shape is not found among the pottery from the Submycenaean tombs on Kephallenia, but a single example of a related variety without handles was found.

The shape is most common in Crete, where it has a long and interesting history. It has been found at Gournia, Erganos, Karphi, Knossos, Phaistos, Mouliana, Vrokastro, Tylisos, and Palaikastro and one late Mycenaean example came from Phylakopi in Melos. Some of these pyxides have small loop-handles on the rim, which is the common type of handle on the squat jar with flaring rim, a shape closely related to the pyxides and to the squat alabastra.

16. LIDS. Figure 65 a-j.

More common than the preceding shape is the lid with flat, or slightly convex top, pierced in the center, vertical sides, and rounded or beveled edge. There is a considerable variation in size, the largest having a diameter of ca. 0.19 m. and the smallest less than a third as much. The decoration consists of painted bands on top and on the sides. The interior is unglazed.

These lids were probably used with vases of the preceding shape, but fragments of lids are so much more numerous than those of pyxides that they may have been intended for use with other types of jars, such as Shape 17. Though found at other Greek sites the shape is not common. The pyxis in the Museum at Aigina, referred to above, has its cover preserved, but it is more convex on top. This seems to be a later form than the flat type.

96 Furtwängler-Loeschcke, Myk. Vasen, pl. VII, no. 36 XIII; Forsdyke, Prehistoric Aegean Pottery, I, i, pl. XIV, A 952.
97 See Marinatos, 'Αρχ. Εφ., 1932, pp. 33-34, fig. 34, and pl. 13, no. 262.
98 Its relation can be traced to vases as late as the seventh century; see Hartley, B.S.A., XXXI, 1930-31, pp. 60-61, fig. 6, no. 10.
100 Mariani, A.J.A., V, 1901, pl. VI, 4.
101 Young, J.H.S., LVIII, 1938, p. 235, fig. 12.
103 Pernier, Mon. Ant., XII, 1902, fig. 46.
104 Xanthoudides, 'Αρχ. Εφ., 1904, p. 35, 2, and pl. 3.
105 Hall, Excavations in Eastern Crete and Vrokastro, p. 126 and pl. XXX; Scheurleer, Griechische Keramik, pl. IV, 11.
106 Hatzidakis, 'Αρχ. Εφ., 1912, p. 204, fig. 9. The shape of this pyxis resembles the late examples of the type, but the handles are different.
107 Forsdyke, op. cit., pl. IX, A 708.
108 Dawkins and Droop, B.S.A., XVII, 1910-11, pl. XII, 73.
109 See Hesperia, II, 1933, p. 367, fig. 39 b.
110 Cf. Persson, Asine, p. 415, fig. 270, 14. Compare also the numerous pierced lids of undecorated ware from the potter's shop at Zygouries, Blegen, Zygouries, pp. 153 ff., fig. 146, which seem to have been intended as covers for small jars of similar fabric.
Fig. 66. Three Vases of Shapes 15, 17, and 22

Fig. 67. Fragments of Squat Jars, Shape 17, and of Rhytons, Shape 18
17. **Squat Jars.** Figures 66 b and 67 a-k.

A common shape throughout Mycenaean times, but rare among the pottery from our excavation, is the squat jar with flaring rim, two or three handles on the shoulder, and flat bottom. There are two varieties represented among the meager fragments that can be recognized as belonging to this shape. One of these (Fig. 67 a-c) has slanting shoulders making an obtuse angle at its juncture with the body. In the second variety there is a more uniform curve from the neck down to the base (Fig. 66 b). Several pieces are preserved of a fairly large jar (Fig. 67 c-g), the others are from small or miniature vessels. The preserved decoration, applied chiefly on the shoulder, consists of wavy lines, rows of concentric half-circles and hooks, cross-hatched triangles, etc. The large vase had a row of stylized floral motives, probably degenerate papyrus flowers. The body of the vase is, as a rule, decorated with parallel lines, and one miniature jar (Fig. 67 c) is entirely covered with a glaze of a poor quality.

18. **Rhytons.** Figure 67 l and m.

Two fragments of rhytons were found, decorated with zones of curving lines separated by bands of parallel lines. The shape was never very common, and in the late period to which our pottery belongs, it was probably very rare. The two fragments, which may belong to a single vessel, are of very good fabric, and the quality of the glaze is superior to that of the common run of vases from the fill of the fountain.

19. **Large Five-Handled Jar.** Figure 68.

The largest of the decorated vases from the underground passage is a jar with three small handles on the shoulder and two horizontal handles at the widest part of the body. Round the wide opening is a tall neck with a heavy rim at the top. The body tapers toward the flat base. Only one example of this shape is well enough preserved to be restored.\(^{111}\) The fabric is rather coarse and heavy, and the glaze, of a dull grayish

\(^{111}\) Height, 0.63 m.; greatest diameter, 0.58 m.
black, has largely peeled off. The decoration consists of several vertical bands on body and neck, and of an indistinct design on the shoulder. The shape is one of the most common of large vases in the Late Helladic III period,¹¹² but I know of no other example with five handles.

The term "three-handled amphora," usually applied to vases of this shape, ought to be discarded. Apart from the absurdity inherent in the name itself, the vase is not closely related to the amphora either in shape or in function. The amphora, primarily

![Fig. 69. Two Stirrup Vases, Shape 20](image)

intended for transporting liquid, is provided with two sturdy handles, by which it can be lifted and carried, and with a comparatively small opening that can easily be stopped up. The three-handled jar, on the other hand, has an opening too large and of the wrong shape for a stopper, and the handles are neither strong enough nor placed in such a position as to be of use for lifting the vessel when filled. They were obviously intended for tilting the jar to one side when the contents were poured out. Even the two horizontal handles on the vase under discussion are hardly sufficiently strong to lift a vessel of that size filled with any kind of liquid.

¹¹² For a discussion of the shape and its history see Blegen, *Prosymna*, I, p. 447; Wace, *Chamber Tombs at Mycenae*, p. 171.
20. **Stirrup Vases.** Figures 69-72.

The most common shape among the closed vases is the ubiquitous stirrup vase, which appears with numerous variations of shape and decoration. Countless fragments have been found, but only three vases are well enough preserved to warrant restoration. Fragments of three distinct shapes are represented.

a. The globular type with low base is the most common (Fig. 69). Handles and spouts are comparatively small as on the earlier vases of this type, and only on a few examples is there a conical projection on the knob (Fig. 70 d-h),

![Fig. 70. Fragments of Stirrup Vases, Shape 20](image_url)

which seems to be a late development, especially prominent on the Sub-mycenaean examples of the shape. Another feature of late origin is the vent-hole on the shoulder, which is found on a single sherd of this type (Fig. 70 n). The decoration on the body consists chiefly of parallel lines with occasional bands of zigzags and other linear patterns. On the top a great variety of designs appear, most common among which is a debased floral pattern, derived from the papyrus flower.113

The typical close style of decoration is represented by very few sherds which seem to belong to stirrup vases of the globular kind (Fig. 71 a-c). They are easily recognized by the greenish buff clay typical of this style of

113 For the deterioration of this motive see above, p. 356, and cf. Mackeprang, *A.J.A.*, XLII, 1938, pp. 541, 548.
pottery. A few sherds belong to vessels seemingly made in imitation of the close style (Fig. 71 d-g) but of a different kind of clay. Rather more common is a type of decoration, consisting chiefly of plain horizontal stripes of varying width, often with more elaborate decorations on the upper part of the vessels, where the plain stripes alternate with bands of cross lines, zigzags, concentric quarter-circles and half-circles, etc. (Fig. 71 h-v). This is a late form of the Tell el Amarna style, contemporary with the type of decoration generally found on vases of the Granary Class, and often combined with the close style of decoration.\footnote{Rows of concentric half-circles, alternatingly turned in opposite direction, is a common design on vases of the close style (Wace, \textit{B.S.A.}, XXV, 1921-23, pl. X g), but its origin can be traced to early Mycenaean times (\textit{ibid.}, pl. XXIII d).}

b. The second variety is rounded on top like the preceding, but the lower part of the body is conical and terminates in a short stem with flat base like a kylix foot. Parts of three vases of this shape were found (Fig. 72 a-c), but only one has the top preserved. The decoration consists of parallel bands of a dull
gray or brown glaze of poor quality. This shape, so far as I know, is peculiar to Athens. Three examples from the Acropolis excavation are in the National Museum.\textsuperscript{115}

c. The third variety is represented by a few insignificant sherds (Fig. 70 \textit{r}) of large vases, made of a coarse, rather gritty clay, and decorated with bands of brown paint over a white slip. The shape is not apparent from the small fragments preserved, but may be conjectured from better preserved examples found elsewhere. Several examples of this type from the Palace of Kadmos at Thebes and one from Eleusis are inscribed with syllabic Mycenaean characters.\textsuperscript{116}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{stirrup_vases.png}
\caption{Three Stirrup Vases, Shape 20}
\end{figure}

An examination of fragments from the top of stirrup vases of Groups \textit{a} and \textit{b} reveals a technical peculiarity not commonly found on vases of this type. Usually the top was formed on the wheel in one piece with the body, and the stem of the knob between the handles was shaped from the same piece of clay after the top had been closed. When this method was employed a conical hollow was formed at the bottom of the stem. But on the fragments from the Acropolis \textsuperscript{117} it is evident that a small

\textsuperscript{115} They are published by Graef and Langlotz, \textit{Ant. Vasen d. Akr.}, I, nos. 106-108, but only the top of one is illustrated, pl. 4, 106. One appears in Furtwängler and Loeschcke, \textit{Myk. Vasen}, pl. XVI, 103, but the shape is not represented among the drawings of vase shapes on pl. XLIV.


\textsuperscript{117} Several fragments from the excavations on the Acropolis show the same treatment of the top. Among the fragmentary stirrup vases in the Aigina Museum, a single late example, possibly of Attic make, is formed like the vases from our excavation, but all the others are made in the common way. As many stirrup vases as I have been able to examine from other sites have the conical hollow in the stem. When the vases are whole it is impossible to determine how the top was formed.
circular top was formed as a separate piece, together with the stem and the handles, and inserted while the clay was still wet into the hole resulting from the gradual closing in of the sides to form the shoulder. The joining of this small “lid” to the rest of the top has left clear traces on the underside, and when the stem breaks off this “lid” sometimes goes with it. All the fragments of a and b show that this method was used invariably, whereas the fragments of the third variety have the hollow stem.

![Feeding-Bottles, Shape 21](image)

**Fig. 73. Feeding-Bottles, Shape 21**

21. **Feeding-Bottles with Basket Handle and Pointed Side Spout.** Figure 73.

One example (Fig. 73 a) is complete with slight restorations, and several spouts and handles are preserved, showing that the shape was comparatively common in Athens. The decoration consists for the most part of painted bands, and one fragmentary specimen (Fig. 73 b) has a broken rope pattern on the shoulder. Vases of this shape have been found, though rarely in large numbers, at most Mycenaean sites. The shape is common in graves with burials of children, and it has been plausibly suggested that these vases were used as feeding-bottles as were the small spouted vessels of classical times.

\[118\] For a discussion of the shape see Blegen, *Prosymna*, I, p. 444.
22. **Spouted Strainers.** Figure 66 c.

The fragment shown in Figure 66 c is part of a spouted pot used as a strainer. The wall of the vase is pierced with three small holes where the spout was attached. The top is broken away, but the attachment for a handle is preserved to the left of the spout. The shape may have been similar to that of a spouted jug from the Acropolis excavations,\(^{119}\) with the positions of handle and spout reversed.

![Two Amphoras, Shape 23](image)

23. **Amphoras.** Figures 74, 75 b-d, and 76 b.

Among the vessels used for drawing water from the fountain the largest and most common is the amphora with ovoid body, two handles extending from the rim to the shoulder, and low flat base. The decoration consists of broad painted bands on neck and body and at the edge of the base. Usually the handles are painted on the outside and set off from the shoulder with a painted ring. Undecorated amphoras are also common.

\(^{119}\) Graef and Langlotz, *op. cit.*, pl. 5, no. 175. A similar pot was found at the Argive Heraion; see Blegen, *Prosymna*, II, fig. 189, no. 455.
An interesting feature is the rope handle (Figs. 74 b and 75 b-d), which is common on vases of this shape from the Athenian Acropolis. Several were found among the houses on the northeast slope and in the prehistoric area to the north of the Sanctuary of Eros and Aphrodite.\textsuperscript{120} The rope handle occurs in rare instances on late Mycenaean pottery from other sites,\textsuperscript{121} but in Greece proper outside of Athens it does not become a common feature before the beginning of the Iron Age. Its origin has been sought in Thessaly and Macedonia,\textsuperscript{122} but its common occurrence in Athens on Mycenaean pottery together with other features of supposed northern derivation removes the foundation for this theory. It is, of course, unnecessary to assume a common origin for all the handles of this type.\textsuperscript{123}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig75}
\caption{Varieties of Handles}
\end{figure}

\textsuperscript{120} Hansen, \textit{Hesperia}, VI, 1937, p. 563, fig. 16, 1.
\textsuperscript{122} Skeat, \textit{The Dorians in Archaeology}, p. 13; Heurtley, \textit{Ant. Journ.}, VII, 1927, pp. 48-ff., fig. 11.
\textsuperscript{123} Cf. Heurtley and Skeat, \textit{op. cit.}, pp. 46 f.
The two amphoras in Figure 74 were found together with an undecorated kylix (Fig. 58 b) at the bottom of flight IV, where they must have been deposited while the fountain was still in use. An undecorated example (Fig. 76 b) of the same shape came from near the bottom of the shaft.

24. Pitchers. Figure 77.

Another very common vessel, probably also used for drawing water, is the pitcher, ovoid or pear-shaped, with one sturdy handle attached to the rim and the shoulder. The two undecorated examples in Figure 77 came from a depth of 22 m. (+ 111 m.). Similar vases were also found in the late Mycenaean houses below the postern gate. The decorated specimens of the type are too fragmentary to be restored. Three of the handles shown in Figure 75 g-j are probably from pitchers of this shape. Another fragment from the top of a pitcher (Fig. 75 e) has a slender neck, more sharply set off from the shoulder, and a rope handle of the kind discussed above under Shape 23. The whole exterior seems to have been covered with a poor black glaze.

25. Hydria. Figure 76 a.

The shape is the same as that of the preceding, with the addition of two horizontal handles just above the widest part of the body. The only example that could be restored (Fig. 76 a) came from the bottom of the shaft. Strangely enough there is no trace of the second horizontal handle, although the portion of the body where the handle should be attached is preserved. There are traces of painted bands, which have largely disappeared.

A selection of sherds of closed vases, illustrating various decorative patterns, is shown in Figures 78 and 79. Many of the designs are of the same nature as those appearing on open vessels. The spiral, usually combined with other elements, is the most common. Several kinds of central fillers appear, among which the hour-glass pattern (Fig. 78 e-g) is of special importance. One fragment (Fig. 78 p) preserves the head of a bird, and there are pieces of a few other vases with animal decoration. A new design of rare occurrence is the figure-eight pattern which is found on the body and the handles of some large vessels (Figs. 75 h and 79 a, b). A common feature, betraying lateness, is the preference for decoration at the base of the handle (Figs. 75 f and 79 d-f). Originally this consisted of a plain circle, but in some cases

124 Hesperia, II, 1933, p. 368, fig. 40 a.
125 It is found on two vases from the Granary Class from Mycenae (Wace, Chamber Tombs at Mycenae, p. 186, and pl. XII, 5; and B.S.A., XXV, 1921-23, p. 32, fig. 8 b). The identical pattern occurs on pottery of the sixth century (see Hesperia, VII, 1938, p. 182, fig. 20, and p. 184, notes 2-4).
Fig. 76. Two Water Jars, Shapes 23 and 25

Fig. 77. Two Undecorated Pitchers, Shape 24
the circle was left open at the bottom with the two ends "hanging loose," and finally the double spiral design, seen in Figure 79 e-f, developed.

A large proportion of the sherds from the fill of the passage belong to household pottery, mostly large vessels of coarse quality. Some of the shapes can be determined, but the condition of this material is such as to discourage any further attempt at mending and restoration. A few of the most easily recognized shapes are described below.

Fig. 78. Fragments of Closed Vases

26. Pithoi. Figure 80.

A large percentage of the coarse sherds belong to large storage jars, decorated with raised bands on which various patterns have been impressed\(^{126}\) (Fig. 80 c-g). The bands can hardly serve anything but a decorative purpose, but they are applied in such a way as to suggest that they may have been copied from wooden hoops. Some of the moulded rims of pithoi are similarly decorated (Fig. 80 a, b).

27. **Cooking Pots.** Figure 81.

Another very common shape among the coarse ware is the cooking vessel with three feet and one or two loop-handles at the rim. Most of the fragments have the profile of the vessel shown in Figure 81b, but a few examples have a more sharply off-set rim as in Figure 81a. The clay is coarse and gritty, and the bottom is nearly always blackened by fire.

![Fig. 79. Fragments of Closed Vases](image)

The shape was very common on the Acropolis. Three whole pots and numerous fragments were discovered in the houses on the northeast slope,\(^{127}\) and legs of similar vessels came from the prehistoric area north of the Sanctuary of Eros and Aphrodite.\(^{128}\) Examples of similar vases have been found in most Mycenaean settlements, but they are rarely complete.

A few small fragments of lids were found that may have been used as covers for the pots. These are made of the same coarse fabric and have approximately the right size to fit the cooking pots. There is no flange on the rim of the pots for the

\(^{127}\) *Hesperia*, II, 1933, p. 371, fig. 45.

Fig. 80. Fragments of Pithoi, Shape 26, with Impressed Decoration

Fig. 81. Cooking Pots, Shape 27
lids to fit into, and the lids are perfectly flat underneath, but in the center is a small loop-handle.\textsuperscript{129} Probably the lids were laid directly on the pots with the edge extending slightly toward the outside.

28. **Coarse Bowls.** Figure 82.

Among the household ware is a shallow bowl or pan with straight sides converging toward the bottom. Only some small fragments were found, and no handle is preserved that can be associated with this type of vessel.\textsuperscript{130}

29. **Braziers.** Figure 83 f.

The handle shown in Figure 83 f is of a type usually found on small braziers or scoops, a common shape at several Mycenaean sites.\textsuperscript{131}

30. **Coarse Strainers.** Figure 83 a-e.

A few fragments of strainers were discovered, one of which (Fig. 83 b) preserves a small foot. One fragment (Fig. 83 d) from a flat bottom of coarse fabric has holes which do not extend through the full thickness of the clay. No other pieces of this kind were found in the underground passage, but several have come to light in the earlier campaigns on the North Slope.\textsuperscript{132} It is obvious that these vessels were not strainers in the ordinary sense, nor can the holes have been made for decoration. I can offer no satisfactory explanation.\textsuperscript{133}

The peculiar fragment in Figure 83 e consists of a shallow bowl attached to a thick narrow base. The bowl is pierced in the center, and the hole extends through the full thickness of the base. The bowl is nearly complete, but the base is broken away at either end. The base appears to have been circular, and a series of small bowls may have been attached to the top in the manner of a multiple kernos. Probably

\textsuperscript{129} Fragments of lids of various shapes were found in the prehistoric area north of the Sanctuary of Eros and Aphrodite; cf. Hansen, *Hesperia*, VI, 1937, pp. 562 and 564, fig. 17 a.

\textsuperscript{130} For the shape cf. Blegen, *Zygouries*, p. 165, fig. 160.

\textsuperscript{131} See Blegen, *Zygouries*, p. 160, figs. 155, 156; Wace, *Chamber Tombs at Mycenae*, pls. XXVII, 12, 13; XLIII, 13.

\textsuperscript{132} See Hansen, *op. cit.*, p. 569, fig. 20.

\textsuperscript{133} Wace reports the discovery of several fragments of similar vessels at Mycenae (*B.S.A.*, XXV, 1921-23, pp. 24, 26), but he does not suggest what purpose they served. See also Bliss and Macalister, *Excavations in Palestine*, p. 97, and pl. 45, no. 6.
it was intended for some ritual purpose, but the coarseness of the fabric and absence of decoration are somewhat surprising in a vessel of this kind.

Three fragments (Fig. 83 g-j) belong to some undecorated vase which had been mended with lead rivets. Instances of such repairs, which are fairly common in Athens, would indicate that lead was obtainable at a comparatively low price and that undecorated household ware was sufficiently valuable to repay mending.

Two small pieces of a plastic vase in the form of an animal (Fig. 83 k, l) were found, but there is not enough preserved to show the shape of the vessel.

Of post-Mycenaean pottery comparatively few fragments were found, nearly all of which came from the top fill of the passage. The most common shape represented among these sherds is a one-handled cup with off-set rim and flat base (Fig. 84 a). Both the inside and the outside are covered with a good brown glaze, and the handle is decorated with cross-stripes. The flat bottom is unpainted underneath.

\[134\] See pp. 415-416. Lead was used in Athens for mending pottery as early as the Middle Helladic period (cf. Hansen, *Hesperia*, VI, 1937, p. 544).
Cups of the same kind have been found in Protogeometric and early Geometric graves in the Athenian Kerameikos \(^{135}\) and in the Agora, but the shape continued in use—or reappeared—as late as the seventh century.\(^{136}\) It has probably developed from the one-handled cup of late Mycenaean times (see above, p. 381, Shape 12). In the later examples the low base has disappeared, the rim has become more sharply set off from the body, and the whole vessel has become more squat. It is likely that these features began to develop in the late Mycenaean period. In Figure 85 \(a\) and \(b\) are shown two fragments of a vase, the decoration of which can hardly be anything but Mycenaean. It has the off-set rim typical of this shape, and at the angle where the rim joins the body is a series of oblique dashes. The glaze, applied on the inside and at the top of the rim, is of a red color, and the unglazed part of the exterior is covered with a light buff slip, contrasting strongly with the red color of the clay. Unfortunately the base is not preserved, so that the exact shape is uncertain. Some of the fragments came from a depth between 14 and 15 m. (ca. + 118.50 m.), in undisturbed Mycenaean fill. Several other fragments of large cups with off-set rim and covered with black or red glaze, came from the higher levels (Fig. 85 \(c-f\)). They are probably all later than the end of the Mycenaean period.

Cups and skyphoi with off-set rim were in common use throughout the period of Geometric pottery and as late as the end of the seventh century. Three decorated pieces, probably of skyphoi, are shown in Figure 86 \(a-c\). A late development of the one-handled cup is represented by the tall cup in Figure 84 \(b\), and by smaller fragments of about a dozen vessels of the same type. It is considerably deeper and more slender than the Protogeometric cup; the rim, less sharply set off from the body, has a pronounced outward flare and is decorated on the inside with parallel lines; and the base of the handle is decorated with lines running parallel to the handle and terminating in cross lines at the curve. On the right side of the handle are some deeply incised

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\(^{135}\) Kraiker and Kübler, Kerameikos, I, p. 105, pl. 33; Arch. Anz., 1934, p. 241, fig. 27.

\(^{136}\) Young, Hesperia, Suppl. II, pp. 151 ff., fig. 106, nos. C 51, 52.
lines. If these were intended as a Greek letter it can only be an upsilon, but the incisions are partly broken away. The shape is the same as that of several of the inscribed cups from Hymettos, and sherds of similar cups have been found at Eleusis, at Phaleron, and in the Athenian Agora. On a large number of these are some crude graffito, which may possibly be letters. This whole class of vases has recently been studied by Rodney S. Young, who dates them in the seventh century before Christ. The small cup in Figure 84 c is a variation of the same shape.

Among the smaller sherds in Figure 85 several are decorated with concentric circles and half-circles, compass drawn. One fragment (Fig. 85 k) shows clearly the depression from the compass in the center of the circle. The half-circles in Figure 85 m are executed free-hand, but the glaze resembles that of the Protogeometric pottery rather than the glaze of Mycenaean ware. The distinction, however, is not readily drawn, in view of the great variety of glaze in both periods. Some fragments of an interesting vessel, probably an oinochoe of the late Geometric period (Fig. 85 p-t), are decorated with parallel lines on the body, and on the shoulder is a vertical row of chevrons from which three streamers extend toward either side. One piece (Fig. 85 o) seems to be from the neck of a pitcher with horizontal ribs and decorated with wavy lines and blobs arranged in vertical rows. Another piece (Fig. 85 n) is part of a conical base, probably of a skyphos.

A selection of Geometric sherds is shown in Figure 86, most of which are decorated with designs common to Geometric pottery. Some fragments of Geometric cups have been referred to above. Two pieces (Fig. 86 f, g) belong to a pyxis lid, and one (Fig. 86 e) is from the rim of a large krater. One of the three pieces which fit together in this fragment came from a depth of 6.90 m. (+ 126.25 m.). Figure 86 m, which seems to be from a closed vessel on a high stem, came from a depth of ca. 12 m. (+ 121.15 m.), in fill which was otherwise uncontaminated Mycenaean. One small fragment (Fig. 86 k) has traces of an incised inscription, the only certain letter of which is an epsilon. A few pieces, two of which are illustrated in Figure 86 s, t, are from early Attic skyphoi of the Corinthianizing type.

A few Protoattic sherds are included in Figure 86, all of which came from near the top of the fill to a depth of ca. 3 m. The most interesting (Fig. 86 q) preserves

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137 Blegen, A.J.A., XXXVIII, 1934, pp. 10 ff., pls. I-III; and Young, Hesperia, VII, 1938, pp. 413 ff., fig. 1, D6-8.
139 Concentric half-circles drawn without the use of compass occur frequently both on Sub-mycenaean and on Protogeometric pottery; see Kraiker and Kübler, op. cit., pls. 9, 10, 44, 61. Conversely, the compass-drawn concentric circles, probably made with a multiple brush, begin to appear on Mycenaean vases, Kraiker and Kübler, op. cit., p. 141, note 1.
140 A somewhat similar type of decoration is found on a Geometric oinochoe from the Kerameikos, kindly called to my attention by Mr. R. Young (Wide, Jahrbuch, XIV, 1899, p. 211, fig. 88. Cf. Young, Hesperia, Suppl. II, p. 174, no. C 113).
141 See Young, op. cit., pp. 99 f., fig. 69, no. XXIII 1.
Fig. 85. Sherds of Mycenaean, Protogeometric, and Geometric Pottery

Fig. 86. Sherds of Geometric and Protoattic Ware
part of the figure of a stag or reindeer with long antlers. On another fragment (Fig. 86 r) is a procession of figures carrying palm branches.\textsuperscript{142} The black-figured and red-figured sherds, all of which came from the top soil, are of little importance. The largest is from an open black-figured vessel, probably a krater. Of the scene are preserved parts of two human figures and two Doric columns, the latter rendered in cream-colored paint. A small fragment of a pinax preserves part of an inscription, the extant letters of which are --- ΦSΑ ---.

Two undecorated vases, probably of post-Mycenaean date, were found together at a depth of \textit{ca.} 3.50 m. (+ 129.65 m.). The larger is an amphora (Fig. 87 a) with wide mouth. The rim has been restored in plaster. In the pot were found the bones of a small bird and the lower jaw of a mouse. The smaller vessel (Fig. 87 b) is a kind of carafe with tall, narrow neck and no handle. On the shoulder is a hole, 0.017 m. in diameter, and on the other side is a smaller hole, only 0.007 m. in diameter, which appears in the photograph as a white spot through the larger hole. In the vase was the skeleton with a fairly well preserved skull of a small bird, probably of the \textit{Fringillidae} or \textit{Passeriforme}\textsuperscript{143} family.

![Fig. 87. Two Undecorated Vases](image)

**Miscellaneous Objects**

Apart from the pottery a few other objects of interest were found in the fill of the passage. Pieces of sculpture and inscriptions of classical times have either been published already,\textsuperscript{144} or will appear in future articles. A selection of the more important objects of the earlier periods is described below.

The fragment shown in Figure 88 a and b was not found in the fill of the passage but below the west entrance. It is a Neolithic figurine\textsuperscript{145} of white, fine-grained marble. The feet and upper part are missing. The figure is rather flat and its adiposity less exaggerated than is usually the case in figurines of the Neolithic period. One per-

\textsuperscript{142} They resemble very closely the figures on the panel of an amphora from the Athenian Agora (Shear, \textit{Hesperia}, VII, 1938, p. 341, fig. 23).

\textsuperscript{143} I am indebted to Mr. N.-G. Gejvall for the identification of the bones.

\textsuperscript{144} See p. 320, notes 8-9.

\textsuperscript{145} Preserved height, 0.073 m.; width at hips, 0.052 m.
fectly preserved figure of the same type was found at Eleusis\textsuperscript{146} and another at Aigina,\textsuperscript{147} now in Munich. The carving of these figures is very similar, but the shape\textsuperscript{148} is more squat and steatopygous than that of the fragment from our excavation. The latter is probably somewhat later than the other two and forms the transition to the flat marble figures of the early Bronze Age.

Fig. 88. Neolithic Stone Figurine

Fragments of terracotta figurines are fairly numerous, but most of them are insignificant pieces. The common type of Mycenaean standing figure with crescent shaped arms is represented by several pieces (Fig. 89 a-f, k). The face is flat with a pinched-out nose (Fig. 89 f) and eyes and hair are added in paint, and on the top is a spreading head-gear. A less common type with arms folded across the breast is also found (Fig. 89 h). One fragment has more carefully modeled arms and breasts (Fig. 89 j). The head shown in Figure 89 g is unusual both in shape and decoration. The eyes are flat pellets of clay within painted rings, and the hair is shaped with two

\textsuperscript{146} Mylonas, 'Ελευσίνακα, A', pp. 138 f., fig. 115.
\textsuperscript{147} Arch. Anz., 1910, p. 47, fig. 1; Welter, Aigina, p. 10, fig. 8.
\textsuperscript{148} For a discussion of this class of figurines and for the literature on the subject see Müller, \textit{Frühe Plastik in Griechenland und Vorderasien}, pp. 3 ff.; Evans, \textit{Palace of Minos}, I, pp. 45 ff.; Valmin, \textit{The Swedish Messenia Expedition}, pp. 339 ff. and pls. I and XXVII. An interesting example of the seated type has recently come to light in the excavations of the Athenian Agora.
horn-like projections from which painted locks hang down like festoons. This head is probably somewhat later than the more common type described above. A more carefully modeled figure is shown in Figure 89 l, the lower part of which is preserved. The legs are separated and pinched out to form rudimentary feet. The profile seems to indicate that the figure was represented as seated; and at the rear is a slight break

Fig. 89. Terracotta Figurines

in the clay where it may have been attached to a seat or a chariot. It was found at a high level, and it probably belongs to a rather advanced period.\(^{149}\)

Figures of animals are common, but most of them are in a poor state of preservation. They are mostly long, cylindrical bodies, crudely modeled, and decorated with painted lines. One piece of slightly different shape (Fig. 89 u) is unpainted. In most cases it is impossible to determine what kind of animal these crude figures are intended to represent, but one small specimen (Fig. 89 o) with long horns is certainly an ox, and another piece with curled up tail (Fig. 89 p) is probably part of a dog.

\(^{149}\) In the shape of legs and feet it resembles some seated figures of the Geometric period (cf. Young, \textit{Hesperia}, Suppl. II, p. 52, fig. 35, X 18 and X 19), but the decoration shows that it is earlier.
Few other recognizable objects of terracotta were discovered. One piece (Fig. 89 m) is part of a throne decorated with a rudimentary meander pattern at the edge. On the top of the seat is a break where a figure was attached. It was found in contaminated fill, and its decoration seems to be post-Mycenaean. An interesting fragment (Fig. 89 v) is from the prow of a boat. It is made of a dark red clay, highly micaceous, and on the dark ground is applied a decoration in a cream-colored dull paint. The designs consist of horizontal and wavy lines, short dependent cross lines, etc. The two adjoining pieces were found at a depth of ca. 7 m. (+ 126.15 m.) before the completely undisturbed Mycenaean fill had been reached. A half terracotta wheel (Fig. 89 s), 0.075 m. in diameter, with perforated hub, found at about the same depth, is probably from a toy car.

A fragment of a mould (Figs. 90 a and 91 a), found at a depth of 10 m. in undisturbed Mycenaean fill, seems to have been made for a metal bowl. The thickness of the fabric is 0.02-0.025 m. The inside is burned black and coated with a vitreous substance, resulting from the superheating of the clay when the metal was poured.

Fig. 90. Fragments of Terracotta Mould and Tiles
Part of the upper edge is preserved. The fragment resembles the moulds for casting bronze statues, recently found in the vicinity of the Theseion.\textsuperscript{150}

Two fragments of tiles (Figs. 90 and 91 \(b, c\)), resembling roof tiles of classical times, came from near the bottom of the underground passage where no objects of post-Mycenaean date were found. They are made of coarse clay, containing traces of the straw used for binding material. On one fragment (Figs. 90 \(b\) and 91 \(b\)) the raised edge was added as a separate piece, and deep grooves were sunk in the surface underneath to fasten the added edge securely to the flat top of the tile. Since only two pieces were found it must remain uncertain whether these were used as roof tiles or served some other purpose, but their close similarity to tiles of later date is significant. They are rather thin, only 0.015-0.022 m., but at the outer edge they measure 0.05 and 0.055 m. respectively.

\textsuperscript{150} Thompson, \textit{Hesperia}, VI, 1937, pp. 82 f., and fig. 43; Shear, \textit{Hesperia}, VI, 1937, p. 344, fig. 8.
Among the terracotta objects are two small whorls (Fig. 92 d, e), shaped like a truncated cone and perforated in the center. These are of the same shape as the stone whorls described below. One flat whorl (Fig. 92 c) seems to have been shaped from the sherd of a coarse vase or pithos. The two larger objects in Figure 92 a and b are probably weights of some kind. They are convex on both sides and also pierced in the center. A flat piece of terracotta (Fig. 92 f), perforated at the top and widening toward the bottom, was probably also a weight of the same shape as the stone weight.
seen in Figure 92 g. The latter is made of a red flaky stone. Its top, which was probably perforated, is broken away. Its thickness at the bottom is less than half its width, and it tapers on all sides toward the top.

The objects in Figure 93 are made of steatite of a dark gray, grayish brown, or greenish color. There are three distinct shapes: the truncated cone (Fig. 93 a-g), the flat cone with shank (Fig. 93 h-l), and the double cone (Fig. 93 m, n). All are perforated in the center. Whether or not they all served the same purpose may be questioned. The smaller ones with shank are so light that they can hardly have been used as whorls, and it seems equally unlikely that the larger cone-shaped examples are all buttons.

Numerous fragments of small stone mills and stone mortars were found at all depths. The large mortar with three feet and open spout (Fig. 94) was found near the bottom of the shaft. A fragment of another mortar (Fig. 95 a) has a low base ring. A more common variety is the elongated form (Fig. 95 b) with or without spout at one end. All these are made of trachyte, a gray volcanic stone, used throughout antiquity for similar implements. It was probably imported from Methana where it is still quarried.

Grind stones and pounders of various shapes and sizes were also found in large numbers. Some of these, which are made of the same kind of stone as that used for the mortars, are conical (Figs. 94 and 96 b and c). More commonly, unwrought stones were used, distinguishable from common pebbles by the wearing at the edges caused by rubbing and pounding. The variety of stone most frequently in use is a hard black stone of the feldspar family (Fig. 96 j, k), but white marble (Fig. 96 h) and chalcedony occur. The elongated implement in Figure 96 e was probably used as a pestle, although its shape differs from that of the more common type. The fine pestle in Figure 96 a is probably of earlier date. It is made of limestone breccia of a bluish-gray and white color. The shape is common in early Helladic contexts. The stone implements also included some small pieces of obsidian (Fig. 96 d) and a large core (Fig. 96 f) from which obsidian blades had been flaked off.

A fragment of a sword-pommel (Fig. 97) of fine-grained white marble came from a depth of 10 m. It had an outer diameter of 0.066 m. On the reverse is a hollow shank and a small pinhole for fastening the pommel to the sword hilt.

A half sword-pommel of ivory (Fig. 98 a-c), with a total diameter of ca.

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151 A discussion of the various shapes and their development is given by Persson, Rapport préliminaire sur les fouilles d'Asine, 1922-24, pp. 84 f., pl. XXXVI; and Asine, pp. 375 ff., fig. 246; Blegen, Prosymna, I, pp. 312 ff.

152 See Blegen, Žygouries, p. 198 and pl. XXII.

153 For the shape cf. Karo, Schachtgräber von Mykenai, pp. 139 f., no. 778.

154 Cf. Karo, op. cit., p. 139, no. 776 and p. 140, fig. 57; Valmin, op. cit., p. 361; Persson, Dendra, p. 35, and pls. XX-XXII.
Fig. 94. Mortar and Pestle of Trachyte

Fig. 95. Fragments of Grinding Implements
0.084 m., was found at a depth of ca. 20 m. ( + 113.15 m.). It is shaped much like the preceding, but is somewhat flatter, and there is no hollow for the insertion of the tang. The small pinhole for fastening the pommel to the hilt is preserved. The pommel is cut through the middle and the edge has been shaved off and beveled.

A small wheel with six spokes (Fig. 98 d), carved from one piece of bone, came from a depth of 4.50 m. ( + 128.65 m.). Its outer diameter measures 0.034 m. Similar wheels of bone, bronze or lead from the excavations on the Acropolis at Mycenae are exhibited in the National Museum in Athens,\textsuperscript{155} and six gold wheels of similar shape but without the pierced hub were found in the third shaft grave.\textsuperscript{156} One of the bronze

\textsuperscript{155} Case 65, Nos. 2570, 2600; Case 66, Nos. 1409, 1412, 1413. Four of these are illustrated in Schliemann, \textit{Mycenae and Tiryns}, p. 74, no. 120.

\textsuperscript{156} Karo, \textit{Schachtgräber von Mykenai}, p. 50, no. 38, and pl. XX.
wheels from Mycenae (No. 1409) has a rectangular addition added to the rim, showing that it cannot have been used as the wheel of a small toy car.

It is highly probable that these wheels are votive objects with symbolic significance. This is suggested by the curious vase from a tomb at Mycenae, on which a dancing figure holds in either hand a large wheel on which the hubs are clearly indicated.\(^{157}\) Wheels of this type as well as rosettes have been interpreted by Sir Arthur Evans and others as symbols of the sun,\(^{158}\) but this interpretation has been disputed by Martin P. Nilsson,\(^{159}\) who sees in similar designs nothing more than simple decorative motives. It is obvious that the various circular, wheel-like designs on pottery, occurring frequently in connection with other purely decorative patterns, cannot all be religious symbols, but it is equally obvious that metal and bone objects like those described above, which were made in imitation of chariot wheels, cannot have been intended merely for decoration.

A seal stone (Fig. 99 a), roughly circular, of black steatite, came from near the east entrance to the passage at a depth of ca. 8 m. (\(+\) 125.15 m.). The back is conical and the front slightly convex and somewhat uneven. In the center is the figure of a quadruped to right with the head turned back. The shape of head and neck and the general pose of the body seem to indicate that the figure is intended to represent a horse. In front is a branch which seems to be held in a hand extended from the chest of the animal. A curved line underneath the horse is probably an indication of natural ground. At the upper left are two double axes. The engraving is crude and uncertain. The whole figure is rendered with single lines in the manner of Geometric art.\(^{160}\) Above the rear of the horse the stone seems to have split off accidentally.

The curved tube in Figure 99 b is of very thin gold leaf,\(^{161}\) found at a depth of 21 m. (\(+\) 112.15 m.). It is closed at one end and open at the other, and it tapers slightly toward the closed end.

\(^{157}\) Wace, Chamber Tombs at Mycenae, pp. 30, 176 f., pls. XVIII, XIX, 5.
\(^{159}\) Minoan-Mycenaean Religion, pp. 358 ff.
\(^{160}\) Cf. Walters, Br. Mus. Cat. of Gems, pls. IV-V, especially nos. 189 and 211. The palm branch occurs frequently on Geometric seals; cf. Wace, Chamber Tombs at Mycenae, pl. XX a; Young, J.H.S., LVIII, 1938, p. 232, fig. 10.
\(^{161}\) Total length, ca. 0.055 m.; diameter, ca. 0.003 m.
Large quantities of lead were found in the passage at all depths, especially near the bottom. One large piece (A. M. 299), flat on top and convex on the bottom, measures ca. 0.18 m. in diameter and ca. 0.03 m. in thickness at the center, and has a weight of 4.64 kg.\textsuperscript{162} The other pieces are thin lead sheathings of large size, and crumpled up so as to be quite shapeless. The largest piece (A. M. 350, Fig. 100) weighs exactly 12 kg. It is hardly more than paper thick, except at the edge where it

\textsuperscript{162} A piece of pig lead, 4.10 kg. in weight and approximately rectangular in shape, was found in 1932 among the ruins of a Mycenaean house on the northeast slope, just below the Acropolis wall, \textit{Hesperia}, II, 1933, p. 352.
has a thickness of ca. 0.004 m. Three smaller pieces of the same kind (A. M. 325, 327, 351) were found in the underground passage, and one very large piece in poor condition was discovered in 1931 close to the Mycenaean stairway on the northeast slope. These thin lead sheets must have been used as covers for some vessels of perishable material. The original form cannot be determined from the shapeless mass of metal that remains.

The large amount of lead from these Mycenaean deposits in Athens is very striking, the more so as lead has not been found in such large quantities at other Mycenaean sites. Pieces of wire and some other small objects of lead have been discovered in Mycenaean tombs, and some crumpled pieces of lead sheets were found at Mycenae, but nowhere have such large quantities come to light as in Athens. It is likely that the mines at Laurion, which are rich in lead, were worked already in the Mycenaean period, and Athens may well have owed its early prominence very largely to its possession of these mines. The Mycenaean settlement at Thorikos, close to the Laurion mines, was probably a mining town, controlled by the Lords of Athens.

Bones of animals were found in large numbers, but these still await study and identification. Of human skeletal remains two recognizable pieces came to light, part of a child’s skull at a depth of 9.50 m. (123.65 m.), and a femur, probably of a woman, near the bottom of the fountain. These are, however, isolated pieces which may have been mixed accidentally with the fill.

**Summary and Conclusions**

In the description of the pottery the main characteristics have been pointed out, with special emphasis on the features derived from the pottery of preceding periods as distinguished from new patterns, and the relation of our material to the pottery from other sites has been briefly discussed. It remains to summarize these facts, to point out their bearing upon the general questions of chronology, and to discover, if possible, the historical changes reflected in the material remains.

The bulk of the pottery from the fill of the passage belongs to a late phase of

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163 Wace, *B.S.A.*, XXV, 1921-23, pp. 23, 56.
164 I am indebted to Mr. Lawrence Angel for examining these bones.
Mycenaean ware, the period generally designated as L. H. III C. The comparatively few sherds of earlier date which were mixed with the later pottery in no way affect the chronology of the stairway and the fountain. A small number of fragments found in the rubble foundations of the stairway, and the pottery demonstrably used before the destruction of the fountain, show beyond a doubt that the fountain and the stairway leading to it were constructed in the late Mycenaean period. The similarity between this pottery and that thrown in with the fill after the stairway collapsed is so close, that it becomes necessary to ascribe a comparatively brief period of use to the fountain.

On the other hand, the changes in shapes and decoration of the pottery at this time were probably very gradual. It was a period of rather aimless adherence to tradition. Changes did take place, but these were introduced more by accident than by new inventions or by the conscious creation of new artistic principles. It was above all a period of stagnation, in which the craftsmen and decorators followed existing patterns because that was the simplest thing to do. But with such a tendency also followed a simplification and deterioration of the artistic elements handed down from earlier times. The principles underlying the existing motives were gradually forgotten, with the result that certain details came to be habitually omitted, and the main designs became so inaccurately rendered that the original intentions were no longer apparent. The result of this tendency was a movement away from the naturalistic toward a geometric conception of existing designs. The artist and decorator became more interested in combinations of simple lines and abstractions than in more elaborate designs based on the objective rendering of material things. But simple lines and geometric patterns had already played an important role in the decoration of earlier Mycenaean pottery, where this kind of decoration had been employed chiefly with a view toward its tectonic function. The handles, the rim, the base, and the shoulder of the vases were emphasized by painted lines and broad bands; and the zone, or zones devoted to more elaborate decoration were similarly framed and set off from the rest of the vessel. With the simplification and gradual elimination of purely decorative designs, the tectonic character of the decoration became emphasized, and this in turn led to a gradual change in the shapes of the vessels. In this way we may account for the development of a high conical foot on vessels which originally had a low base, as, for example, the skyphos and the one-handled cup. A similar process led in the opposite direction to the complete disappearance of the base on other shapes which can be traced back to the same prototypes, such as the cup with off-set rim and certain forms of small skyphoi.

These tendencies are already apparent in the later forms of Mycenaean skyphoi like those seen in Figure 49. On one of these (Fig. 49 b), the base is left in the natural color of the clay, and a double reserved band sets off the lower part from the sides of the vessel. On skyphoi like that in Figure 49 a, the converse of this process
is in evidence, but the result is the same. The base is here painted,\textsuperscript{165} whereas the body is left in the color of the clay with painted lines serving the same purpose as the reserved lines in other types of vases. On skyphoi of the same shape, entirely covered with paint within and without (Fig. 49 c), the base was made less prominent and consequently became gradually lower until it was omitted altogether. The same is true of certain examples on which both the base and the body are unglazed on the outside except for a band at the lip.

A similar development can be traced in the formation of the off-set rim and of the ornate handle with plastic decorations. As a result of these changes many of the shapes went out of use entirely, but before this happened they underwent a gradual deterioration. The best example is the stirrup vase. In the Submycenaean examples of the shape the handles and the spout are disproportionately large, giving the vase a very ugly appearance, and before the introduction of the Protogeometric style the stirrup vase had ceased to be produced altogether.

In the earlier stages there are several exceptions to the prevailing rule in this development, but the general trend is unmistakable. The changes in shape grow out of the gradual deterioration of the ornamental designs. This explains the fact, which is often pointed out, that the shapes in the Submycenaean period underwent a more gradual change than the decoration.

The result of the process described above is the development of the Protogeometric style, which is not, like the Submycenaean, a late phase of the Mycenaean pottery,\textsuperscript{166} but a new style of ceramic art. Although it came into being as a result of processes set in motion at an earlier date, and although every element of Protogeometric decoration is present in an embryonic form in late Mycenaean art, the artistic conception expressed in the pottery of the new style differs as widely from that of the Mycenaean period as Geometric art differs from the art of the seventh and sixth centuries.

The preference for linear, abstract patterns and divisions into panels, which characterizes the pottery decoration of the Iron Age, is frequently pointed out as a reversion to earlier conceptions of art. Actually many of the Geometric elements of decoration are found in similar forms on the pottery of the early and middle Bronze Age, but we are hardly justified in assuming that the relation is anything but accidental. It would be as easy to find similar principles of decoration among the pottery of totally unrelated people in distant parts of the world. The recurrent

\textsuperscript{165} The base of the skyphos in Figure 49 a is a restoration in plaster, but numerous bases of similar vessels are preserved, usually with the base painted if the body is in the color of the clay, and \textit{vice versa}.

\textsuperscript{166} The proposal made by Heurtley (\textit{Q.D.A.P.}, V, 1936, p. 90, note 1) to call Protogeometric L. H. V seems to me entirely wrong for reasons explained above, whereas the designation L. H. IV for the so-called Granary Class is fully justified. The system of triple divisions, in which scholars delight, has no justification except on psychological grounds.
patterns may denote a spiritual and artistic relationship which has nothing to do with ethno-logy or tradition. It has even been stated that the simple abstractions expressed by the designs on the Protogeometric pottery and foreshadowed in the style of decora-tion of the Early and Middle Helladic periods, are more characteristic of the truly Greek spirit than, for example, the complicated and highly decorative ornaments of the best pottery of the Mycenaean age. The statement is not illuminating, and the reasons adduced to prove it are purely subjective. Until we can trace with some kind of certainty the cultural affinities of these early inhabitants in the material remains preserved in countries outside of Greece, it is futile to speak of Greek and non-Greek elements in the decorative patterns of the art produced by these people on Greek soil. But there is great fascination in trying to analyse Greek art and the Greek view of life and to decide where and when each ingredient originated, which is the most important and most truly Greek element, or to what extent and where in particular this element is extant today.

The glazed ware from the underground passage falls into five categories differentiat-ed through more or less distinct styles of decoration. The first and most important of these, which might be termed the "traditional style," is based on the patterns in vogue during the preceding period. To it belongs most of the patterned ware. It differs from the earlier pottery chiefly in its preference for vertical divi-sions, from which it has been called the panel style of decoration. It is further characterized by the simplification of earlier motives and by a predominance of purely abstract elements of decoration, as compared with the naturalistic basis underlying much of the decoration of earlier Mycenaean ware. Some of the designs are new, such as the opposing loops and half-circles, and zigzags between straight lines; while others, like the broken-rope pattern, and the checkerboard pattern, though found on earlier pottery, are far more common on the late ware. Along with these new and less usual designs the common stock in trade of the earlier potters, such as the spirals, the double axe, net patterns, and naturalistic motives continue to be used, but some of them have undergone important changes. The spiral is often found with some filling-ornament like the cross and the hour-glass, and not infrequently it is fringed with rows of dots. The floral designs, such as the papyrus flower and the lily, have become stylized beyond recognition, and the same is true of the patterns whose origin can be traced back to marine motives. Combinations of the old naturalistic designs with simple geometric patterns give rise to new motives, most of which are too bizarre to have any lasting effect on ceramic art, whereas others, continually altered through further stylization, live on in some form or another into the Geometric period.

168 The vertical divisions occur on certain shapes of early Mycenaean pottery, especially on cups with one handle (see Blegen, Prosymma, Π, p. 164, fig. 655; p. 166, fig. 661; Mylonas, 'Ελευσινακά, Α', p. 116, fig. 94).
Two peculiar features of the traditional style deserve special notice, the use of a white or cream-colored paint on a black ground, and the appearance of the reserved technique. The former of these may be traced back to the first period of Mycenaean pottery (L. H. I), in which white is used for details as a subsidiary color; but the rendering of the whole design in white is a late invention.\textsuperscript{169} The reserved technique, in which the background is painted in, so as to make the patterns stand out in the color of the clay, is likewise of a late origin. Whether or no there is any direct relation between the simultaneous appearance of these two techniques, it is an interesting fact that the two reappear together at the end of the sixth century in the early period of red-figured pottery.

Of less importance for its future effect, though perhaps more immediately successful, is the so-called “close style” of decoration. The term is used rather loosely, but in its most distinct form it comprises a small class of vases, usually well made and decorated with meticulous care, the characteristic feature of which is the use of various filling-ornaments to cover the whole ground between the larger designs. Many of the latter are borrowed from the traditional style, but birds and marine animals occur frequently. Very few fragments of genuine close style were found in our excavation. These are of thin fabric, of a greenish buff clay, quite distinct from the more common Attic ware of the late Mycenaean period. A related type of pottery, probably produced locally in imitation of the close style, is represented by a handful of sherds, but it is obvious that the close style was comparatively rare in Athens during the period to which the pottery from the underground passage belongs.

A third style, more common and often combined with the traditional style or with the close style or with both, is characterized by broad painted bands alternating with fine parallel lines in dilute paint or by horizontal rows of zigzags between painted lines. This type of decoration, which is derived from the Tell el Amarna style, is so frequently combined with the close style that the distinction between the two is rarely drawn. It occurs frequently, however, by itself without the tell-tale filling-ornaments of the close style. It is particularly common on stirrup vases, sometimes covering the whole vessel, but more often it is applied only on the body while the top is decorated with designs in the traditional style.

A figured style of decoration, rare among the pottery from the underground passage, is one of the new features of the Late Mycenaean pottery. Birds and fishes and a kind of quadruped, often showing some resemblance to the horse, are among the most common representations of this style. Usually the legs of the animals extend below the horizontal lines framing the figured zone. This careless disregard for the proper spacing of the figures seems to indicate that the potters were unfamiliar with

\textsuperscript{169} The light on dark decoration of Early and Middle Helladic times belongs to the same category, but there can hardly be any question of a direct connection.
figured decoration. Though more common in other localities, e.g. in the Argolis, and more especially in Rhodes and Cyprus, the figured style at this time never advanced beyond the experimental stage. Its origin is probably to be traced to wall paintings rather than to the figured pottery of the Middle Helladic period. It disappears completely in the Submycenaean period, and figured decoration occurs but rarely again before the developed Geometric style comes into existence. It belongs to the Indian summer of Mycenaean art, a brief revival of artistic power exerting itself before the final period of decay set in which marks the end of the late Bronze Age. The warrior vase from Mycenae, the fragments of a krater decorated with a chariot scene from Tiryns, and above all the frescoes from the latest palace at Tiryns are the best products of decorative art preserved from this period.

The least interesting style of decoration, from the artistic point of view, is represented by the so-called Granary Class of pottery. This is characterized chiefly by the omission of decorative motives and a preference for simple lines and broad stripes alternating with reserved bands. In the earliest phase of this style the narrow bands are painted, and the main body of the vase is in the color of the clay. The reverse of this process led to the reserved technique, characteristic of the later phase. A third variety of this style of decoration consists in completely covering the surface with a dark brown or black paint, which marks the final stage in the elimination of ornamental designs. In the subsequent period, the Submycenaean, which is represented by only a few small sherds from our excavation, the paucity of decorative patterns is the most characteristic feature. Wavy lines, zigzags, and concentric half-circles, and a few other simple patterns remain in use, and occasionally some degenerate naturalistic motives occur, and of these the half-circles in particular are handed down to the succeeding age and become the characteristic decoration on the pottery of the early Iron Age.

These five styles of decoration existed side by side for a time, but gradually the patterned type of decoration gave way to the plain linear divisions and alternations of painted and reserved bands characterizing the Granary Class.

It is not necessary to review here the evidence on which the chronology of the late Mycenaean period is based, nor did any imported objects come to light in our excavation that could be of use in determining the date of the pottery. The evidence has been sufficiently discussed elsewhere, a recent summary of which appears in the article by Mackeprang, repeatedly referred to in the preceding pages. To the three periods of the Late Helladic III style he assigns the approximate dates 1400, 1300, 1200 respectively, and within the framework of this simple chronological scheme he

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170 It should be pointed out, however, that even in the best period of black-figured ware, the extremities of the figures are often allowed to run over into the border.
172 Schliemann, *Tiryns*, pl. XIV.
has arranged the known building periods of Tiryns and Mycenae. Without entering into a discussion of the merits of this study and the methods employed, we may accept the dates arrived at by Mackeprang, which agree in the main with the conclusions reached by other scholars.

From the foregoing description of the pottery it is evident that the great bulk of it belongs to Mackeprang's third group (L. H. III C), although it is exceedingly difficult in individual cases to determine whether a particular sherd or design should be grouped with the second or the third. We can hardly go far wrong—provided the chronological scheme is correct—in assuming that the stairway was built in the second half of the thirteenth century before Christ. If we allow a quarter of a century for the existence of the fountain, we arrive at approximately the turn of the century for its destruction. At the time when the stairway collapsed and the passage became used as a dumping place, the style of decoration characterizing the third period was in common use and pottery of the Granary Class was just coming into vogue. The shaft continued to fill up at a fast rate until the level of the east cave had been reached. The pottery from that level is mixed with sherds of later periods, and it seems likely that the use of the upper two flights as a means of communication with the North Slope put a stop to the further filling up of the cleft. Whether the east cave was accessible from below at the time when the fountain was functioning cannot be determined with certainty, but even if such was the case it can hardly have been the intention of the builders to leave it open at a time of siege. It is important to bear in mind that the fountain was no natural spring but in reality a well dug in the narrow passage between the two faces of the cleft, and the only reason for its location at this place \(^{174}\) was to make it inaccessible to a besieging force.

The latest sherds of pottery found in sufficiently large numbers to be important in this connection belong to the Granary Class, which probably continued in use until the middle of the twelfth century, or possibly even later. The pottery of this type, most of which came from the higher levels, is particularly abundant, and it seems unlikely that this was thrown into the passage while the upper two flights of steps were being used. On the other hand, the fragments of Submycenaean pottery \(^{175}\) and of later ware are so few that they might have been dropped accidentally or washed down at any time even while the upper part of the stairway was in use.

\(^{174}\) That water can be reached at a comparatively small depth anywhere on the slopes is shown by the numerous wells of classical date found in the same vicinity, ranging in depth between 15 and 27 m. (Hesperia, VII, 1938, pp. 188, 212; A.J.A., XLII, 1938, pp. 445 f.).

\(^{175}\) The Submycenaean style of pottery, of which the vases from the Salamis graves are the best known examples, developed from the Granary Class and other late Mycenaean ware, but is of a definitely later date, as is shown by the pottery from graves in the Kerameikos. Skeat, The Dorians in Archaeology, p. 25, makes the error of assigning the Salamis vases to the same period as the Granary Class. On the other hand, the close style continued in a debased form into the Submycenaean period (cf. Kraiker and Kübler, op. cit., p. 77).
The conclusions which we are justified in drawing from these observations may be summed up as follows: The construction of the fountain took place before the end of the thirteenth century, and after a short period of use, about the turn of the century, the stairway collapsed and the chasm began to fill up with débris thrown down from the Acropolis. This continued until the middle of the twelfth century, when, for some reason, the east cave was opened from below and the upper two flights of the stairway were restored to be used as a means of direct communication between the Acropolis and the North Slope.

It has already been pointed out that the construction of the fountain was in all probability part of a general program of defence. Other measures of the same undertaking have left their traces on the Acropolis. In a recent investigation undertaken in connection with his study of the Parthenon, Professor W. Kolbe had occasion to examine the Cyclopean wall at various points to the south and east of the Parthenon Terrace. Among the sherds which he found in the fill of the wall were several fragments of unpainted kylikes, skyphoi, etc., of the same nature as that of the pottery from the fill of the passage and unquestionably belonging to the same late date. A more extensive study might reveal the existence of earlier parts of the fortification, but it is of the utmost importance for the chronology of the period that parts of the Cyclopean wall appear to have been constructed at approximately the same time as the fountain.

The excavations on the northeast slope, along the stairway leading to the postern gate, led to similar chronological conclusions. Here we found the approach to the gate buried beneath an undisturbed deposit of late Mycenaean date and a complex of small houses built over the whole area, some of them constructed directly over the earlier ascent. This can only mean that the postern gate was blocked up and the rear entrance abandoned at some time before the houses were built. The gate does not belong to the strong Cyclopean fortress but to an earlier wall of more modest dimensions and built in a less imposing manner. It may have been closed up some time before the construction of the Cyclopean wall, as Holland concluded, but more likely it was closed while the wall was under construction as a part of the same program of defence.

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176 I am greatly indebted to Prof. Kolbe for the privilege of examining the sherds from his investigation, and for his permission to refer to them as evidence for the date of the wall.

177 The Mycenaean sherds found by Kolbe were fairly numerous, but in the undisturbed fill of the wall no sherds later than Mycenaean were found. This would seem to dispose of the strange theory propounded by Carpenter "that the Pelargikon is merely the first classical girdle-wall to the Acropolis and hence belongs to the late seventh or early sixth century" (Corinth, III, ii, The Defences of Acrocorinth and the Lower Town, p. 34, note 1). His theory is based on a superficial resemblance of the Acropolis wall to certain parts of the wall on Acrocorinth conjecturally dated by him to that period.


179 The earlier entrance, blocked with a wall of later date, was discovered by Holland, A.J.A., XXVIII, 1924, pp. 124 ff.
The squatters who took up their abodes under the very shadows of the Acropolis wall did not long enjoy the use of their modest shelters. They were suddenly forced by some threatening danger to abandon their dwellings, leaving their household gear to be buried under the débris from their ruined homes. There is no indication that the houses were burned, but the danger to the lives of the inhabitants must have been very imminent and sudden. By that time the Acropolis wall had probably been finished and could afford protection to these people and to the inhabitants of the whole community. We know from the pottery found on the floors of the houses the approximate time at which these events took place. The better preserved vases—a few were found quite intact—are of the same kind as the bulk of the pottery from the underground passage. The shapes of the vases from the two excavations are nearly the same with one important difference. The latest of the vases from the fill of the fountain are conspicuously absent among the pottery from the houses. Skyphoi decorated in the late traditional style or with plain horizontal bands were common, but of the later type of skyphoi with reserved bands and of those entirely covered with paint no examples came to light on the northeast slope. Two other shapes, both very late, were also lacking: the small cup with one horizontal handle (Shape 8), and the cup with off-set rim and two handles (Shape 9). An earlier, unglazed example of the second of these, but none of the fully developed examples of the type, came from the débris of the houses. Numerous fragments of these two shapes and of the late types of skyphoi were found near the top in the fill of the fountain, but only a few came from the lower levels. From this fact and from their total absence among the pottery from the houses it is safe to conclude that these shapes did not come into common use until some time after the destruction of the fountain.\textsuperscript{180}

So far as it is possible to judge from the pottery discovered in the abandoned houses on the northeast slope and in the fill of the underground passage, and, furthermore, from the sherds found by Professor Kolbe in the interior stone packing of the Cyclopean wall, the final construction of the Mycenaean fortification on the Acropolis is to be dated in the second half of the thirteenth century. The closing of the postern gate at that time or shortly before, the ingenious and elaborate project designed to provide the citadel with a safe water supply, and the construction of a strong fortification in the style of Tiryns and Mycenae are all links in the same chain of evidence, showing that the rulers of Athens were at this time preparing to match their strength with some invading foe.

The imposing fortifications of Tiryns and Mycenae, and that of Athens as well, are often pointed to as eloquent manifestations of the political power of the princes in whose reign they were constructed. And justly so. But the display of material greatness which arouses the admiration of the visitor to these ruins also testifies to

\textsuperscript{180} This is also indicated by their absence from the tombs at the Argive Heraion, the latest of which antedate the appearance of the Granary Class of pottery, Blegen, \textit{Prosymna}, I, p. 423.
the incipient decay of the civilization whose products they are. For centuries the lords of Achaia, in the Homeric sense, whether by conquest or by peaceful development of their material resources had been adding wealth to their realms, and this had enabled them to make rapid advance in cultural pursuits and to attain an unprecedented degree of material comfort. But they had reached the zenith of their attainments, and their chief concern for the future was to keep and protect what they already had. They no longer depended on their armies to keep the hostile forces at a safe distance from their cities, but chose the alternative of making their cities strong enough and of stocking them with the necessary provisions for a siege. In order to do this they had to enlarge the fortified area so as to make room for the whole population and to include within it the approach to a water supply. Both Tiryns and Mycenae extended the circuit of their citadels, and both constructed well protected descents to the city fountains. The galleries at Tiryns and the Granary at Mycenae, which belong to the last building period before the final collapse of the Mycenaean civilization, were probably constructed for the purpose of storing provisions against an imminent siege. Athens, too, took similar precautions for the future, but owing to the very success of these measures, the Athenian Acropolis escaped the destruction to which the citadels of Mycenae and Tiryns, paradoxically, owe their better state of preservation.

We do not know the extent of the Athenian Acropolis at that time, but we may plausibly conjecture that a new addition was then made on the western slope at the same time as the upper wall was rebuilt. This later extension came to be called the Pelargikon or Pelasgikon, and the name was sometimes extended to include the whole Cyclopean wall round the Acropolis. The ancients derived the name from the Pelasgian engineers and stone masons who were called in from the outside to have charge of the constructions. These may have been the builders who had already gained fame from their works at Mycenae or Tiryns or on the island fortress in the Copaic lake.

The event which caused the inhabitants on the northeast slope to abandon their homes and take refuge on the Acropolis took place, according to our present system of dating, toward the end of the thirteenth century before Christ. It is tempting to connect this with the invasion from the north which is generally known as the Dorian invasion, but the traditional date of this event is about a hundred years later. Moreover, according to the tradition recorded by Thucydides the Dorians did not attack Attica but proceeded to more worthwhile conquests in the Peloponnesos. In another account related by Pausanias, Kodros, the last king of Athens, was slain in battle against the Peloponnesians near the Ilissos,\textsuperscript{181} and this event took place, according to ancient tradition, in the early part of the twelfth century.\textsuperscript{182}

The discrepancy in time between the dates handed down for the invasion and the archaeological evidence for a sudden shifting of the population in Athens is not conclusive proof that the two events are unrelated. It is obvious that the so-called Dorian

invasion was no organized military campaign on a vast scale but rather a series of barbarian incursions, which continued sporadically for decades to harass the population of Greece until the invaders had gained possession of a large part of the country. In the meantime they had come into close contact with the superior culture of the Achaians, with whom they became amalgamated. *Græcia capta ferum victorem cepit.*

Herodotus relates that the first attempted invasion of the Peloponneseos under Hyllos, son of Herakles, took place a hundred years before the final conquest, and that, as a result of the duel between Hyllos and Echemos, in which the former was slain at the Isthmos, the invaders made a pact that they would not return for three generations. The story was probably invented for the purpose of explaining why so much time elapsed between the first appearance of the Herakleidai and the Dorian conquest of the Argolis. The historical truth to be gleaned from this account seems to be that the unrest caused by the migrations from the north was known to have lasted for about a century. If this interpretation is correct, and if the traditional date of the invasion (1104 B.C.) marks the end of that period, the events indicated by the archaeological finds are in perfect accord with the ancient tradition.

It is a significant fact that several of the Mycenaean sites in the Argolis were destroyed about the same time. The fire at Mycenae, which destroyed the granary and the building close to the Lions Gate, took place probably at the end of the thirteenth century. Zygouries seems to have been abandoned just before the Granary Class came into vogue, and the Mycenaean settlement at the Argive Heraion apparently lost its importance about the same time, as is shown by the pottery from the tombs which extends to, but does not include, the Granary Class. At Tiryns, too, there are good reasons to believe that the destruction took place about the same time, but the evidence has been interpreted in different ways with totally conflicting results. Many of the sites—Tiryns, Mycenae, Asine—were rebuilt on a small scale after the destruction, others were left in ruins. Still others like Korakou seem to have survived into the twelfth century and were then abandoned, but all without exception show the effects of the pervading unrest in the steady decline that can be traced both in architecture and ceramic art. No definite limits can be given for this period of destruction, but the available evidence points to the end of the thirteenth century and the first half of the twelfth as the approximate time when all the eastern part of Greece felt the effects of the hostile incursions.

183 IX, 26.

184 An excellent summary of the events connected with the Dorian invasion together with references to the important literature on the subject is found in an article by Franz Miltner in *Klio*, XXVII, 1934, pp. 54 ff.


186 See Blegen, *Korakou*, p. 133.

It should be emphasized in this connection that the consequences of the invasion were almost wholly destructive.\textsuperscript{188} We have been accustomed to look for the introduction of new principles of art, new repertoires of vase shapes and decorative motives, new inventions and customs as the results of foreign invasions. The Dorian invaders have been credited with the introduction of Protogeometric pottery and of the multiple brush indispensible for the painting of concentric circles and similar designs; for the improvements of certain weapons, especially the sword; for the much overrated invention of the safety pin; for beginning to make practical and general use of iron; for the introduction of new types of burial and funeral rites. Actually each one of these innovations can be traced to other sources, too early to have any connection with the coming of the Dorians. In an indirect way they may have been the cause for many of the changes that took place in Greece at the beginning of the Iron Age, but it is incorrect to point to the representatives of an inferior culture as the immediate agents of these new inventions. If the Dorians had been capable by themselves of such marked advance along technical and artistic lines, they would have established a more permanent civilization in their homeland in the north. Their contribution toward the creation of Hellenic culture was far more intangible and less immediate, though none the less real. They furnished the brawn, not the brain, that went into the making of classical Greece.

For the approximate date of the fountain, which must be based chiefly on a study of the pottery from the passage, the relation of this pottery to that found in the graves of the Kerameikos cemetery is of fundamental importance. The earliest of these, dated to the middle of the twelfth century, contained pottery decorated in the Sub-mycenaean style, which is the next step in the development after the Granary Class. A few of the earliest vases from the graves are thus contemporary with the very latest from the underground passage.\textsuperscript{189} Some graves of late Mycenaean times, which have come to light in the excavations of the Agora, show that the necropolis of that period was near the Acropolis. We do not know where the settlement of Submycenaean and Protogeometric Athens was located,\textsuperscript{190} but it can hardly have been on the Acropolis itself, where very little pottery of these periods has been found. It is a significant fact that the pottery from the fountain extends to, but does not overlap, the period represented by the early graves in the Kerameikos cemetery. Is this an indication that the population had already then begun to move away from the Acropolis and its immediate slopes, and that the area enclosed within its walls was thenceforth devoted chiefly to the uses of religion? Such a change did take place some time before the dawn

\textsuperscript{188} Wade-Gery (\textit{Camb. Anc. Hist.}, II, p. 525) aptly remarks: "Judged by the material remains, their effect is wholly negative—they destroyed much and brought nothing."

\textsuperscript{189} This does not take into account the very limited number of fragments of post-Mycenaean pottery (see above, pp. 401-405).

\textsuperscript{190} Traces of a Mycenaean settlement have been found at the Kerameikos (Kraiker and Kübler, \textit{op. cit.}, p. 109), but it is not likely that the main part of the population lived there.
of written history, and it seems probable, for reasons given above, that the change was made as early as the mid-twelfth century.

From the material remains of the late Mycenaean period it is possible to reconstruct some of the main events in the history of the Acropolis at that time, but the subsequent four centuries are veiled in mystery. Our knowledge of that period comes chiefly from graves and from the cults and myths handed down to later times. The actual events leading to the establishment of the various cults are in most cases unknown, and the explanations recorded by classical writers are for the most part inventions of a comparatively late date to account for the origin of the cults.

Numerous cult places are known to have existed on the North Slope in the general vicinity of the Mycenaean fountain. Though later connected in various ways with the established worship of the Olympian deities, many of the cults go back to primitive beliefs and practices, the origin of which is lost in the dim light of the distant past. In classical times the sanctuary of Pandrosos was located on the Acropolis not very far from the descent into the Mycenaean fountain. Aglauros, another of the three daughters of Kekrops, was worshiped on the slope below, and it is likely that Herse shared in the same cult. The rites connected with these cult places gave rise to the story of the mysterious chest and the tragic end of the two disobedient sisters who hurled themselves over the Acropolis wall. A dramatization of this story took place once a year at the Arrephoria, when two young girls in the service of Athena performed a mysterious act which led them to the precinct of Aphrodite and back to the Acropolis. The subterranean passage, through which they had to reach the sanctuary on the northeast slope, is none other than the cleft in the rock which originally served as descent to the only water supply within direct reach of the Acropolis.

The three daughters of Kekrops were originally nymphs, as their names imply, but later they came to be joined to the cult of Athena. The underground passage with its dark and tortuous descent to the fountain, where maidens in the service of the king used to go down to fetch water for the royal household, furnished the proper conditions for the growth of such legends. The collapse of the stairway, whether caused by an earthquake or by the decay of the wooden framework, can hardly have failed to impress the inhabitants, and superstitious fear may have prevented its rebuilding. If the destruction was accompanied by the loss of human life,191 one can easily understand how such an event would have led to the establishment of cult places in which offerings were made and other religious rites performed, and how these, in turn, furnished the material for the mythological fabric.

But if the superstitious mind is prone to explain physical phenomena as the result of supernatural causes, sober reason needs no such explanations. One writer of classical times records the existence and destruction of a source of water on the

191 The scanty skeletal remains (see p. 416) from the fill might be so interpreted.
Acropolis which we may on good grounds identify with the fountain in the underground passage. In Plato's *Kritias* the following passage occurs: 192

"There was one fountain in the region of the Acropolis, but this was destroyed by earthquakes, and nothing remains but the small springs which now trickle out all around. But to the inhabitants of that time the fountain afforded a copious flow, being well-tempered both for winter and for summer."

Plato's description of early Athens is highly imaginative, as is the whole background for the dialogue of the *Kritias* with its account of Atlantis and the tale of the war between the two powers. But is the whole story an invention on Plato's part, as modern philologists like to believe, 103 or did he to some extent make use of material handed down by tradition and perhaps recorded by writers whose works are now lost? Whatever view we take of his statement that the account was first recorded by Solon who had received it from Egyptian priests, it must be admitted that if this story is his own invention it was so framed as to appear plausible to Kritias' interlocutors in the dialogue. Plato knew Athenian mythology and tradition, and he was too careful an author to refer for the background of his dialogues to sources not in keeping with the known accounts. We are justified in assuming that the main sketch of his picture of early Athens and of the buildings on the Acropolis is based on tradition and on accounts known to Plato and believed by him to be true.

In Plato's day two important but not very copious springs existed on the slopes of the Acropolis, the Klepsydra on the northwest slope, and the spring in the Asklepieion on the south side, and possibly there were others which have since been covered over. It was natural for Plato and his contemporaries to connect these with the tradition of the one large spring in or near the Acropolis which was said to have dried up after an earthquake, and the inference was near at hand that the existing springs came into being as the natural result of this event. Actually there can be no direct connection between the destruction of the one and the origin of the others, for it is likely that the springs on the slopes existed in some form even earlier than the man-made fountain on the Acropolis. 194 But tradition centered about the latter, which at one time in the history of the city had been of such importance to the lives of the inhabitants. It can hardly be doubted that this spring, whose existence was all but forgotten to the Athenians of the fifth century, is the very fountain discovered in our excavations. As the earliest artificial water supply of ancient Athens it occupies a unique position among the scanty remains of that remote period.

Oscar Broneer

192 112 D.
194 Measurements taken in February, 1939, showed a water level in the Mycenaean Fountain ca. 4 m. above that of the Klepsydra and ca. 5 m. above that of the spring in the Asklepieion. The difference is explained by the fact that the Mycenaean Fountain, which is in reality a well, has no outlet, whereas the water of the other two springs is in constant flow. The geological formation of the rock may have something to do with it (cf. Judeich, *Topographie*, p. 48, fig. 7).
Concordance of Pottery and Miscellaneous Objects

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PLATE XI. Horizontal Section of Underground
PLATE XII. Vertical Section of Passage, Looking East Along Line A-A, Fig. 1; and Fig.
Passage, Looking East Along Line A-A, Fig. 1; and Plan at Widest Point of Reservoir
PLATE XIII. South Side of Passage, Showing Mycenaean Stairway in Elevation
PLATE XIII. South Side of Passage, Showing Mycenaean Stairway in Elevation