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L I T H A R E S

An Early Bronze Age Settlement in Boeotia



Hara Tzavella-Evjen

Occasional Paper 15

Institute of Archaeology, University of California, Los Angeles



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To the memory of S. Marinatos

Contents

Introduction	1
The Site	3
The Early Bronze Age Cemetery	6
Test Trenches	6
Stratigraphy	9
The EH II Settlement	11
Pottery Classification	21
Potter's Marks	31
Figurines	39
Stone Industry	39
Miscellaneous	46
Appendix I. Molluscs from Early Bronze Age Lithares David S. Reese	50
Appendix II. Hydration Tests on Artifact Flakes Fred W. Trembour	54
Appendix III. Results of the Examination of Lead objects Zofia Anna Stos-Gale and Noel Gale	56
Abbreviations	58
Bibliography	59
Plates	67



Introduction

The site of Lithares is situated on Lake Hylike in Boeotia, north of Thebes and about 15 km from the Mediterranean coast. The site has produced Early Helladic (EH) I remains (3000-2500 B.C.), but mainly EH II (2500-2200 B.C.) material. The first archaeologist to recognize the richness of prehistoric materials present in the valley surrounding Lithares was J. Papademetriou, when he was ephor of Boeotia in the late 1930s. Later, S. Marinatos and Th. Spyropoulos surveyed the site, and a systematic excavation was begun in 1968 by Spyropoulos, who excavated three trenches and the Early Bronze Age cemetery in the vicinity. The author undertook the responsibility of the excavation at Lithares in 1971, financially supported by the Greek Archaeological Service, the University of Colorado Council on Research and Creative Work, Wayne State University, and private contributors who wish to remain anonymous.

Five seasons of excavations were completed in 1971-1974 and 1976, and a cleaning up season ended the project in 1977. The final publication of the site is part of the Publications Series of the Greek Archaeological Service in which a full account of the excavated rooms and their soundings is given and over eight hundred representative samples of the finds are catalogued. The volume at hand summarizes the study, concentrating primarily on the presentation of the archaeological significance of the valley of Lithares, describes the size of the EH I and EH II levels attested through test trenches, gives an account of the EH cemetery excavated by Spyropoulos, and discusses the main area, which produced an organized settlement, and the findings. Studies of the lead, mollusks, and obsidian found are appended.

Professors Harold Evjen and Ruth Todd assisted most generously in the field and museum work. P. Anastasiou and N. Hatzitheodorou were the architects. Professor P. Brickland performed the geological tests, S. Carmical prepared the drawings of the pottery, Dr. N. Gale and Dr. Z. Stos-Gale studied the lead items, S. MacGillivray was consulted about the cycladic type wares, O. Magana made a preliminary identification of the bones, A. Orphanides studied the stone tools (his full report appears in the publication *Lithares* by the Greek Archaeological Service), D. Reese studied the shells, and F. Trembour performed the obsidian hydration analysis. Graduate and undergraduate students from both American and Greek universities participated in the excavation during all seasons. Dr. Spyropoulos and Dr. A. Andreiomenou, ephors of Boeotia, were most cooperative and hospitable to all of us. With the helpful personnel of the Museum at Thebes and the *philotimoi* workmen from the village of Vagia, we were able to reach our goals in the Lithares excavation.

To all I express my deep gratitude. I am also most thankful to Dr. E. Elster, Director of Publications of the UCLA Institute of Archaeology, for publishing this summary in the Occasional Papers of the Institute; to the Committee on University Scholarly Publications of the University of Colorado, Boulder, for a generous grant that made this publication possible; and to the Council on Research and Creative Work of the University of Colorado for its generous support during the years of the excavation.

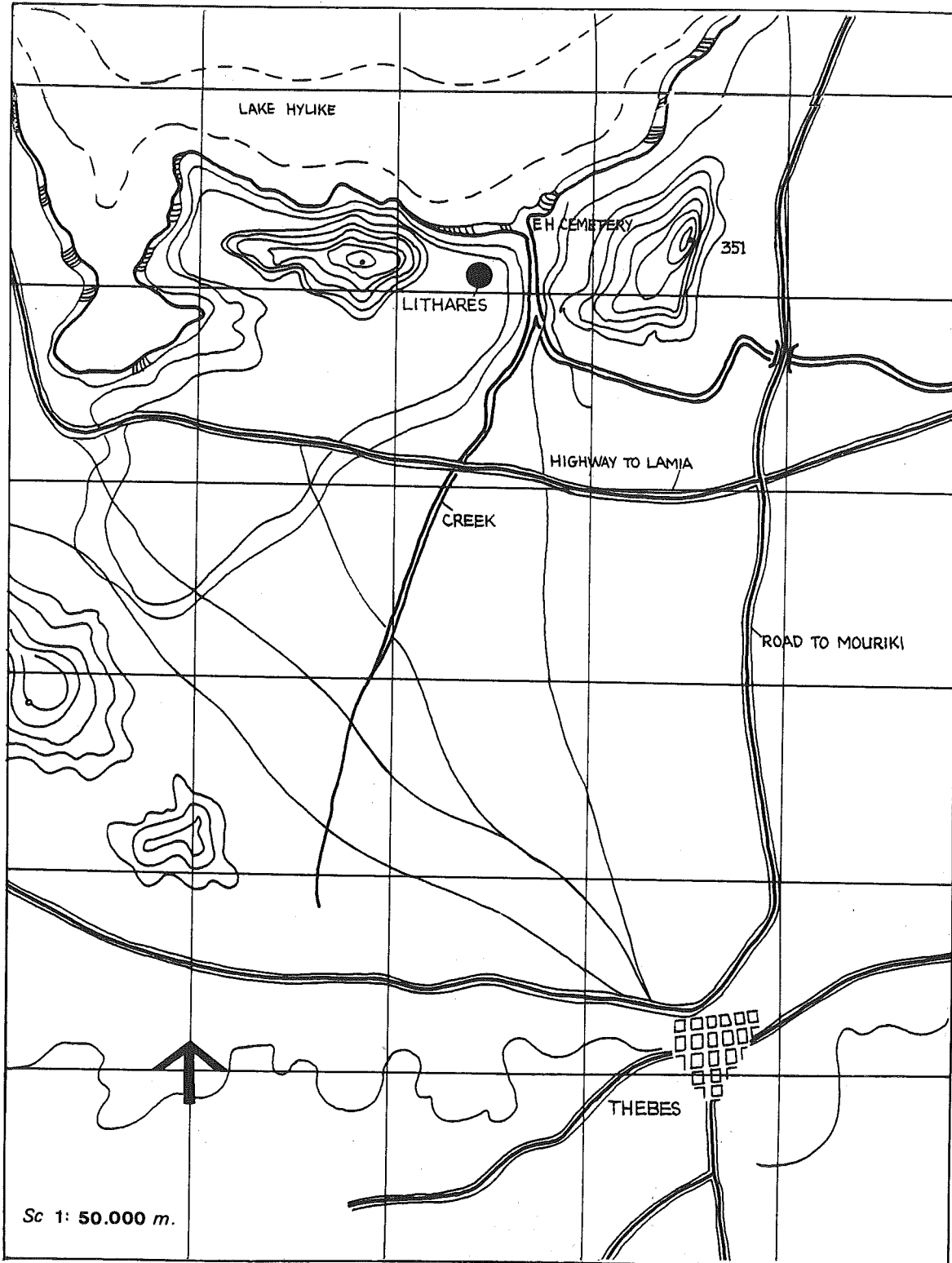


Figure 1. The valley of Lithares.

The Site

The valley of Lithares (Tzavella-Evjen 1984:15ff., fig. A) is part of the region of Pyri located on the south side of Lake Hylake, approximately 12 km north of Thebes (fig. 1). The name Lithares, which means "the stone place," is a result of the abundance of cut, unfaced stones found in the field, usually piled in mounds by the farmers. Some of these stones are remains of building materials from a remote antiquity. The Early Bronze Age site of Lithares is ideally located in the valley by Lake Hylake and a creek. The creek is the settlement's northeast and southeast border beyond which, near the lake, the cemetery of the Early Bronze Age community was found. More precisely, the archaeological site is between the hills Stroulogo (414 m high) on the west and Kokkinovrachos (325 m high) on the east (plate 1). The south side is open to the Thebaic Valley, and Lake Hylake is on the north. The soil is rich and well irrigated by a seasonal creek which receives its water from the small rivers Ismenos and Thespios. The Early Bronze Age settlement is located on the west bank of the creek at the foot of Stroulogo, and the cemetery of this community, excavated by Spyropoulos (Spyropoulos 1969:36-43), is located on the west side of the foot of Kokkinovrachos above the lake.

Surveys conducted by Spyropoulos and the author showed that prehistoric materials covered a wide area between the lake and the creek and halfway up Stroulogo. Characteristic finds, collected from the surface, were sherds from bowls, sauce-boats, skyphoi, cups (including a whole one), pyxides, "frying pans," hydriae, and pithoi. Some coarse wares were decorated with relief patterns, and a few fine wares had a simple linear painted decoration. Parts of kraterutai (also known as spit holders), clay spindle whorls, stoppers, parts of anchor-shaped objects, obsidian blades, cores and chips, stone tools (grinders, axes, mortars, one "skull crusher"), and some blades from local red and gray-green pyritic stone complete the list of the Early Bronze Age surface items. A few Mycenaean, Geometric, and Hellenistic sherds were also collected, but only the Hellenistic items, associated with a Hellenistic wall located approximately 100 m south of the Early Bronze Age settlement, belonged to the immediate environment. Spyropoulos found ten sherds of Late Helladic (LH) III kylikes further up on the foothills of Stroulogo, and consequently attempted to identify Lithares with the Homeric Hyle (Spyropoulos 1969:28-46). It is possible that the very few Mycenaean sherds from the site had been washed down from the group of such sherds found on Stroulogo. He also refers to an Archaic period cemetery he excavated by the lakeshore west of Lithares (Spyropoulos 1969, 24:45) and which, he indicates, is occasionally submerged. Andreiomenou has informed the author verbally that she has excavated part of a Geometric cemetery located near the small chapel of Aghia Eleousa on the south side of the Stroulogo foothills about 1 km from the EH site. Thus, the surroundings explain the presence at the site of occasional sherds from those eras.



W6

16

15

14

13

12

W5

11

W4

10

W3

W2

W1

8

N2

N3

N4

N5

V

3

E1

E2

S1-2

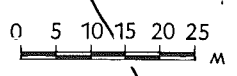
S4

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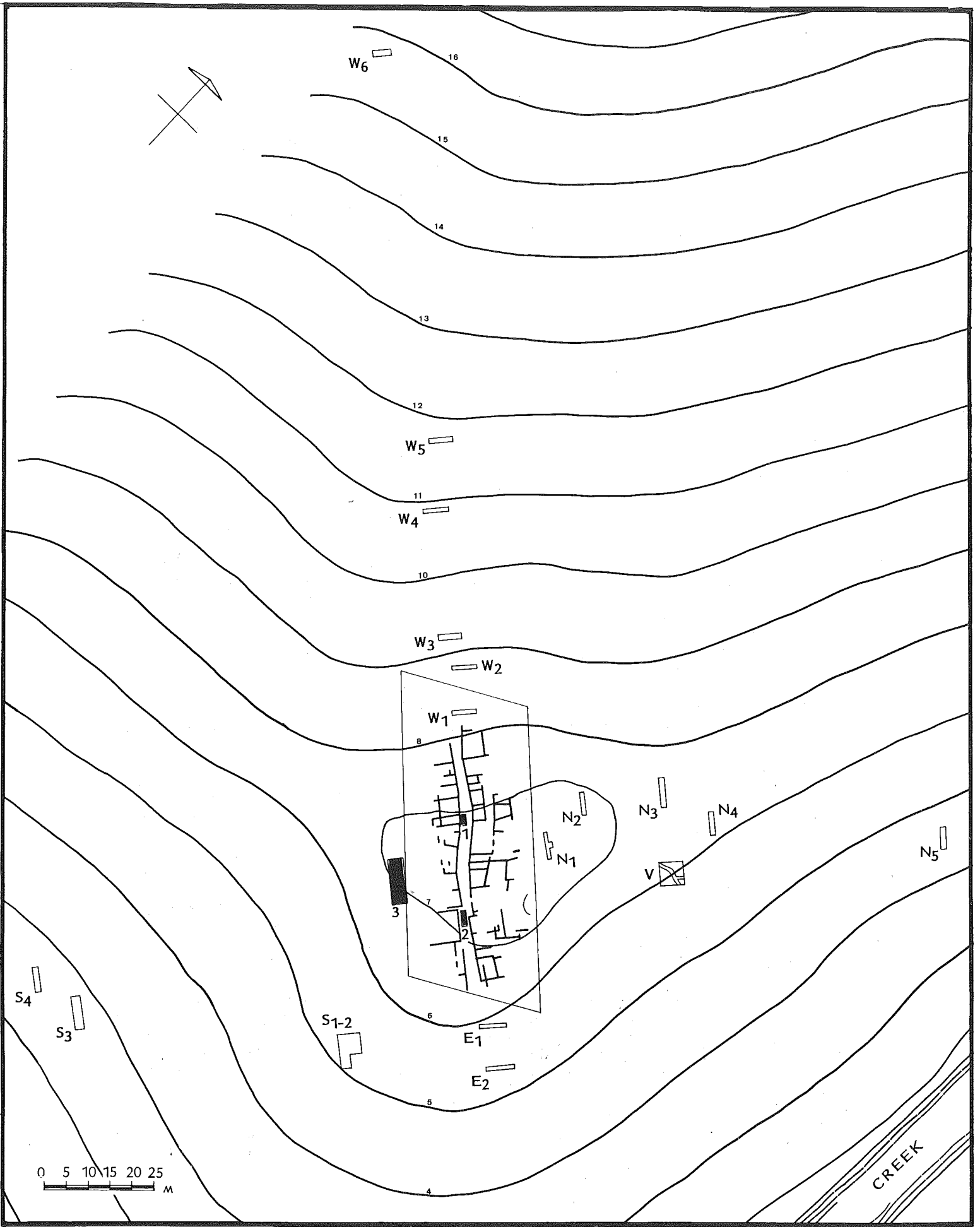
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5

4



CREEK



The excavations conducted by Spyropoulos and the author revealed an EH II settlement, evidence of EH I habitation, and an EH cemetery. Fifty-five architectural units of the EH II period were totally or partially excavated; these buildings extend along a major road and an alley. The EH I habitation is attested by artifacts rather than buildings. About fifty tombs of the cemetery of this community were identified by Spyropoulos, who is also responsible for the excavation of room 19 of the settlement (fig. 5, pl. 9c), a stratigraphic trench (fig. 2 [trench 1]), and a votros (fig. 2 V). The remainder, over fifty architectural units, test trenches (fig. 2 N1-5, W1-6, E1-2, and S1-4), and stratigraphic trenches (figs. 2 [trenches 1 and 2], 3, and 4), was excavated by the author.

Opposite page:
Figure 2. Topographic plan of Lithares.

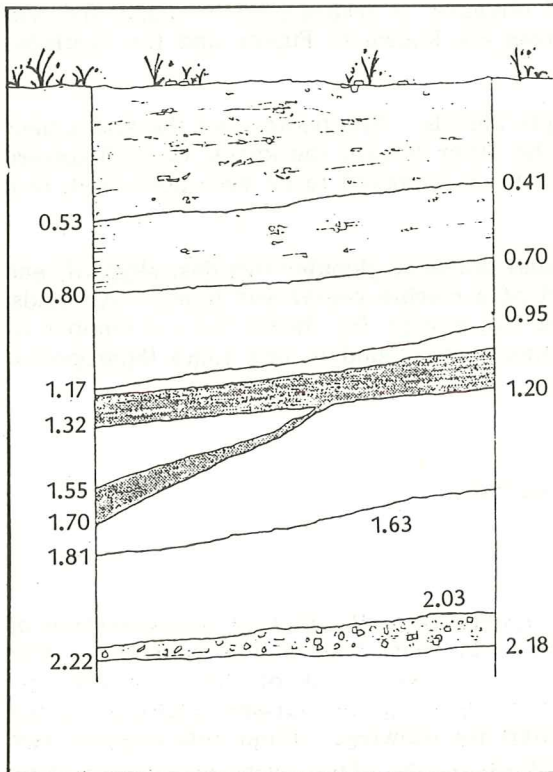


Figure 3. Trench 2 stratigraphy, 1971-1972. EH II: 0.0 to 0.95 m; EH I: 0.95 to 2.00 m. Shaded levels indicate ash: \pm 1.00 to 1.20 and 1.55 to 1.70 m (oblique).

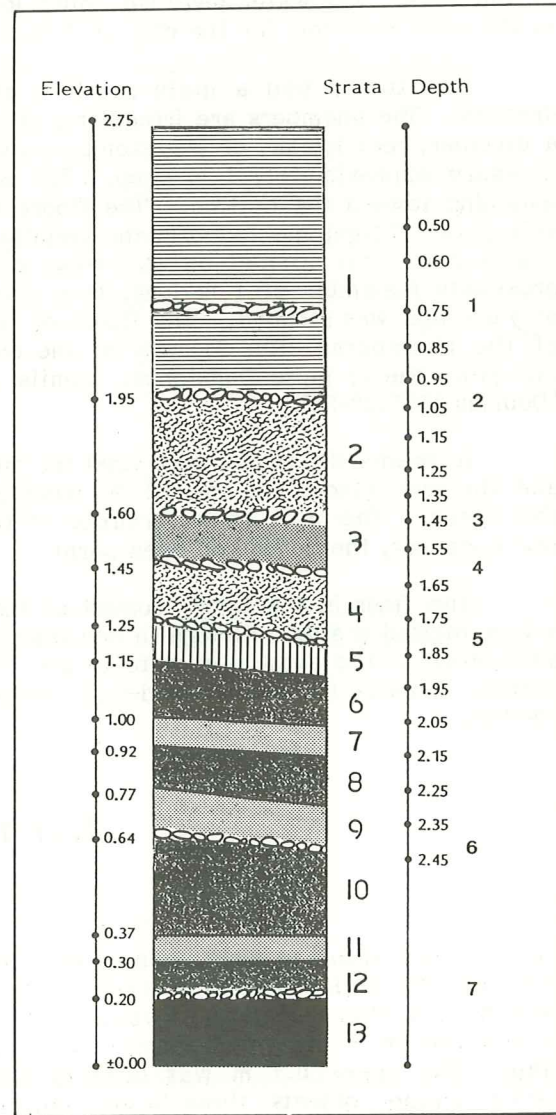


Figure 4. Trench 3 stratigraphy, 1976. EH II: 0 to 1.00 m; EH I: 1.00 to 2.75 m. 1 to 7: Levels of habitation. 1 to 13: Strata showing some change of their deposits.

The Early Bronze Age Cemetery

In 1968, Spyropoulos identified and excavated about fifty tombs located on the southeast coast of Lake Hylke and on the east bank of the creek which runs by the settlement (fig. 1). Most of the tombs were badly damaged by water erosion from the rising waters of the lake. The water level was much lower in antiquity (pl. 1c). The lake now serves as the main reservoir for the city of Athens.

The tombs had a main pit-like chamber, carved in the sandstone rocks, and a dromos. The chambers are irregularly shaped, but attempts were made to follow either a circular, rectangular, or trapezoidal design. The chambers in the best-preserved tombs measure approximately 1 m deep. The elevation is trapezoidal, with the cave-like pit widening toward the bottom. The floors are uneven, and only a few tombs have small side pits. Flagstones found in the vicinity were used as capstones. The dromoi of most tombs had been opened on the west side of the burial chamber. Measuring an approximate maximum of 1 m long, they were carelessly dug in a channel-like form; only one dromos was stepped. The floors of the dromoi are higher by 0.4 m than the floors of the chambers. The doorway of the burial chamber is trapezoidal in shape and was closed by one or more flagstones. Similar graves are known in Euboa and the Cyclades (Doumas 1977:29-53).

It seems the tombs were used for multiple burials. The bodies had the knees bent and the arms placed one toward the head and the other toward the knees, or both toward the knees. The state of preservation of the bones is reported to be very poor, and, in a few instances, the bones had been burnt.

The finds in the tombs consist of the usual pottery, globular pyxides, skyphoi, and a few incised sherds, although in one tomb part of a marble vessel was found. All finds, according to the excavator, date to the EH period, except for sherds from a number of Middle Helladic (MH) fruitstand-type wares which were found in one tomb (Spyropoulos 1969:41).

Test Trenches

Eighteen test trenches were opened, radiating outward from the highest concentration of remains (Tzavella-Evjen 1984:19ff., pl. 4a-b). In 1968, Spyropoulos opened a major trench in Liakopoulos' field about 100 m from the west bank of the creek and approximately 40 m from the farmers' trail which leads from the national highway to the lake. The upper 0.7 m was heavily disturbed by plowing. From this deposit, two anchor-shaped objects, three bronze chisels, obsidian, and whole vases and sherds from bowls, cups, and skyphoi were collected. At 0.45 m below the surface, the walls of a rectangular room (room 19 in fig. 5, pl. 9c) measuring 2 by 4 m with a northwest-southeast orientation were excavated. The walls, built with unfaced stones and averaging 0.5 m thick, were preserved at the foundation level. Traces of a floor paved with small stones and sherds were observed inside the northeast corner and outside the north wall of the room. A floor paved with packed earth was traced by the southeast corner,

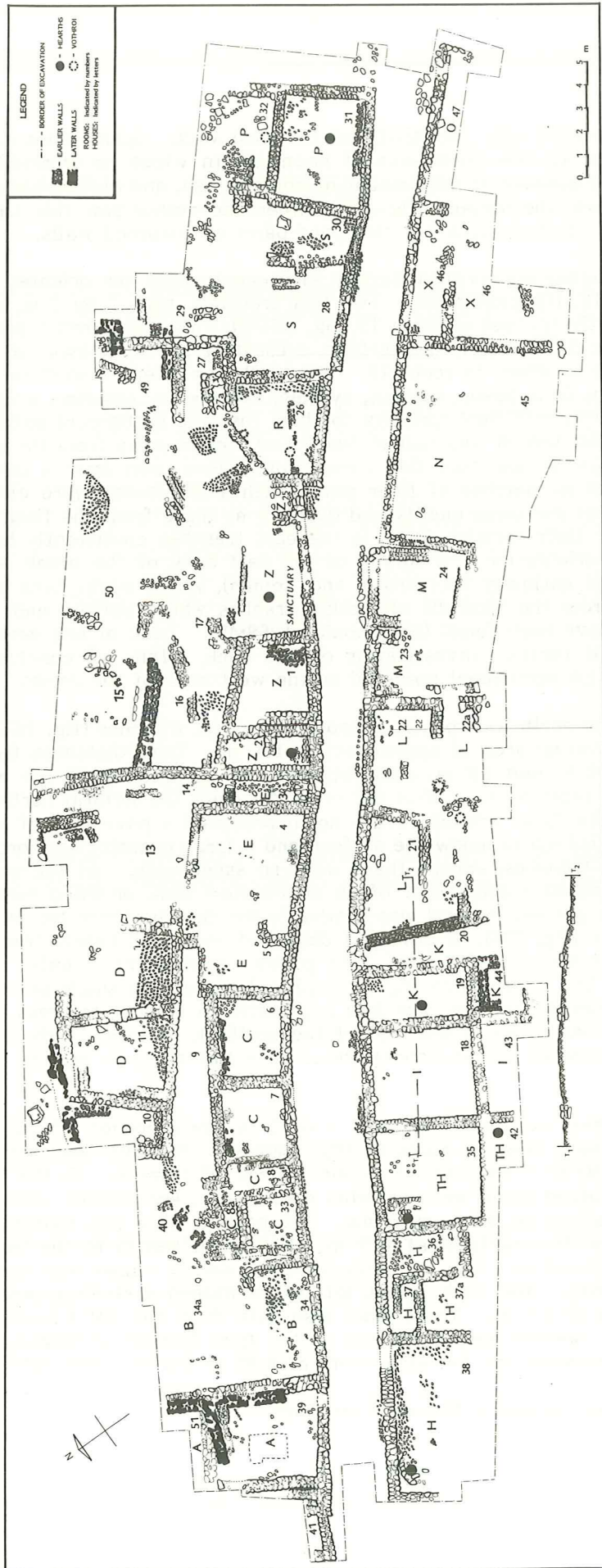


Figure 5. EH II settlement plan showing rooms, houses, hearths and votivoi. (For enlarged view, see fold-out at back of volume.)

and a hearth was located near the middle of the west wall. Spyropoulos also opened a trench 2.1 by 0.6 m to the northeast of room 19 in which he identified a *vothros* (Spyropoulos 1969:28) because of the amount of pottery, ash, and burned bones found in a deposit 0.95 m below the surface (fig. 2 V). When the author saw this trench, it was larger than the reported dimensions and contained parts of disturbed walls.

The test trenches excavated during subsequent years are oriented in terms of meters from room 19, the base point. Two test trenches, each 1 by 3 m, were opened 45 and 85 m, respectively, east of room 19 (fig. 2E1-2). The first trench produced parts of a wall foundation 0.5 m below the surface, presenting the same type of construction and floor pavements as those in room 19. The wall was oriented southeast-northwest. The finds were sherds from bowls, skyphoi, hydriae, sauceboats, obsidian, a spindle whorl, and animal bones, all in sufficient quantity to show that the settlement extended to this point. The second test trench was opened just a few meters away from the creek's sloping west bank. A few stones from this trench might have been from a disturbed wall, but at a depth of 0.6 m, patches of floor paved with small stones were cleared. Potsherds and obsidian of the same quality and quantity as those from the first trench were found. The walls or their remains found in the east trenches consistently had the same southeast-northwest orientation. A survey of the east bank of the creek produced occasional sherds of late antiquity (Hellenistic and Roman), which might have been brought down by the rain from the foothills of Kokkinovrachos where pottery and walls dating from these periods have been found (Spyropoulos 1969:45). Lack of any early wares and obsidian discouraged further investigation of this bank. Thus we concluded that the eastern limits of the EH settlement bordered on the west bank of the creek.

The area to the north was explored through five test trenches (fig. 2N1-5), about 1 by 3 m, which covered an area of approximately 100 m. Their distances from room 19 are 20, 30.5, 47, 53.5, and 96 m, respectively, to an area where the creek curves northwest, forming a promontory. Thus the creek becomes the natural northern limit of the settlement. The first trench to the north produced a pavement of middle sized stones (fig. 2N1; pl. 1d) 0.5 m below the surface and a large quantity of sherds similar to those from the east trenches, except there were no sauceboats. At the second trench (fig. 2N2), we excavated a small part of an undisturbed wall, oriented east-west, at a depth of 0.5 m. The pottery context was similar to the first northern trench. The third and fourth trenches (fig. 2N3, 4) produced disturbed walls and barely traceable floors paved with stones at a depth of 0.5 m. The pottery context was similar to the other northern trenches. The fifth trench (fig. 2N5; pl. 1e) produced a single stone wall 0.3 m below the surface, and the pottery was less impressive in number but was of the same types and styles as that found in the rest of the northern trenches. The pottery finds and the uniform absence of the sauceboat wares date this northern section to the EH I period.

Six test trenches, each approximately 1 by 3 m, were opened 28, 40, 47, 73, 90, and 185 m, respectively, west of room 19 (fig. 2W1-6). The first and second trenches produced parts of walls at a depth of 0.6 m and typical EH II wares. In the third trench, material from a disturbed stone wall, oriented north-south, and smaller stones packed in a bench-like construction (pl. 1f) were found. The pottery from this trench dates to the EH I period. Below the surface at 0.3 m, the fourth trench to the west produced material from a disturbed wall (pl. 2a), oriented north-south, mixed with pottery dating from the EH I period. The fifth trench (pl. 2b) contained a stone-packed, bench-like structure at a depth of 0.5 m. These finds also date from the EH I period. The last trench to the west, opened toward the top of the first foothill of Stroulogo, produced some architectural material (pl. 2c) at a depth of 0.35 to 0.4 m. The pottery was very limited but of EH I date. Thus, the four test trenches furthest to the west presented the same chronological picture as the north trenches.

Four test trenches were opened to the southeast (fig. 2S1-4). The first two, at a distance of 66 m from room 19, ultimately formed a single 6 by 9 m trench. They revealed the foundations of two walls (fig. 2S1-2): one, 2.5 m long with a north-south orientation, was found at a depth of 0.6 to 0.7 m; the second, which was disturbed, had an east-west orientation and was found at 0.8 m. Remains of a stone bench, 1.5 by 2 m, were found at a depth of 0.45 m, and a second one, 1 by 3 m, was found lower at 0.6 m. At 0.9 m below the surface, a disturbed wall and a floor paved with small stones were found partially preserved. Plentiful ceramic finds dated from the EH I period. From this test trench came the only identifiable Neolithic sherd, one with bright red zig-zag decoration (pl. 19p). A sherd with a potter's mark consisting of an impressed dot was also found. The third south trench, 1.5 by 4 m and located approximately 70 m from room 19, contained stone rubble with predominantly small sherds from later periods, possibly Hellenistic. The same chronological picture was provided by the fourth trench 75 m to the south of room 19.

The EH I habitation at Lithares was spread over an area at least 34,000 to 40,000 m², as attested by the test trenches. The density of the buildings was high. Every trench produced some architectural remains of walls or floors, though the organization of this settlement is yet unknown. The disturbed walls were not uniform in their orientation, and the masonry styles include both types a and b (fig. 6), with type b predominating. During the EH II period, the community was concentrated in an area of about 7,000 m², as shown by the east trenches, the two west trenches closest to room 19, the main trench, and the stratigraphy of the site.

Stratigraphy

Three trenches were opened for investigation of the levels below 0.7 m, the level of the last EH II settlement (Tzavella-Evjen 1984:97ff., pl. 16). Two trenches (figs. 3 and 4) were excavated to bedrock. A 1 m deep trench was opened in 1968 by Spyropoulos to the northeast immediately outside room 19 (fig. 2 [trench 1]). The stratigraphy showed, according to the excavator, three floor levels, 0.3, 0.45, and 0.9 m, respectively, below the surface. The levels were disturbed by plowing which reached occasionally to a depth of 0.7 m. The pottery he describes is of red burnished and coarse wares, all of EH I and EH II shapes, which are compared with Eutresis. His report, though, indicates that EH III wares were found, and they continued to appear to a depth of 0.75 to 0.8 m (Spyropoulos 1969:33, drawing 3). EH I pottery was recorded from depths between 0.8 and 1 m.

During the 1971-1972 seasons, a new trench (figs. 2 [trench 2] and 3) 1.5 by 2.5 m was opened about 20 m east of the 1968 trench. The upper 0.7 m was too disturbed to produce any comprehensive results, but traces of floor paved with small stones appeared under this fill. The ceramic types were bowls (like those shown in pl. 3a-d), saucers, skyphoi (pl. 3e), cups, pyxides (pl. 3f), sauceboats (pl. 3g), "frying pans," hydriae, and kratautai. The wares, representing the fabrics and decorative styles, were red or brown burnished, coarse, some with relief decoration, incised sherds, and one painted with brown zig-zag lines. Obsidian knives, a spherical stone tool, considerable amounts of animal bones, and a small clay animal figurine that was most likely transferred there by water runoff from the nearby "Sanctuary of the Bulls" were also recovered. The finds decreased at a depth of 0.75 to 0.95 m. The pottery styles were still of EH II types (pl. 3h-l), but the sauceboats disappeared below 0.9 m. A level mixed with ash extended from 1 to ±1.6 m. The pottery was plentiful at a depth of 1 to 1.2 m (pl. 4a-g), but

Table 1. Stratigraphy

Levels	STRATIGRAPHY																											
	Pottery Shapes							Styles of Decoration				Miscellaneous Ceramics			Stone Objects	Bone Objects	Bronze	Figurines										
	Bowls	Plates	Skyphoi	Cups	Pyxides	Sauceboats	Frying pans	Pithoi	Hydriae & jugs	Relief	Incised	Painted	Pressed	Flecked	Bases	Handles	Krateutai	Spindle whorls	Stoppers	Tong-shaped tools	Vessels	Tools	Obsidian	Tubes	Tools	Needles	Animal	
	1971-1972 Trench: 2 m. deep																											
1st m. of deposit EH I	65	6	10	3	4	-	1	-	3	4	6	-	-	-	24	23	1	2	4	-	-	3	15	-	1	1	-	-
2nd m. of deposit EH II	29	1	6	3	1	39	2	-	1	1	1	-	-	-	10	19	1	-	-	-	-	1	11	-	-	-	-	1
	1976 Trench: 3 m. deep																											
1st m. of deposit EH I	92	-	21	1	10	-	-	3	13	6	7	-	-	-	56	16	-	3	1	-	-	5	17	-	-	-	-	-
2nd m. of deposit EH I	223	17	22	3	9	1*	5	1	17	12	14	1	1	1	74	52	2	2	3	-	-	11	38	-	4	-	-	-
3rd m. of deposit EH II	167	44	13	6	2	131	2	8	12	10	14	-	-	1	51	41	5	5	5	1	1	4	111	1	3	-	-	-

*Found at the upper 0.15 m. of the 2nd meter of deposit.

became rare throughout the rest of the ash deposit. Ash mixed with earth was present almost to bedrock, which was reached 2.2 m below the surface. Pottery from the lower 0.5 m is represented by sherds of red burnished wares, some porous coarse wares, and fine, hard, whitish fabrics. The common shapes are bowls (pl. 4h-k), cups (pl. 4l), pyxides, skyphoi, and hydriae (table 1).

This trench produced no evidence of architecture below the 0.7 m level. The pottery at the lower meter of deposit can be classified within the EH I types, and the pottery of the upper meter of deposit is classified within the EH II types.

Another trench, 3 by 7.5 m, was opened in 1976 (figs. 2 [trench 3] and 4) about 8.5 m south of room 19; it was excavated to bedrock which was reached at 2.75 m below the surface. This stratigraphy revealed seven levels of habitation identified by floor pavements. The upper depth marked the first floor. Pottery sherds from bowls (pl. 5a-c, i), large saucers (pl. 5d), small saucers (pl. 5e), skyphoi, pithoi, sauceboats (pl. 5g), pyxides (pl. 5f), and krateutai were plentiful. Incised (pl. 5j, k) and relief wares (pl. 5l) were common finds. In addition to pottery, part of a flat stone vessel, obsidian, spindle whorls, stoppers, a tongue-shaped tool, a bone cylinder, and animal bones were found. Pottery shapes and fabrics from this level were EH II types, the same as those from the upper 0.7 m of the 1971-1972 trench.

The second floor from the surface was found at 0.95 m. The 0.2 m of deposit between the floor and the previous stratum contained ash mixed with pottery. The shapes and fabrics of the pottery continued to be of EH II types (pl. 5m-s).

Signs of a third floor formed by packed earth appeared at 1.45 m. Burned earth and considerable amounts of ash were mixed with the fill, which was rich in finds. Bowls (pl. 6a-c), large and small saucers (pl. 6d), skyphoi (pl. 6f, g), cups, pyxides, frying pans, hydriae, pithoi, and kraterai (pl. 6h) were the characteristic shapes. One sherd from a sauceboat (pl. 6i) found at 1.15 m seems to have been accidentally deposited at this depth from a later level. The fabrics were the same as in the EH II deposits, but the number of fine, hard, white fabrics used for these vessels (pl. 6i, j) and the spherical vases had increased. Sherds with relief, and incised and flecked patterns (pl. 6l) were also found, as were obsidian, stone and bone tools, spindle whorls, stoppers, and animal bones.

The stratigraphy changed below the 1.45 m level: the earth appeared clear of ash and was mixed with small stones, possibly material from floor pavement. This deposit, which is the fourth floor from the surface, was 0.2 m thick, reached 1.65 m in depth, and contained a decreased number of finds, the most interesting of which was part of a Cycladic-type frying pan with spiral decoration (fig. 17f, see p. 29); it closely resembles mainland types. The pottery shapes consist of bowls (pl. 6m, n), saucers, skyphoi, and pyxides (pl. 6o). The fabrics and treatment of the surface were the same as those from the previous deposit. A 0.1 to 0.15 m thick layer of ash was found beneath the 1.45 m level and over the fifth stone paved floor at about 1.75 m. No change in the pottery styles was observed in the material from this fill (pl. 7a, b).

Under the fifth floor, a 0.3 m thick deposit mixed with ash and a few sherds was excavated. At a depth of 2.05 m, the earth was clear of ash, and the pottery increased considerably to the 2.35 m level where parts of the sixth stone paved floor were found. In this fill, the deep and close shapes of pottery were common (pl. 7d), along with those similar to the previous levels (pl. 7e, f), including small saucers (pl. 7g). A spherical skyphos without handles was reminiscent of rather early wares. White, hard fabrics were frequent, and larger, spherical vases (pl. 7c) were made from them. Obsidian had been found at all levels, but fewer examples appeared at this floor. The levels below this floor showed evidence of fire in various degrees of intensity to a depth of 2.75 m where signs were again found of a final stone paved floor. This material represented the earliest level of habitation at Lithares; underneath was the stereo. The pottery of the deposit over this seventh floor was of distinctly good quality fabrics. The white, hard wares were more broadly used (pl. 7h-j). Bowls (pl. 7k-m), large cups with flat bottoms, skyphoi, hydriae, and spherical pyxides (pl. 7n) were also identified. Relief and incised wares were present, along with obsidian, a few stone tools, spindle whorls, and stoppers.

The five lower level floors of habitation (approximately 2 m of deposit over the bedrock) belong to the EH I period, based on the pottery styles and fabrics, and the two upper level floors (third meter of deposit over the bedrock) belong to the EH II period.

The EH II Settlement

During the last habitation period, EH II, a settlement was built on an organized plan (fig. 5). One cannot say at this point if the earlier habitation or any section of it had any organization. The remains of the buildings were found 0.4 to 0.6 m below the surface (see the section in fig. 5T1-2) during the 1971-1974 and 1976 excavation seasons (Tzavella-Evjen 1984:21ff., pls. 1-3, 5-8, 10-15).

The land inclines slightly from northwest to southeast (i.e., from the foothills of Stroulogo toward the creek), so that the rainwater erodes the land, thus prohibiting a substantial accumulation of earth. The agricultural activities have disturbed the foundations and the floors of most buildings. It becomes obvious that ceramic and other artifacts have also been disturbed. For example, sherds from one vase were found scattered within three rooms and the stratigraphic trench 8.5 m south of the main trench.

The settlement is oriented northeast-southwest, which is characteristic of Early Bronze Age habitations such as Zygouries, Eutresis, Boidokoilia, Strephi, and Thermi. Korakou has a more direct east-west orientation.

The test trenches and the survey showed that the EH II buildings were concentrated, while the EH I habitation had been fairly widespread.

The main trench, 70 by 25 m, produced a uniquely organized group of rooms built alongside a major road, oriented approximately east-west, whose excavated section measures 67 m. The width of the road varies from 1.7 to 3.5 m. The settlement has at least one alley, 9 m long and 0.75 to 1.75 m wide (fig. 5, area 9, pl. 8e), which is parallel to the road, and a corridor (fig. 5, area 14, pl. 9a). Smaller roads are known from several Early Bronze Age sites (Blegen 1928; Mylonas 1959:151; Lamb 1936:47-48; Caskey 1960:150). Five areas (fig. 5, areas 13, 17, 29, 40, and 50) were probably open courts.

The rooms are either rectangular (pls. 9c-e; 8b, c, e, f) or trapezoidal pl. 8a); there is no evidence of circular or apsidal wall foundations.

Recent studies (Konsola 1984a:197; 1984b) on the character of Early Bronze Age settlements classify Lithares, along with Eutresis, Ag. Kosmas, Manica, Raphena, Asketario, Aegina, Zygouries, Berbati, Lerna, and Acovitica, in a group of settlements that were developed in a rectilinear pattern, are not very extensive, have a small variety of size among the houses of the settlements, are built with fair constructional quality, etc.

The clustering of rooms into house units was not an easy process and, in some instances, still remains conjectural. The houses share walls in a high percentage of cases, and even when double walls are present, they do not necessarily indicate different house units. The walls are preserved at the foundation level, and thus, with few exceptions, one cannot locate doorways (pl. 10) or better understand the connection, if any, among the various rooms. The finds within the rooms did not help in the identification process either because of their uniformity. The only guidance available in the process of dividing the buildings into house units was the direction of the walls, such as the south walls of rooms 5 and 6, or the disruption of the continuity of the wall by indentations, as in the south walls of rooms 25 and 26.

The 20 excavated houses can be tentatively distinguished into four types:

- (1) Houses with one large room, as house N (fig. 5, room 45, pl. 9) and possibly house O (fig. 5, room 47).
- (2) Houses consisting of two rooms, as house B (fig. 5, rooms 34 and 34a), house TH (fig. 5, rooms 35 and 42), house I (fig. 5, rooms 18 and 43), house M (fig. 5, rooms 23 and 24), house S (fig. 5, rooms 28 and 30), house X (fig. 5, rooms 46 and 46a), and, possibly, house A (fig. 5, rooms 39 and 51). The two-room house may have rooms of about equal size, as house M, or one large room and one smaller in the form of a vestibule, as houses TH and X.

- (3) Houses with three rooms in a row, as house D (fig. 5, rooms 10 through 12), E (fig. 5, rooms 3 through 5), and H (fig. 5, rooms 36 through 38); other houses with three rooms have a more compact organization, as house L (fig. 5, rooms 21, 22, and 22a) and possibly house K (fig. 5, rooms 19, 20, and 44).
- (4) Houses with four or more rooms, such as house C (fig. 5, rooms 6, 7, 8-8a, and 33) and house Z (rooms 1, 2, the room identified as the "sanctuary," and room 25).

The size of houses varies between 24 and 44 m² (table 2).

Houses N, X, and O are the largest and were built next to each other at the southeast section of the settlement. They belong to the single large room or the large room with vestibule type. They share walls and have a front line independent of their neighboring house M. Houses TH and I have also the "megaron" characteristic of a single large room and a vestibule, and they were also built side by side. Houses C and D belong to the type which has smaller rooms in a row; they are built close to each other across alley 9. House E represents an arrangement which has a vestibule (room 5) and a large room (room 4), followed by another narrow room at the back (room 3). Houses P, R, and S have a less clear design, and it seems they were built in a group at the northeast section of the settlement. They share similarities in size and also have a common and independent front onto the road.

The walls of the rooms south of the road and on the east side of the main trench have been excavated to the extent of their preserved length. Some of the walls on the north end of the main trench continue beyond the excavated area, especially those north of rooms 49, 51, and 41. Houses share walls as a matter of rule with a number of exceptions, such as the double walls between houses N and M, house E (room 4) and area 13, houses B and C, and again between house A and the partially excavated building to the west. Houses L and M were also possibly divided by a double wall. But a double wall between rooms 23 and 24 did not, it seems, separate the houses. The second wall, for example, in rooms 1, 2, 3, 11, and 37 might be explained as necessary reinforcement of the foundation. This need for supporting the wall foundations, which were set on loose ground made by the fill of earlier habitation, is illustrated in the construction of the foundations in rooms 6, 7 (pl. 8f), 10, 11 (pl. 9b), 16, 20 (pl. 9c), 30, 44, and 49. The walls here utilize the foundations of earlier buildings for support, a practice known also from other contemporary sites (Theocharis 1954:105; Fossey 1969:53; Laviosa 1975:506, fig. 4).

The earlier walls at Lithares were found at about the depth of 0.8 to 0.9 m and were preserved at their bottom course. They are usually 0.05 to 0.1 m narrower or, when they maintain the same width, are built with smaller stones (fig. 6b). Similar walls of an earlier EH date are known from Eretria (Themeles 1969:173). The wall between rooms 20 (pl. 9c) and 21 has been destroyed, but enough relics were left to show its relationship with the earlier wall, which is well preserved. That is, the earlier foundation served as a sustaining base for the later EH II wall. The same dependence is noticeable between an earlier and later wall at the north side of room 16. The later EH II wall was only partially preserved. Examples of utilization of older foundations were observed also in rooms 11, 29, 39, and 51.

The masonry can be classified into three types (fig. 6). Type "a" walls, the most common form, were built of unfaced stones in two rows with a third filler row of small stones between. The stones are layered in herringbone style. The width of this type of wall is usually 0.5 to 0.6 m; it rarely measures 0.65 m. In one case at the north wall of room 20, however, the width is 0.7 m. The second type of wall (fig. 6b), approximately 0.55 m wide, is built of four stones across, but the stones are all of the same, rather

Table 2. Measurements of Rooms and Architectural Features of Houses

HOUSES	ROOMS	MEASUREMENTS IN METERS	TYPE OF FLOOR PAVEMENTS	BENCHES		
				ALONG WALLS	VOTHROI	HEARTHES
A	39	E: 4.70 N: 4.70 W: 3.80 S: 4.60	Small stones			
	51	Partially excavated E: 1.50	Small stones			
B	34	E: 2.40 N: 1.00 W: 2.20 S: 4.70		East	?	?
	34a	W: 4.45				
C	6	E: 2.80 N: 3.40 W: 2.60 S: 3.25		N.E.		
	7	E: 2.80 N: 3.10 W: 2.00 S: 3.00				
	8	E: 2.80 N: 0.60 W: 2.50 S: 0.80		South		
	8a	E: 0.90 N: 1.30 W: 0.90 S: 2.20	Small stones	?		
	33	E: 2.25 N: 2.00 W: 2.25 S: 2.25		A		?
D	10	E: 2.70 W: 1.00 S: 1.55				
	11	E: 4.30 N: 2.65 W: 2.19 S: 3.80		S.E.		
	12	N: 1.00 W: 4.40 S: 2.80		South		
E	3	E: 3.25 N: 1.00 W: 3.25 S: 1.00		East		
	4	E: 4.45 N: 3.25 W: 1.50 S: 5.30	Small stones & sherds	South		?
	5	E: 1.10 N: 1.60 W: 3.25 S: 1.80	Small sherds			
Z	1	E: 2.50 N: 3.40 W: 3.25 S: 3.50	Small stones			
	2	E: 3.50 N: 1.30 W: 3.60 S: 1.30		?		Semi-circular
	"Sanctuary"	E: 1.10 N: 0.75 W: 3.65 S: 4.60	Packed earth & sherds			Circular
	25	E: 1.00 W: 1.00 S: 0.85		South		
H	36	E: 3.20 N: 1.70 W: 3.15 S: 1.75	Small stones & packed earth	West		
	37 & 37a	E: 3.25 N: 1.40 W: 3.25		South		
	38	E: 3.50 N: 4.50 W: 1.50	Small stones			Circular?

Table 2, continued

HOUSES	ROOMS	MEASUREMENTS IN METERS	TYPE OF FLOOR PAVEMENTS	BENCHES		HEARTHES
				ALONG WALLS	VOTHROI	
TH	35	E: 4.50 N: 4.00 W: 4.00 S: 3.90				Circular in rectangular wall frame ?
	42	Partially excavated				
I	18	E: 4.50 N: 3.75 W: 4.50 S: 3.90	Small stones			
	43	E: 2.00 W: 1.05				
K	19	E: 4.50 N: 1.95 W: 4.50 S: 1.95	Stones & sherds			Circular
	20 (?)	W: 5.90	Stones & sherds			
	44	E: 1.00 N: 2.00 W: 2.00 S: 2.00				
L	21	E: 2.10 N: 5.00 S: 3.40	Stones	N.E.		
	21a	S: 1.00	Stones			
	22	E: 2.60 N: 4.20 W: 2.50 S: 1.30		North	X	
	22a	E: 0.70 N: 1.30 S: 1.00	Stones & packed earth		X	
M	23	E: 1.20 N: 1.80 W: 4.70		N.W.		
	24	E: 2.65 N: 2.65 W: 1.25 S: 2.10		N.W.		
N	45	E: 7.40 N: 8.10 W: 3.70				
X	46	N: 3.70 W: 5.40				
	46a	E: 1.15 N: 5.00 W: 1.40 S: 3.70		West		
O	47	E: 1.00 N: 6.30 W: 1.15				
P	31	N: 3.30 W: 3.70 S: 4.60	Stones & sherds	N.E.		Circular
	32	E: 1.80 W: 1.60 S: 3.60		North	X	
R	26	E: 3.75 N: 1.25 W: 4.00 S: 1.80	Stone & sherds		X	
	27a	E: 0.40 N: 1.25				
S	28	E: 1.65 N: 1.60 W: 4.10 S: 4.50		West		
	30	E: 4.00 W: 3.40 S: 1.50		N.E.		

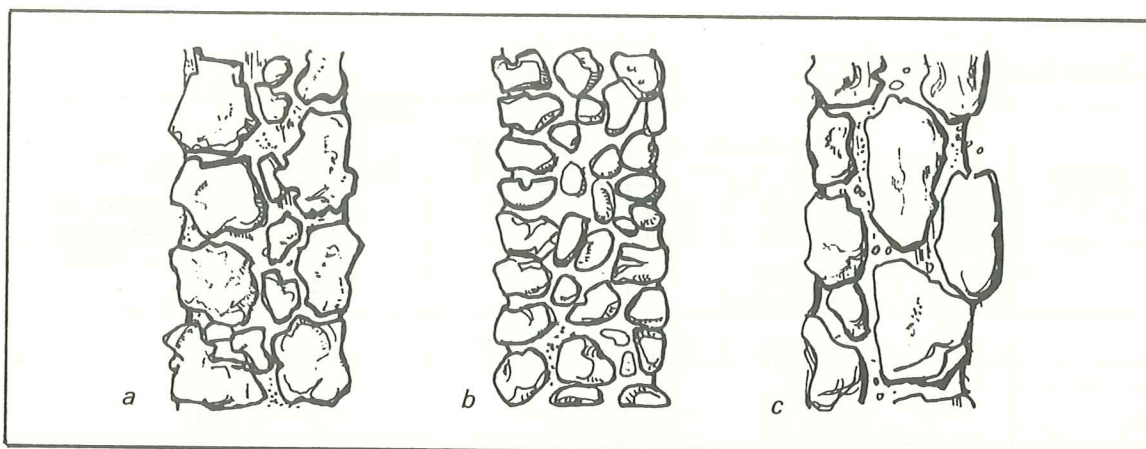


Figure 6. Wall types. (a) Two rows of unfaced stone separated by a filler of small stone, common EH II "herringbone" wall; (b) four rows of uniform, small stones, common wall at EH I and early EH II levels; and (c) two to three rows of large, flat stones, rare use of this wall type.

small size. This type of wall frequently appeared at earlier foundations immediately preceding the settlement. The third type is rare; the walls are built of large, flat stones, two or three wide.

No signs of plaster or other materials related to masonry were found, but piles of burnt earth, from disintegrated mud bricks, were found over or near the foundations.

The walls were occasionally preserved to the second layer of stone, examples of which come from the south wall of room 1; south and north walls of rooms 11 and 18; north walls of rooms 12, 21, 23, 31, 45, 46, and 47; south and east walls of room 34; and the west wall of room 28. Most of them faced onto the road.

Only a small number of door openings could be identified. The square "sanctuary," room (fig. 5), has a 0.75 m door opening onto the road at about the middle of the south wall. Room 3 may have had an opening onto corridor 14 to the north. A pivot was found by the south end of the east wall of room 21 (pl. 10b). Pivots are reported from several prehistoric sites (Holmberg 1944:12; Blegen 1928:27; Theocharis 1953:107; Syriopoulos 1968:229; Crossland and Birchall 1974:30; Theocharis 1971). It may be that their concern for keeping at least the rainwater out of their houses forced the inhabitants to build their doors at a higher level. An engineering device to keep the rainwater away from the foundations consisted of a slightly curving single stone fence along the north walls of rooms 22 and 24 (pl. 8c). A similar protective fence is known from Raphina (Theocharis 1952:139).

The floors were paved with small stones or a mixture of stones and sherds. Rarely were they made from packed earth.

Stone benches along the interior of the walls are a common feature of the Lithares buildings. The length of the benches varies from 0.3 to 2 m, and the width in some instances takes over half the room, as in rooms 11 (pl. 9b) and 12. The benches are constructed from stones smaller than those used for the walls. They are preserved at their lower level, and it is possible that they were not higher than two layers of stone. This two-layer height is true in some cases at least, where pots were found in situ on the benches, as in room 6 and corridor 14. The presence of these pots suggests that benches could have been used, along with other functions, for placing utensils.

Hearths were found in six rooms and belong to three types: semicircular hearths built with small stones near the corner of a wall, 0.65 m in diameter, as in rooms 2 and 38; hearths built at one corner of the room against a wall and having a parapet wall or a vertical flagstone placed in front of them, as in rooms 35 and 42; and hearths located toward the center of the room and formed by piled up ash and burnt earth, as in the "sanctuary" (pl. 8b) and room 31. A wall or a vertical flagstone protected the fire from draught. Hearths are known from a number of EH sites (Syriopoulos 1968:229).

A circular stone platform 2.75 m in diameter was found in area 50 and partially excavated. The stones are of the same medium size as those used to construct the benches. The immediate environment to the east was characterized by dark brown earth, which is unusual for the rest of the settlement, and the lack of any finds. This same color earth was also found in area 15. Geological tests of earth samples from these areas did not reveal anything different in substance from the rest of the settlement's soil. At the west side of the circular foundation, a considerable amount of ash mixed with pottery and animal bones was found. None of the finds was unusual or even different from the similar accumulations of potsherds and food discards found all over the settlement. A similar platform is known from EH Olympia (Yalouris 1964:174-175), where it has been identified as an altar. A second such construction was excavated at Samos (Milojevic 1961:17), which dates through the EH III period.

The size of most rooms did not necessitate pillars to support the roof beams. Pillars were used only in the few large rooms, an example of which is shown in room 45 (pl. 9e), where three bases for wooden pillars were found. Two of these bases were located at the eastern half, and the third was near the center of the room. These bases were made from flat stones. Stone foundations for wooden pillars are known from house 1 at Aghios Kosmas. The next largest room was in house E (fig. 5, room 4), which contained what might have been a pillar base and the foundation of a buttress, both located at the southwest quarter of the room.

Small vothroi, pits dug in the floors of the rooms, a common feature in EH houses, were also present at Lithares. Found only in enclosed areas, they were preserved to various degrees in rooms 22 and 22a, 26, 32, and 34. They ranged in diameter from 0.3 to 0.4 m and were approximately 0.2 m deep (pl. 10d). They are plastered inside with lime, and the rim is crowned by a ring of small stones (pl. 10c). The contexts, which were disturbed, included earth mixed with ash and potsherds. The base of a storage jar in situ was found at the bottom of the vothros in room 32. The rest of the contents were disturbed. Geological tests of the plaster from inside these pits excluded exposure to fire. No light was shed on the question of the vothroi's use (Marinatos 1968:83-84).

Table 3. Rare Items

Stone Pendants	Stone Beads	Cylindrical Spouts	Clay Spools	Clay Beads	Strainers	Three-legged Figurine
R3: 1	R12: 1	R13: 2	R11: 1	R15: 1	R40: 1	Surface: 1
R7: 1	R32: 1	R25: 1		R24: 1	R8: 1	
	R39: 1	R30: 2				
		R34: 1				
		Street: 2				

Spyropoulos reported that he found tiles from EH buildings among the surface finds. The only item from architectural material we found was a piece of dried mud with prints from wood sticks, evidently part of roof plastering, similar to those known from Troy (Blegen et al. 1950-51, I[2]:fig. 351).

To summarize, the houses have one to four rooms arranged in sequence that follow one of four patterns. They were rectilinear with stone foundations, the doors above the foundation level, and all houses had access to a road or alley or an open court-like area. Most rooms had stone benches and floors paved with small stones and sherds or packed earth. Hearths and vothroi did not appear frequently. The walls above three or four courses of stone were built with perishable material, such as mud brick and wood, and the roofs were built with wood sticks and packed mud. Very few rooms needed wooden pillars to support the roof.

The findings in the rooms were practically identical (tables 3 and 4). All rooms produced large amounts of pottery sherds and occasionally whole vases (table 5), totaling 30 cups, 5 skyphoi, 2 sauceboats, and 1 pyxis; plenty of obsidian blades and stone and bone tools; spindle whorls; animal bones and shells. Most of the figurines were found in the sanctuary or near it. The three most important bronze items, two chisels and a knife, were also found in the same area near room 19.

Certain types of pottery were more plentiful in one house than another; for example, 1,000 sauceboat sherds were found in house B and the adjoining area 40. An equally large quantity of such sherds was produced from house M and areas 13 and 17. Sherds from large plates were concentrated in houses M and N.

Table 5. Whole Vases

Rooms	Cups	Skyphoi	Sauceboats
Surface	1	-	-
4	1	-	-
6	2	-	-
8	1	-	-
10	1	-	-
11	3	-	-
14	-	1	-
15	1	-	-
16	1	-	-
20	1	-	-
21	4	-	-
25	1	-	-
28	5	1	-
31	4	1	-
32	1	-	-
34	1	-	-
35	-	-	1
36	-	-	1
37	1	-	-
39	1	-	-
45	2	-	-
Street	-	2	-

The stone industry presented a similar picture of uneven concentration. From the area of houses M, N, and X, 11.5 kg of obsidian discards and hundreds of blades were collected. The amount of obsidian found in houses B and D and outside room 38 in the road was equally impressive. An excessive number of stone tools was recorded from house D and rooms 26 (pl. 26), 31, 32, 39, and 45. Too few items were found to be considered in evaluating the distribution of the finds; however, the chisels and the knife were found in the same area.

The seventeen animal figurines found in the sanctuary are characteristic of the concentration pattern of the various articles; two more figurines were among the finds in the nearby area downward from the sanctuary, which means that all animal figurines belonged originally to the same group. The figurines found in room S tempted us to identify the room as a sanctuary, especially because they were found near the hearth. Since then, this tentative identification has been publicized and the quotation marks have been dropped (Schachermeyer 1975:216); furthermore, the architectural form of the sanctuary is now part of a classification of prehistoric sanctuaries (Van Leuven 1981:11-26), where it is listed among the single-type sanctuaries. The author reserves judgement on the matter until more is known about Early Bronze Age cult practices.

The concentration of certain types of pottery, obsidian, and artifacts in one house or room might reflect the activities of the residents. That is, a distribution of production and/or trade may suggest an organized economy.

The inhabitants consumed a high-protein diet comprised of domesticated animals like bulls (43 percent of the total number of identifiable bones), goats and lamb (20 percent), pigs (19 percent) and, to a lesser degree, game animals like deer (6 percent). Twelve percent of the bones belonged to carnivorous animals, some of which were dogs. In four rooms, 7, 12, 31, and 33, some of the bones found, according to Magana, possibly belonged to dogs. Snails were located in 14 areas, and in room 32 some were found in situ in a bowl. Shells were collected from most rooms, and once, outside room 6, these items were found in a skyphos in situ. Reese does not consider the snails or the marine shells as food remains because of their beach or waterworn condition (see appendix 1).

The bad state of preservation of the ruins and the heavily disturbed fill over them do not allow one to draw conclusions about the cause of destruction. The presence of burnt earth and ash is sporadic enough not to support a theory of destruction by fire.

Whatever the cause, the end reached the people of Lithares during a period of prosperity. This fact excludes a prolonged decline as a result of drought, for example. The EH II people disappeared and were not succeeded by others. No human casualties were found to suggest destruction by force, natural or human, which would have been followed by immediate abandonment. The general picture shows a rather orderly abandonment, which explains the lack of precious articles such as jewelry, sealstones, or substantial numbers of bronze items, which should be expected, considering the quality of life depicted through pottery and architecture.

The last level of habitation at Lithares presented a settlement with unique architectural organization in respect to the arrangement of the houses alongside a major road, alleys, and court-like openings. The surveys in the surrounding fields did not produce any evidence that fortification walls were ever built, and the settlement is not naturally fortified. The wealth of the finds indicates a peaceful society which left Lithares probably because of fear of an approaching disaster.

Pottery Classification

Bowls comprise the largest component of vases at all levels (Tzavella-Evjen 1984:150ff., pls. 18-28). With respect to shape, they can be divided into six groups, A through F. Those bowls of small to medium size with straight or convex walls, a narrow flat or slightly convex base (pl. 11f) or a low ring foot (pl. 11c), and frequently, a slightly rolled rim are classed as Group A (fig. 7, pl. 11a-f). The depth of these bowls varies from 0.055 to 0.12 m, and the maximum diameter is from 0.13 to 0.23 m. The clay is well sifted and has a light red-brown color; it is well fired. The walls are about 0.005 to 0.006 m thick. The outer surface is covered with red slip and is polished. This type of bowl is seldom made from light-colored clay (pl. 11d). Handles are decorative and are of the finger hold (pl. 11e) rather than the functional type (Buchholz and Karageorghis 1973:65, no. 825). This bowl was found at all habitation levels and is a common vase in EH sites (Weinberg 1937:516, fig. 35; Caskey 1960:136, fig. 4:III/2-4, 141, fig. 7:IV/1-3, 154, 290-291; Holmburg 1944:fig. 66a-b; Theocharis 1952:143, fig. 10; Siedentopf 1973; Vatin 1964:562, fig. 35; Themeles 1969:172, fig. 9:II; Fossey 1969:58, fig. 3:3-5, 12-13; Theocharis 1971; Coldstream et al. 1973:77-78, pl. 16:1-15; Hagg and Hagg 1978:47, fig. 35:III/1-2).

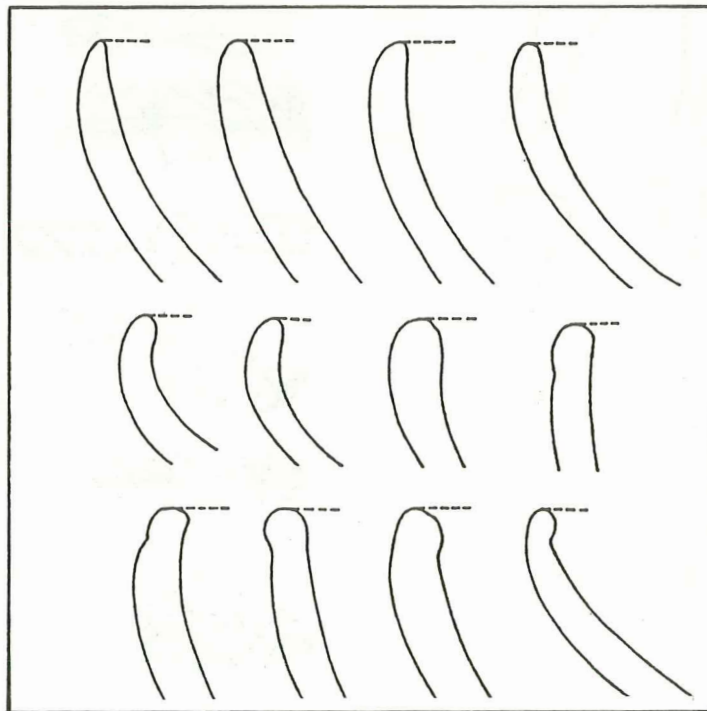


Figure 7. Rim profiles of Group A bowls from rooms 35 and 46.

Medium to large size bowls which are rather shallow, with straight or convex walls and T-shaped rims, are classed as Group B (fig. 8a, b; pl. 12). The clay is usually impure and of a grayish color; it is well fired. The walls are about 0.005 m thick. The outer and inner surfaces are covered with a dark gray, red, or brown slip and seldom show traces of a lustrous finish. In only one case was the clay of excellent quality (sauceboat-type ware) and covered with a gray-black slip. The average diameter is 0.33 m. The T-rim is thickened on the outside (pl. 12b-c) or the inside (pl. 12a) and is flat on top or slightly rolled (pl. 12d). Most rims have incised, pressed, or flecked decoration (pl. 12e-l) of parallel lines, herringbone, or zig-zag motif. The handles are either decorative of the finger-hold type or functional horizontal (pl. 12a). Bowls of this group are very rare in the first meter of deposit, but become common in the upper two meters. They have been found at a number of EH sites (Theocharis 1950:190, fig. 4; 1951:105, fig. 17; 112-113, fig. 27; Heurtley 1939:166, fig. 36; Caskey 1956:147ff.; 1960: pl. 50:VIII/25, 32; 357; Hagg and Hagg 1978:46, fig. 47, 34, fig. 35:VI/1-7), and in Anatolia (Blegen et al. 1950-51, Ia: pl. 256).

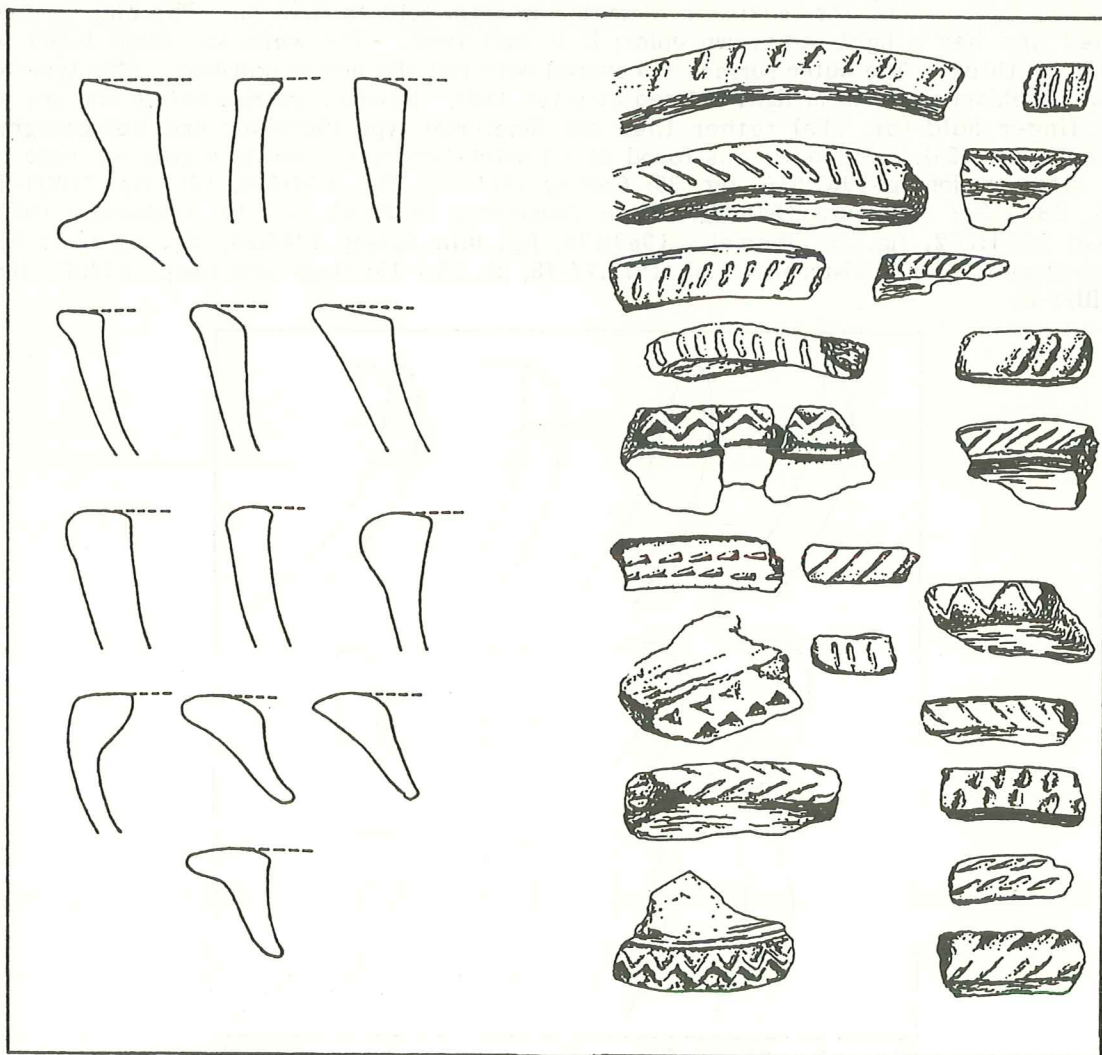


Figure 8. Group B bowls: (a) rim profiles; (b) rims decorated with incised, pressed and flecked patterns.

Bowls classed as Group C (fig. 9, pl. 13a-e) are of the same size, clay, and surface treatment as those in Group A; however, the shape differs from Group A at the rim, which is concave in varying degrees and, in some examples, turns inward at a sharp angle (pl. 13e). Handles are rare and, when they do appear, are decorative and of the finger-hold rather than the functional type. Group C bowls are occasionally made from a thin, hard fabric of excellent quality, and the outer and inner surfaces are covered with dark brown slip. A few sherds from Group C were found in the first meter of deposit. This form is common at the later levels of habitation and known from several EH sites (Blegen 1928:88, fig. 75; Frodin and Persson 1938:204, fig. 158/8; Weinberg 1937:517, fig. 39; Caskey 1960:290, fig. 1b, d, e; Theocharis 1950:190, fig. 4c; Popham et al. 1968:7, fig. 73/4; Theocharis 1971:89, drawing 3).

Bowls classed in Group D (fig. 10) are represented by a few sherds. Their walls are straight or concave, and the rim is thickened on the outside and inside and rounded in a pronounced fashion. The clay is gritty; there is no sign of any special surface treatment. These bowls are reported to have been found in a few EH sites (Hagg and Hagg 1978:47, fig. 35:II/5, 7; Theocharis 1950:190, fig. 4a).

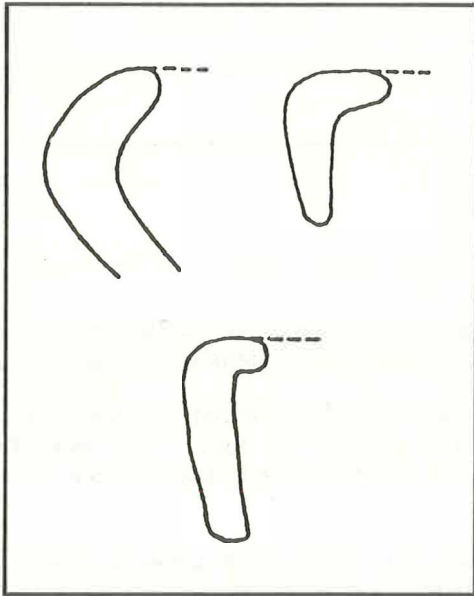


Figure 9. Rim profiles of Group C bowls from room 35 and 46.

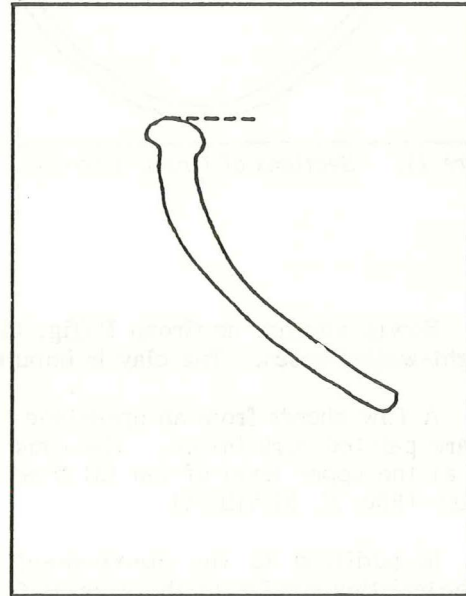


Figure 10. Rim profile of a Group D bowl from room 35.

Group E bowls (fig. 11, pl. 14a-j) are generally large with a diameter averaging 0.25 m and a depth varying from 0.1 to 0.3 m. The base of these bowls is flat, and the walls are concave. The handles are mostly strap-shaped (pl. 14a-g) in vertical loops near the rim, or they are decorative, either of the finger-hold type (pl. 14j) or in the form of small relief arches attached to the rim (pl. 14h-i). The clay is gray, porous, and gritty, and the surface is smoothed. In a few examples, the clay is well sifted and hard, and the surface is covered with an orange-red slip and burnished. One sherd from this group is made from a thin, white, hard fabric of excellent quality. This type of bowl was found at all levels of habitation and it is known from several sites in Macedonia (Heurtley 1939:190, no. 309) and central and southern Greece (Blegen 1928:111, fig. 99; Caskey 1960: pl. 47:III/8).

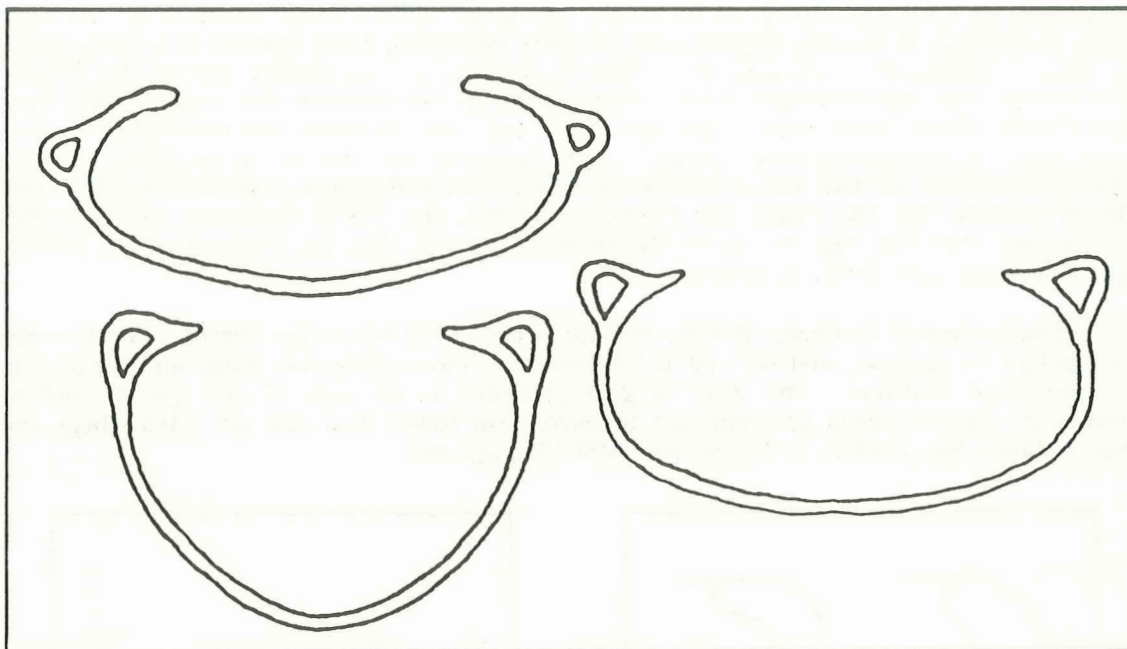


Figure 11. Sections of Group E bowls.

Bowls classed as Group F (fig. 12) are represented by a small number of sherds of straight-walled vases. The clay is impure, and there are seldom signs of a slip.

A few sherds from an open-type bowl are from thin, hard, excellent quality fabric, and are painted dark brown. The rims are inverted and flat on top. They were found only at the upper level of the EH II settlement. A similar type is known from Eutresis (Caskey 1960: pl. 51:VIII/10).

In addition to the above-mentioned sites, the bowls from Lithares have many characteristics similar to those vases found at Mourteri, near Kyme, in Euboia (Sampson 1978:255, fig. 10; 257, fig. 11; 258, fig. 12; 260, fig. 14; 261, fig. 15).

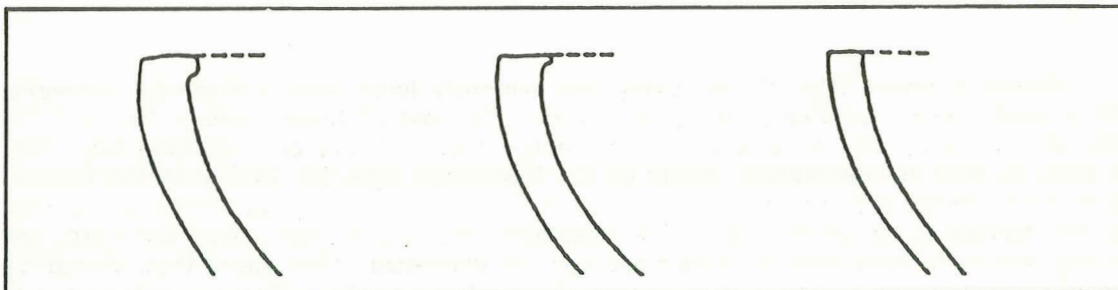


Figure 12. Profiles of Group F bowls from rooms 35 and 46.

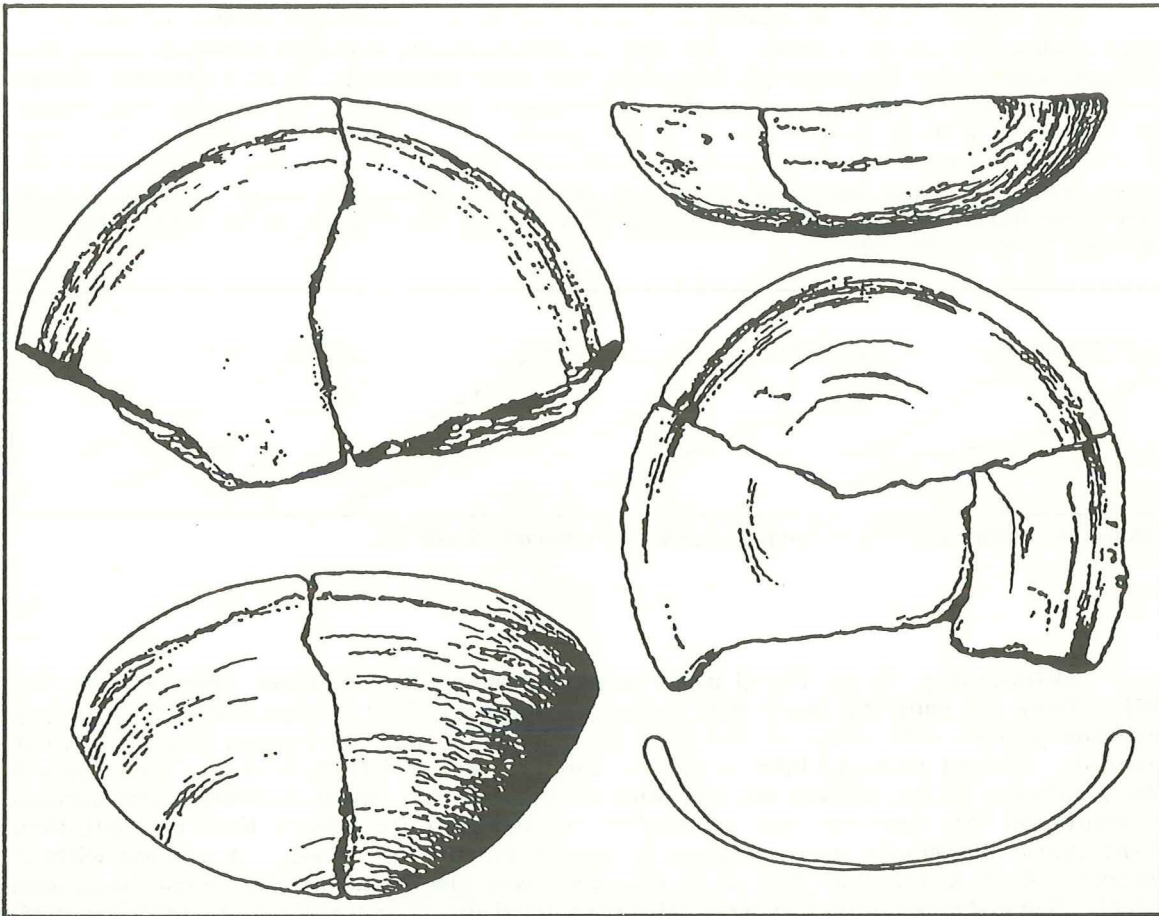


Figure 13. Small saucers.

Saucers are distinguished in two varieties (Tzavella-Evjen 1984:153ff., pls. 33-34). The first category is represented by small, shallow saucers 0.1 to 0.12 m in diameter (fig. 13, pl. 15a-g), with pottery fabric and general treatment of the surface the same as those of the Group A bowls. Occasionally, the clay is porous (pl. 15b). This type of saucer was found at the second and third meters of deposit. Some small saucers are made from white, hard, clay, 0.002 m thick, of eggshell quality (pl. 15c-g). They are usually painted, and when they are not, they have a fine brown line drawn on the inside of the rim (pl. 15e). These latter saucers were found at the EH II habitation levels. Similar small saucers have been reported from Chalkis (Papavasileiou 1910:7-8, figs. 6-9), Rafina (Theocharis 1952:144), Zygouries (Blegen 1963:113, fig. 102), and Asine (Hagg and Hagg 1978:47, fig. 35:IX/1-2).

The second variety of saucers is represented by a considerable number of sherds of large plates (fig. 14, pl. 15h-m). The clay is porous, gritty, and light brown in color; the surface, except for the base (pl. 15h, l-m), has been smoothed. It is a straight-walled vessel with either swollen rims (pl. 15j) or diminished thickness at the rim (pl. 15i), rolled (pl. 15h, k) or with an inward slant. A few sherds have a thumb impression at the edge of the rim. One sherd had a potter's mark (fig. 27a, pl. 15m). The earliest example came from the first meter of deposit at the second habitation level. Similar vessels have been found at a few EH sites (Blegen 1921:14, fig. 15; Popham et al. 1968:7, fig. 72; Parlama 1979:13, fig. 13).

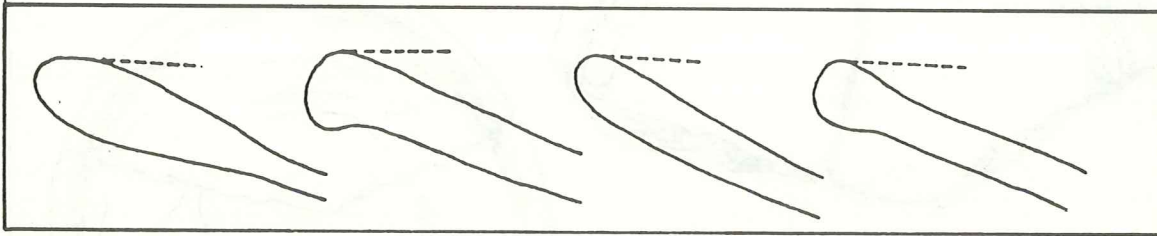


Figure 14. Rim profiles of large saucers from rooms 35 and 46.

Skyphoi (fig. 15, pl. 16a-d) are a common shape (Tzavella-Evjen 1984:154, pls. 35-37). They are spherical bowls with collar necks approx. 0.02 m high, and with two strap handles placed vertically at the neck (pl. 16c). The base is narrow, flat, or slightly convex. Height averages 0.08 to 0.09 m, and diameter is 0.12 to 0.13 m. The clay and the treatment of the surface are the same as those of the Group A bowls. The earliest example of this type and size of skyphos was found at the second level of habitation, first meter of deposit, and continued to appear at all later levels. A skyphos without handles, 0.14 m high and 0.12 m in diameter, was also found at the second habitation level. Some skyphoi from the sixth habitation level are considerably larger, 0.165 m high and 0.2 m in diameter (pl. 16b). This larger type is known from EH I Eutresis (Caskey 1960:141, fig. 7:IV/7; pl. 46:III/5). Some vases from Asine reported under the general description of "closed shapes" are probably skyphoi (Hagg and Hagg 1978:48, fig. 36), as seems to be the case with some "jars" from Perachora (Fossey 1969:61, fig. 4).

Cups (pl. 17a-c), found in large numbers, were the best preserved vases (Tzavella-Evjen 1984:154ff., pls. 38-39). Their compact size contributed to their high rate of survival. The earlier cups, from the first level of habitation, are 0.065 to 0.07 m high, with a rim diameter of 0.07 to 0.075 m. They have a collar neck, a vertical handle at the level of the neck, and a narrow, slightly concave base. Their surface is painted red and polished. This type of vase is known from the third level of habitation of Eutresis (Caskey 1960:141, fig. 7:III/6).

The cups at Lithares become smaller at the third level of habitation and remain so throughout the later levels. First appearing at the second meter of deposit, these small cups are spherical and without a base, characterized as the "echinus" type (Mylonas 1959:122). They have a short vertical neck and a vertical rolled handle at the neck level. Height averages 0.04 to 0.06 m, and diameter is 1 to 2 cm greater than the height. The type of clay from which they are made and the treatment of the outside surface are the same as those of the Group A bowls. Two cups were made from gray, gritty paste. Similar small cups were recovered at Eutresis at the fourth level (Caskey 1960: pl. 47:IV/6). Cups of this form from Asine are described as "small jars" (Hagg and Hagg 1978:49) and from Zygyouries as "small jugs" (Blegen 1928:87).

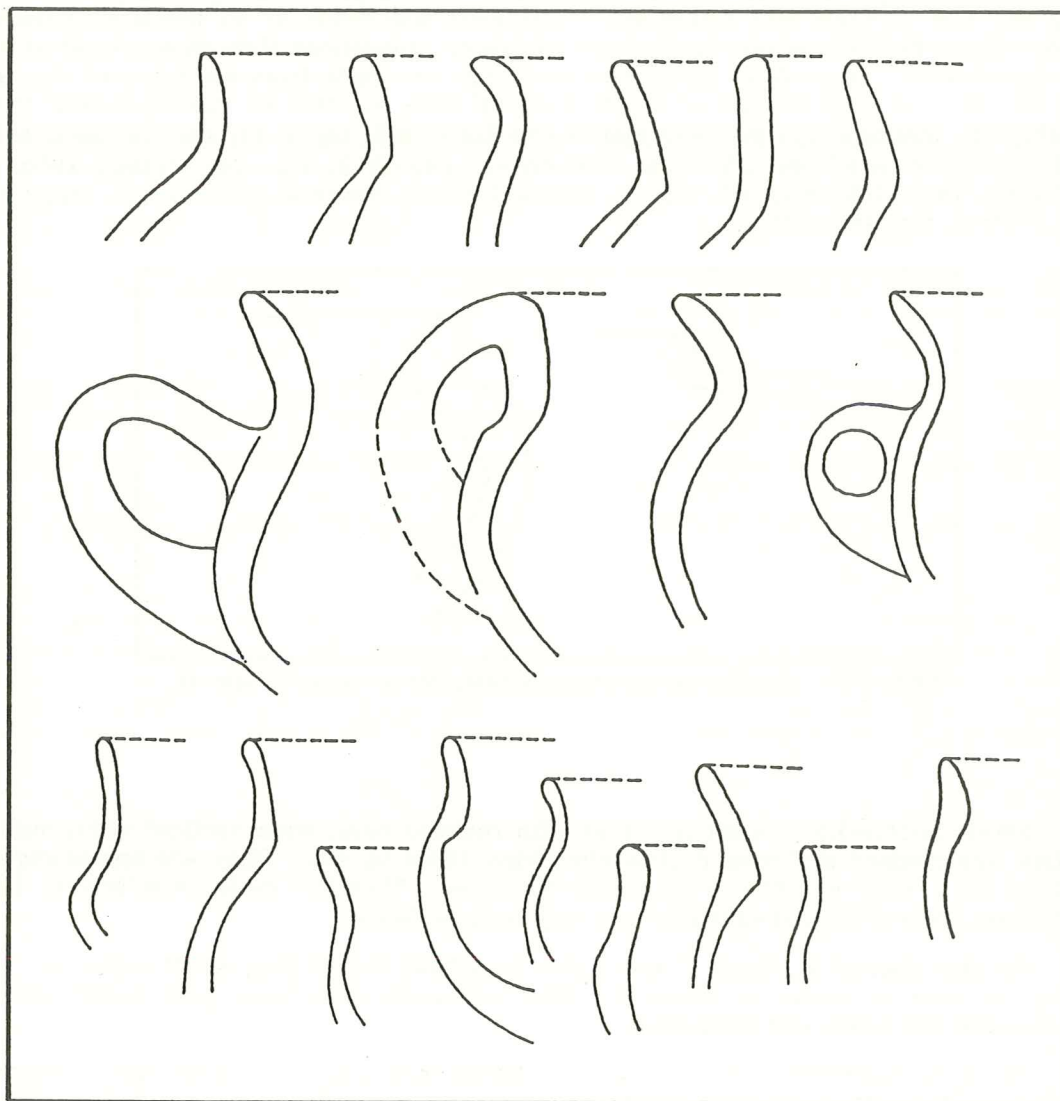


Figure 15. Profiles of skyphoi from rooms 35 and 46.

Pyxides can be divided with respect to their shape into four groups, A through D (Tzavella-Evjen 1984:155ff., pls. 40-41). Spherical jars with short necks, flat bases, and small horizontal lug handles are classed as Group A (fig. 16, pl. 17d-e). They are made from a variety of fabrics. Porous gritty paste was used occasionally, and the surface was covered with red slip and burnished. Well-sifted, buff-colored clay was also used, and the surface was covered with red, brown, or gray-black slip and burnished. Some have incised or pressed decoration (pl. 17e). Pyxides of Group A were occasionally made from thin, hard, excellent quality fabric. The surface was covered with a brown-red slip

or a flecky white paint. Average height is 0.07 to 0.08 m, and average diameter is 0.07 to 0.09 m. Larger pyxides 0.16 m in diameter were made from light red, well-sifted clay, and the surface was smoothed. This form was found at all levels at Lithares. Pyxides from habitations one to five are of larger proportions than those found at the two upper levels. Those from the second habitation are made from whitish hard clay and have no slip. A large number of sherds from EH sites reported as "closed shaped" vases probably are spherical pyxides (Heermance and Lord 1897: fig. I, 11; Papavasileiou 1910: pl. B; Dorpfeld 1927: pl. 66c1-1a; Theocharis 1951:110, fig. 24; Caskey 1960: pl. 48:VIII/19; Vatin 1964:564, 567, fig. 7; Fossey 1969:59; Renfrew 1967: pl. 13; Hagg and Hagg 1978:48, fig. 36:X/12).

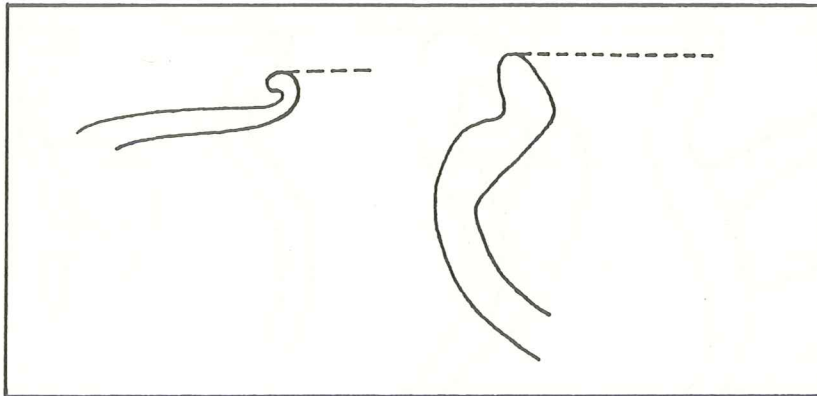


Figure 16. Profiles of spherical pyxides from rooms 35 and 46.

Small bottle-like vases (pl. 17h) with rounded base, wide vertical neck, and no handles are classed in Group B (Tzavella-Evjen 1984: pl. 42). They are approximately 0.045 m high with a 0.055 m maximum diameter. They are made from porous, light brown clay; the red-slipped examples are very well polished.

Pyxides classed in Group C are a few rhomboid, bottle-like, small vases (pl. 17g) similar in size to those in Group B. They are made from hard, good quality fabric, covered with red paint, and burnished.

Group D represents a small number of sherds from lids of Cycladic-type cylindrical pyxides. They are made from red-brown sifted clay, and their surface is brown-black and burnished. These pyxides were found only at the seventh level of habitation.

Sauceboats (pl. 13f-o) were recovered in abundance at the last habitation level (Tzavella-Evjen 1984:156, pl. 43). The most common shape is the deep bowl similar to type IV from Lerna (Caskey 1960:291, fig. I/IV). These vessels have a conical foot of various heights (fig. 22, pl. 18p-r). One sauceboat has a rounded bottom (pl. 13n) similar to sauceboats from Isthmia (Smith 1955: pl. 57/D4) and the Cyclades (Zervos 1957: fig. 190; Thimme 1977:359, fig. 421). A vertical or horizontal handle is placed near the rim (pl. 13 l-m). The clay is of excellent quality, hard, light red, of local Boeotian fabric, and characterized by tiny flecks of gold mica. The walls are 0.002 to 0.003 m thick and are covered with brown paint or light-colored, flecky slip. These sauceboats are similar to those found elsewhere in Boeotia (Caskey 1960: pl. 49:VIII/7, 15, 35, 43, 44), Euboea (Themeles 1969:173, fig. 10), Attica (Theocharis 1952:144-145; 1953-1954:69, fig. 8-10; 1954:108, fig. 304) and Peloponnese (Blegen 1921:6, fig. 4; 7, fig. 6; Blegen 1928:89, fig. 78; 90, fig. 79; 91, fig. 80; Caskey 1960:290-291, fig. 1:I-VI).

Baking pans (Tzavella-Evjen 1984:156ff., pl. 44) are coarse ware vessels approximately 0.3 m in diameter and 0.02 to 0.04 m deep (pl. 17i-k). The walls are vertical or slant outward. The base is flat, and there is a vertical strap handle. The interior surface is smooth and frequently has a brown or red finish. There are no signs, though, to indicate that these vessels were actually used for baking. This type of pan was found at the last, or seventh, level of habitation. They are similar in size, in both diameter and depth, to "frying pans."

Cycladic-type frying pans (fig. 17, pl. 19b) are made from a grayish or light-brown paste, and the outside and inside surfaces are covered with brown-black paint (Tzavella-Evjen 1984:157ff., pls. 45-46). They are 0.24 m in diameter and 0.05 m deep. The walls are vertical or slant outward or inward. They have a flat base, outspreading by 0.01 m, and a handle of one of two types: (1) a handle formed by the horizontal extension of the outspreading base (the horned type) and pierced vertically; and (2) a two-pronged, horizontal handle. The base and sometimes the outside of the walls have incised, pressed, and flecked decoration. The earlier example of this vessel was found at Lithares at the fourth level of habitation, second meter of deposit (fig. 17f). Similar frying pans have been found in Euboia (Papavasileiou 1910:15-16, fig. 14), Attica (Mylonas 1959:122-126, 128), Peloponnese (Weinberg 1937:515, fig. 34c; Walker-Kosmopoulos 1948:31, fig. 7), and the Cyclades (Renfrew 1972:180-183; Doumas 1978:77, no. 73).

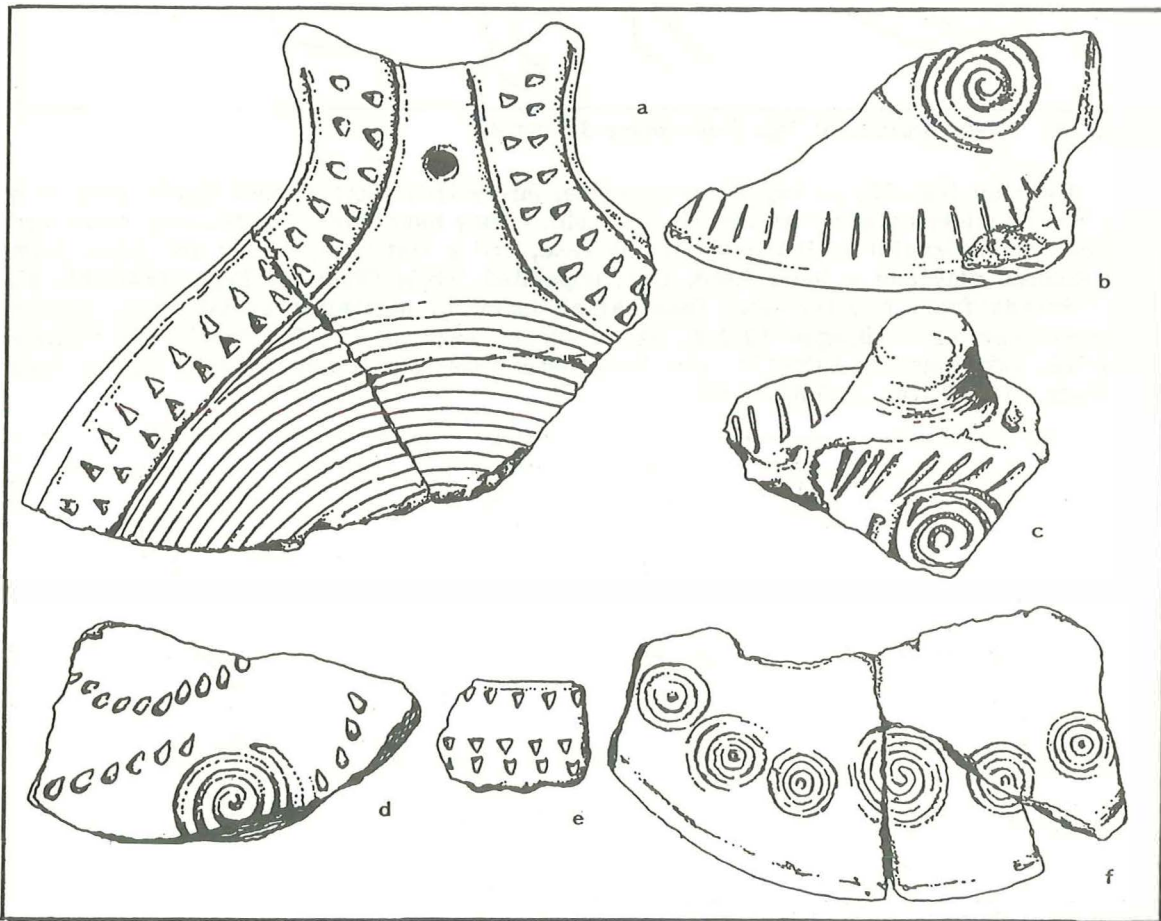


Figure 17. Fragments of Cycladic-type "frying pans."

Jugs (fig. 18, pl. 16e-f) are oblong, oval-shaped vases with a cylindrical neck, flat base, and vertical handle placed between the rim and the shoulder (Tzavella-Evjen 1984:158, pl. 47). They are made from porous, gritty, gray or light-brown clay. Sometimes the rim slants toward the handle, and, in some examples, the neck widens toward the rim (pl. 16f). A potter's mark was found inside the neck of one jug (fig. 27c, see p. 38). An unusual feature of this particular jug is the decorative vertical striations on the rim; similar decoration is known from Troy III (Blegen et al. 1952, 2 (2): pl. 80/34326, 34330) and the Cyclades (Doumas 1978:38, fig. 223). Sherds from jugs first appeared at the fifth level of habitation. Jugs are found at several Early Bronze Age sites (Theocharis 1953-1954:71; Caskey 1956: pl. 46; Blegen et al. 1950-51, I (2): pl. 383-388; Lamb 1936: pl. XII/288; Hagg and Hagg 1978:48, fig. 36:XII/a1, b1; XIV/a1, b1).

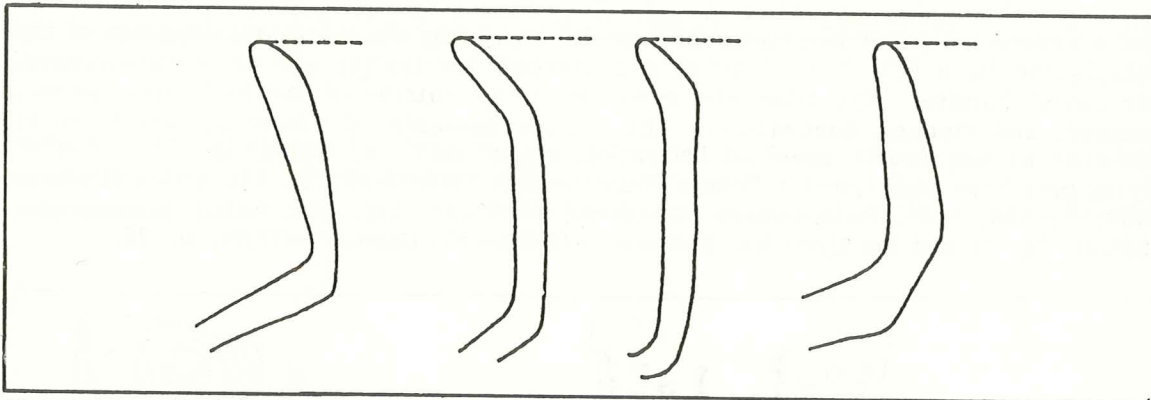


Figure 18. Neck profiles of jugs from rooms 35 and 46.

Hydriae (fig. 19, pl. 16g-h) are spherical jars with a short, funnel shaped neck or a neck which widens slightly at the rim (pl. 16h). They have two strap handles, which are vertical or horizontal at the belly of the vase, and a flat base. They are made from light colored clay and a fairly hard, thin, unpainted fabric (Tzavella-Evjen 1984:158, pl. 48). Sherds from hydriae were found at all levels of habitation at Lithares. It is a common type vase (Blegen 1921:8, fig. 8; Blegen 1928:86, fig. 74; Frodin and Persson 1938:218, 222; Heurtley 1939:171, 176; Theocharis 1954:110; Fossey 1969:61, fig. 4; Hagg and Hagg 1978:48, fig. 36:XII/a1; 64).

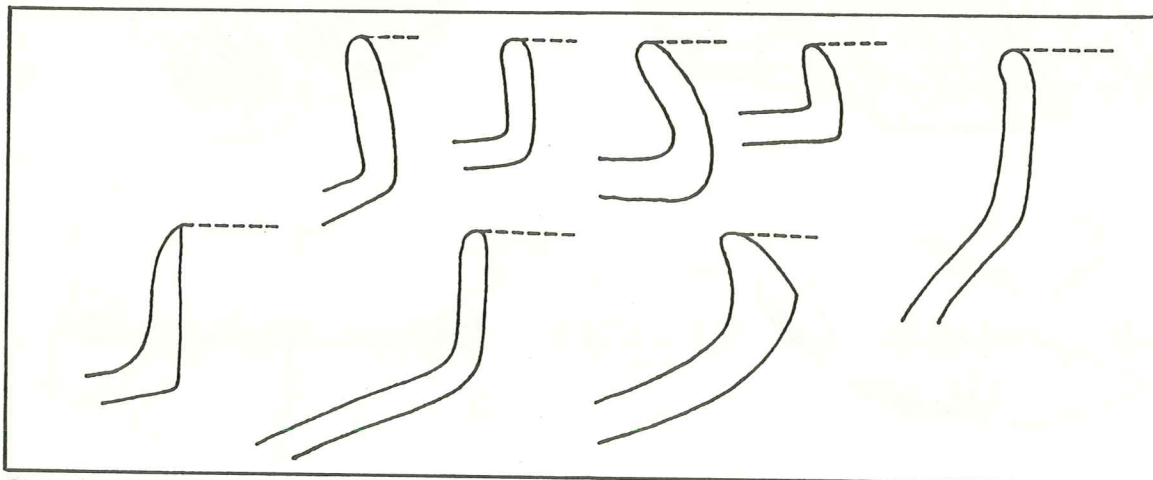


Figure 19. Neck profiles of hydriae from rooms 35 and 46.

Pithoi (fig. 20) are preserved in small sherds, thus preventing a description of their shape (Tzavella-Evjen 1984:158ff., pls. 49-51). They are made from gritty, coarse, porous, light-colored clay. The surface is smoothed and frequently decorated with relief patterns (as shown in pl. 20j-n). The rim is wide and, in one example, is decorated with a pressed chevron pattern. The earliest sherds from pithoi were found at the fifth level of habitation. The Lithares pithoi seem to be similar to those from western EH sites (Dorpfeld 1927: pl. 67a/1-4, 67b/7-8; Weinberg 1937:515, fig. 34j; Fossey 1969:56, fig. 2).

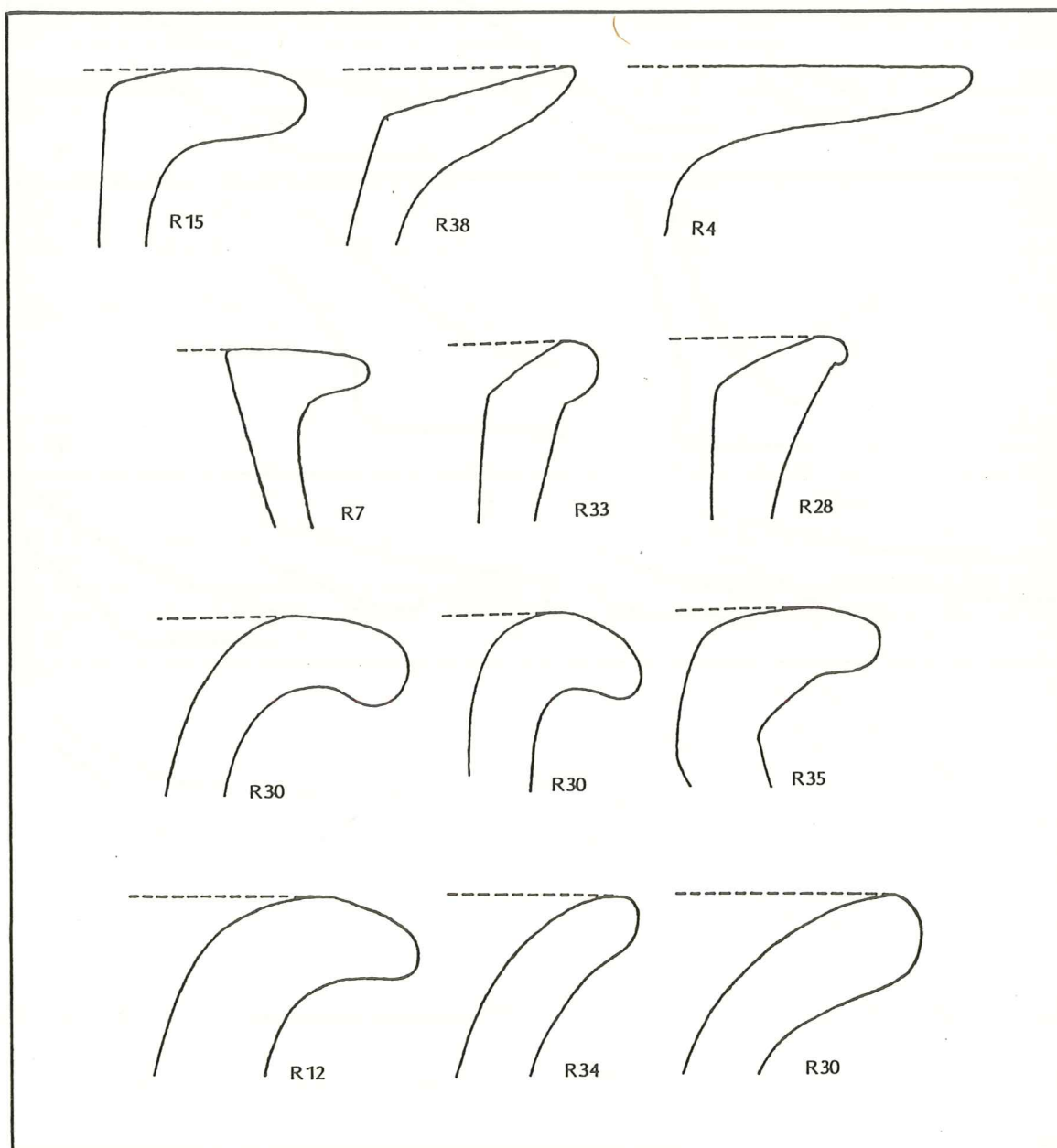


Figure 20. Neck profiles of pithoi, from rooms 4 (street), 7, 12, 15, 28, 30, 33, 34, 35, and 38.

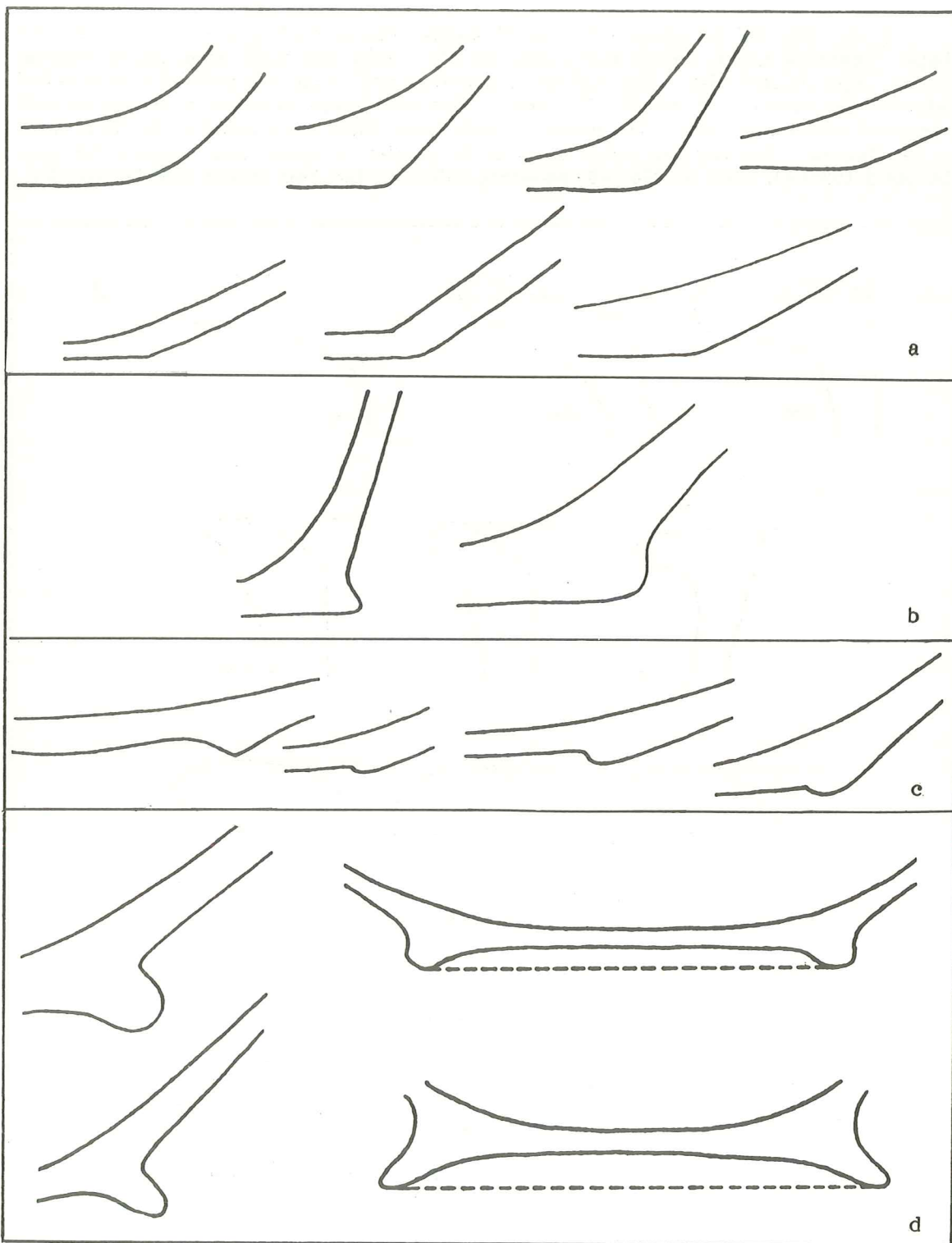


Figure 21. Profiles of bases from rooms 35 and 46: (a) flat, (b) outplaying, (c) convex, (d) ring foot.

A large number of sherds belong to bases (figs. 21 and 22, pl. 18), categorized as flat, outspaying, convex, and ring foot (Tzavella-Evjen 1984:159ff., pls. 52-59). Flat bases (fig. 21a) of porous, coarse fabrics from pithoi or other large storage vessels (pl. 18a) are common. Flat bases from hard, fine wares belong to pyxides (pl. 18b-c) and are more frequently found at earlier levels. Several coarse ware bases have mat prints similar to those found in many EH sites (Bulle 1907: pl. XXXIV/5-6; Atkinson 1904: pl. VI/1-9; Blegen 1928:117, fig. 109; Goldman 1931:88, fig. 111; Holmberg 1944:80, fig. 82j-k; Weinberg 1937:521, fig. 45; Walker-Kosmopoulos 1948:61, fig. 45; Payne et al. 1940:52, pl. 10/12; Theocharis 1951:90, fig. 18; Zervos 1957:96, fig. 90; Vatin 1964:562, fig. 34, 563, fig. 67; Sackett et al. 1966:48, fn. 48; Theocharis 1973:195, fig. 122; Sampson 1976:49, figs. 4-5; Thimme 1977:357, fig. 413a-b). Some flat bases are outspaying (fig. 21b, pl. 18i), and a few bases of coarse wares have a hole nearly 0.01 m in diameter carefully opened at the center before firing (pl. 18j). The latter bases remind one of contemporary flower pots. Convex bases (fig. 21c, pl. 18k-m) belong to a variety of vases, judging by their size and fabric. Their diameters range from 0.01 to 0.1 m. They are a common type at all levels. Ring foot bases are low or slightly spreading (fig. 21d, pl. 18n-o). They are usually made from good quality fabrics. Most of them were found at the later levels and are from sauceboats, bowls, and less frequently, coarse ware large vases. One ring foot base (Tzavella-Evjen 1980: pl. I/2) bore a potter's mark (fig. 27b, pl. 18n). The earliest ring foot bases appeared at the third level of habitation. Conical foot bases (fig. 22, pl. 18p-r) were usually made from fine wares. The tallest measures 0.03 m. Potter's marks were found on two of them (Tzavella-Evjen 1980: pl. I8-9). This type of foot first appeared at the fourth level of habitation. Ring and conical foot bases are known from practically all EH sites.

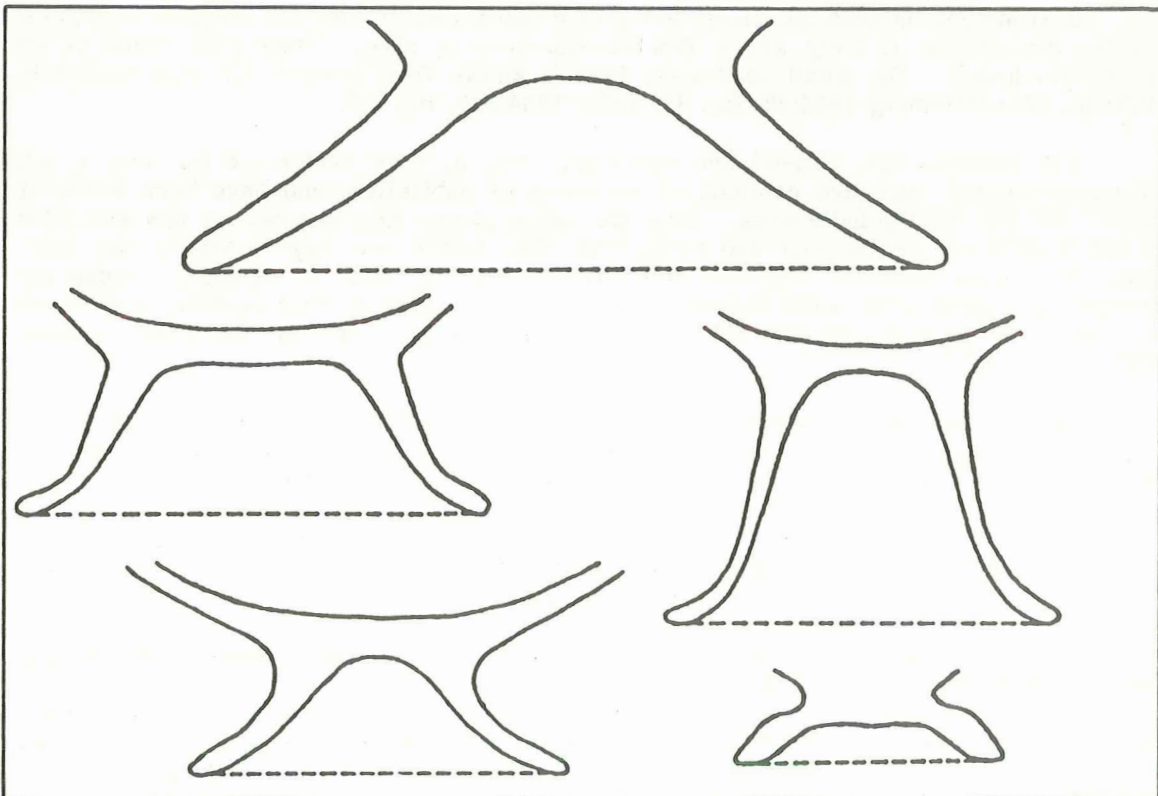


Figure 22. Profiles of conical feet.

Handles are classed in two categories: functional and decorative (Tzavella-Evjen 1984:160ff., pls. 60-65). Functional handles usually are rolled and placed vertically, and seldom are made from fine fabrics (pl. 21a). They occasionally have incised, relief, or impressed decoration (pl. 21f). Some are twisted in a rope shape (pl. 21g). Variations of the rolled handles are those which are flattened (pl. 21b-d) and those composed of two coils together (pl. 21e, h). These latter types are common (Holmberg 1944:31, fig. 83c; Heurtley 1939:169, fig. 39 L-M; Blegen, et al. 1973:224, fig. 279/5), and, at Lithares, are made from light-colored, fine clay.

A common functional handle is the strap type (pl. 21i-m) used for skyphoi, bowls, hydriae, jugs, and sauceboats. They were placed vertically and, less frequently, horizontally. Several of them have relief (pl. 21m), pressed (pl. 21j), grooved (pl. 21k, l), or incised decoration. Strap handles first appeared at the deposit of the second habitation. Handles with similar decorative patterns are known from several Early Bronze Age sites (Blegen 1928:111, fig. 100; Holmberg 1944:63, figs. 66, 76, 78a-b; Walker-Kosmopoulos 1948:55, fig. 35; Blegen et al. 1950-58, 1[2], pl. 227/33228, 240/3, 6; Lamb 1936: pl. XIV/5; Fossey 1969:66, fig. 6; Schachermeyer 1975: pl. 28). A few strap handles are straight, possibly from askos-type vases, as they are known from other EH sites (Papavasileiou 1910: pl. IA; Theocharis 1951:105, fig. 15; 108, fig. 22; Sackett et al. 1966: pl. 176). Horizontal strap handles placed between vertical ribs were found in the later deposits. A similar type is known from the EH II deposit at Kythera (Coldstream et al. 1973: pls. 19, 44, 47). Small strap handles are used decoratively rather than functionally, and have occasionally been described as "plastic ears" (Theocharis 1951:107, fig. 20).

Button-type handles (pl. 21n-p) are either functional, if they are large or become a plastic decoration if they are a few millimeters in size. They were found at all habitation levels. The small decorative type is known from several EH sites (Dorpfeld 1927: pl. 84a; Holmberg 1944:80, fig. 82; Vatin 1964:563, fig. 42).

Lug handles (pl. 21q-w) are solid (pl. 21s, u, v) or perforated (pl. 21q, t, w). Crescent-shaped lugs are common at all levels of habitation, and have been found at almost all EH and Cycladic sites. They are rarely placed side by side. A few examples of lug handles are rectangular and made from fine fabric; this type is known also from Anatolia (Lamb 1936:77, fig. 27) and Eutresis (Caskey 1960: pl. 46:II/28). Some lug handles are decorated with finger indentations (pl. 21u) or rope pattern, a common decoration on EH vases (Blegen 1937:157, fig. 636/8; Blegen 1928:121, fig. 114/5; Caskey 1960: pl. 51VIII/55).

The trumpet-type handle is known from the later habitation levels at Lithares and is more common on stone vessels (pl. 22k). This handle form seems to be common in Central Greece (Caskey 1960: pl. 47:III/9; Fossey 1969:58, fig. 3/bowls 20).

Decorative handles, too small to be functional, are primarily found among the previously described types or are handles of the finger hold type (pl. 21x, y). They first appeared at Lithares in the third habitation deposit.

Wares are decorated in five types of motifs: relief, ribbed, pressed, incised, and flecked (Tzavella-Evjen 1984:162ff., pls. 66-78). Relief decoration (fig. 23, pl. 20) consists of applied horizontal coils which are either plain or have finger impressions. The latter can be divided into five classes based on the shape and frequency of the impressions: (1) widely spaced punctuations (pl. 20a, b); (2) consecutive punctuations (pl. 20c); (3) "pie crust"-type punctuations (pl. 20d-f); (4) oblique striations (pl. 20h); and (5) vertical striations. The coil in some examples is plain with dotted punctuations applied along its sides (pl. 20i). The sherd in figure 23 is similar to early Minoan wares (Evans

1964, I:79, fig. 47a). which have been interpreted as an imitation of metallic prototypes. Relief wares first appeared in the second level of habitation. Relief decoration, frequently found on bowls where it occasionally serves as a finger holder, and on pithoi (pl. 20j-m), is the most persistent form of ornamentation from the Neolithic to the end of the Bronze Age.

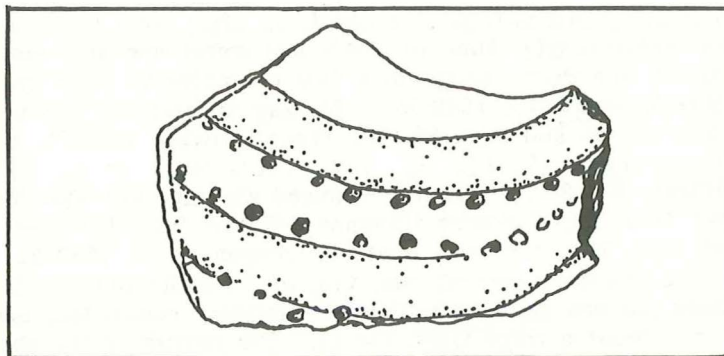


Figure 23. Relief wares.

Ribbed ware was concentrated in three places in the dromos outside room 4 (EH II context) and at the north test trenches (EH I context). This decorative form is applied on jugs (pl. 20o-t) and pithoi (pl. 20n). The clay used was well sifted, and the outside of the vase is decorated in ribbed fashion, painted in bright red, and polished (pl. 20u). Some bowls have a decorative ribbed-type vertical "handle" (pl. 20v). This latter form is known from both EH I and EH II levels. Ribbed pottery is known from Anatolia (Lamb 1936: pl. XVIII M, O, P), Crete (Zervos 1956: fig. 121) and a number of EH sites (Dorpfeld 1927: pl. 85a; Holmberg 1944, 62; Walker-Kosmopoulos 1948: pl. III; Papavasileiou 1910: pl. E/B6; Heurtley 1939:170, fig. 42b).

Pressed decoration (fig. 24) is quite common on the rims of Group B bowls (fig. 8) and on small spherical vases (pl. 19a). The patterns are zig-zag, oblique parallel ridges, spirals, squares, and herringbone. They remind one of Cycladic motifs (Soteriades 1908: pl. 615; Zervos 1956, 158, fig. 202) and other EH wares (Dorpfeld 1927: pl. 613/11-15; Holmberg 1944:77, fig. 79; Weinberg 1937:515; 1960:29: pl. 48VIII/47-54; Blegen 1928:121, fig. 114; Theocharis 1951:88, fig. 14; Demakopoulou 1975:199, fig. 7). Sherds with pressed decoration were also found at the first and second meters of deposit. The zig-zag is the only pressed pattern found in EH I contexts at the west and south trenches.

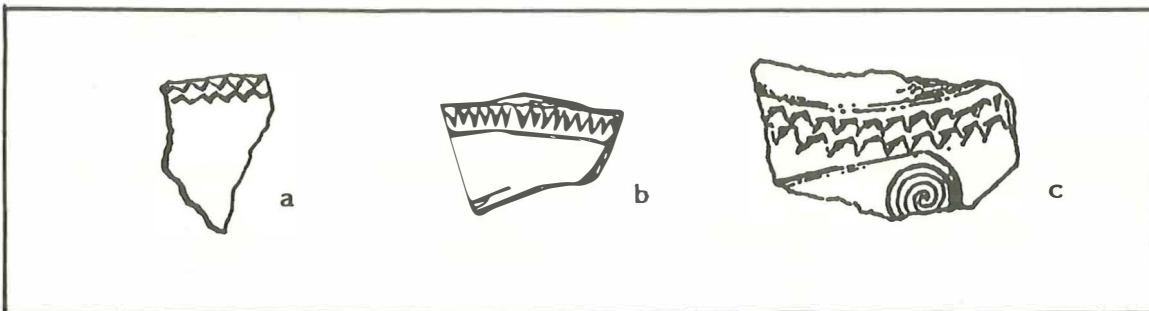


Figure 24. Pottery with pressed decoration.

Incised wares (pl. 19b-j) were found in great numbers. Group B bowls (pl. 12), frying pans (fig. 17), pyxides (pl. 19g), and some handles were decorated with incisions (pl. 21f). The fabrics vary in quality, based on the type of vase, but generally are of fair quality, painted black or red, and burnished, with the exception of the frying pans. The incisions are filled with a white paste. The decorative themes can be classified as parallel incisions (fig. 25, pl. 19i); single and double zig-zag (pl. 12i), chevrons (fig. 25b-d, k, pl. 19d, j); herringbone patterns (figs. 25e and f, pl. 12g); short unconnected horizontal, vertical, or oblique incisions (fig. 25m, pl. 19h); and spiral and star motifs (pl. 19c, g). The parallel incisions are deep enough in a few examples to form grooves (Holmberg 1944: fig. 65; Walker-Kosmopoulos 1948:36). Zig-zag is frequent and similar to Cretan themes (Zervos 1956: pl. 56 and figs. 62, 63; Tzavella-Evjen 1972:71, fig. 8), Cycladic, and EH wares (Weinberg 1937:515, fig. 34d; Coldstream et al. 1973: pl. 16/1-3; Schachermeyer 1975:88, fig. 20). Open-type incised zig-zags are also found at Lithares; this motif is known from the Cyclades (Doulas 1978:27; Schachermeyer 1975: pl. 27a). Crete (Zervos 1956: figs. 101, 120) and Anatolia (Blegen et al. 1950-51, I[2]: pl. 129A7, 112, 73-34, 400). The chevrons remind one, too, of Cycladic pottery (Zervos 1957: fig. 84). The herringbone pattern appears in three varieties: connected, unconnected (figs. 25h, j), and with or without a ridge (figs. 25e-g). The motifs of the short, unconnected incisions (fig. 25m) are similar to those from other EH sites (Blegen 1928:92, fig. 81; Walker-Kosmopoulos 1948:34, fig. 10), the Cyclades (Doulas 1976:9, fig. 12, pl. 4c; Doulas 1978:48, fig. 236), Crete (Zervos 1957: fig. 98), and Anatolia (Blegen et al. 1950-51, I[2]: pl. 242/12; 112, pl. 81). The spirals are unconnected and frequently formed by concentric circles (pl. 19g). The subject of the spirals, in their origin and geographical distribution, has been extensively discussed by G. Mylonas (Mylonas 1959:132-135). Incised pottery appears at Lithares at all levels of habitation. Patterns from EH I levels are parallel incisions, spirals, oblique parallel incisions rather deeply grooved, open-type free zig-zag, and isolated single grooves.

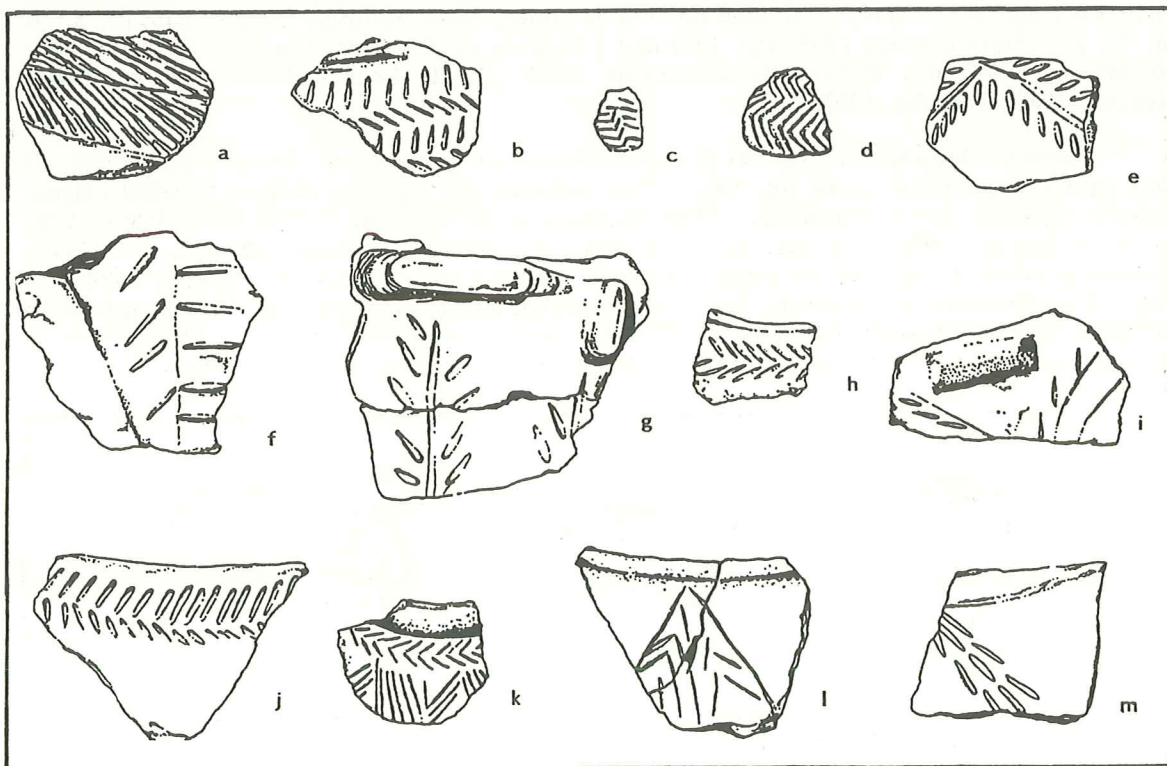


Figure 25. Pottery with incised decoration.

Flecked decoration, by itself (figs. 26d-i, pl. 19k-n) or in combination with incisions (figs. 26j-k, pl. 19e), is a common ornamentation theme. The earliest example was found at the fourth habitation level 2 m below the surface. Mixed flecks and incisions are also known from several Early Bronze Age Aegean sites (Hall 1915:71, fig. 162; Zervos 1956: fig. 124; Sackett et al. 1966: pl. 19a; Doulas 1978:27; Demakopoulou 1975:83, fig. 7).

Very few EH sherds with painted linear patterns were found at Lithares. Two of them belong to the "light on dark" technique (pl. 19o, p) and were found at the upper 0.4 m of deposit, which is not stratified. Spyropoulos reports EH III pottery but does not describe its type. The EH III presence at Lithares is no more evident than the Mycenaean in that both periods are represented by more or less accidental findings of only a few sherds.

The Lithares pottery is very rich in variety and is of very good quality EH I and EH II fabrics. The clay is typical Boeotian with golden mica.

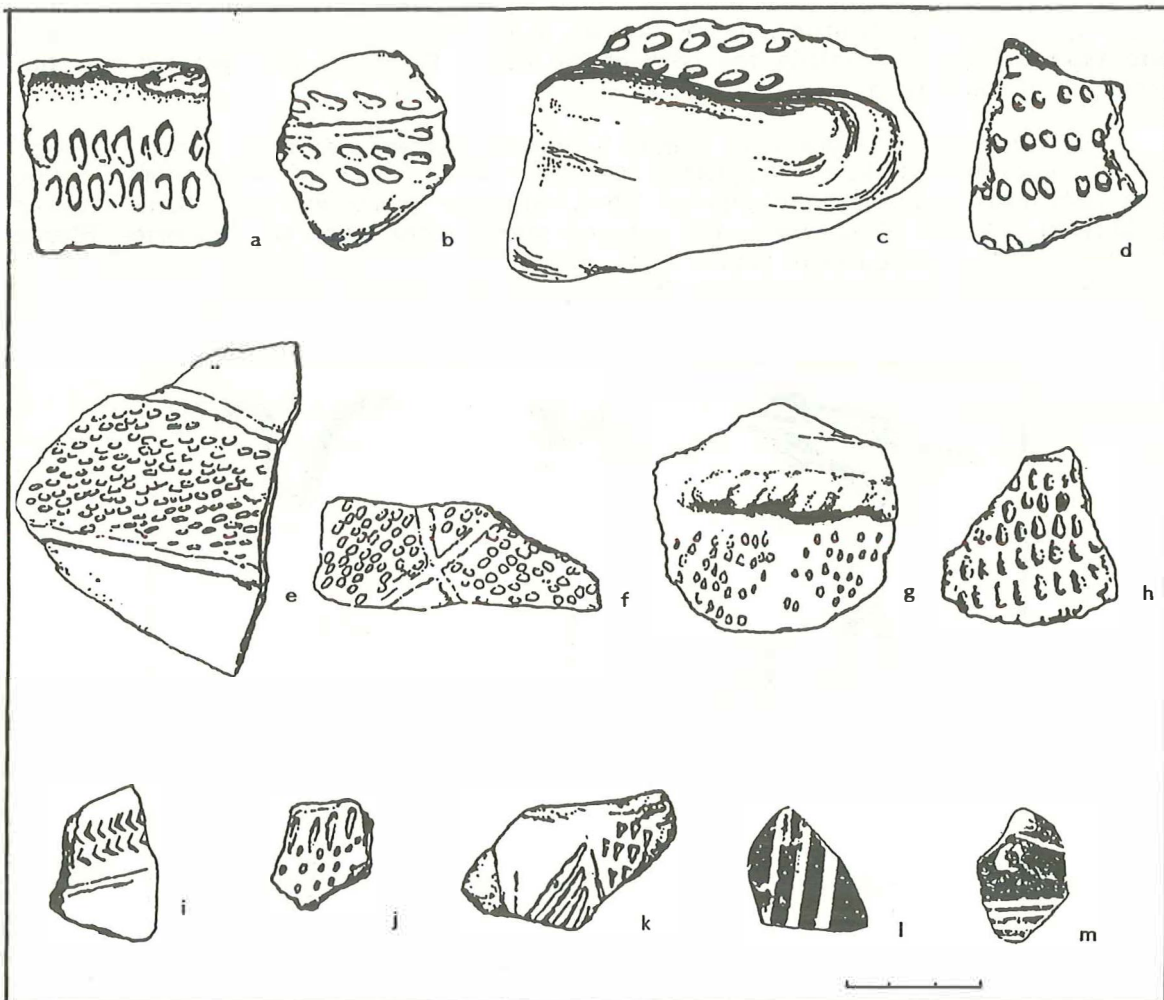


Figure 26. Pottery with flecked decoration.

Potter's Marks

Twelve sherds with potter's marks (Tzavella-Evjen 1980:93-96, pl. I; 1984:165ff.) were found, eleven of them at ten different EH II levels and one in a south test trench in an EH I context. The marks can be divided into seven types: 1) continuous arches (fig. 27a, pl. 15m); 2) wavy meander (figs. 27b, h, pl. 18n); 3) double hook (fig. 27c, d); 4) pressed dot; 5) right angle (fig. 27e); 6) double axe (fig. 27f); and 7) illegible (figs. 27g, i). The dot, the only repeated mark, is applied on different type and size vases, a fact which precludes the suggestion that dots indicated vessel capacity (Atkinson 1904:177-184). Type 2, 6, and 7 marks appear on the bottom, types 1 and 3 (fig. 27d) on the side wall, and type 3 (fig. 27c) inside the neck of the vase. Four dots were pressed near the periphery of the bottom.

Potter's marks, which were incised before the pottery was fired, appear on jugs, bowls, large plates, possibly pyxides, and coarse ware fabrics of unidentifiable shape. The dots are known from Phylakopi (*ibid.*) and the double axe from Lerna (Caskey 1956:168). Other sites where EH potter's marks were found are Zygouries (Blegen 1928:106-107), Orchomenos (Bulle 1907, III:84-88), Yialtra in Euboia (Sackett et al. 1966:38, fn. 24), Raphina (Theocharis 1955:114), and Kea (Caskey 1970:107).

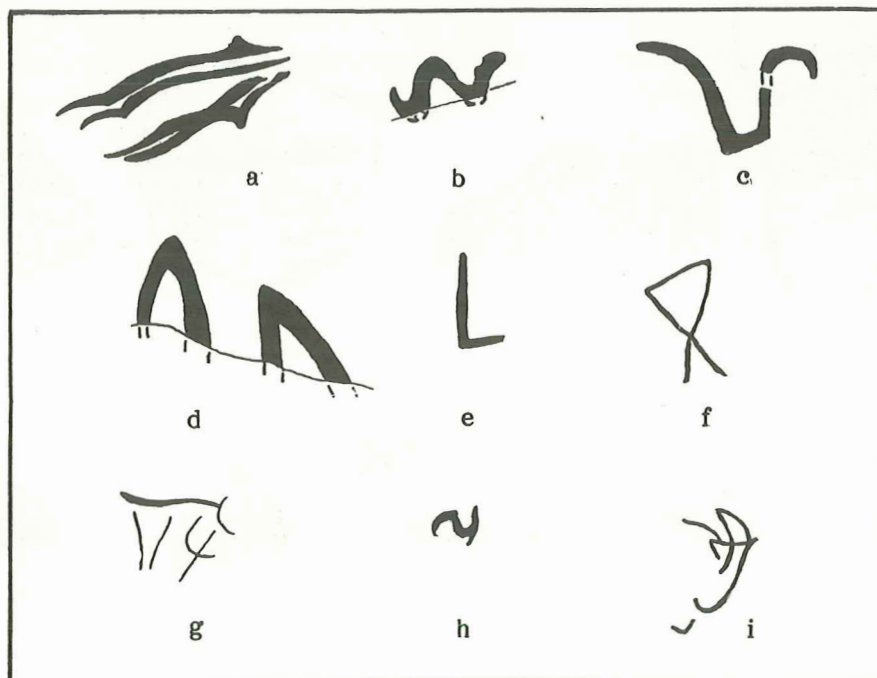


Figure 27. Potter's marks.

Figurines

The Lithares figurines are primarily animal terracottas: bulls, cows, and goats. Measuring 0.032 to 0.046 m long (Tzavella-Evjen 1972:467ff.; 1984:169ff., pls. 81-84) and executed with unusual artistic accuracy and imagination for the period, they are divided into two groups because they represent at least two artistic hands. Ten figurines are quite descriptive of the general characteristics of the animal and follow the normal proportions of length to height for horns, tail, etc. The surface is smoothed, and the clay is free of stone particles (pl. 22a-c). In the second group the anatomical proportions of the figurine are intentionally distorted; that is, they are more tall than long, the horns are asymmetrical, the snout is diminished, and the body is bulky. The surface is rough and the clay is pebbly (pl. 22d). This second group reflects a daring impressionism. In general, these small figurines are expressive and artistically very innovative in comparison with other animal figurines from this era (Goldman 1931:196, fig. 269/2, 4, 5; Holmberg 1944: fig. 111/12; Theocharis 1952:148; Waterhouse and Simpson 1960:76, 83, pl. 23a, i; Caskey 1960:157, pl. 53:VIII/65; Wiseman 1967:36, pl. 16/1, 2; Muller 1938: pl. V/6-8; Blegen 1930-31:77, figs. 32-33; Spyropoulos 1969: pl. 148; 1971:71). The only figurine that approaches the artistic style of those at Lithares was found at Troy III (Blegen et al. 1952, 2[2]: pl. 53, no. 33-184).

A small figurine of a krates is unique (pl. 22e). A handle placed alongside the top is missing. An identical, full sized krates has been found at Aghios Kosmas (Mylonas 1959:146). A figurine of a male torso (pl. 22f, g), 0.105 m high was among the surface finds, but its date is doubtful.

Three small, schematic, marble figurines were found in an EH II context (Tzavella-Evjen 1984:171, pl. 85j-o). One, from room 28, has a horizontal incision at the "waistline" and the other two, one from area 30A and the other from unstratified context below the surface, have notches at either side (figure 36b). This type is known from the Cyclades, including Neolithic Saliagos (Evans and Renfrew 1968: pl. XLIII30), Crete (Zervos 1956:127), and Troy (Blegen et al. 1952, 2(2): pl. 41/7-8).

Stone Industry

The number of stone vessels found was small in comparison with the large quantity of stone implements and obsidian blades (Tzavella-Evjen 1984:184ff., pls. 86-87, 95-97). Parts of two small, shallow, Cycladic-type marble bowls (pl. 22i) (Dumas 1978:72; Thimme 1977:318, fig. 296), also known from EH sites (Papavasileiou 1910:7, fig. 8; Goldman 1931:201, fig. 271; Mylonas 1959: fig. 6; Caskey 1960:158; Syriopoulos 1968:267), were found in an EH II context. A slightly trapezoidal "table of offerings" (pl. 22h) made

from gray limestone was also found in an EH II context (Zervos 1957:60, fig. 20). Several fragments from mortaria (pl. 22j, k) with relief horizontal handles, one of which is of the trumpet type (pl. 22k), conclude the list of stone vessels. Mortaria have been found both in the Cyclades (ibid.: 165, fig. 313) and in continental Greece (Blegen 1937:157, fig. 636/8).

Obsidian imported from Melos was found in large quantities at all habitation levels (pl. 26). The obsidian finds consist of 167 cores, 2,333 knives, 200 tools with denticulated edges, and several kilos of flint discards. The knives have two types of cross section: triangular and trapezoidal. Their maximum length is 0.08 m. The tool processing was done locally, judging by the large amount of flint discards and cores.

Stone implements primarily from limestone, sandstone, flintstone, slate, mudstone, and quartz were found in large numbers. They belong to the following categories:

1. Pounders/rubbers (figs. 28 through 31)—made from a variety of stones and divided according to shape into six groups:

- a) Spherical (fig. 28a, pl. 23a), with an average diameter of 0.048 m
- b) Hemispherical (fig. 28b, pl. 23o), which might have been originally spherical and changed by extensive use, with the same or a large diameter as the spherical pounder
- c) Cylindrical (figs. 28c, d, pl. 23m,n), with an average diameter of 0.045m
- d) Conical (figs. 29a,b; pl. 23c, d), with an average 0.041 m base diameter and 0.08 m height
- e) Tray-like (fig. 30, pl. 23l), with an average 0.055 m diameter and 0.03 height
- f) Polyhedral (fig. 31), which are either cubical (pl. 23p) or irregular and average 0.045 m in height

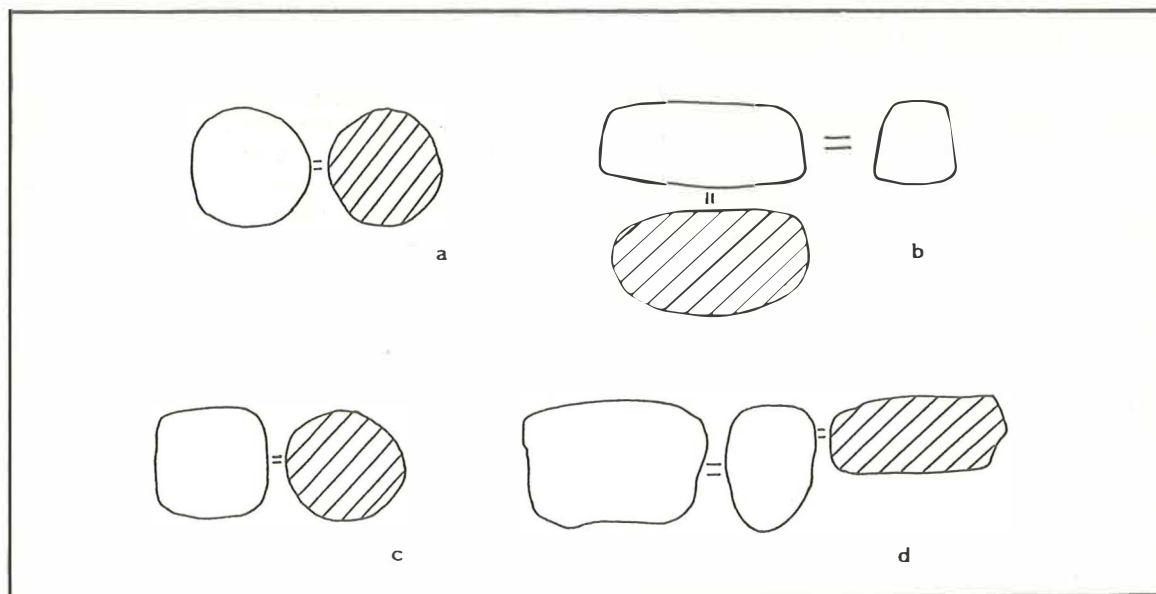


Figure 28. Pounders/rubbers: (a) spherical, (b) hemispherical, (c) cylindrical.

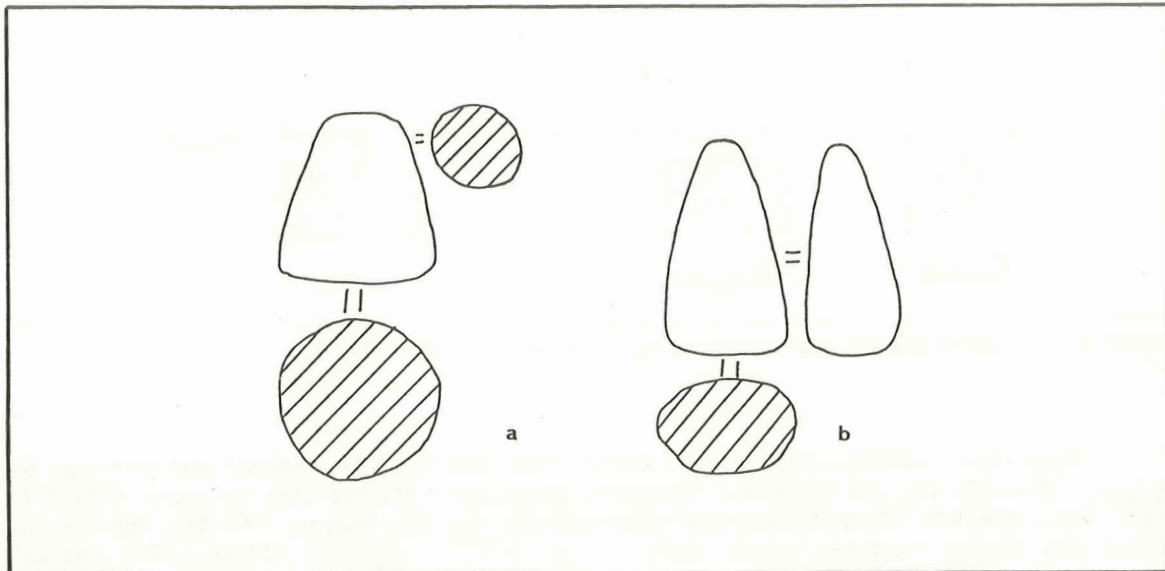


Figure 29. Conical pounders/rubbers.

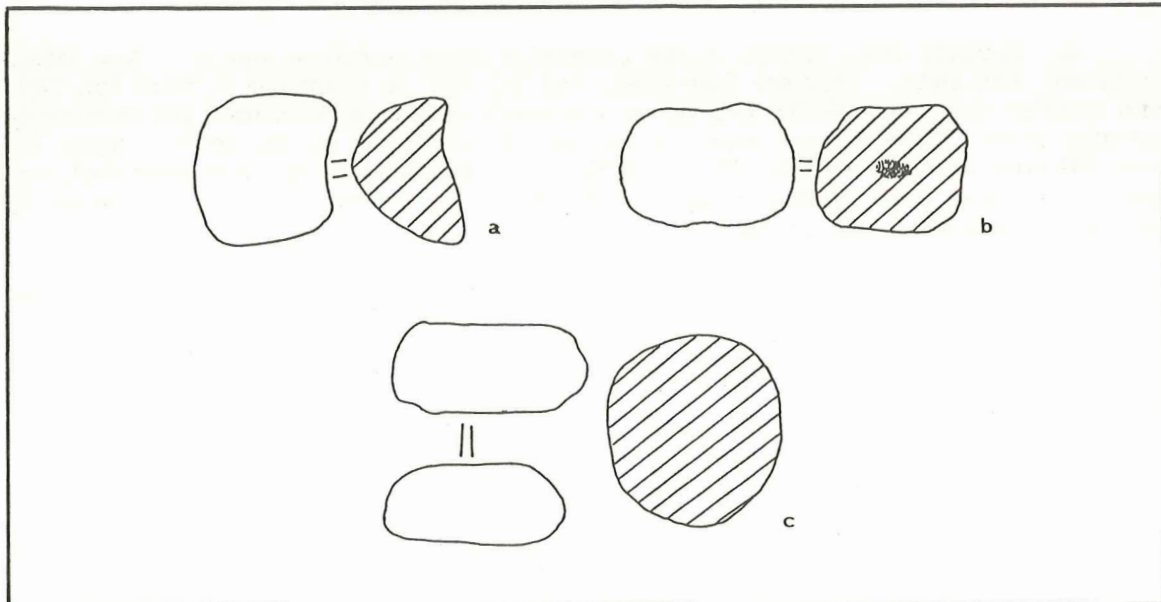


Figure 30. Traylike pounders/rubbers.

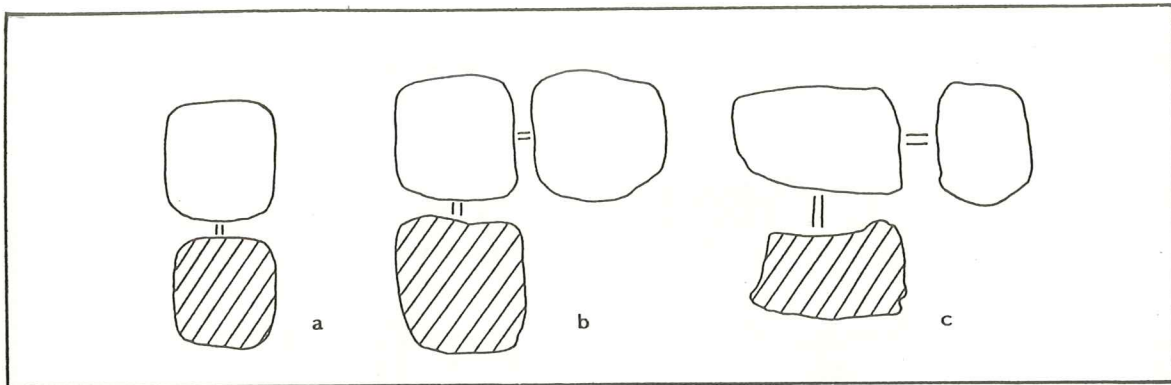


Figure 31. Polyhedral pounders/rubbers: (a, b) cubical, (c) irregular.

Spherical pounders/rubbers are known from the Neolithic period and continue to appear through the EH (Tsountas 1898:178; Holmberg 1944:124-125; Goldman 1931:204, 206, figs. 275/1-2, 276/1-2; Heurtley 1934-1935:39, fig. 33; Warren 1965:310, fig. 24, pl. 80a), MH (Skias 1912:15; Valmin 1938:378, pl. XXVIII; Holmberg 1944:124-125) and LH periods. Those from Lithares date to EH I and EH II and are similar to certain implements from Lerna (Banks 1967:113-143). Cylindrical pounders/rubbers are very common at EH (ibid.) and later sites (Goldman 1931:204, 208, figs. 275/5, 278/1; Frodin and Persson 1938:247, fig. 176/2; Warren 1965:312, no. 89). Conical pounders/rubbers are also common throughout the Early Bronze Age (Goldman 1931:209, fig. 281/1; Holmberg 1944:124-125, fig. 116/4-5; Zervos 1957:66-67, fig. 33-34), while the cubical ones usually date toward the end of the Early Bronze Age (Banks 1967:113-143) and later.

2. Rubbers (fig. 32a-c)--made primarily from sandstone and, in a few cases, mudstone and slate. They are four-sided, oval (pl. 23i), or triangular in shape (pl. 23j), and usually have channel-like grooves as the result of having been used for sharpening metallic tools. Their average length is 0.12 m. Similar tools are known from many EH and MH sites (Banks 1967:143-153, 214-215), some of which are not well stratified, but that in general tend to date toward the EH III period or later. The high quality of several of these rubbers is unique.

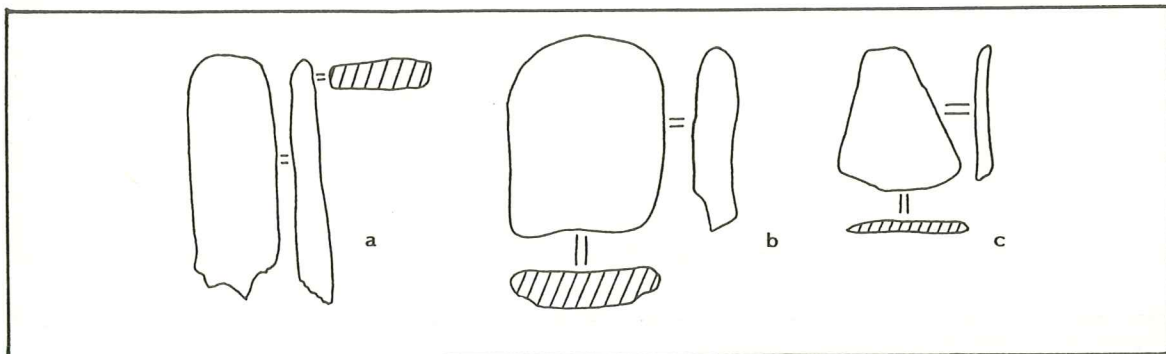


Figure 32. Rubbers.

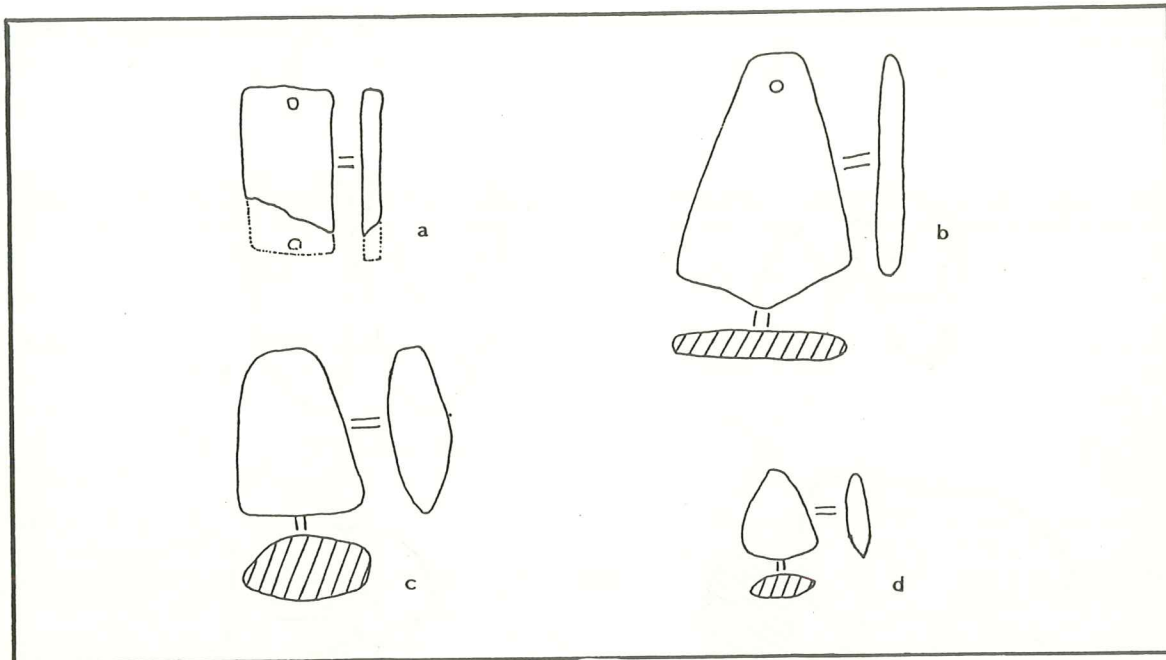


Figure 33. (a, b) Perforated plaques, (c, d) celts.

3. Perforated plaques (fig. 33a, b; pl. 23e, f)—usually made from sandstone, are triangular or rectangular, and have a perforation at the top of the triangle or on one narrow side. Their length averages 0.08 m. They could have been decorative in addition to being functional. Similar objects from Lerna (Banks 1967:214-221) are dated in the EH II and EH III periods. Perforated plaques, less precisely dated, are known from several EH sites (Goldman 1931:200, 208-209, fig. 270/5, pl. XX/8; Holmberg 1944:127, fig. 118/9; Heurtley 1939:201-202, fig. 65). Those from Messara are dated from the EM II to MM I periods (Xanthoudides 1924:20, 66, 80, 84, 105-106, pls. XXII787-788, XLIII1353, LIV1899-1900, 2008-2011).

4. Celts (fig. 33c, d)—made from a variety of hard stones and are trapezoidal (pl. 23k) or triangular in shape. The trapezoidal celts average 0.023 to 0.055 m long and the triangular 0.025 to 0.07 m long. This type of tool is known from the Neolithic period and goes beyond the Early Bronze Age. The trapezoidal type appears at the Neolithic and MH levels at Lerna (Banks 1967:85-99), but the triangular ones from Lerna and Zygouries date to the EH II period (Blegen 1928:199, pl. XXII/1-3).

5. Stone tools unidentifiable as to their use (figs. 34-35)—found in considerable numbers. Among those that are better understood are: a) part of a marble "skull crusher" (fig. 34d) 0.055 m in diameter b) tool made from gray limestone (fig. 34e, pl. 23g), possibly a knife sharpener, oval-shaped, 0.125 m long and 0.55 m wide, with a flat base, channel-like grooves on the upper side, and a carved knob on one narrow side: and c) a spool-shaped tool (fig. 34g, pl. 23h) made from light-gray limestone 0.07 m long with a maximum diameter of 0.055 m and a middle (minimum) diameter of 0.036m. This tool could have been used as a weapon, a hammer, or fishing weight. A great variety of these "spools" is known from Thermi.

Four small, spherical stone beads, one cylindrical stone bead, and a cylindrical stone pendant (pl. 23q) are among the few items that can be characterized as jewelry.

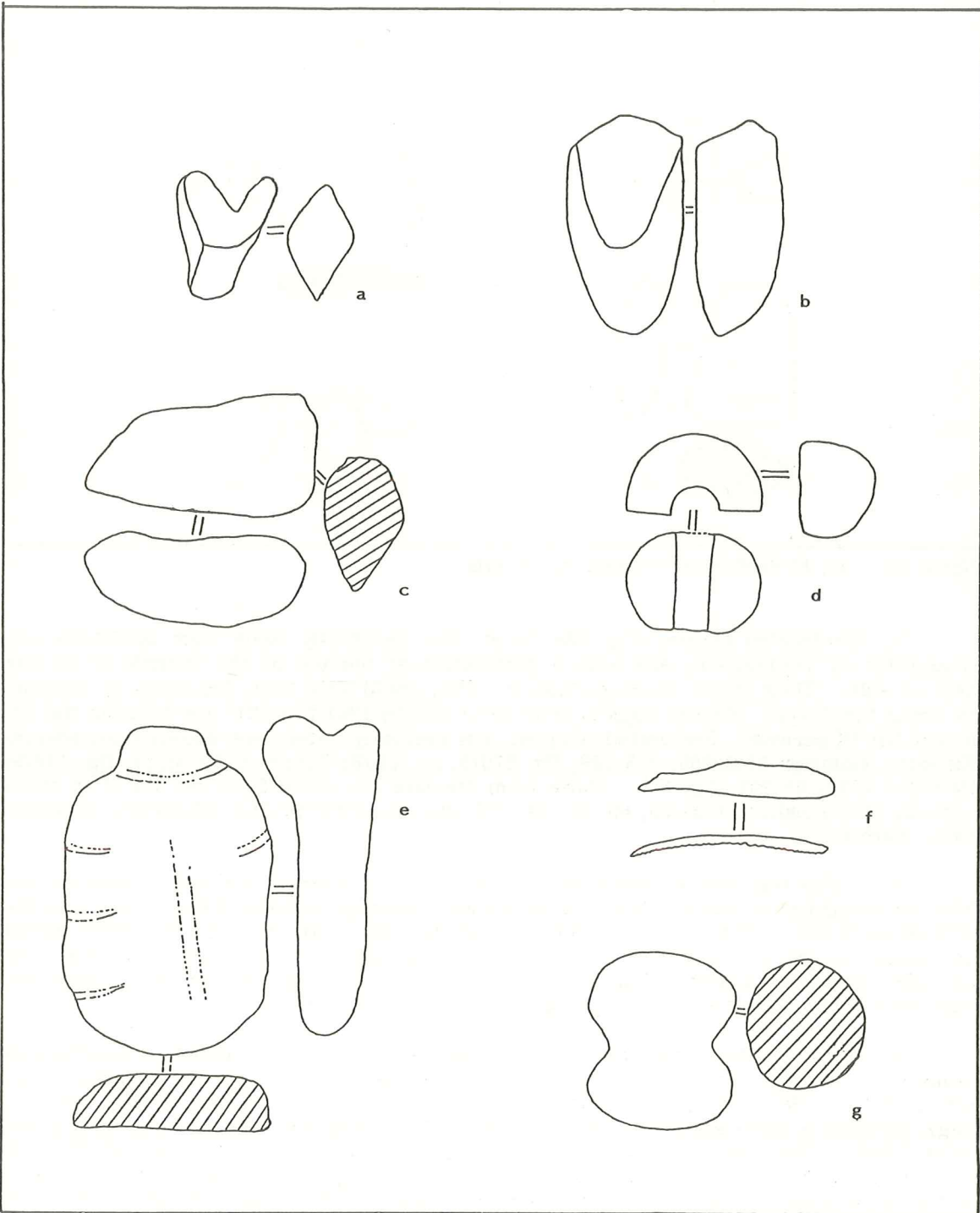


Figure 34. Unidentifiable stone implements.

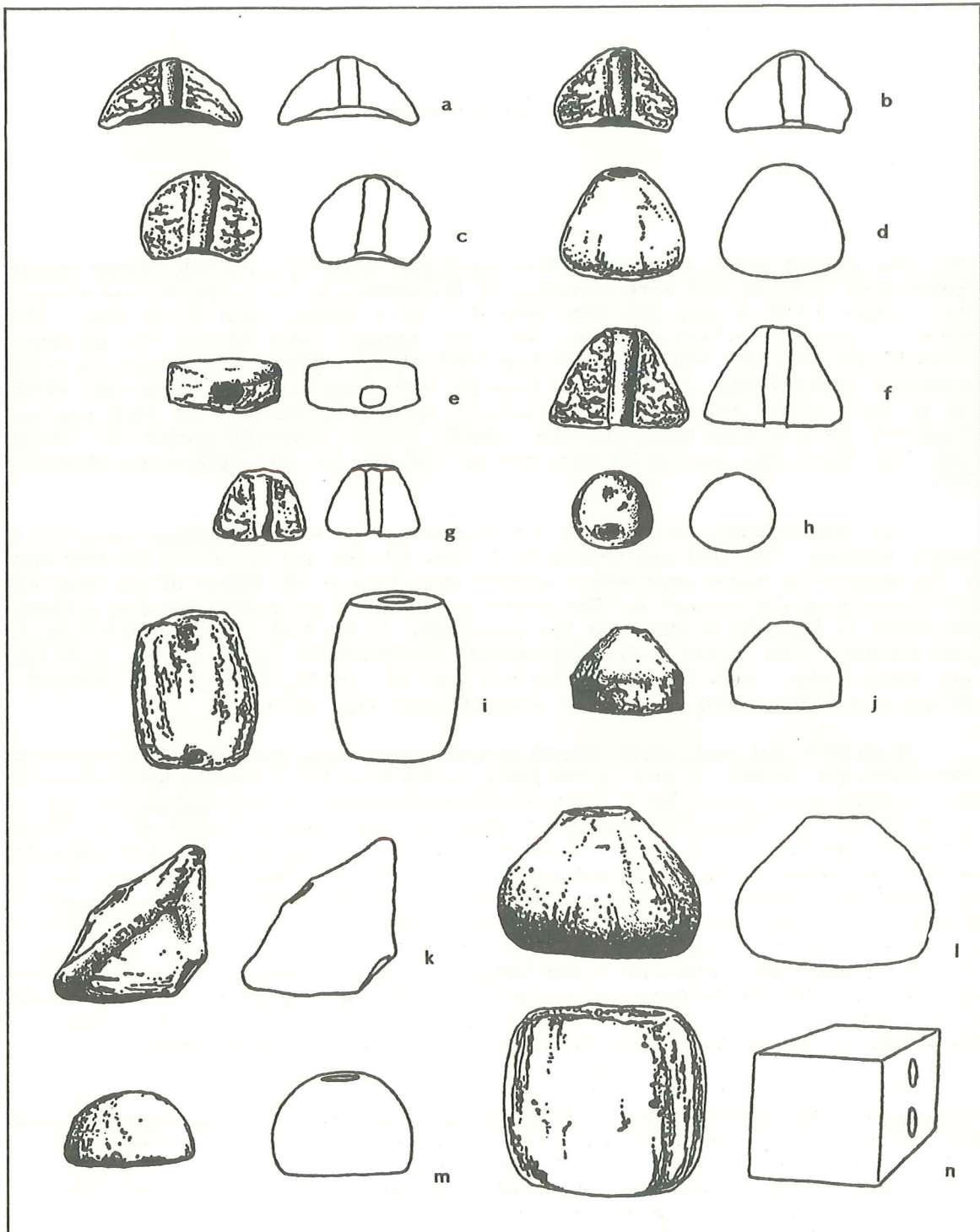


Figure 35. (a-d, f-m) Spindle whorls, (e) diametrically perforated disk, (n) loom weight.

Miscellaneous

Very few bronze items were found (Tzavella-Evjen 1984:171ff., pl. 80). Three chisels (Spyropoulos 1969: pl. 32b) were unearthed by Spyropoulos in EH II context, and a horn-type dagger 0.182 m long was recovered at house K outside room 44 (pl. 24a). The dagger is among the largest known from the Aegean Early Bronze Age (Branigan 1968a:13-20; Renfrew 1967:71:1; Caskey 1968:219f.). These articles are the most important bronze finds. In addition to them are eight fragments from needles (pl. 24 b), one of which comes from the second habitation level; a fishing hook (pl. 24c); and two fragments from bronze bands (pl. 24d). Similar pieces, especially needles and fishing hooks, are known from several EH sites (Zervos 1957:196, fig. 260; Syriopoulos 1968:273-274).

Two lead articles, both found in EH II context, seem to be a mending clamp and a weight measure. The first was formed like a spool (pl. 24f) and the second (pl. 24e) cast in the shape of a colure cone with a shallow impression at the center of the base and five symmetrical dots around it. The results of a study of the bronze and lead articles, presented in Appendix 3, show that the provenance of the lead is Laurion and Siphnos. Lead weights were found at Kea (Spyropoulos 1969:24:95ff.), dating, though, from the Late Bronze Age. Most commonly, lead was used for mending (Spyriopoulos 1968:273-274) but seldom for making figurines (Thimme 1977:364, figs. 431-432).

Many krategutai, traditionally known as spit holders, were recovered (Tzavella-Evjen 1984:172ff., pls. 88-89). A total of 178 parts, mostly from EH II context, were collected from practically all houses, but a characteristic accumulation of krategutai was noticed in rooms 45 and 31. The earliest example is from the first meter of deposit at the filling of the second habitation level. These items were executed with care and aesthetic concern, as shown by the details and variety of forms of the legs, handles, etc., and by the relief and grooved decorative patterns. The clay is coarse and the surface is smoothed. These can be divided into two types. Type one has four legs, like a quadruped, a handle alongside the top (from "head" to "tail"), and one end convex with wing-like projections. This type is also known from Aghios Kosmas (Mylonas 1959:146, fig. 172-173). The second type has four legs in a squared arrangement, and the handle above is wide and short (pl. 24g). At least one fragment belongs to a tripod base (pl. 24h) similar to the one known from Eutresis (Goldman 1931:195, fig. 267-268).

The use to which these objects was put is not known. The lack of any sign of exposure to fire makes the identification as spit holder unlikely. The suggestion that type one was used in connection with burial practices (Mylonas 1959:146) does not apply in the case of the Lithares finds because they were recovered in abundance in the settlement. The theory that they were used to support big vessels (Harland n.d.:106-107, pl. 3c) or that they were used in the process of making big vessels, as Dr. R. Todd has suggested to me, is more likely to have been the case; that is, the convex side could have been used to smooth the outside of the vessel. In addition to Eutresis and Aghios Kosmas, krategutai are known from several EH sites (Soteriades 1908:75, fig. 7; Walker-Kosmopoulos 1948:31, fig. 6; Theocharis 1951:91, fig. 20; 1955:81, fig. 4; Syriopoulos 1968:249).

The impressive number of spindle whorls is characteristic of the activities and economy of the inhabitants (Tzavella-Evjen 1984:1973, pls. 90-91a-e). Spindle whorls were found at all levels and in all houses, with a significant accumulation in rooms 34 and 45. They are divided into six groups by shape: (1) conical with convex or flat base (fig. 35b, d, f-g); (2) pear-shaped with convex base (fig. 35i); (3) spherical (fig. 35h); (4) hemispherical with convex or flat base (fig. 35a, c, m); (5) cylindrical (fig. 35i); and (6) a few individualized (figs. 35e, j, k). Their height varies from 0.035 to 0.042 m, and their diameter between 0.035 and 0.05 m. These types are common at Early Bronze Age sites, except for the spherical ones known elsewhere only from Crete.

Eight anchor-shaped objects (for example, fig. 36a), whole or in parts, were found at various sections of the settlement (Tzavella-Evjen 1984:170, pl. 85a-b, d-e). Some have a perforation at the upper part of the middle rod, in some cases horizontal and in others perpendicular to the object's plane (Spyropoulos 1969: pl. 32a). Anchor-shaped objects are known from several sites (Syriopoulos 1964:277-278; Syriopoulos 1968:273-274).

Eleven loom weights were found, a rather small amount in comparison with the spindle whorls. All of EH II context, they are cylindrical or cubical (fig. 35n) and have two vertical perforations. The scarcity of clay loom weights suggests that other materials like stone might have been used. It is also possible that spindle whorls could double as loom weights. These weights, which are common EH items (Syriopoulos 1964:277; 1968:273-274), present similarities to those from Ithaca (Dorpfeld 1927: pl. 56d).

Sherds which have been rounded into small disks and which are known as stoppes were found in considerable quantity in both EH I and EH II contexts (Tzavella-Evjen 1984:173ff., pl. 92a-o). Fifteen have perforated centers for inserting a holder. The perforation was done after the firing; however, some examples from Aghios Kosmas were perforated before the firing (Mylonas 1959:146). The stopper is a widely known object from Early Bronze Age sites (Goldman 1931:95, 192, fig. 120; Frodin and Person 1938:251, fig. 177/5) and Anatolia (Lamb 1936: pl. XXVI31-534).

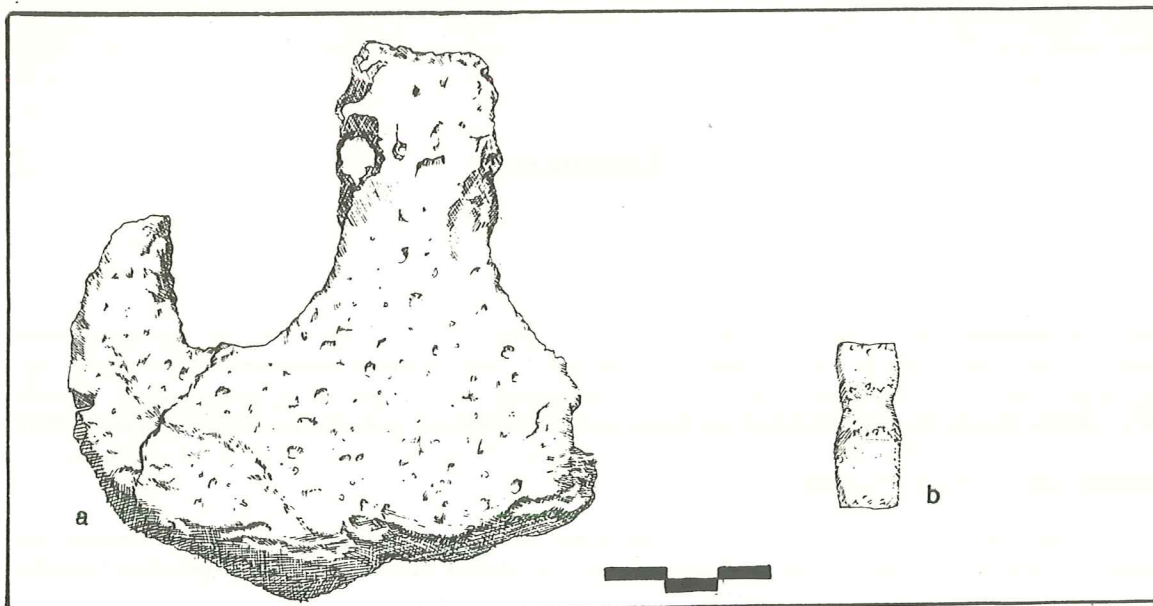


Figure 36. (a) anchor-shaped object, (b) marble figurine.

Thirteen sherds, all of excellent quality clay, were shaped like tongues with smoothed edges (Tzavella-Evjen 1984:174, pl. 92o-q). They look very much like the tools American Indians made from gourds, used to shape and smooth pottery surfaces. Similar tools from Neolithic Saliagos have been identified as burnishers (Evans and Renfrew 1968:69). They are also known from Eutresis (Caskey 1960:29:142, pl. 52III/20).

Among the items made from clay are a few solid cylinders which might have been parts of cooking utensils (Evans and Renfrew 1968: fig. 84/13-21), three small balls 0.01 m in diameter, two strainers (pl. 17c) 0.055 m in diameter, and parts of a large ceramic vessel, possible of a baking dish.

Nineteen bone tubes were found (Tzavella-Evjen 1984:174ff., pl. 93), some in parts (pl. 25k-o). The earliest was found at the second meter of deposit in the fill of the third habitation. The longest tube is 0.065 m, and diameters range from 0.01 to 0.014 m. Some have a fine incision around the two ends. Bone tubes are known from both continental Greece and the Cyclades, where they have been identified as cosmetic implements, especially those with one pointed end. A bone tube from Eutresis (Caskey 1960:135), quite similar to those from Lithares, has been described as a handle. It is possible that these tubes were fastened together and worn over the chest as a protective or decorative vest similar to those worn by American Indian chiefs (Encyclopedia Britannica 1970, [12]: fig. 11).

Bone tools were found at all habitation levels (Tzavella-Evjen 1984:175, pl. 94b-v). They are made mostly from tubular or flat bones and are pointed or rounded at one end. Two made from solid bone were pointed and hardened through a firing process, creating typical piercing tools. Two pointed tools had indentations at their bases (pl. 25p) so that they could be fastened to something.

The miscellaneous finds, especially the obsidian, lead, and bronze items, demonstrate the trade contacts the people of Lithares had with the rest of the Early Bronze Age Aegean. They also show the inhabitants' artistic individuality, as portrayed through the figurines, some of which are unique in their daring impressionism and the accuracy of some details.

Summary

The EH habitation at Lithares lasted for the whole of the EH I period and continued through the early phase of the EH II. The EH I settlement is represented primarily by disturbed architectural remains and pottery spread in an area of approximately 40,000 m². Five levels of EH I habitation form the 2 meters of deposit over the stereo. The pottery from this fill is variable in shape and is of an excellent quality of light, hard, painted and burnished fabrics.

The EH II settlement is represented by two levels of habitation (third meter of deposit, sixth and seventh levels of habitation), as shown at the 1976 stratigraphic trench, or the first meter below the surface, both of which show concentration into an area of about 7,000 m². The houses of the second EH II level were built after the settlement

was planned. This unique and advanced conception of "urban" organization is demonstrated by a major street and secondary alleys which provide access to each house and allow convenient growth.

The 20 identifiable houses vary in size and design, obviously to accommodate residents' needs. They are all rectilinear, and there is no evidence of a second floor. The foundations of earlier EH II houses, from the first EH II level, were utilized as an additional support to house walls of the upper settlement. Stone foundations indicate that the roofs of larger rooms were occasionally supported by wooden pillars. Roofs were commonly constructed of wooden sticks plastered with mud, while floors were usually paved with small stones and sherds, making them moisture proof.

The walls average 0.50 to 0.55 m in width, and are built in the herringbone masonry style; approximately 2 feet at the lower level were constructed with unfaced stones, and sun dried brick was used for the upper parts. Some walls were shared, others were not. The mason's concern for supporting and protecting the walls is evidenced by the occasional buttresses, and by measures taken to divert rainwater from the foundations of a few houses.

Hearths were sometimes located at the corners or near the centers of rooms. Stone benches alongside the inner walls are a common feature; less common are the small votroi.

The finds are most impressive. The eggshell quality of the clay of the small saucers is indicative of a technology known only from Lithares and Raphina at this time. The pottery fabrics in general are very good; the clay varies in accordance with the type of vase but for the most part is light and hard. The colors of the various slips are bright, and those which range between red, brown, and black are practically always burnished, while those with white, pink, and yellow slips are not. The shape of the pottery is also varied, showing both local Boeotian characteristics and outside influences. Among the artifacts unique for their artistic merits are the animal figurines.

The economy of the community had to be based on agriculture, for which the land is ideal. The heavy accumulation of certain items in one or two locations of the settlement, such as obsidian, sauceboats, and figurines, may suggest some form of specialization of activities. The people of Lithares kept in contact with their close (and possibly distant) neighbors. Their trade enterprise is attested by the Melian obsidian and the lead from Sounion and Siphnos.

The lack of fortifications shows no fear of enemies. The cause of destruction and/or abandonment of EH Lithares remains unknown; there is no evidence of a new culture moving in. Whatever it was impacted the community at a time of prosperity.

Lithares is distinguished for its advanced urban organization, its technology in pottery fabrics, and its art. It was one of the most important settlements of its time.

Appendix I

Molluscs from Early Bronze Age Lithares

David S. Reese

This appendix deals with the marine, freshwater, and land snails collected during the excavation at Lithares.

Marine Shells

The vast majority of the marine shells (pl. 24i-p), 81 percent, are rocky shore forms (Arca, Spondylus, Patella, Murex, Cerithium, Monodonta), while only 13 percent are forms which lived buried in sand or mud (Venus, Cerastoderma, Acanthocardia, Mactra, Tapes, Venerupis). The vast majority come from the more common EH II deposits; only 8 of 101 individuals are from EH I. No difference in molluscan exploitation appears over time and between the various contexts.

Just under half (44.9 percent) of the marine shells, including 34 percent of the Arca and 91 percent of the Spondylus, were definitely collected dead, as shown by their worn condition, and are therefore not food debris. Many of the other shells may have been collected on the beach shortly after death, before becoming beach and waterworn. A few of the shells may have been used as ornaments, such as the Arca holed in the center of the body from room 24 and the holed Ostrea (collected dead) from room 45. Other shells may have been used in some utilitarian manner, such as pottery burnishers or small containers. The Charonia body fragment from room 38 does not provide evidence that this shells was used as a trumpet.

Marine molluscs have been reported from a number of EH sites. At Aghios Kosmas there are Arca, Spondylus, Cerastoderma, Ostrea, Glycymeris (Dog-cockle, Bittersweet clam, Comb-shell; melokindono), Pecten (Scallop; kteni), Mythilus (Mussel; mydi), and Murex brandaris (Mures; porphyra) (Mylonas 1959:148, fig. 37). Shells were found in house G (ibid., 11, 35) and "They were also found in the area of the graves" (ibid., 148).

At the mainly EH II site of Lake Vouliagmeni, Perakhora, of 152 marine shells 25.7 percent are Glycymeris, 19.7 percent Chlamys (Scallop; kteni), 13.8 percent Patella, 12.5 percent Ostrea, 7.2 percent Arca, 4.6 percent Murex, and 3.9 percent Spondylus (personal analysis). The majority of these shells were collected dead and are not food debris.

Of the shells from prehistoric Corinth (Walker-Kosmopoulos 1948:40, note 2) it is said that "they seem to have been used only for food: for there is no trace of their use as ornaments" (ibid., 66).

The EH site of Zygouries has produced one unidentified shell from tomb VII (Blegen 1928:47).

In the Argolid there are EH shells from Asine. Lerna has produced 8,641 marine shells from all periods, with 618 being from 426 individuals from uncontaminated EH II levels (Gejvall 1969: table 4; Reese 1981: tables 1, 2). EH I material is not present at Lerna. The material available for restudy (Reese 1981:2, n. 1, catalogue) suggests that most of it is unworn and likely to be food debris.

Freshwater Shells

There are remains of four or five freshwater bivalves, mainly Unio, from three deposits:

<u>Context</u>	<u>Date</u>	<u>Item</u>
Stratigraphy 2.25 to 2.35 m	EH I	Unidentifiable fragments
Room 31 (upper first meter)	EH II	2 <u>Unio</u> (one to two individuals)
Room 32	EH II	2 <u>Unio</u> (two individuals)

Unio are common today in Lake Hylike, and it is surprising that more were not found in the excavation. They are edible and have been used ornamentally at numerous Mediterranean archaeological sites.

At Zygouries there were "many freshwater mussel shells" (probably Unio) found in a plasterlined drain trap (Blegen 1928:38).

From Perakhora, like Lithares situated on a lake, there is only one fragment of a large Unio shell from an early EH II deposit.

Land Snails

There are 227 land snails (pulmonate gastropods) from Lithares, mainly of one species of the large and edible Helix. Some of these shells, especially those from rooms 11, 31, and 45 and the dromos outside rooms 28 and 30, still have color bands, which suggests they are not very old. Since the site was excavated over a number of years and the settlement is only 60 to 70 cm below the modern ground surface, it is likely that they are, for the most part, intrusive. In fact, 161 snails found (71 percent) came from the upper first meter of deposit.

None of the Lithares Helix can definitely be considered food remains. This determination is usually possible only when the shells are found in vessels. The small Rumina is never eaten; it lives in dry open places, mostly in calcareous soils, on waste ground, scrub, and grassy screens.

The EH II material at Perakhora produced 151 land snails, including Helix and Rumina, from 10 deposits. Most of these shells came from one destruction deposit.

All periods at Lerna produced 82 Helix (a different species than that found at Lithares and Perakhora) and 4 Rumina. The presence and absence of land snails from various periods have been seen as evidence for changes in the environment (Gejvall 1969:56).

Distribution of Lithares Land Snails

The distribution of land snails is given by context, date, and type:

<u>Context</u>	<u>Date</u>	<u>Helix</u>	<u>Rumina</u>
Stratigraphy 2.05 m	EH I	2	-
Upper first meter of deposit	EH II	1	1
Room 10*	EH II	8	1
Room 11*	EH II	43	-
Room 24	EH II	2	1
Dromos outside room 28	EH II	30	1
Dromos outside room 30*	EH II	10	-
Room 31*	EH II	39	-
Room 32	EH II	30	-
Room 38*	EH II	28	-
Room 39*	EH II	6	-
Room 40*	EH II	5	-
Room 45*	EH II	19	-
Total		223	4

*Upper first meter of deposit

Conclusion

The Lithares marine shells were brought about 15 km from the sea and used in some ornamental or utilitarian fashion. They are not food remains as evidenced by the beach and waterworn condition of many of the shells. About 69 percent of the marine shells are Arca and Spondylus, forms found at the other EH sites, but not in the frequency found at Lithares. The other sites with shell counts (Perakhora and Lerna) indicate a quite different utilization. Perakhora is similar to Lithares in that both sites are situated on a lake shore (but make little use of freshwater bivalves) and that most of the marine shells found were collected from dead snails.

The land snails from Lithares and all other EH sites noted here do not indicate snail consumption, but are probably intrusive.

Appendix II

Obsidian Hydration Tests on Artifact Flakes

Fred W. Trembour

The excavator of the Lithares site, Prof. H. Tzavella-Evjen, provided 44 obsidian artifacts for a dating study based on surface hydration analysis. Most of the pieces were prismatic blade fragments presumed to have come from quarries on the Aegean island of Melos. However, no chemical characterizations were undertaken to prove the source. The hydration analysis followed the principles and laboratory procedures of Friedman and Smith (1960), Friedman and Long (1976), and Friedman and Trembour (1978).

All measurement results for the hydration depth of 41 sample pieces are shown in figure 37. The hatched bars in the histogram mark six pieces which, in the judgement of the excavator, were most closely associated with the destruction of the settlement at the end of EH II. Therefore, the mean hydration depth of these six items, 3.4 μ - (micrometer), and date of ca. 2200 B.C. were chosen as the basis for estimating the intrinsic hydration rate of the obsidian under the environmental conditions of the site. From the exponential nature of the hydration process as formulated by Friedman and Smith (1960), the intrinsic hydration rate of Lithares material calculates as 2.8 (μ)² per 1000 years.

Three additional obsidian flakes recovered from lower excavation levels than those discussed above were subsequently tested and found to have 12.9, 16.5, and 17.2 (μ)² of hydration, respectively. Applying the calculated intrinsic rate, these three values convert to ages of approximately 2640, 3920 and 4170 years B.C., respectively, with corresponding depths of 2.15 to 2.25, 2.25 to 2.35, and 2.75 m. The upper two levels produced EH I material (see "Stratigraphy," p. 9); the lower level did not produce identifiable pottery.

However, there is reason to question this outcome of applying the estimated intrinsic hydration rate of Lithares artifact obsidian. In the opinion of the excavator, the stratigraphic evidence does not allow dating of any habitation level into the early fourth or fifth millenium B.C. Accepting this, then, some other factor than purely elapsed time must be identified to account for the unduly deep hydration of some of the specimens. This writer believes the most likely factor is exposure to excessive temperature at some time during the life of the anomalous flakes. The writer, in an unpublished study of artifact obsidian recovered from areas prone to forest fire damage in the American Southwest, has demonstrated that such an effect can occur. Furthermore, prolonged heating by direct insolation of near surface deposits may also cause abnormally deep hydration and hence inflated age conversions. The excavator has reported indications in the soil of significant burning at various locations of the Lithares site. This potential problem of past thermal disturbance may be clarified if further studies are carried out there. In the meantime, it is recommended that the hydration data be limited to relative time seriation of the items rather than to absolute dating attempts.

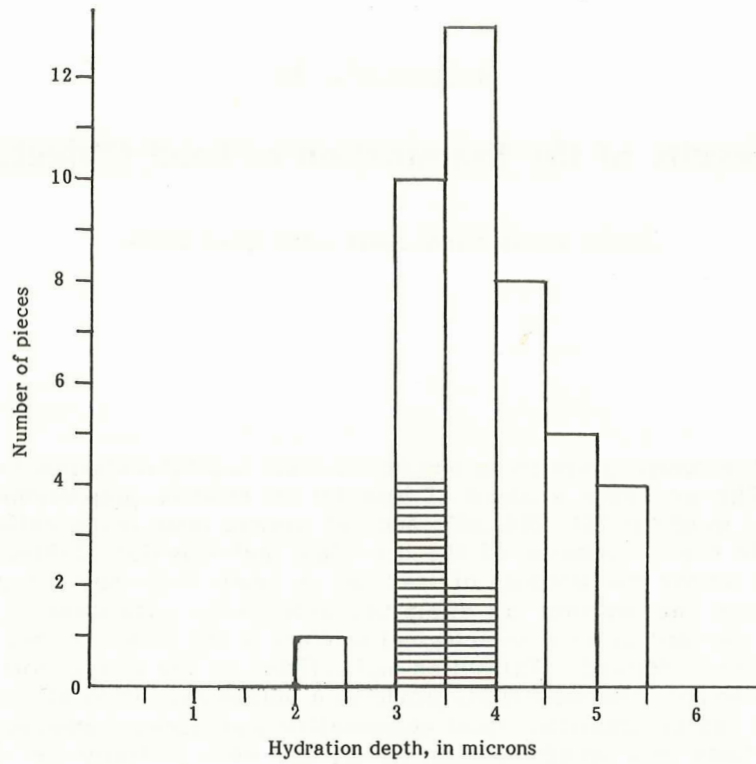


Figure 37. Histogram of hydration rind depth measurements on 41 obsidian artifact pieces excavated from EH II (2400-2200 B.C.) strata at Lithares, Greece. Shaded bars mark pieces associated with the destruction of the settlement.

Appendix III

Results of the Examination of Lead Objects

Zofia Anna Stos-Gale and Noel Gale

Lead has proved in recent years to be one of the most helpful materials to science-based archaeology. The accurate analysis of lead for its relative proportions of the atoms (isotopes) of lead weighing 204, 206, 207, and 208 atomic mass units, called lead isotope analysis, reveals the provenance of the ore (Gale and Stos-Gale 1981b:176-192). The mass differences among the isotopes of lead are so small that they are not measurably fractionated from one another by chemical processes; consequently, the isotopic composition of the lead in an archaeological artifact is the same as that of the lead in the ore from which it derived. Extraction and refining of the metal from the ore leave the lead isotope composition unaltered, providing a unique indication of the ore source of the metal which can be identified from comparative lead isotope analyses of ores from ancient mines. Lead ores usually contain silver, and were probably the chief source of silver in antiquity.

Some archaeologists have been unwilling to entertain the idea that lead silver sources in the Aegean were exploited early and have suggested Anatolia, Spain, or Portugal as sources of these metals to the Aegean in the Bronze Age. Our analyses, however, of lead objects from the Early Minoan cemetery on Mochlos, and of silver and lead Early Cycladic artifacts (Gale and Stos-Gale 1981a:168-224), as well as of evidence from the exploration of the mines on Siphnos and in Thorikos (Spitaels 1983), indicates that both the Siphnian and the Lavrion lead/silver deposits have been exploited from the Early Bronze Age.

It therefore does not come as a surprise to find that both EH II lead objects excavated in Lithares (pl. 24e, f) are made from Grecian ores (table 6). An object shaped in the form of a colure cone, which is possibly a weight, originates from Siphnian ore; and a spool-shaped object is from Lavrion in Attica. The results of chemical (neutron activation) analysis of these two objects are given in table 7.

The concentration of all the elements measured is well within the typical range for the Bronze Age lead objects from the Aegean. The high silver content proves that the lead does not come from the reduction of litharge obtained by cupellation. Analysis of numerous lead and litharge samples reveals that the silver content in litharge seldom rises above 100 ppm. The level of silver concentration in the ore at which it was possible, or economical, to extract the metal by cupellation seems to be about 700 to 800 grams of silver per ton in the Middle and Late Bronze Age. The amount of 1023 ppm of silver in the colure cone is rather high, but not unusually so, particularly in light of its origin from Siphnos, which is famous for silver-rich ores.

Table 6. Lead Isotope Results

Objects	$^{206}\text{Pb}/^{204}\text{Pb}$	$^{207}\text{Pb}/^{204}\text{Pb}$	$^{206}\text{Pb}/^{204}\text{Pb}$
Spool	2.05856	0.83214	18.804
Colure cone	2.07497	0.83763	18.701

Table 7. Chemical Analyses Results (PPM)

Objects	Gold	Copper	Arsenic	Lead	Silver
Spool	0.14	753	11	1019	191
Colure cone	0.37	1064	5	350	1022

Abbreviations

<u>AAA:</u>	<u>Archaiologika Analekta ex Athenon.</u>
<u>AJA:</u>	<u>American Journal of Archaeology.</u>
<u>Arch Eph:</u>	<u>Archaiologike Ephemeris.</u>
<u>BCH:</u>	<u>Bulletin de Correspondance Hellenique.</u>
<u>BSA:</u>	<u>Annual of the British School at Athens.</u>
<u>Deltion:</u>	<u>Archaiologikon Deltion.</u>
<u>DS:</u>	<u>C. Tsountas, <u>Ai Proistorikai Akropoleis Dimeniou Kai Sesklou.</u></u> <u>Athens, 1908.</u>
<u>JHS:</u>	<u>Journal of Helladic Studies.</u>
<u>Praktika:</u>	<u>Praktika tes Archaeologikes Etaireias.</u>

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a



b



c



d



e



f

Plate 1. (a) Lithares, looking west; (b) Lithares, looking east; (c) remains of wall from Lake Hylke; (d) first test trench to the north; (e) last test trench to the north; (f) third test trench to the west.



a



b



c

Plate 2. (a) Fourth test trench to the west; (b) fifth test trench to the west; (c) sixth test trench to the west.

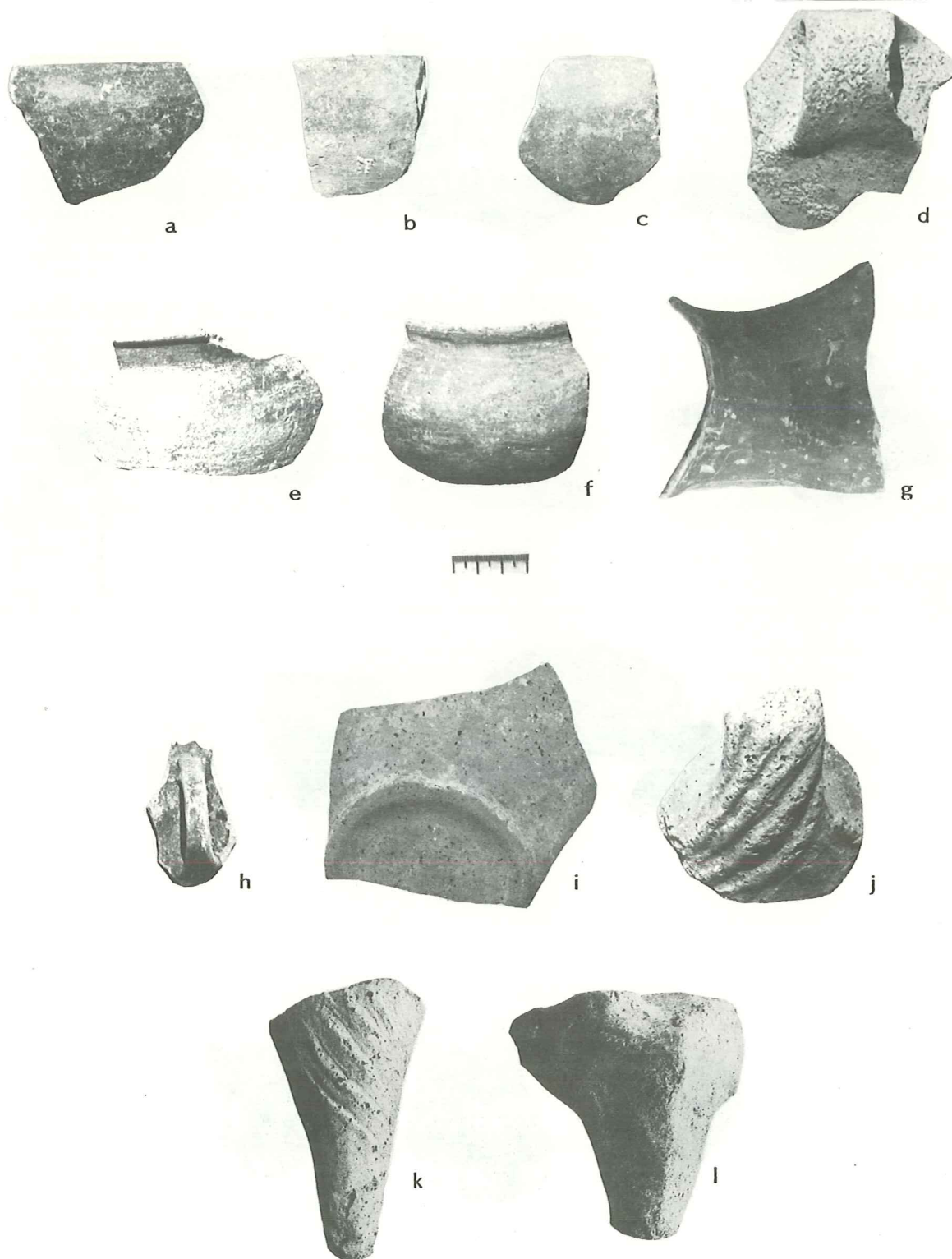


Plate 3. (a-g) Pottery from depth of 0.7 m, stratigraphy 1970-1971; (h-l) pottery from depth of 0.7 to 0.95 m, stratigraphy 1970-1971.

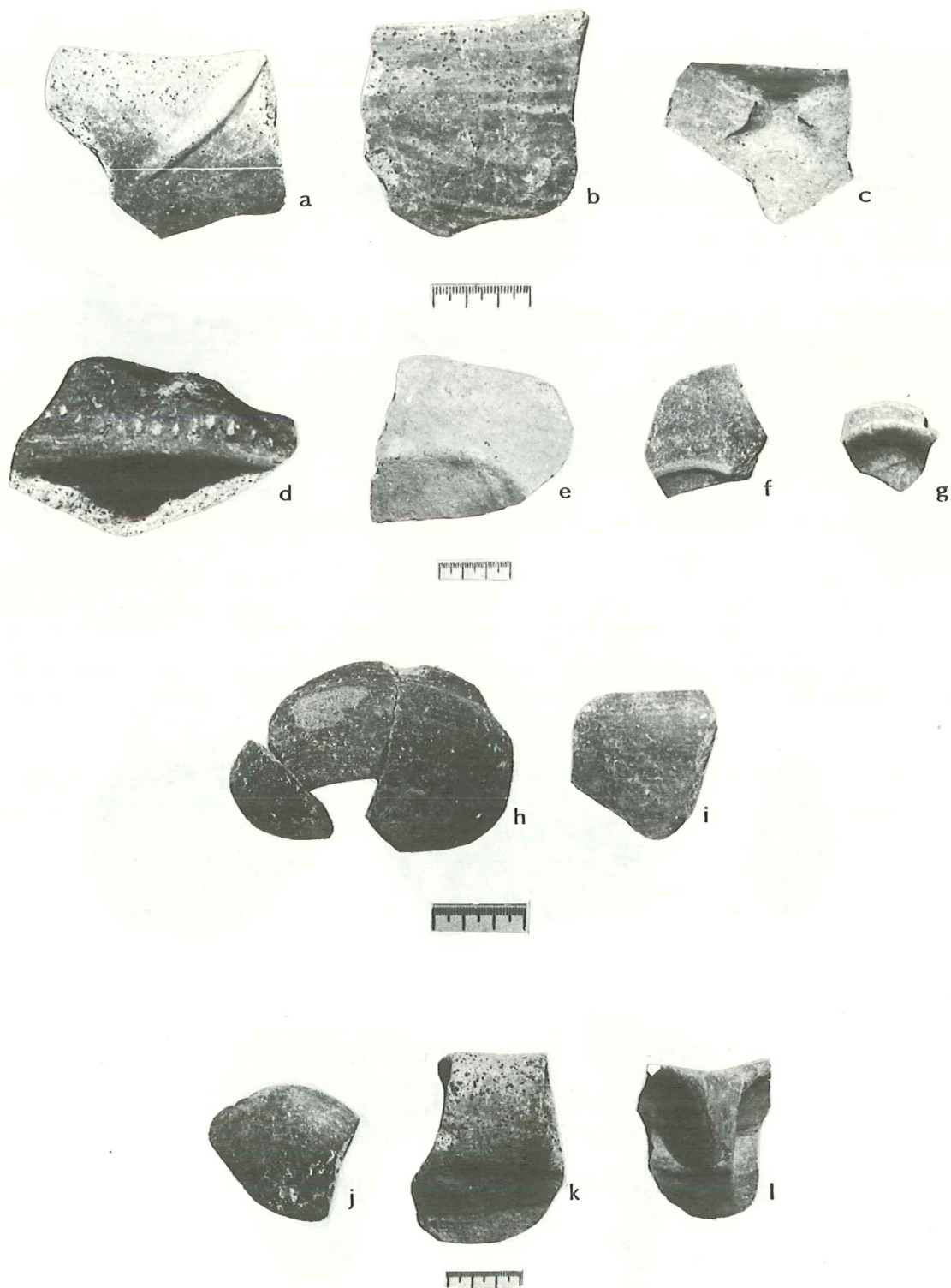


Plate 4. (a-g) Pottery from depth of 0.95 to 1.2 m, stratigraphy 1970-1971; (h-l) pottery from depth of 1.2 to 1.8 m, stratigraphy 1970-1971.

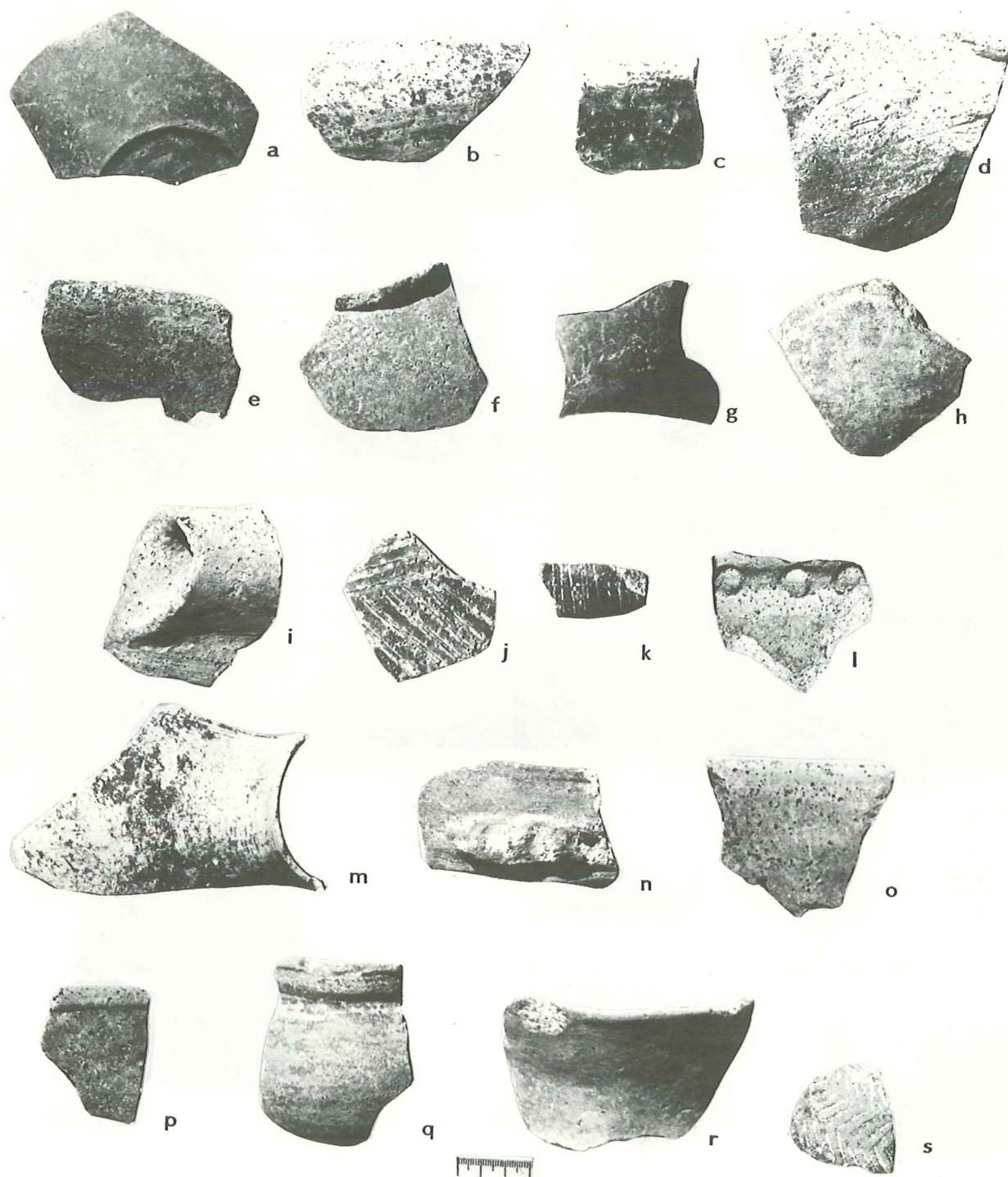


Plate 5. (a-l) Pottery from depth of 0 to 0.75 m, stratigraphy 1976; (m-s) pottery from depth of 0.75 to 0.95 m, stratigraphy 1976.

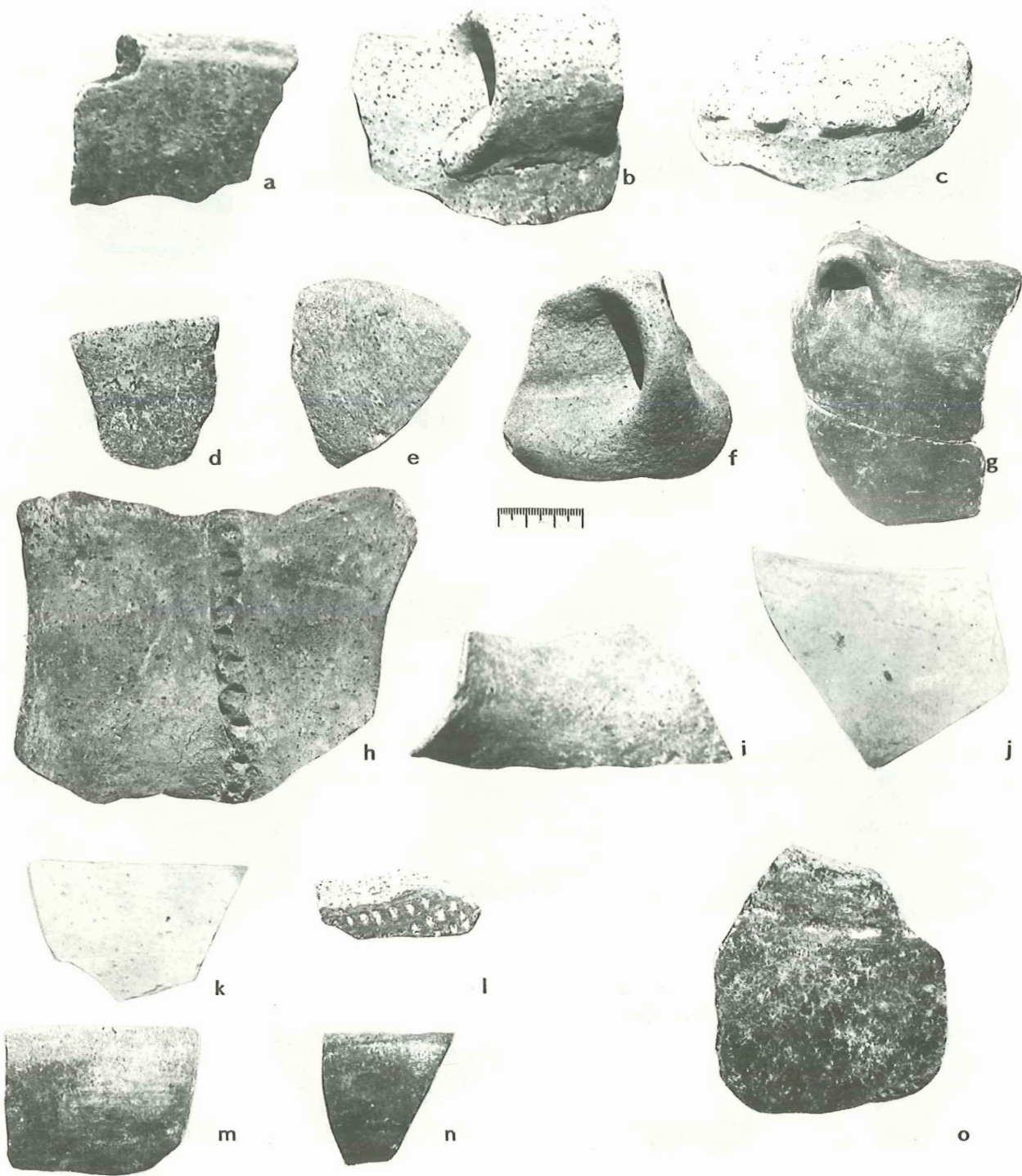


Plate 6. (a-l) Pottery from depth of ca. 1 to 1.45 m, stratigraphy 1976; (m-o) pottery from depth of 1.45 to 1.65 m, stratigraphy 1976.

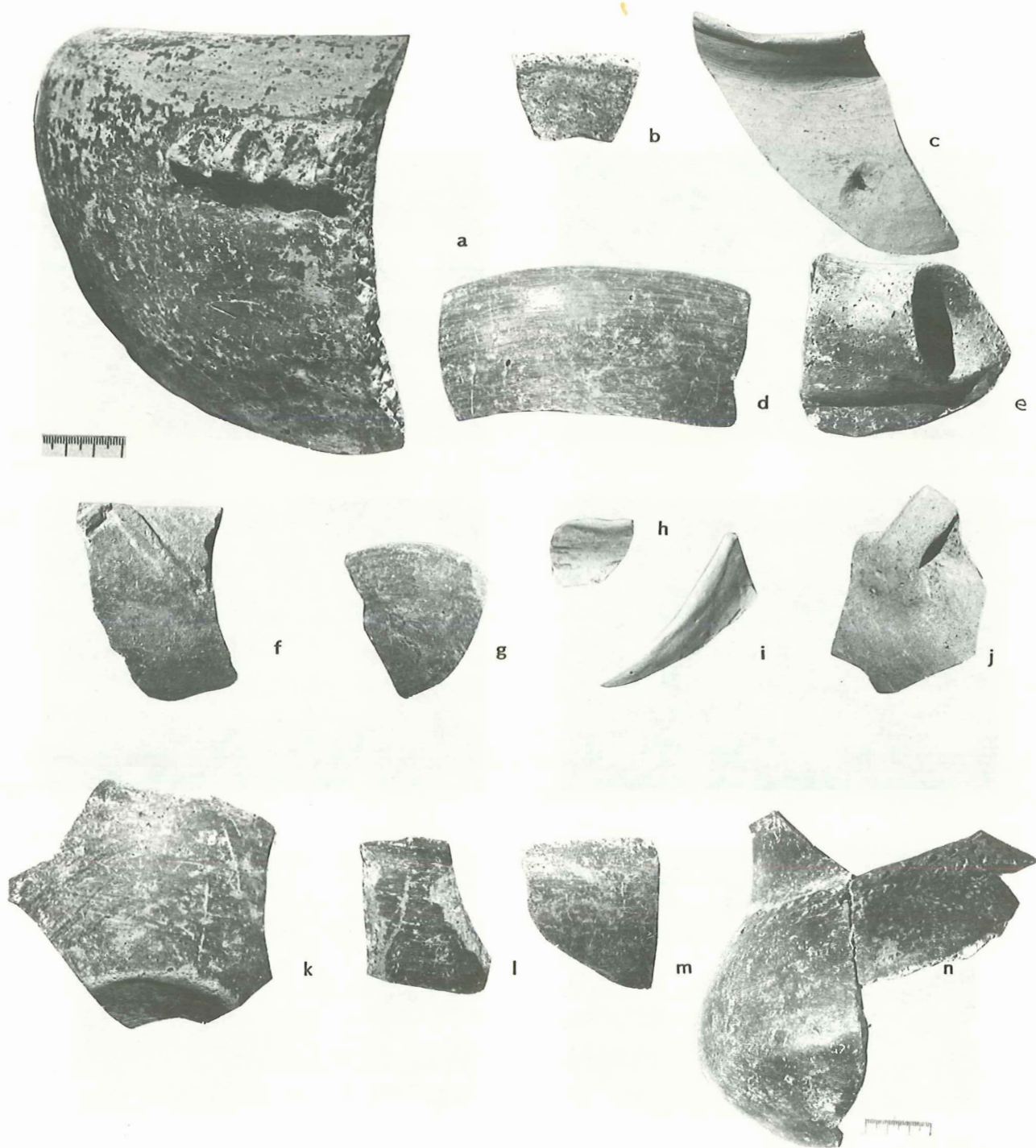


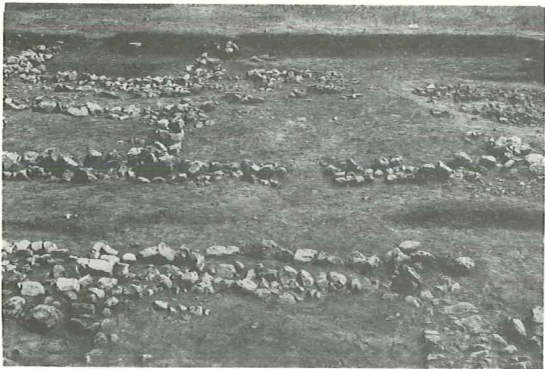
Plate 7. (a, b) Pottery from depth of 1.65 to 1.75 m, stratigraphy 1976; (c-g) pottery from depth of 1.75 to 2.35 m, stratigraphy 1976; (h-n) pottery from depth of 2.35 to 2.75 m, stratigraphy 1976.



a



b



c



d



e



f

Plate 8. (a) Room 1, looking south; (b) the "sanctuary," looking south; (c) north section of room 24 and the "sanctuary" across the road, looking northeast; (d) north section of room 3, looking southwest; (e) alley 9, room 6, and vestibule 5, looking southeast; (f) room 7, looking southeast.



a



b



c



d



e

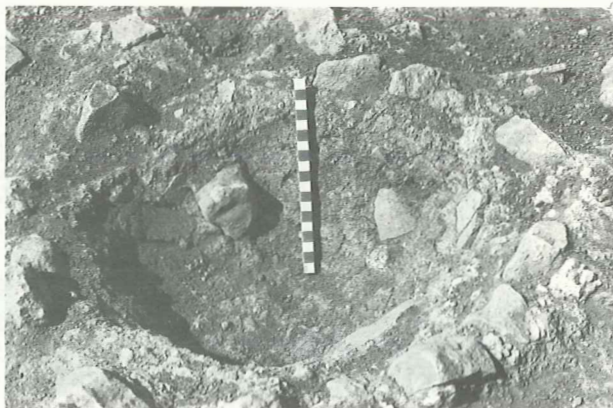
Plate 9. (a) Corridor 14, looking southwest; (b) room 11, looking southwest; (c) rooms 19 and 20, looking northeast; (d) room 27, looking northwest; (e) room 45, looking northwest.



a



b



c



d



e

Plate 10. (a) Floor pavement outside rooms 28 through 30; (b) room 21, pivot and floor pavement; (c) room 22, small vothros; (d) room 26, small vothros; (e) room 31, looking southwest.

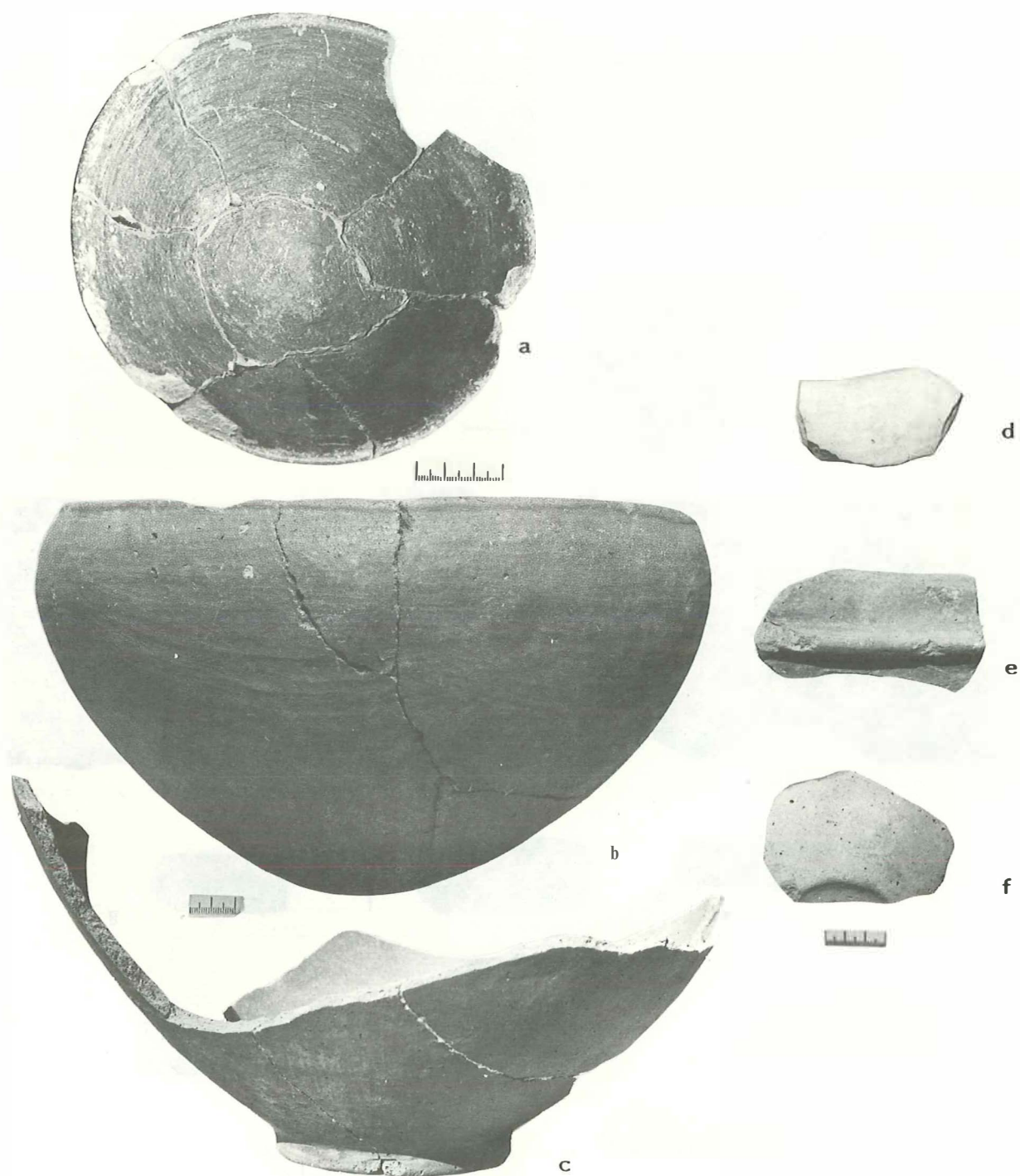


Plate 11. Group A bowls: (a) room 37; (b) room 28; (c) room 37; (d) room 13; (e) room 26; (f) room 7.

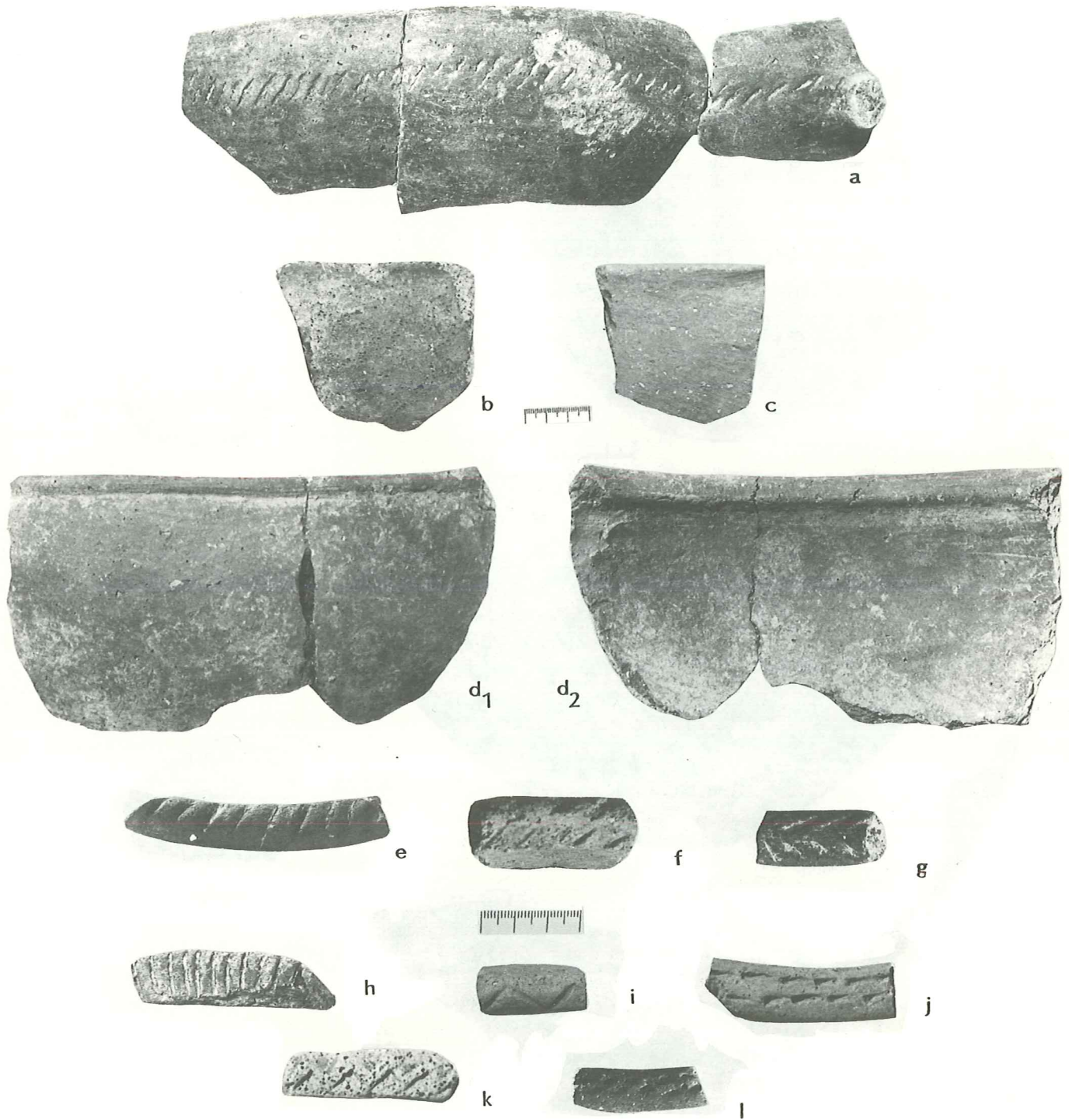


Plate 12. Group B bowls: (a) rooms 10, 22, and 34, stratigraphy 1976; (b-c) room 12; (d) with bowl interior view, room 34; (e) room 11; (f) room 26; (g) room 22; (h) surface; (i) room 35; (j) room 26; (k) room 34 (street); (l) room 46.

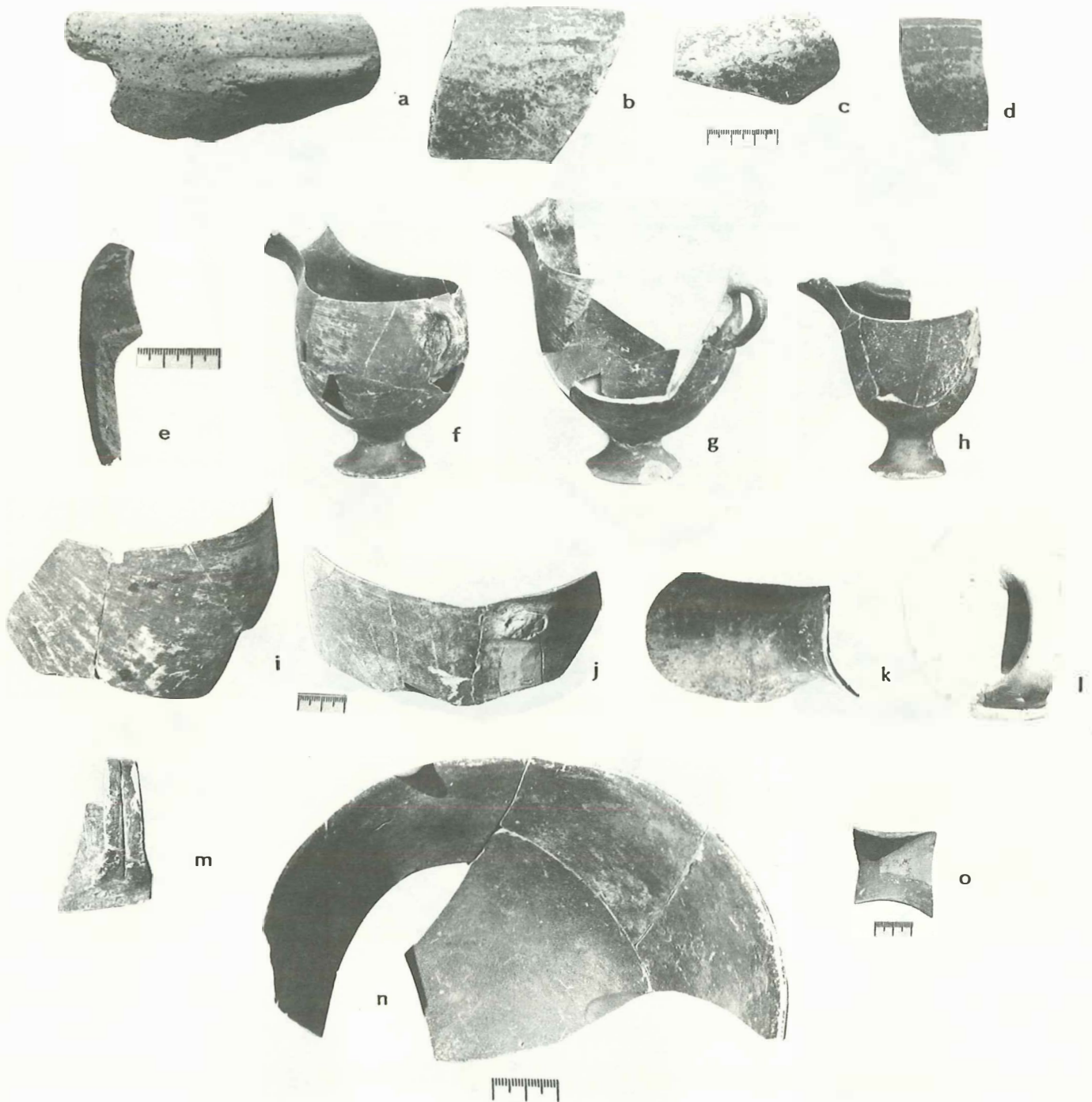


Plate 13. Group C bowls: (a) room 34; (b-c) room 10; (d) room 12; (e) room 18. (f) room 35; (g) room 36; (h) room 35; (i-j) room 40; (k) room 4; (l) room 13; (m-n) room 40; (o) room 4.

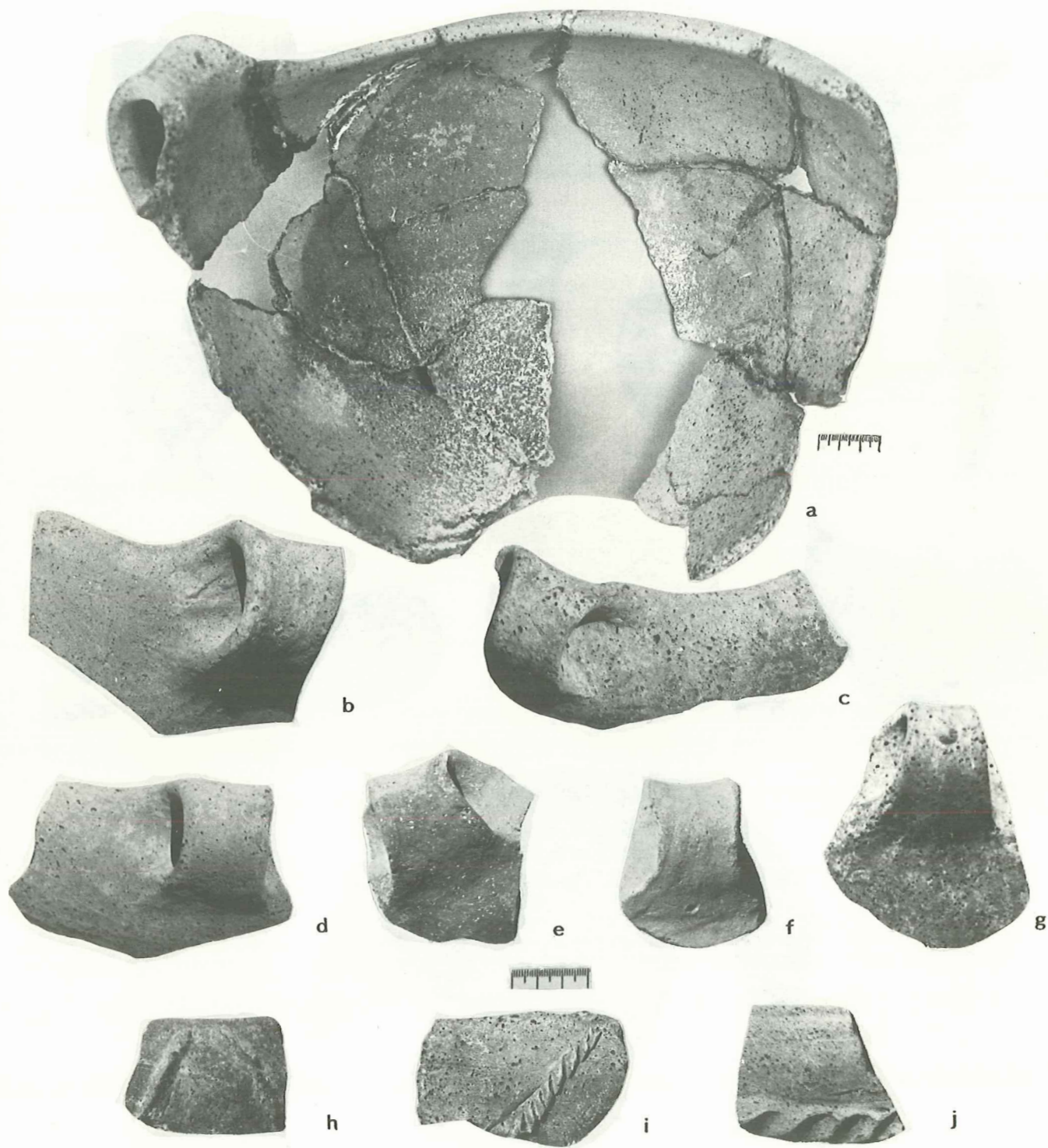


Plate 14. Group E bowls: (a) interior view of bowl, sanctuary; (b) room 22; (c-d) room 18; (e) room 12; (f) room 24; (g) room 10; (h) room 35; (i) room 12; (j) room 10.

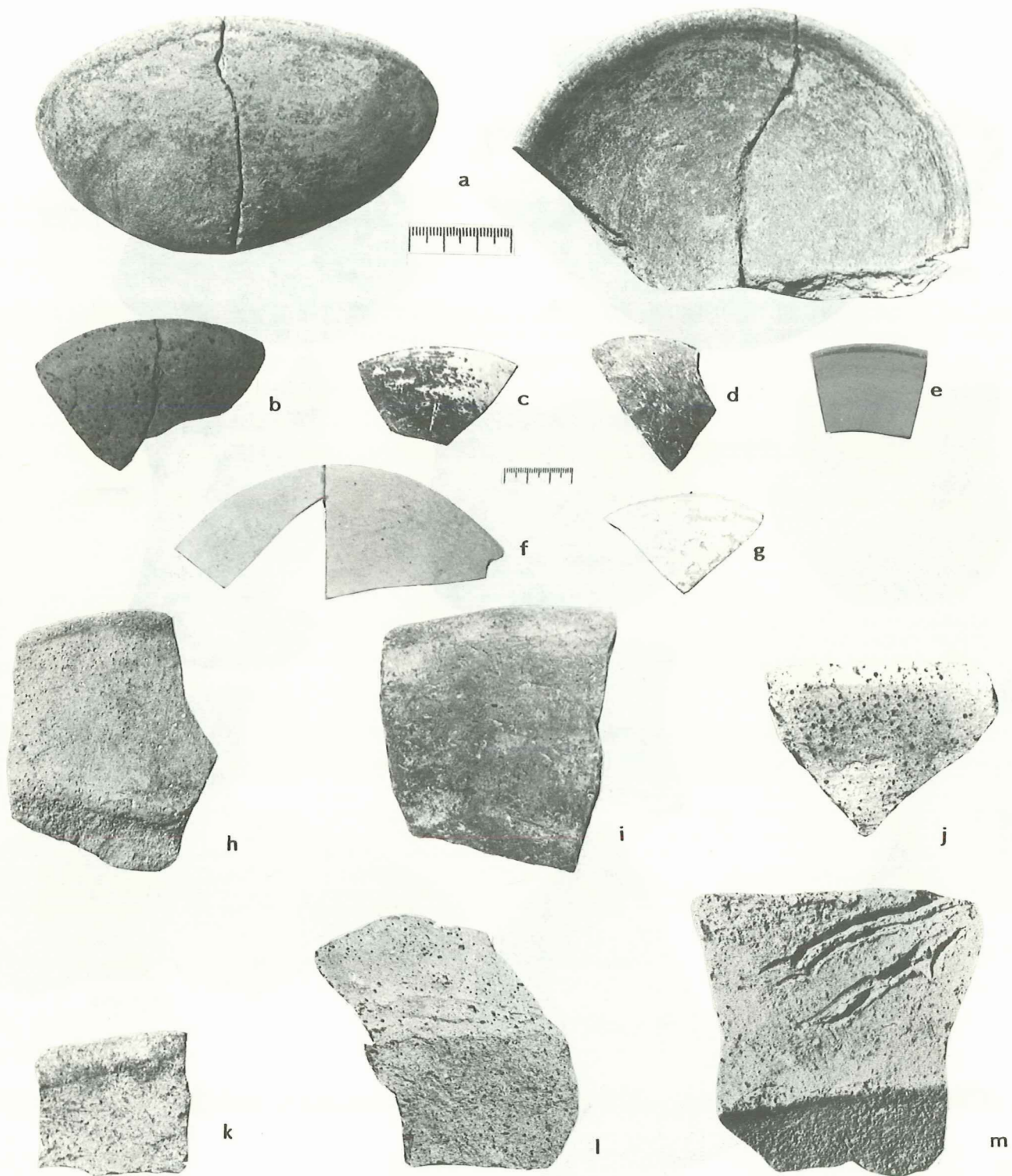


Plate 15. Small saucers: (a-a1) room 13; (b) room 45; (c-d) room 13; (e) room 5; (f) room 45; (g) room 13. Platters: (h) room 7; (i) room 10; (j) room 13; (k) room 13, (l) room 33; (m) room 24.

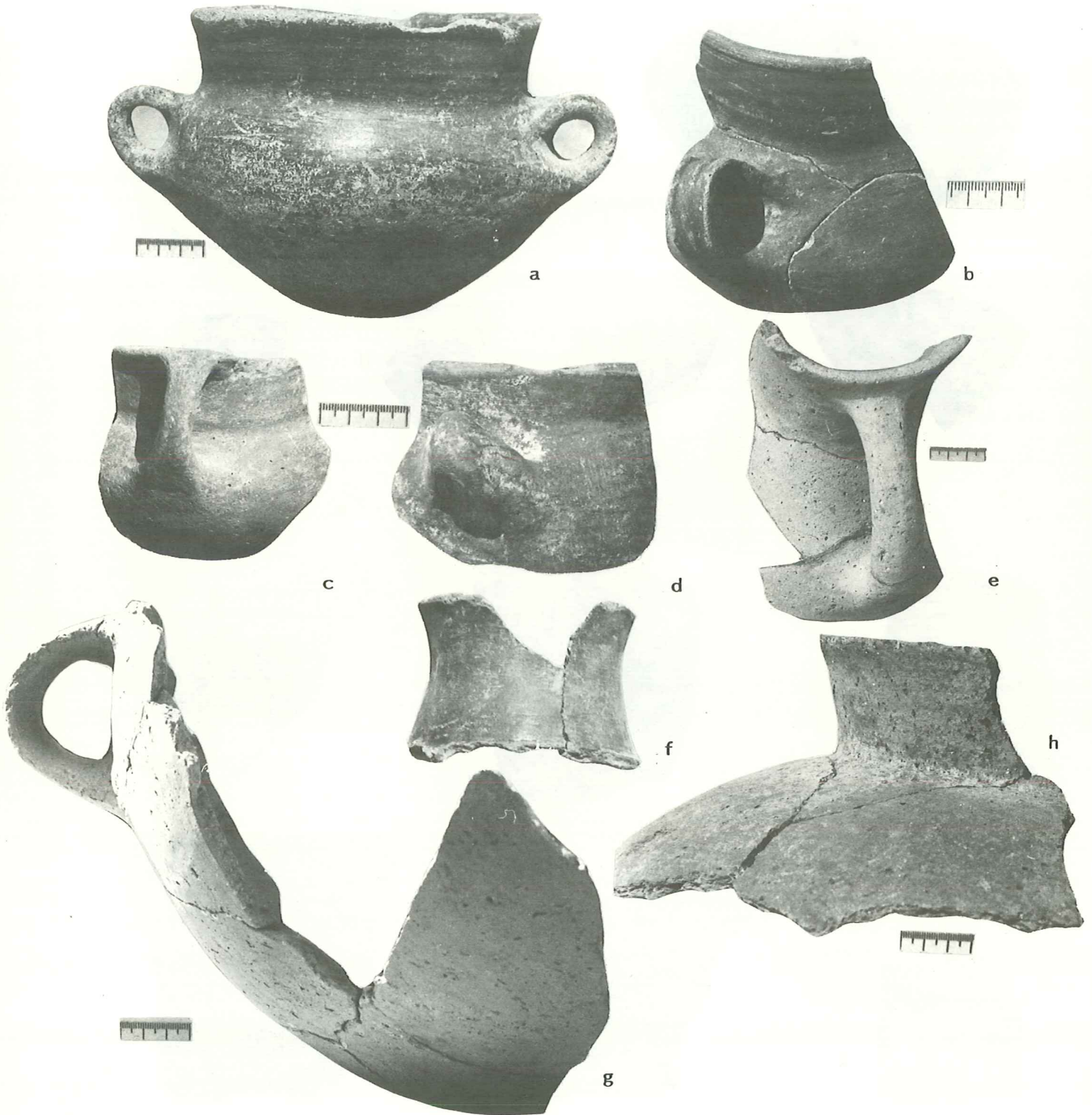


Plate 16. Skyphoi: (a) room 6 (street); (b) room 20; (c) room 17; (d) room 13. Jugs: (e) test trench S1-2, EH I context; (f) room 49. Hydriae: (g-h) room 35.

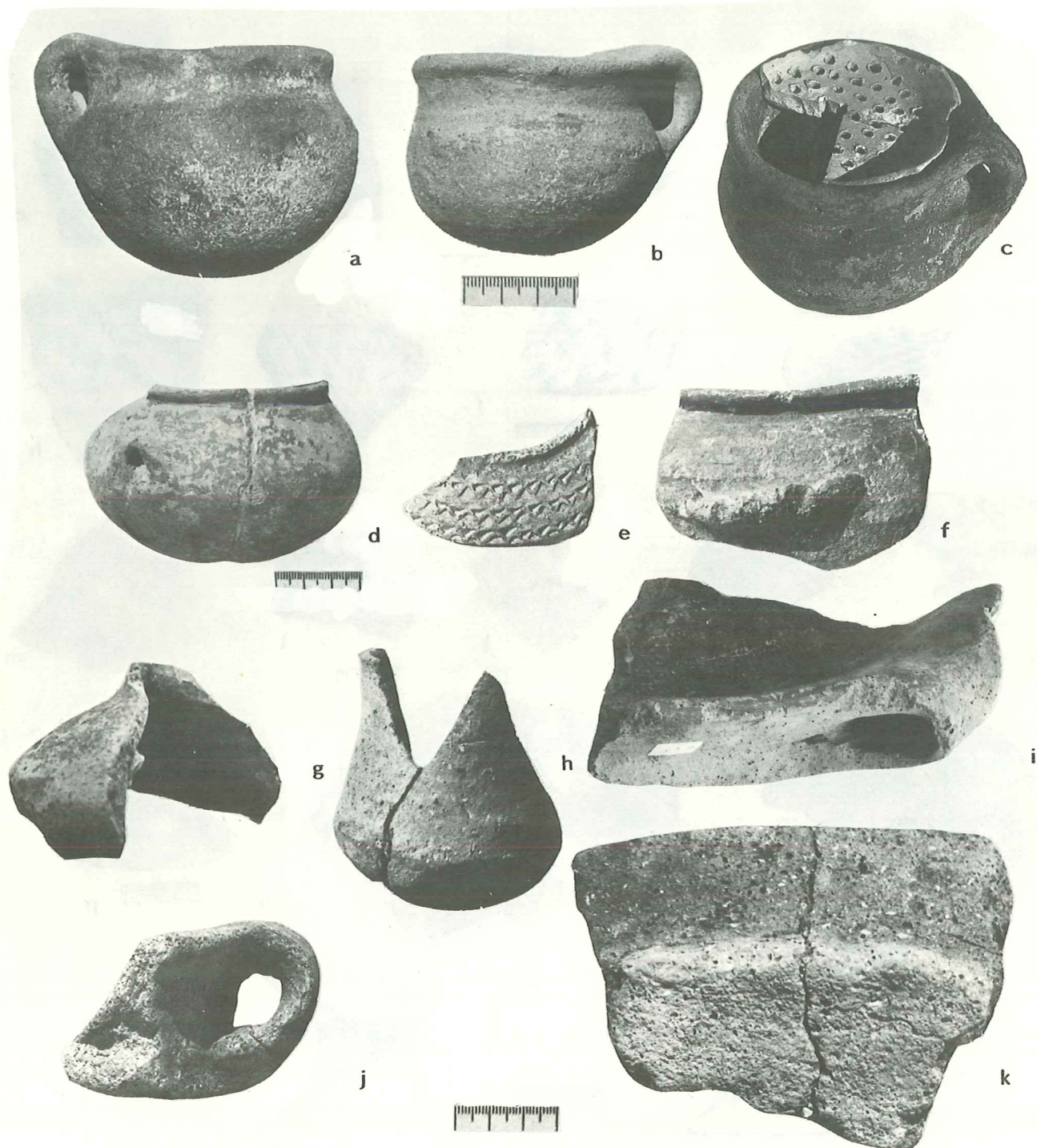


Plate 17. Cups: (a-b) room 28; (c) room 40. Pyxides: (d) room 31; (e) unstratified; (f) room 26; (g) room 40; (h) surface. "Frying Pans": (i) room 1; (j) room 45; (k) room 9.

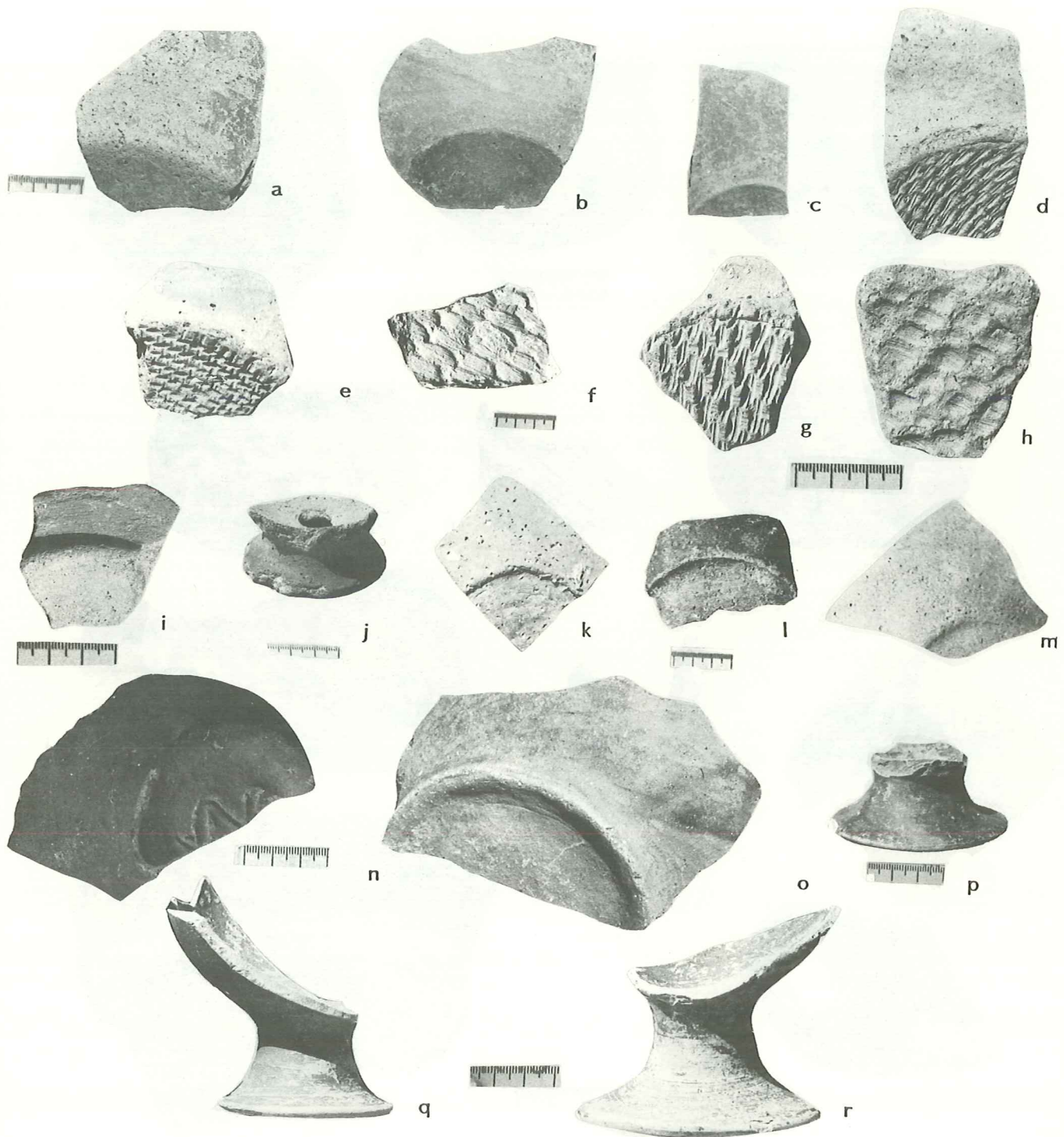


Plate 18. Flat bases: (a-c) room 28, mat prints; (d) room 21, (e-f) room 4, (g) room 28 (street); (h) surface. Outsplaying bases: (i) room 45. Perforated bases: (j) room 39. Convex bases: (k-m) room 11. Ring foot bases: (n) room 28 (street); (o) room 5. Conical bases: (p) room 45; (q) room 4; (r) room 40.

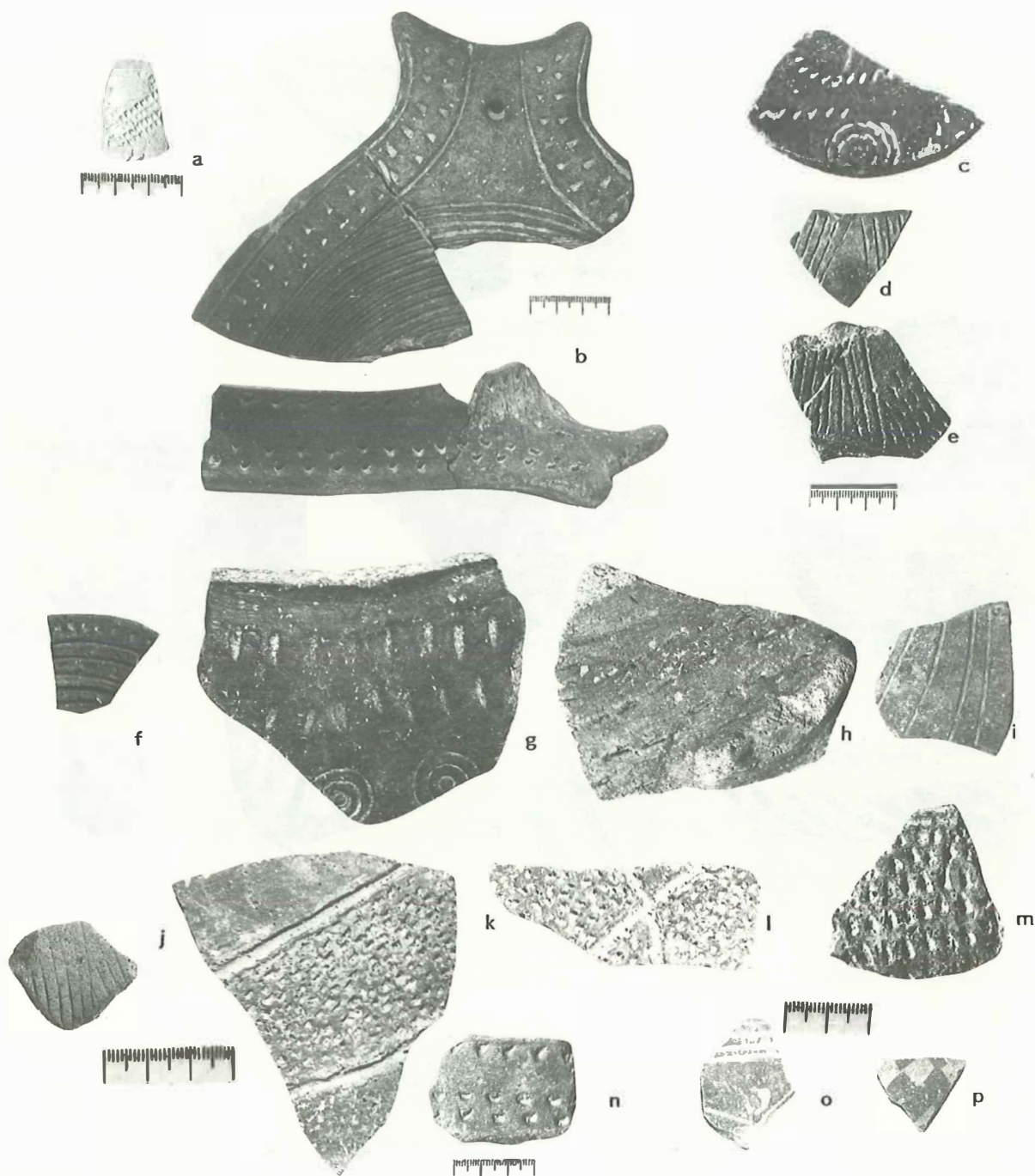


Plate 19. Pressed decoration: (a) room 26. Incised decoration: (b) room 13; (c-d) room 24; (e) room 31; (f) room 12; (g) room 12; (h) room 5; (i) room 13; (j) room 16. Flecked decoration: (k) room 9; (l) room 9; (m) room 28; (n) room 23. Painted linear pattern: (o) room 18; (p) test trench S1-2.

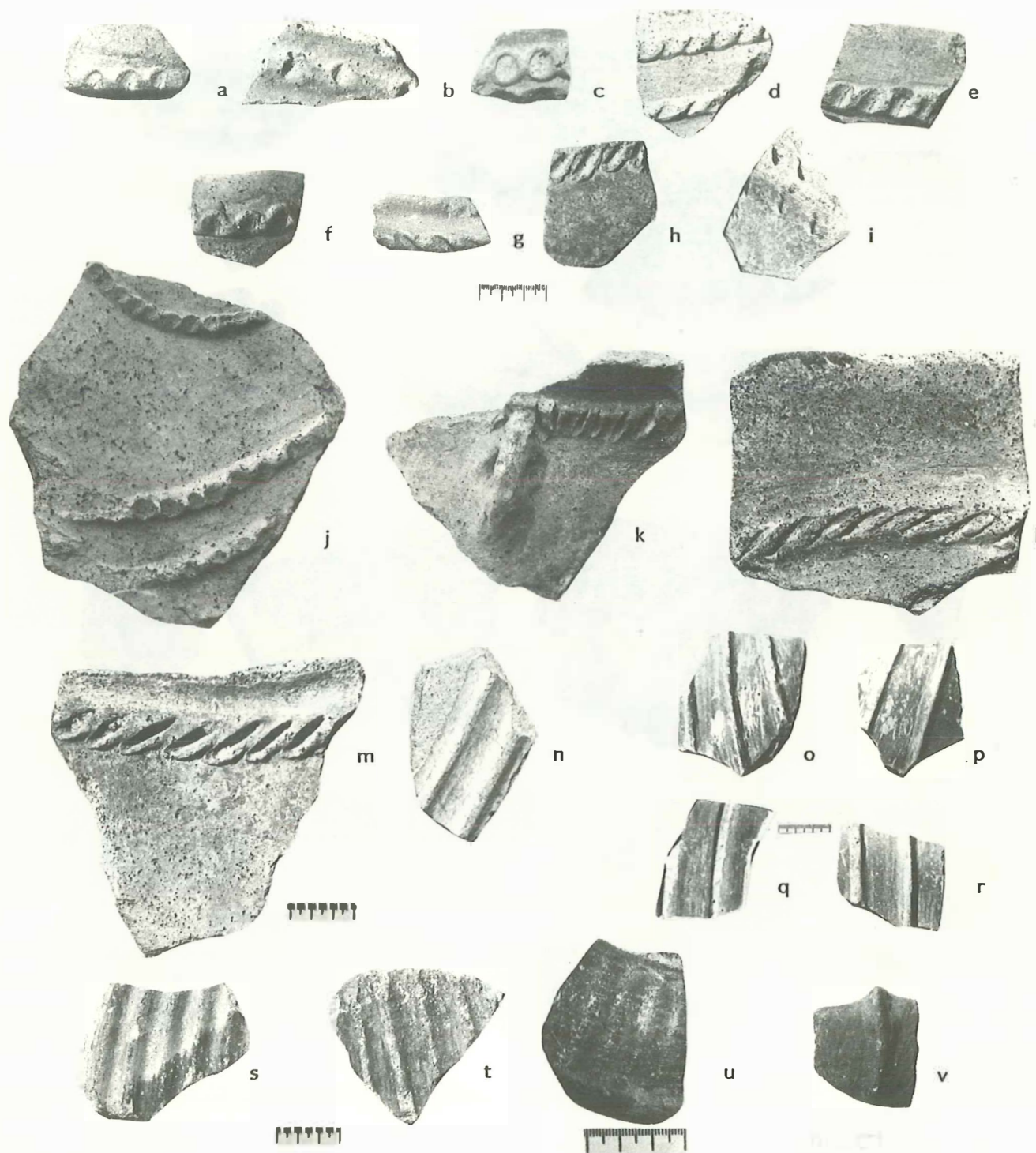


Plate 20. Relief decoration on bowls: (a) room 26; (b) room 24; (c-d) room 13; (e) room 26; (f) room 24; (g) room 26; (h) room 34; (i) room 12. Pithoi: (j) room 26; (k) room 4; (l) room 15; (m) room 11; (n) room 5 (street). Ribbed ware: (o-r) room 13; (s-t) room 7; (u) room 17; (v) test trench W3.

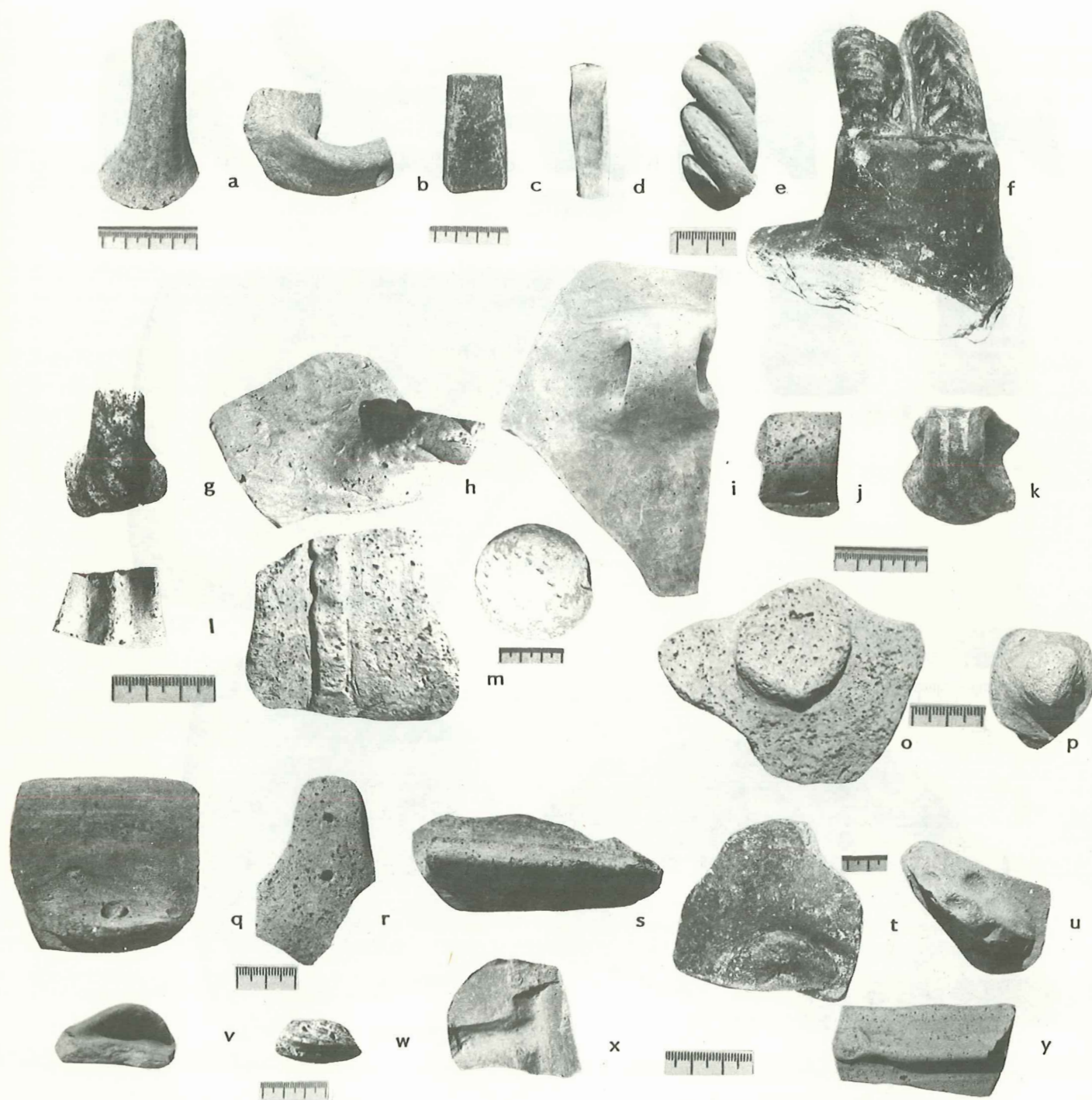


Plate 21. Handles: (a) room 23; (b) room 28; (c) room 34; (d) room 13; (e) room 47; (f) room 15; (g) room 10; (h) room 7; (i) room 25; (j-k) room 23; (l) room 15; (m) room 1; (n-p) room 12; (q) room 26; (r) room 1; (s-t) room 26; (u) sanctuary; (v) room 31; (w) room 11; (x) room 23; (y) room 29.

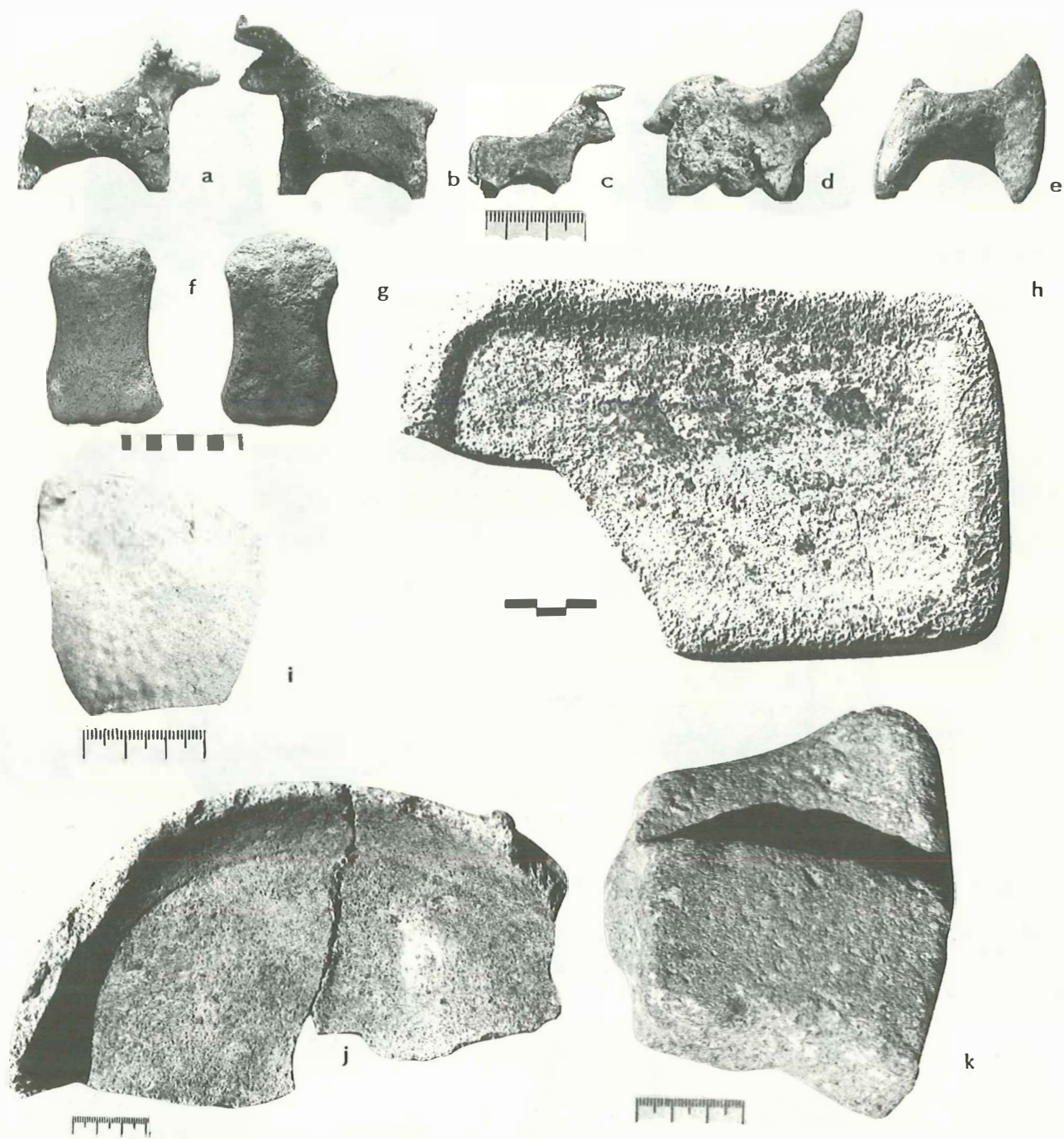


Plate 22. Figurines of animals: (a-d) sanctuary. Krateutes: (e) room 28. Male torso: (f, g) surface. Stone vessels: Table of offering (h) room 35; marble bowl (i) room 35; mortaria (j) room 7; (k) surface.

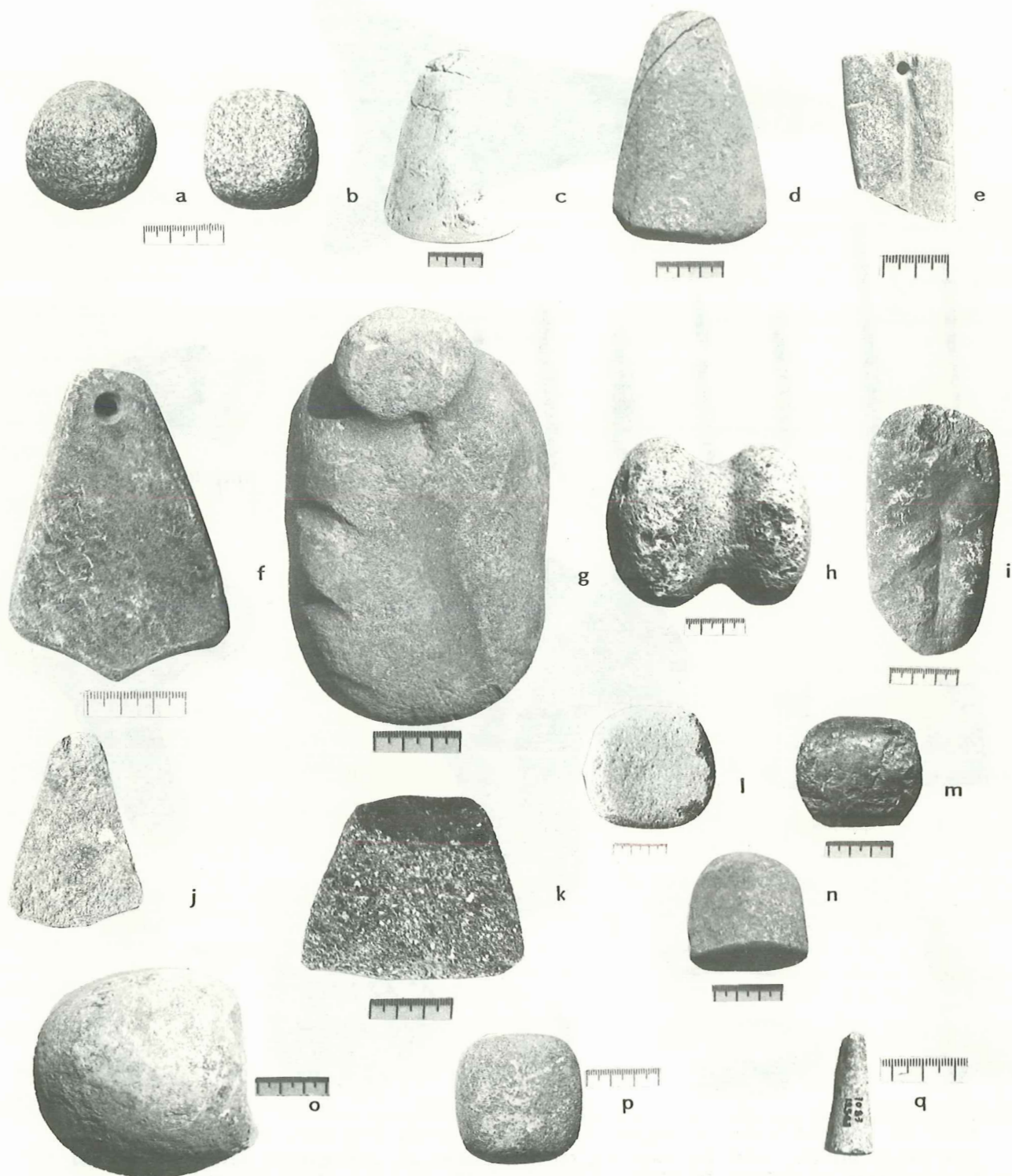


Plate 23. Stone implements: (a) room 31; (b) room 4 (street); (c) street; (d) street; (e) room 10; (f) room 3, (g) room 10; (h) room 49; (i) room 33; (j) room 15; (k) surface; (l) room 15; (m) room 12; (n) room 13; (o) room 45; (p) room 22; (q) room 7.

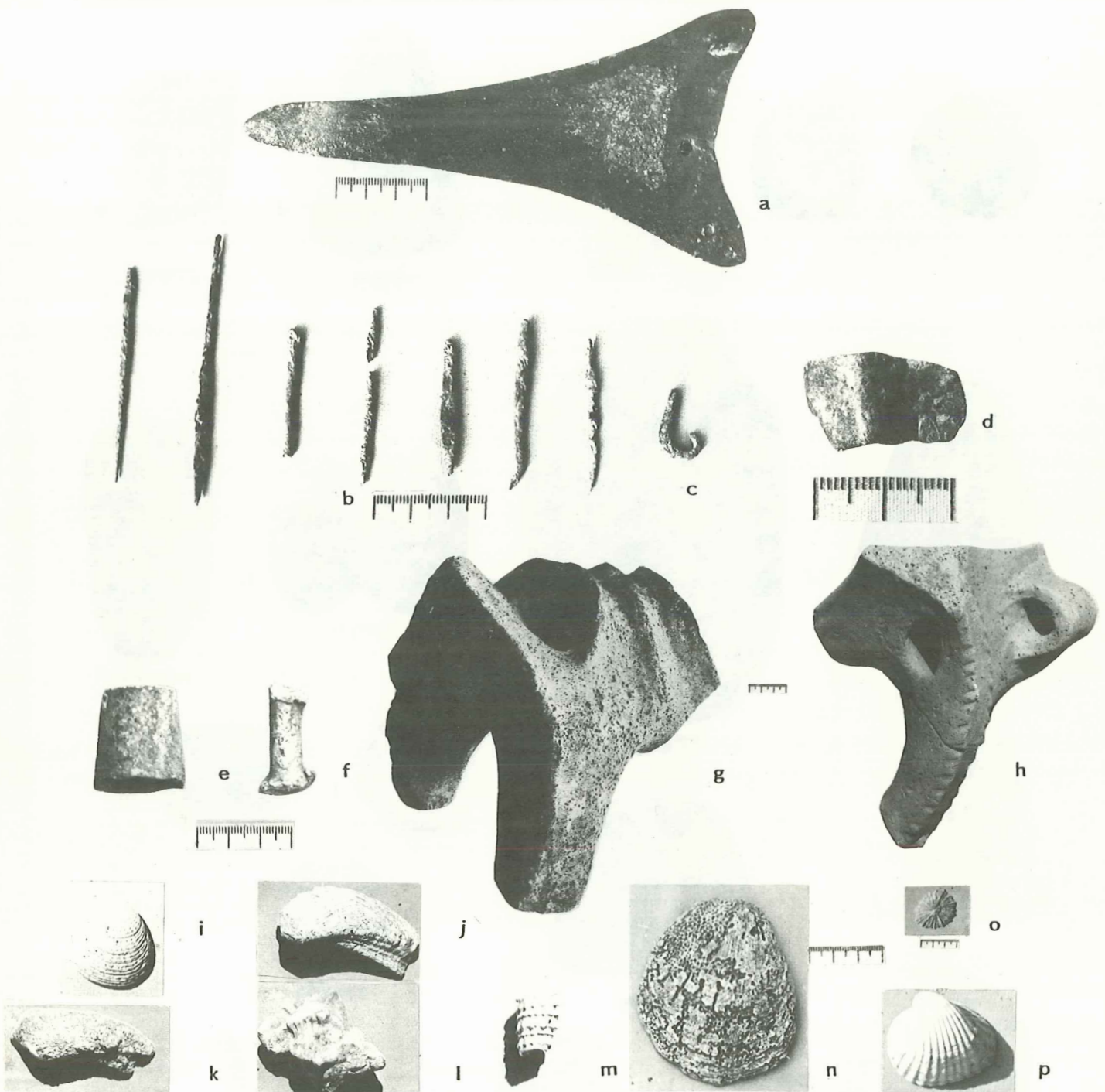


Plate 24. Bronze items: (a) dagger, room 44; (b) needle fragments (in order), room 30, sanctuary (street), room 29, room 30, room 32, room 35, stratigraphy 1971-1972, second upper meter of deposit; (c) fishing hook, room 46; (d) bronze band fragment, room 18. Lead articles: (e) colure cone, room 11; (f) spool, room 50. Krateutai: (g) stratigraphy 1971-1972, second upper meter of deposit; (h) tripod base fragment, room 40. Shells: Venus (i); Acra (j-k); Murex (l); Cerithium (m); Patella (n); Spondylus (o); Cerastoderma (p). Shells: (i, m-p) from the first upper meter of deposit; (j-l) from the second upper meter of deposit.

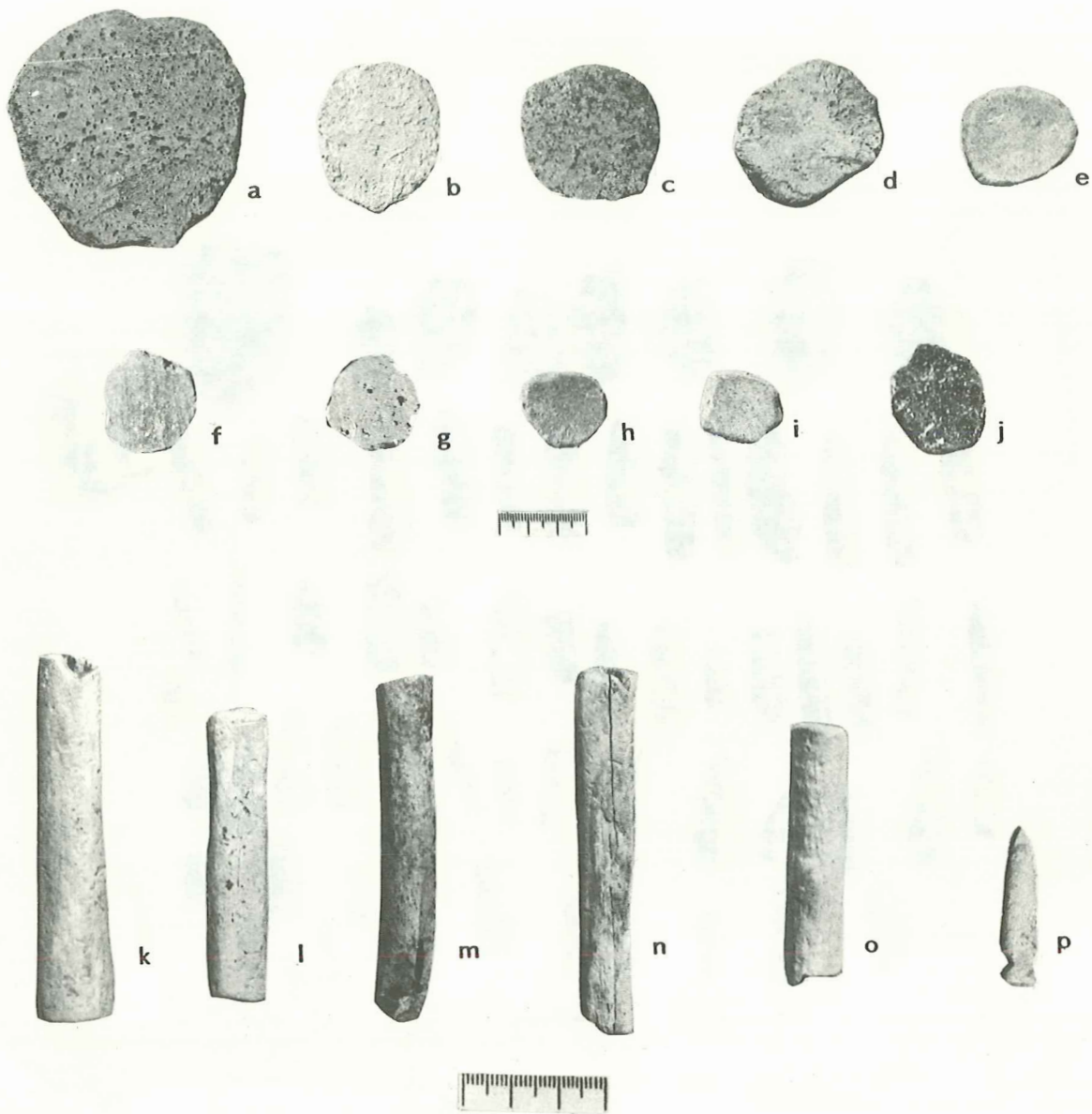


Plate 25. Stoppers: (a-j) room 34. Bone tubes: (k-o) room 12. Bone tool: (p) surface.

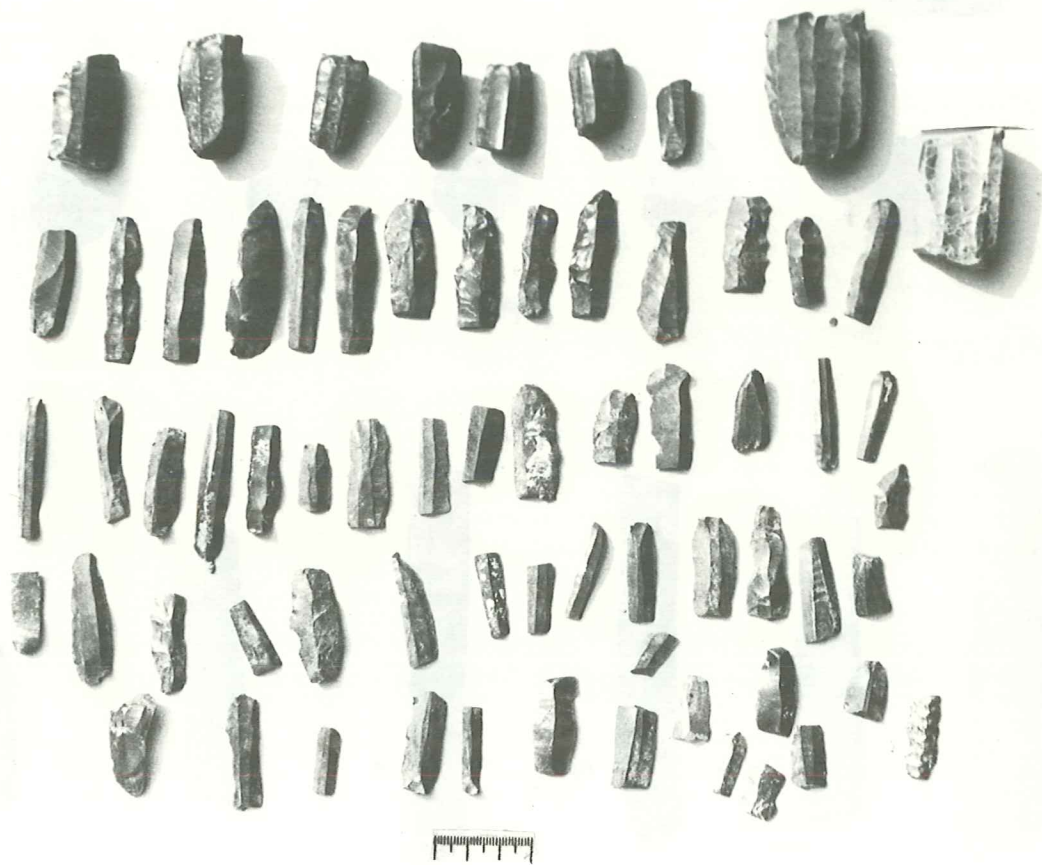
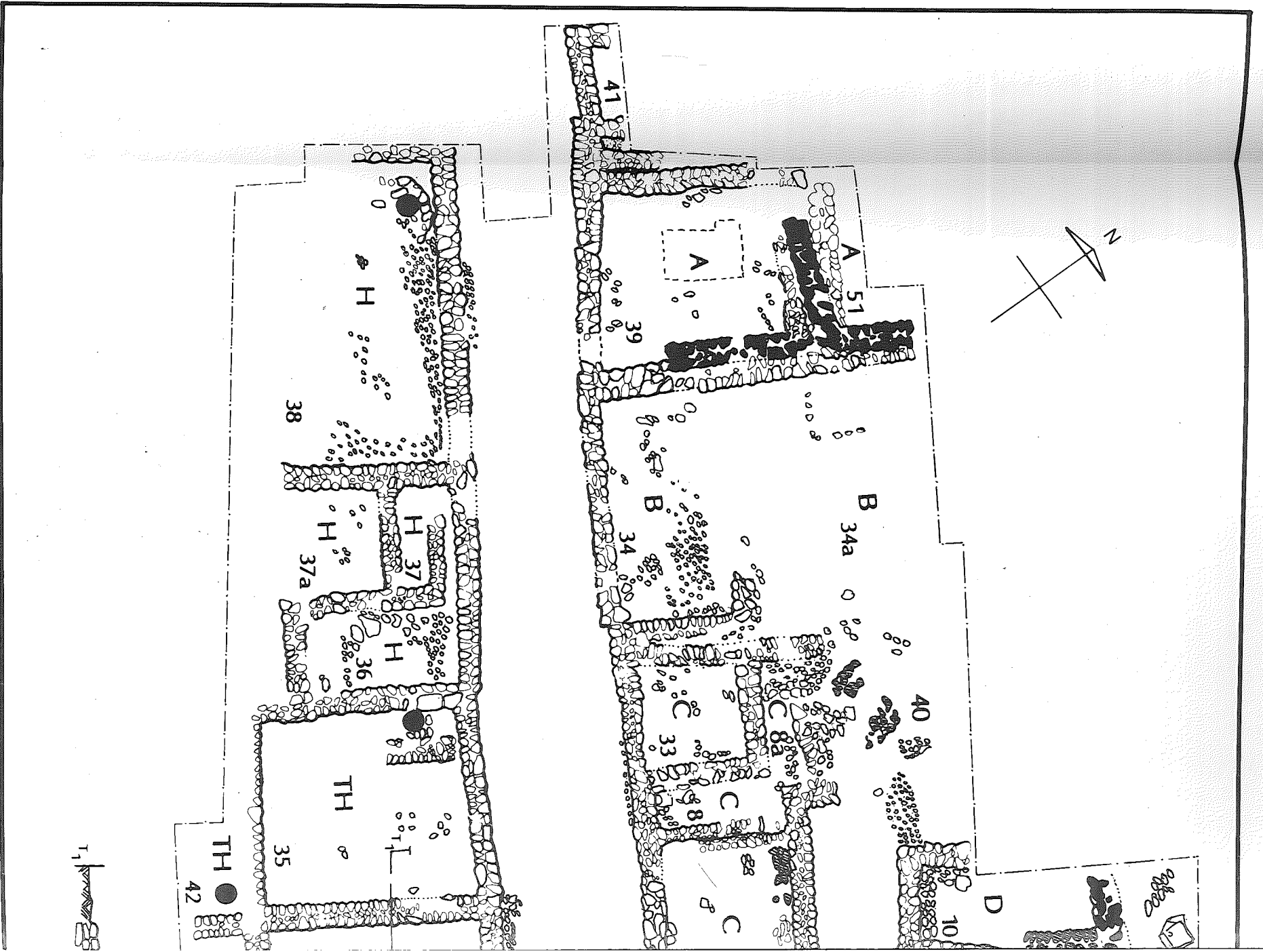
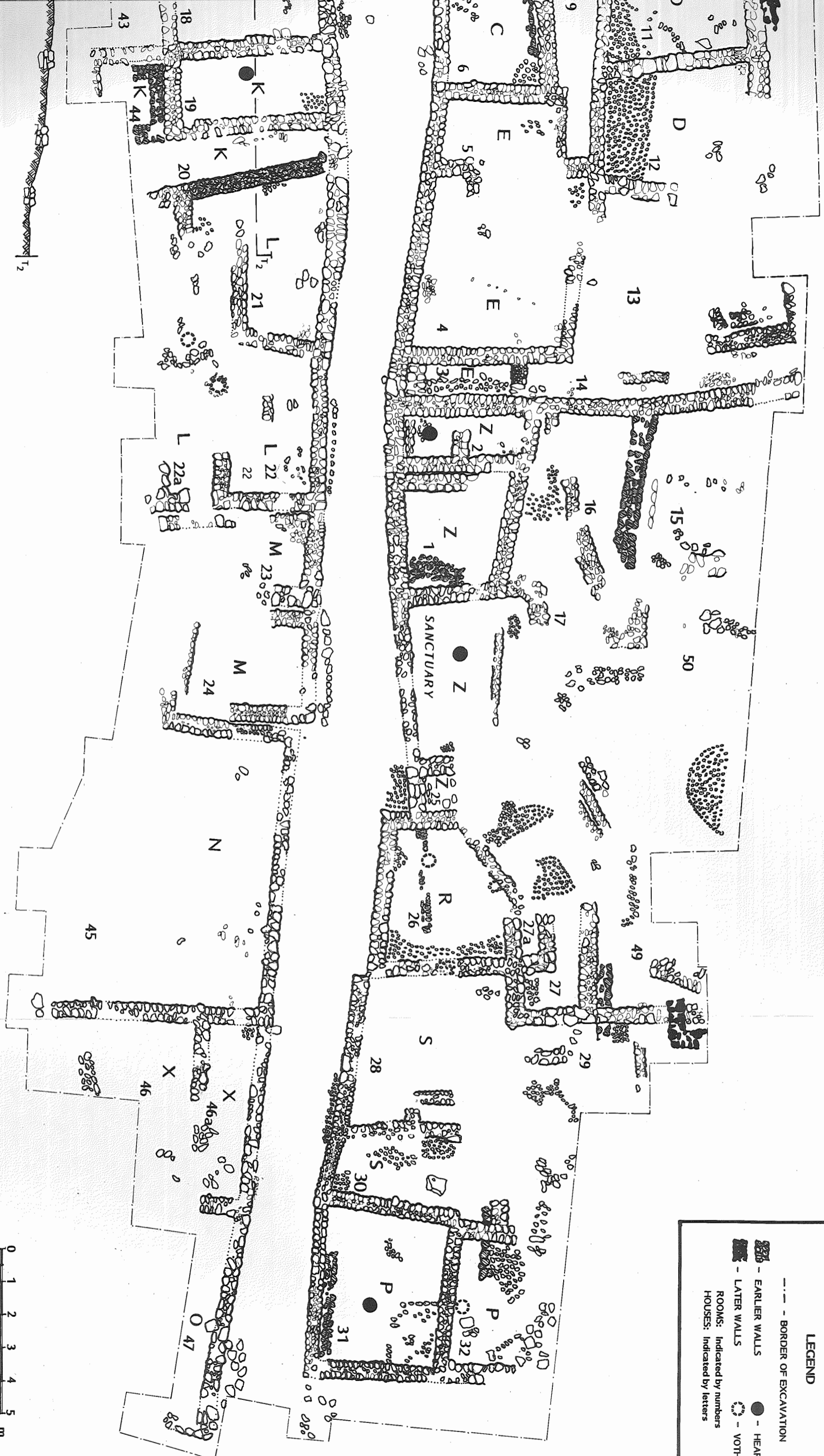


Plate 26. Obsidian cores, blades flakes, room 26.



1. |



LEGEND

- - BORDER OF EXCAVATION
- EARLIER WALLS
- LATER WALLS
- - HEARTH/HS
- - VOTIVE/OI
- ROOMS: Indicated by numbers
- HOUSES: Indicated by letters



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