PHRYGIAN ROOF TILES IN THE BURDUR MUSEUM

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A large group of architectural terracottas was collected on the local market by the Burdur Museum staff after 1963-64 and is now either on exhibit in the Museum gallery or stored in the Museum depot.[1] Most likely, these roof tiles all came from illicit digging on the Iron Age citadel called Yarım Ada, a peninsula on the east side of Yarışlı Gölü, 10 km. west of Hacilar in the province of Burdur in southwest Turkey (Fig. 1; Pl. 1).[2] Several of the frieze plaques showing a horseman and griffin were sold outside Turkey in 1964 and afterward.[3] There are a few fragments of the Rider/Griffin frieze plaques in the Burdur Museum, but most of the Burdur plaques show geometric designs, a few of which are known from sales abroad.[4] There follows

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[2] M. J. Mellink, "Archaeology in Asia Minor," *A.J.A.* 68 (1964) 159; 69 (1965) 143; J. Birmingham, *Anatolian Studies* XIV (1964) 29-33.

[3] Ake Akerström, *Die Architektonischen Terrakotten Kleinasiens*, Lund, 1966 (below, *ATK*), xiii, 218, fig. 70; Adolf Greifenhagen, "Ein Architektonisches Terrakottarelief aus Kleinasien," *Archäologischer Anzeiger* 81 (1966) 44-47.

[4] *ATK*, fig. 70a; Nicholas Thomas, "Recent Acquisitions by Birmingham City Museum," *Archaeological Reports for 1964-65*, Published by the Council of the Society for the Promotion of Hellenic Studies, British School of Archaeology at Athens (1965) 64-70, fig. 4-14 (below, *Reports, 1964-65*).

a descriptive catalogue of the best examples from Burdur and a restoration of these roof tiles on a hypothetical building.

Frieze Plaques.

The frieze plaques were probably used to sheath and decorate horizontal wooden beams in a half-timbered building. These terracotta plaques were constructed with ledges which extended back over the top of the wooden beam. The form of the frieze plaque crown moulding, a projecting square above a half-round, reflects this construction (Fig.2). The half-round moulding is the roll of clay which strengthens the weld of vertical and horizontal slabs. These slabs were cast in separate flat moulds, assembled while the clay was still damp, and fired in a kiln. There are invariably two nail holes in the face of each plaque. These were pushed through the moist clay before firing. They slope up slightly toward the rear, so that moisture could not collect and rust the iron nails.[5]

1. Overlapping Diamonds. E 1104, E 1105 (Pl. 2, 1). Three broad diamonds moulded in low relief and painted dull black. At each edge is half a diamond, causing the pattern to continue evenly from one plaque to the next. The crown moulding consists of a large half-round below a projecting square ledge. The two upper mouldings and the base moulding are painted with black bands on a creamy white background. There are two nail holes in the face of the plaque. Height 31.2 cm; Length 46 cm. Weight 13,200 gr.

2. Bars and Hooks. E 8865 (Pl, 2, 2). The plaque was recovered in three joining pieces; only the bottom right corner is missing. The panel design is rendered in low relief and painted black against the creamy white background. The upper moulding has a hawksbeak profile. The profile is evenly formed and must have been an intentional modification of the square ledge. The square base moulding projects beyond the surface of the design and is painted with black bands. In a series of these plaques (Fig. 3, c), the pattern is not symmetrical, since there is no vertical bar between the downturned pair of hooks at the joint. There may have been a second variation of the Bars and Hooks design with a vertical bar at each end and a different arrangement of hooks (Fig. 3, b). When used alternately in the frieze,

[5] *ATK*, pl. 84, 3. Iron nails remain in a frieze plaque at Gordion.

the pair of plaques would make a symmetrical pattern. Height 32.7 cm; Width 46.6 cm.

3. Swastika Pair. E 4941 (Pl. 3, 1). Both ends, crown moulding and half the decorated panel are preserved. The crown ledge moulding is thick and painted with broad black bands on white background. Beneath it is a small half-round moulding painted solid black. The panel is framed on both sides by vertical black bands which blend into the half-round moulding. The main design consists of two large swastikas, hooks turned to the left in Anatolian fashion. Height 20 cm; Length 48.5 cm.

4. White Maeander. (Pl. 3, 2; Fig. 3, a). The design and dimensions are reconstructed from two non-joining pieces, one from the top right corner (A) and one from the bottom left corner (B). The first piece preserves the crown moulding, a half-round below a square ledge, and part of the hook patten, including one nail hole. (A) Maximum Height 21.5 cm; Maximum Length 27.5 cm. The second piece shows the full height of the pattern, the base moulding, and a second nail hole. The base moulding does not protrude but is used as the base line of the maeander design. (B) Maximum Height 23.5 cm; Maximum Length 21 cm. The maeander, recessed and painted white, is less prominent than its black outline, running hooks moulded in relief. There is a similar black outlined, swastika design on a frieze plaque, probably from the Düver citadel, illustrated by Akerström.[6] Restored Height 34 cm; Restored Length 47 cm.

Lateral (Spouted) Simas.

The lateral simas are large tiles combining a pan tile and a low gutter. At the center of the plaque, the gutter is pierced by an oval hole leading to a U-shaped water spout 30-35 cm. long. There are two varieties, just as at Gordion: those with large decorated panels extending the full width of the pan tile, and those with short central panels, joined at either end by decorated cover tiles.

1. Tongue and Lotus. E 8855 (Pl. 4, 5; Fig. 2 and 4). The face of the sima is completely preserved in three joining pieces. The spout was broken away, leaving only its outline. The sima was originally attached to a pan tile, but it was broken away from the base at the

[6] *ATK*, fig. 70a, 2.

back of the sima (compare the following, better preserved example, E 2520). There is a square base moulding, 2.5 cm. high, originally painted black. On either side of the spout is a large, spreading lotus blossom, moulded in round relief and originally painted red. The upper third of the sima is occupied by a row of eight upright tongues moulded in low, sharp relief and painted alternately red and black, perhaps a distant imitation of the rows of roundels, themselves copies of wooden pole ends, carved on the Lycian tombs at Myra.[7] Below the tongues is a 2 cm. wide band painted with a chain of diamonds. At either side of the lotus panel is a narrow roll of clay, springing from a rounded foot just above the base moulding and ending in a tight volute just below the diamond band.

When the sima tiles were set side by side on the flank of a building, the bases, narrow shafts and volutes would have formed small Aeolic columns extending across the joints. The tongue pattern also is designed to carry on smoothly from one tile to the next, thus masking the joints. The top surface, side edges, and the back of the plaque are covered with a thin red slip. The underside of the panel, below the base moulding, is not slipped or painted and probably was not visible. Height 20.2 cm; Length 49.2 cm. Weight 9,000 gr.

2. Tooth Panel. E 2520 (Fig. 5). The central panel and left side of the plaque are preserved; the right side is restored, but the full width and length of the pan tile attached behind the sima are known from closely joining pieces. The spout may not belong to this sima, for it does not join tightly. The high central panel is crowned by a square moulding painted with red, black and white bands. The tooth pattern which extends across the central panel may have been painted red. The edges of the panel curve inward toward the bottom, and this curve is continued by a projecting reinforcement on either side of the spout. The ends of this plaque were covered by decorated end cover tiles, and their curving sides would have matched and closely joined the curving sides of the central panel (Fig. 10). The lower sides are not decorated but simply protected by a thick red slip, as are the exposed surfaces of the pan tile. Height of Tooth Panel 13. 2 cm; Height at Sides 9 cm; Width of Tooth Panel at Base 24 cm; Restored Width of Sima Face 46-47 cm; Restored Length of Spout 37 cm. Complete Tile Length, including Pan and Spout 102 cm.

[7] Ekrem Akurgal, *Die Kunst Anatoliens*, Berlin, 1961, pl. VI.

End Cover Tiles (Antefixes).

One complete end cover tile and the decorated faces of three others are preserved. The faces are 15-16 cm. high and 20 cm. wide at the base. A palmette is moulded in relief with three or five leaves and a coiled tendril at each side, all framed in a thin half circle.[8] Below the palmette is a simple maeander line. The entire design is enclosed within and sunk below the face of a broad half circle, decorated with alternating red and black bands.

1. Three-leafed Palmette. E 1095 (Pl. 4, 1). The leaves are heavy and globular and the tendrils thick. The design appears to have been painted entirely black, but the surface is now badly worn. Height 15.5 cm; Width 20.2 cm.

2. Three-leafed Palmette. E 1093 (Pl. 4, 2). Perhaps from the same mould as E 1095. The center palmette leaf, the tendrils, and the base maeander are painted red. The side leaves, half circle outline and the bars on the broad outer frame are black. The background is a dull orange slip. Height 14.8 cm; Width 20 cm.

3. Five-leafed Palmette. E 1091 (Pl. 4, 3; Fig. 5). The leaves and tendrils are narrow. The center and side palmette leaves and the three even numbered bars on the outer frame are painted red. The second and fourth palmette leaves, tendrils, maeander, narrow half-round frame, and odd numbered bars are black against a dull orange slip. Just 2.5 cm. behind the face of the cover tile begins an 8 cm. deep notch, 4.7 cm. high, cut out to let the edge of the cover tile fit over the low panel at the side of the Tooth Panel spouted sima. Height 14.5 cm; Width of Decorated Face 19.2 cm; Maximum Width 20.2 cm; Intact Length 65.5 cm. Weight 8,500 gr.

4. Five-leafed Palmette. E 1094 (Pl. 4, 4). The five leaves and tendrils are thicker than the previous five-leafed palmette. There is no space for a maeander below the palmette and the half-round frame. Height 16 cm; Width 24 cm.

Raking (Pedimental) Simas.

There are four examples of pedimental simas: a long, low panel attached to a flat base slab. The base slab was broken off the Burdur

[8] In the Birmingham City Museum are Düver end cover tiles with six and seven lobed palmettes. *Reports, 1964-65*, fig. 12, 13.

plaques, but examples at Sardes, Mylasa and Gordion show the slab projecting 18-20 cm., supporting the decorated panel and acting as a gutter at the edge of the roof. At the lower end of each panel (the downslope end as it would rest on the rafter), the base slab has a projecting lip which fitted over the top of the upper end of the adjoining slab, making a watertight joint.[9]

Those plaques from the corners of the building, made in one piece with the lateral sima, are clearly part of the raking sima.[10] The plaques without overlapping ends[11] may have been used on the horizontal geison (above the horizontal cornice) in the gables. More likely, these plaques were used along the edges of a flat roof made of thatch and packed clay. This flat clay roof would have covered and sealed the joints of the slabs, and the vertical plaques would have made a decorative parapet, holding the edge of the roof in place and serving as a gutter.

All of the Burdur simas with the ends preserved show the panel was completely framed by a square moulding. The designs are contained within one panel and do not continue from one plaque to the next. There are no nail holes in these plaques - though there should be nail holes in the base slabs. The crown moulding is square; the base moulding is a half-round.

1. T-Maeander. E 1096 (Pl. 5, 3). A single row of three Ts, alternately upright and pendent, with a half T at each end. The Ts are moulded in relief and painted with black squares on white ground; they are outlined with a thin black band, and between them winds a continuous, broad black stripe. The panel is framed by a thick square moulding, painted with black and white stripes. Height 23 cm; Length 55 cm. Weight 9,000 gr.

2. Double Diamonds. E 4698, E 4699 (Pl. 5, 2. E 4698 at top; E 4699 below is placed upside down to show the composition of the double diamond design.) Two non-joining fragments, both from the upper part of sima plaques, indicate the design : a single row

[9] Plaques decorated with quail walking uphill, Mylasa. *ATK*, 115-116, fig. 35.

[10] Sardes, *ATK*, pl. 41; Gordion, *ATK*, pl. 83, 2.

[11] Goats flanking a tree, the small checkerboard panel, Gordion. *ATK*, pl. 84, 1, 2; pl. 85, 4.

[12] R. S. Young, *A.J.A.* 60 (1956) 261-262, pl. 93, fig. 41.

of at least three double diamonds, moulded in low relief and painted black on white ground. The spaces between and within the diamonds are filled with red and black triangles. The square crown moulding is painted either with bands of solid triangles in white, red, and black (4698) or with red bands outlined in black, alternating with red squares and black triangles on white ground (4699).

3. Triple Diamonds. E 6419 (Pl. 5,1). The right half of the panel remains. Two sets of triple diamonds in low relief painted black on a creamy white background. Between the diamonds are triangles. The diamond panel is framed by a heavy, square crown moulding, a narrow moulding on the right side, and a thick half-round moulding at the base. All mouldings are painted with bold black and white bands. If the sima is restored with four sets of diamonds, it would be about 55 cm. long. Height 22,2 cm; Maximum Length 29 cm.

4. Pan Tile-sima. E 4458 (Fig. 2). The upturned edge of a pan tile is painted with a red tooth pattern outlined in black against a white background. The upper and lower edges are lined with black. The upper surface of the pan tile edge is also decorated with a simple maeander pattern. Height of painted edge 6.2 cm. These modified pan tiles would have been used on the secondary gable of the building (below, p. 40).

Volute Acroteria.

Central Acroterion. E 1112 (Pl. 6; Fig. 6). One half of a large, clover-shaped acroterion, decorated on both faces with double volutes rising from a curved stem. The volutes are moulded in relief and painted black. The grooves between and the panels cut into the stem are painted white. A short section of the acroterion base is preserved at the foot of the stem. The inside and outside edges of the stem are decorated also with sunken panels. There are double grooves cut into the edges of the volutes. Between the volutes at the peak of the acroterion was a projecting spur, the stump of which remains. The acroterion probably rested on a narrow wooden plinth at the peak of the roof and may have been secured by dowels into the base, just as the Phrygian, voluted poros acroterion from Gordion (49.5 cm. high).[12] Height 62 cm; Maximum Width of Volutes 34 cm; Thickness at Base 8 cm; Thickness at Top 5 cm. Weight 10,200 gr.

[13] "Doodle Stones" from the 8th century B.C. Phrygian city at Gordion. R. S. Young, *A.J.A.* 61 (1957) pl. 90, fig. 12.

Volute acroteria, evolved perhaps from primitive wooden buildings with their rafters crossing at the ridge,[13] are depicted as an extention of the raking sima on major Phrygian rock monuments.[14] On two smaller monuments near Midas City, Altar 15 and the Hyacinth Monument,[15] the gable rafters cross at the ridge and split into a pair of rudimentary double volutes with a floral design between-resembling more closely the Burdur terracotta acroterion.

Standard Roof Tiles.

Pan and cover tiles were made together in a single piece. Two complete examples remain: one with the cover tile joined to the right edge of the pan tile, the other with cover tile on the left. The outside lower corner of the pan is notched to fit within the upper inside edge of the next tile down the slope of the roof. The underside of the pan tile is perfectly smooth.

1. Pan/Cover to Left. E 4486 (Pl. 7, 3; Fig. 7). The top of the cover and exposed surface of the pan are covered with orange slip and burnished. Near the lower edge of the pan is a stamped maeander (Compare E 4452). Length 65 cm; Width 53 cm; Thickness 2-3 cm.; Weight 21,500 gr.

2. Pan/Cover to Right. E 4487 (Pl. 7, 4; Fig. 7). The pan is painted red, and on the lower edge of the cover is a red band painted over orange slip. Length 65.5 cm; Width 52.8 cm; Thickness 2-3 cm; Weight 22,000 gr.

Ridge Cover Tiles.

1. White Striped. E 4317 (Pl. 7, 1; Fig. 7). A complete example with half circles cut from each side for the upper end of the standard cover tiles. A 13 cm. broad stripe is painted in white slip down the length of the tile on its top surface. The ends are perfectly smooth, without a waterproofing notch or groove. The tile is 4 cm. thick at the top and thins to 3.5 cm. at the bottom edges. Length 42 cm; Width 36.5 cm; Height at Center 22.5 cm. Weight 15,200 gr.

[14] Arezastis, Unfinished and Midas Monuments. Albert Gabriel, *Phrygie IV, La Cité de Midas, Architecture*, Paris, 1965, fig. 38, 37, 30.

[15] *Phrygie IV*, fig. 25; C.H. Emilie Haspels, *The Highlands of Phrygia*, Princeton, 1971 (below, *Highlands*), pl. 515, 1.

2. Triskelis. E 4448, E 4449 (Pl. 8, 1). Two fragments of ridge cover tile of slightly larger scale than E 4317. The exterior surface is covered with orange slip. Near one end of each tile is painted a large, red triskelis. On both examples, the end of the tile is notched to make an overlapping watertight join with the next ridge cover tile.

Stamped Pan Tiles.

There are seven examples of stamp impressions on pan tiles: one on a complete pan tile (E 4486), three on fragments with original tile edges, and three on nondescript fragments. Five different designs are represented. The stamps are each about 3 cm. wide and penetrate about 3 mm. into the surface the tile. Naturally, they were made before the tiles were fired. One of the two complete pan/cover tiles has no stamp, so this cannot have been a consistent feature of the Düver roof tiles. To my knowledge, there are no other Anatolian stamped roof tiles from the Iron Age. Since the terracotta tiles were surely made locally, the stamps must have had a local meaning. Perhaps these were the signs for different tile makers' shops, suggesting a reason for the difference in weight between the two complete pan/cover tiles. On the complete pan/cover tile and on the three fragments with recognizable shape (E 4452, 4451, 4453) the stamp impression is regularly set near the bottom edge of the pan and close to the joint of pan and cover tile sections.

1. Maeander. E 4452 (Pl. 8, 2; Fig. 8). Four maeanders stamped within the four quarters of an incuse square and enclosed by a relief line. The tile fragment preserves one edge, probably the bottom edge of the pan, and one even break, probably at the joint of the pan and left hand cover tile. (Compare E 4486, which has the same maeander stamp.) Width 2.7 cm.

2. Lotus Blossom or Anchor. E 4451 and E 4469 (Pl. 8, 3 and 4; Fig. 8). If a lotus blossom, it is stamped upside down on E 4451. It resembles a double hook anchor or a mushroom anchor in section, just as appropriate to the lakeside citadel as the lotus blossom. The stem of the lotus is 9 mm. wide and is stamped 3 mm. deep; the base of the stem curves up to blend into the surface of the tile. No original edges of the tile remain on E 4469, but E 4451 preserves the full width of the lower end of the pan tile. Height 2.3 cm; Width 3.4 cm.

3. Chevrons. E 4453 (Pl. 8, 5; Fig. 8). Four sets of two-barred chevrons set in the angles of a central cross, enclosed within an incuse oval 2 mm. deep. The chevrons and cross were incised on the original stamp and stand out in relief on the tile. One original edge remains, probably the bottom edge of the pan, and at the right an evenly broken edge, perhaps marking the break between pan and cover tile. The design has ancestors dating from the Early Bronze Age in Lycia[16] and throughout Anatolia and Greece. Maximum Diameter 3.4 cm; Minimum Diameter 3.2 cm.

4. Circle. E 4454 (Pl. 8, 6; Fig. 8). The stamp itself was made by twisting the end of a 6 mm. square rod into a circle. At the beginning of the curve, the impression of the rod bends up and blends into the surface of the tile. No original edges are preserved. Diameter 2.8 cm.

5. Triskelis. E 4455 (Pl. 8, 7; Fig. 8). Three-legged motif in relief around a central depression. The design could have been cut in the oval end of a piece of bone. The large red triskeles on the Düver ridge cover tiles were decorative. Here the heraldic motif may be a family mark, resembling archaic Greek shield devices or the triskelis punch die on Lycian coins.[17] Maximum Diameter 3.3 cm; Minimum Diameter 2.7 cm.

Roof Restoration.

At least one roof can be restored from the tiles salvaged from Düver. The number of different raking simas - six, including the two recognized by Nicholas Thomas[18] - indicates there were at least three, perhaps six different buildings, or as many alterations to a single one. The citadel is almost as large in area as the Royal Enclosure at Gordion, so space was not lacking. Since there are two lateral simas, both preserved to their full length, but not to the same length, we can be sure of at least two pitched roofs. Perhaps the spare "raking simas" were indeed parapets on flat roofs.

The lateral sima with Tongue and Lotus design (8855) must have been used with the frieze plaques with Large Swastika design

[16] Karataş-Semayük, M. J. Mellink, *A.J.A.* 74 (1970) pl. 58, fig. 23a.

[17] *British Museum Catalogue. The Greek Coins of Lycia, Pamphylia, and Pisidia*, London, 1897, pl. II-IV; Sir Charles Fellows, *Coins of Ancient Lycia*, London, 1855.

[18] *Reports, 1964-65*, fig. 6, c, d.

(4941), since both are very nearly 49 cm. long. The lateral sima with Tooth panel (2520) is the same length as the frieze plaques with Hooks and Bars (8865), the White Maeander and the frieze plaque with Overlapping Diamonds (1104) - all 46 to 47 cm. long. The decorated end cover tiles fit exactly between the panels of the Tooth Panel lateral sima whereas the Tongue and Lotus sima is not designed to be used with end cover tiles.

The plain roof tiles were made to fit together very tightly. The inside surface at the lower end of one cover tile was chizeled down to make it fit over the adjoining cover just below. This roofing system is much more complex than the usual system of separate pan and cover tiles.[19] Normally, there is a downturned lip or set of notches at the upper end of a pan tile. The underside of the Burdur pan tiles is perfectly smooth, suggesting they did not rest immediately upon the purlins. Very likely there was a layer of reeds and mud over the purlins, better insulating the building and serving as a bed for the roof tiles.

More unusual yet, one pan has its cover attached to the left side. The other has its cover joined on the right side. Since the pan/cover tiles are not tapered in from top to bottom (the complete tile has a rectangular shape), the left hand (or the right hand) tile, if used alone on one side of the roof and laid parallel to the rafters, will not line in a straight line up the slope. Each cover would be offset 3-3.5 cm. to left (or right) of the cover immediately below. The joints would not remain centered over the rafters, but this would not have affected the strength of the roof. The slight offset curve might not have mattered visually (27-31.5 cm. from gutter to ridge, using nine rows of pan/cover tiles), but the corresponding difference between the edges of the tiles at the gutters would have made the join with the raking sima very difficult.

The tiles may have been set at a slight angle to the gutter (Fig. 9, 1), so that the covers would lie in a straight line up the slope of the roof. Left hand tiles would have been used on one side of the roof and

[19] Roland Martin, *Manuel d'Architecture grecque I*, Paris, 1965, fig. 46. The hip roof on the archaic Temple of Poseidon at Isthmia was also constructed with such combination pan/cover tiles. Oscar Broneer, *Isthmia I. Temple of Poseidon*, Princeton, 1971, 49, fig. 59.

right hand tiles on the opposite side. When set in this fashion, the tiles fit tightly. The distance between the centers of the covers is 48-49 cm., closely matching the length of the Tongue and Lotus lateral sima. This relationship is critical for restoring the roof, since the covers must fit over the joints of the lateral sima.

A second possibility is to use the left hand and right hand tiles in alternating rows - a row of left hand tiles above a row of right hand tiles. Both sides of the roof would have the same system (Fig. 9, 2). By fitting the tiles very closely together, the distance between centers of covers is reduced to 46-47 cm., very nearly the same as the length of the Tooth Panel lateral sima (Fig. 10). A series of normal cover tiles would be needed to cover the exposed pan section between every other cover section at both ends of the roof, at the join of the tiles and the raking sima. In the first arrangement as well, these spare cover tiles would have been needed at one end of the roof to join the raking sima and the final line of pans.

There is a third alternative, suggested by a fragment of raking sima (E 4458, Fig. 2). This piece was probably the decorated edge of a pan tile, forming the raking sima at the minor end of a building, with the pan/cover tiles set in the first proposed arrangement. The primary gable would have had a larger raking sima, made with the L-shaped tiles, fitting under the final line of covers (Fig. 10). On the minor gable, at the other end of the building, all of the final pans would have been finished with a high upturned edge. The sima may have been thickened at the lower end of each pan in order to correct the indented line caused by fitting the pan/cover tiles together at an angle to the gable rafter. There is a related raking sima from Gordion- a panel 50-52 cm. long and 10 cm. high, decorated with a double row of diamonds and attached by a narrow trough to the edge of a cover tile.[20]

The only complete ridge cover tile (E 4317) is too short (42 cm. long) to fit well with the pan/cover tiles (centers at 46-49 cm.). It may have been an unusually short tile from one end of the ridge, or it could have come from another roof. The triskeles-painted ridge cover tiles appear to have been larger and may belong with these pan/cover tiles.

[20] *ATK*, Pl. 82, 3.

The roof is restored with a moderate slope of 15° (Fig. 10 and 11). At this angle, ten lengths of raking sima 55 cm. long, nine lengths of pan/cover tile with an effective length of 60-61 cm. (5.40-5.49 m. overall, accounting for the 4-5 cm. overlap), and twenty three horizontal lengths of 46 cm. long frieze plaque fit together precisely on a gable with a maximum exterior width of 10.58 m. Nine lengths of the Overlapping Diamond frieze plaque fit neatly into the gable, covering the gable rafter. No tapering cornice plaques have been found. The exposed triangles of wood at both ends of the raking cornice were probably covered with painted plaster. On the Midas Monument at Yazılıkaya these awkward spaces are filled with vertical lines.

With walls 90 cm. thick, the restored building has an interior width of about 8.80 m. Using the following weights for various elements of a terracotta roof, on a building with 40 pan/cover tiles in a single row (41 end cover tiles or 40 sections of lateral sima) the roof would weigh nearly 19,000 kilos, not including the horizontal cornice.

Pan/Cover Tile	21,500 gr.
Ridge Cover Tile	15,200 gr.
Raking Sima Tile	ca. 10,000 gr.
End Cover Tile	8,500 gr.
Lateral Sima Tile	ca. 20,000 gr.

I draw a truss roof, strengthened by a central tie beam and two vertical struts in the angle of the joist and the rafter. The rafter and joist are pegged together and notched to butt against the double wall plate (Fig. 10). This wall plate must have been carried around the tops of all four walls. However, at the ends of the building, the wall plate had to be trimmed down to fit under the rafters and the joists in the gables (Fig. 10).

To judge from the Arezastis Monument and the Unfinished Monument near Midas City (and the winter weather in central Anatolia), the gable was closed. On either side of a central tie beam was a pair of shutters, providing ventilation and some light in the room below.[21] These shutters could have been reached along a gallery, such as was recognized in Megaron 3 and Megaron 4 at Gordion.[22]

[21] *Highlands*, 78-80.

[22] R. S. Young, *A.J.A.* 64 (1960) 241; 66 (1962) 160-161; 68 (1964) 287.

The roof is restored without overhanging eaves, partly in imitation of the straight-sided rock monuments and partly to justify the use of long water spouts on the lateral sima. One should also consider the narrow spaces between the large megara in the post-Cimmerian city at Gordion, leaving little room for both eaves and water spouts. A roof would be stronger if the joists and the rafters butted against the wall plate, rather than resting on its upper surface. The projecting "Chinese Roof" of the Bakşeyiş and Mal Taş Monuments near Midas City may illustrate joists projecting beyond the outer edge of the walls, with rafters morticed into the upper surface of the joists.[23] However, the flat eaves are poorly suited to a terracotta roof, since water would seep back under the last sloping pan tile or build up behind the lateral sima without flowing rapidly out the spouts. The "Chinese Roof" may imitate the construction of wood and reed roofs as they were before the widespread use of terracotta roof tiles.

The gable rafter is set so that the bottom of the terracotta raking sima meets the top of the horizontal cornice at the four corners of the building (Fig. 10). Since the raking sima rests directly on the Double Diamond raking cornice (covering the gable rafter), the top of this cornice is aligned as well on the same corner of the horizontal cornice. The bottom edge of the lateral sima rests on the top surface of the horizontal cornice, but the weight of the large sima tiles and end cover tiles would rest on the lowest purlin, the ends of the joists, and ultimately on the wall plate.

Geometric patterns - maeanders, hooks, diamonds - form the basic repertoire of the Düver architectural terracottas. The complete surface of the plaque is given over to designs which were used only as border motifs on plaques in Ionia (Sardes, Assos, Lesbos, Mylasa, Euromos). The plaques are moulded to produce a continuous frieze with the pattern frequently extending right across the joint of two plaques in a system completely alien to the Greek metope frieze. Even with the Horseman/Griffin plaques, the viewer would soon loose track of their relationship - horseman chasing griffin, or griffin following horseman?

Some of the Düver geometric plaques, like those from Gordion and Akalan, closely resemble the simas and cornices on the rock

[23] *Highlands*, 81, 85.

facades from the Phrygian highlands. The double and triple diamonds of the raking sima have nearly the same form as the strings of large diamonds carved on the raking sima and the frame posts of the Mal Taş, Arslan Kaya and Midas Monuments. The frieze plaque with overlapping diamonds is a variation on the same design. Naturally, mould-made plaques permit more elaborate and delicate designs than the coarse, living rock.[24] Yet the simple diamond patterns may belong to an older, more conservative tradition, pre-dating the use of terracotta roofs. C.H.E. Haspels dates the Midas Monument "in the latter part of the eighth century B. C.," largely from the archaic Phrygian inscriptions carved above the roof and along the right side.[25]

The raking sima with T-Maeander and the frieze plaques with hooks, maeanders or swastikas are absent on the rock facades. These designs can be seen in the Phrygian pebble mosaic floors from Gordion, dated as early as 750 B.C., and in the more regular geometric floors from the 6th and 5th century buildings.[26] The more elaborate patterns in terracotta seem like enlarged versions of the geometric borders carved on small ivory panels, wooden boxes and screens, or painted on Phrygian pottery. These geometric designs are clearly native to Iron Age Phrygia, which had an artistic range, if not a kingdom, extending from the Pontus south into Lycia. The motifs are comfortably adapted to decorating terracotta plaques, and one suspects that the terracotta friezes, cornices and simas had earlier Anatolian counterparts in metal, wood or clay.[27]

[24] The multiple maeander frieze plaque from Akalan comes closest to reproducing the dense, maze-like pattern of the rock facades. The terracotta maeander is restrained by a heavy crown moulding but has no clear beginning or end at any edge. *ATK*, pl. 63, 2.

[25] *Highlands*, 109.

[26] R. S. Young, *Expedition* 7 (1965) 6-12.

[27] Fragments of 08 cm. thick panels were found at Kululu near Kayseri by Tahsin Özgüç. The pieces resemble *kerpiç*, covered with a thin coating of plaster and painted with rectilinear designs in brown on a buff slip. These fragments were found together with painted sherds dated to the period of Alisar IV, end of the 8th to the mid-7th century B.C. Tahsin Özgüç, *Kültepe and Its Vicinity in the Iron Age*, Türk Tarih Kurumu, Ankara 1971, 101, pl. XXXIII, 5, 6.

PHRYGIAN ROOF TILES IN THE BURDUR MUSEUM
PLATES AND FIGURES

Figures:

1. Sketch map of Burdur and Villages by Yarışlı Gölü.
2. End view of Lateral Cymas; Profiles of Pedimental (Raking) Cymas and Frieze Plaques.
3. Restored Four Panels of White Maeander and Hooks and Bars Frieze Plaques.
4. Tongue and Lotus Lateral Cyma, E 8855.
5. End Cover Tile, E 1091; Tooth Panel Lateral Cyma, E 2520.
6. Central Acroterion, E 1112.
7. Ridge Cover Tile, E 4317; Pan Cover Tiles, E 4887, E 4886.
8. Pan Tile Stamp Impressions. Scale 1:1.
9. Pan/Cover Tiles Assembled in Sets of Four: (left) All with covers to right. (right) Row of right hand covers below row of left hand covers.
10. Restored drawing of Gable Angle.
11. Restored drawing of Building Facade: left side in section, right side in elevation.

Plates:

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2, 2 Bars and Hooks Frieze Plaque, E 8865.
3, 1. Swastika Pair Frieze Plaque, E 4941.
3, 2. White Maeander Frieze Plaque.
4, 1-4. End Cover Tiles, E 1095, 1093 (upper, left and right) 1091, 1094 (lower, left and right).
4, 5. Tongue and Lotus Lateral Cyma, E 8855.
5, 1. Triple Diamonds Pedimental (Raking) Cyma, E 6419.
5, 2. Double Diamonds Pedimental Cyma, E 4698, E 4699.
5, 3. T Maeander Pedimental Cyma, E 1096.
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8, 4. Lotus Blossom or Anchor, E 4469.
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8, 6. Circle, E 4454.
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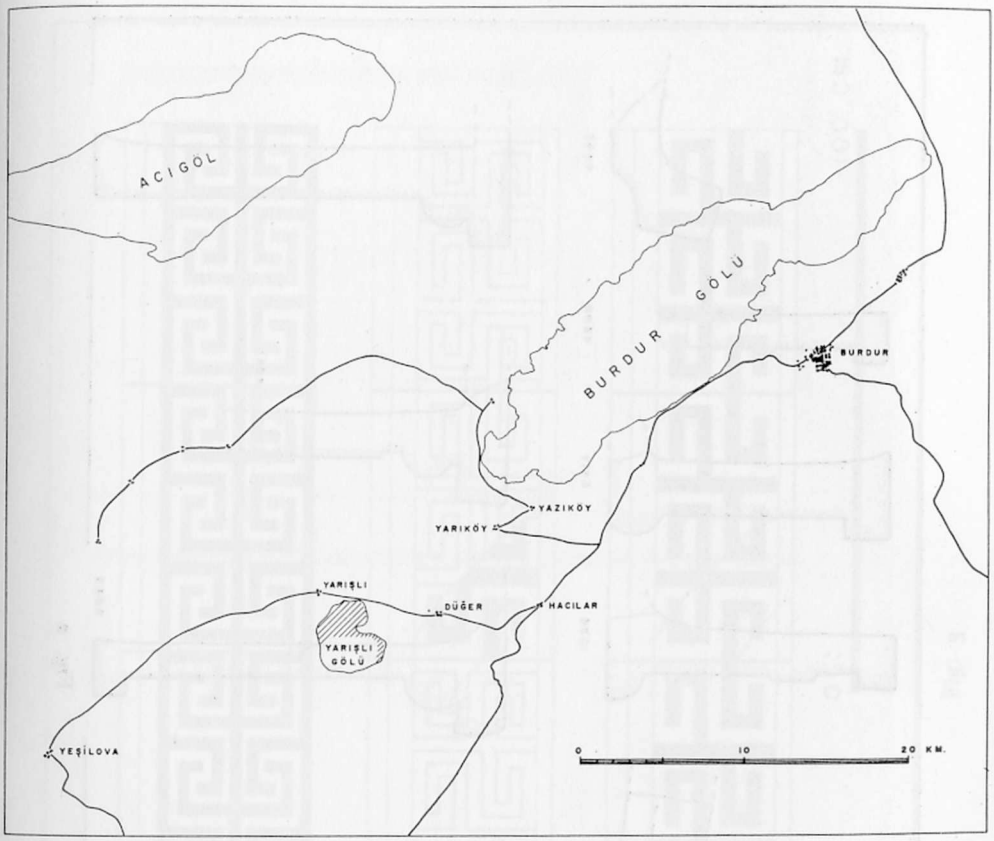

ACIGÖL
BURDUR GÖLÜ
BURDUR
YAZIKÖY
YARIKÖY
YARIŞLI
DÜĞER
HACILAR
YARIŞLI GÖLÜ
YEŞİLOVA
0 10 20 KM.

Fig. 1

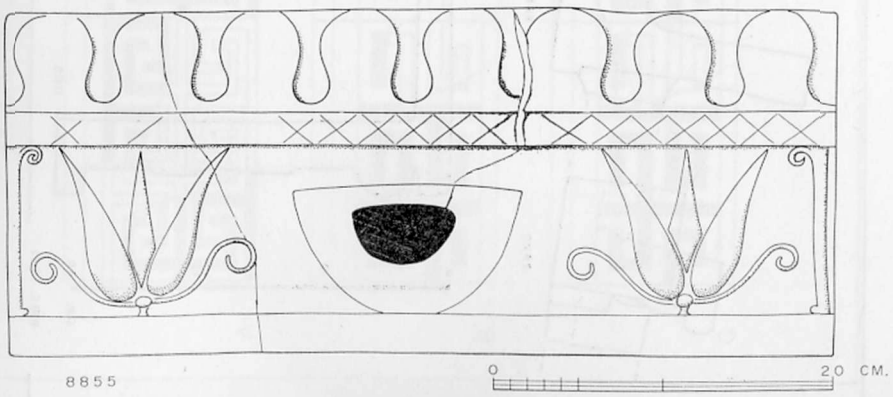
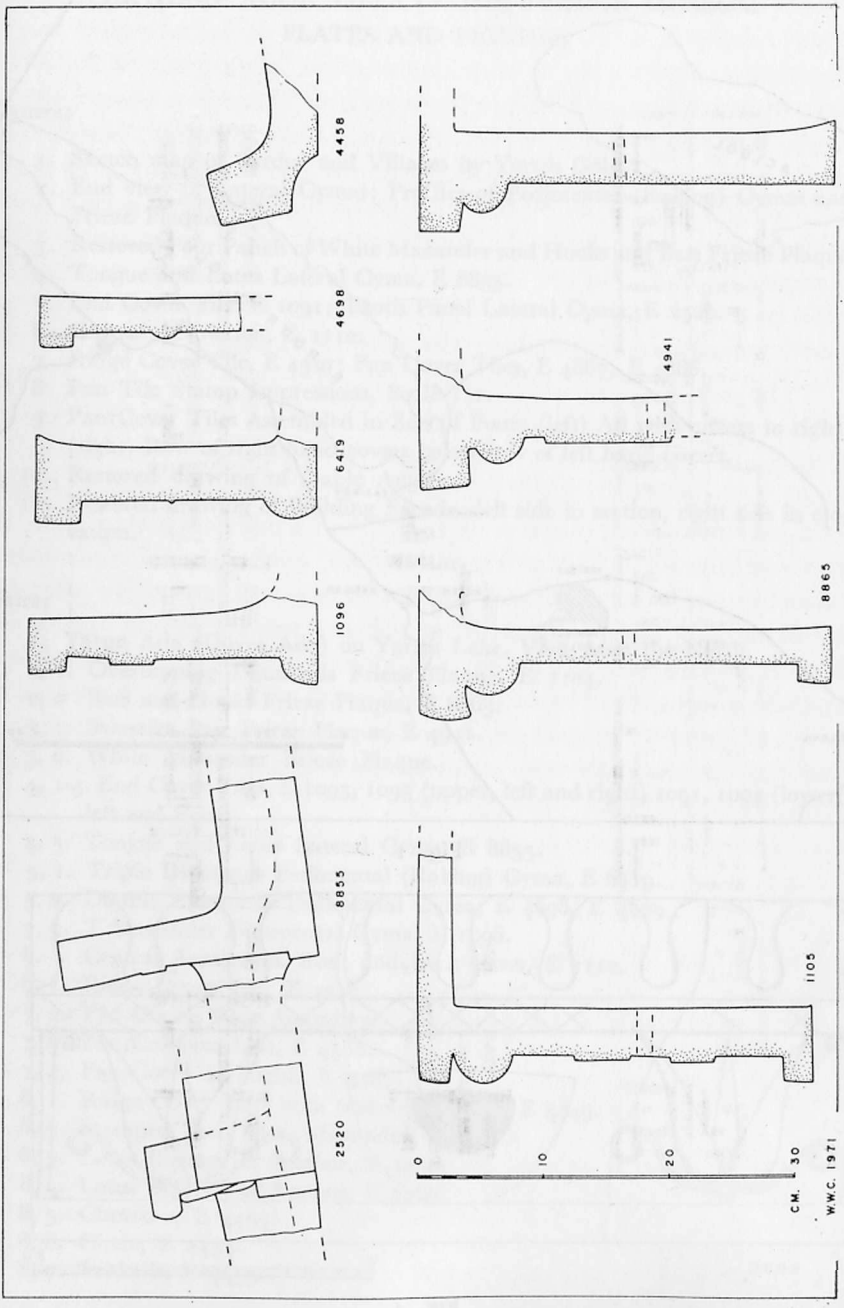

8855
0 20 CM.

Fig. 4


4458
4698
6419
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CM.
W.W.C. 1971

Fig. 2

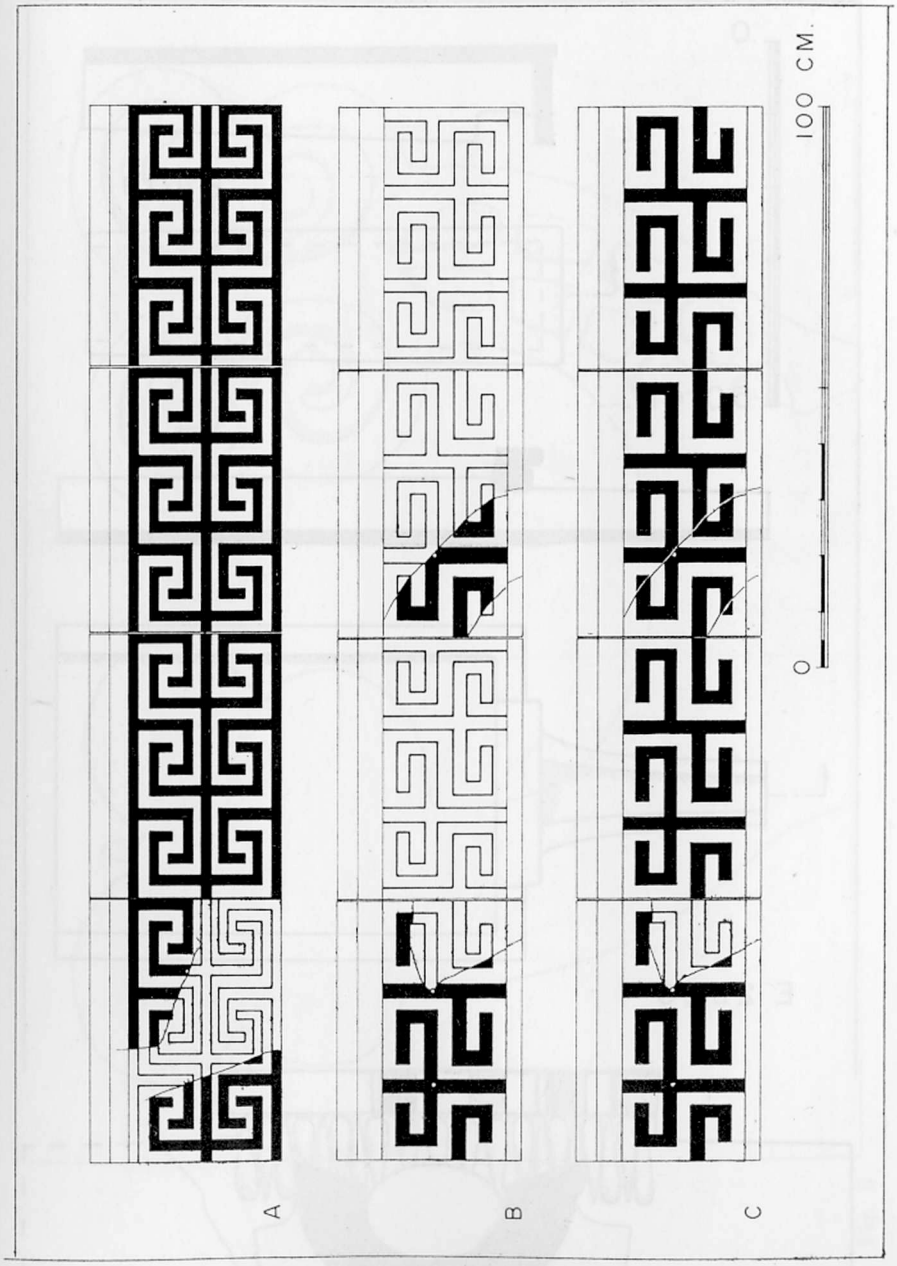


Fig. 3

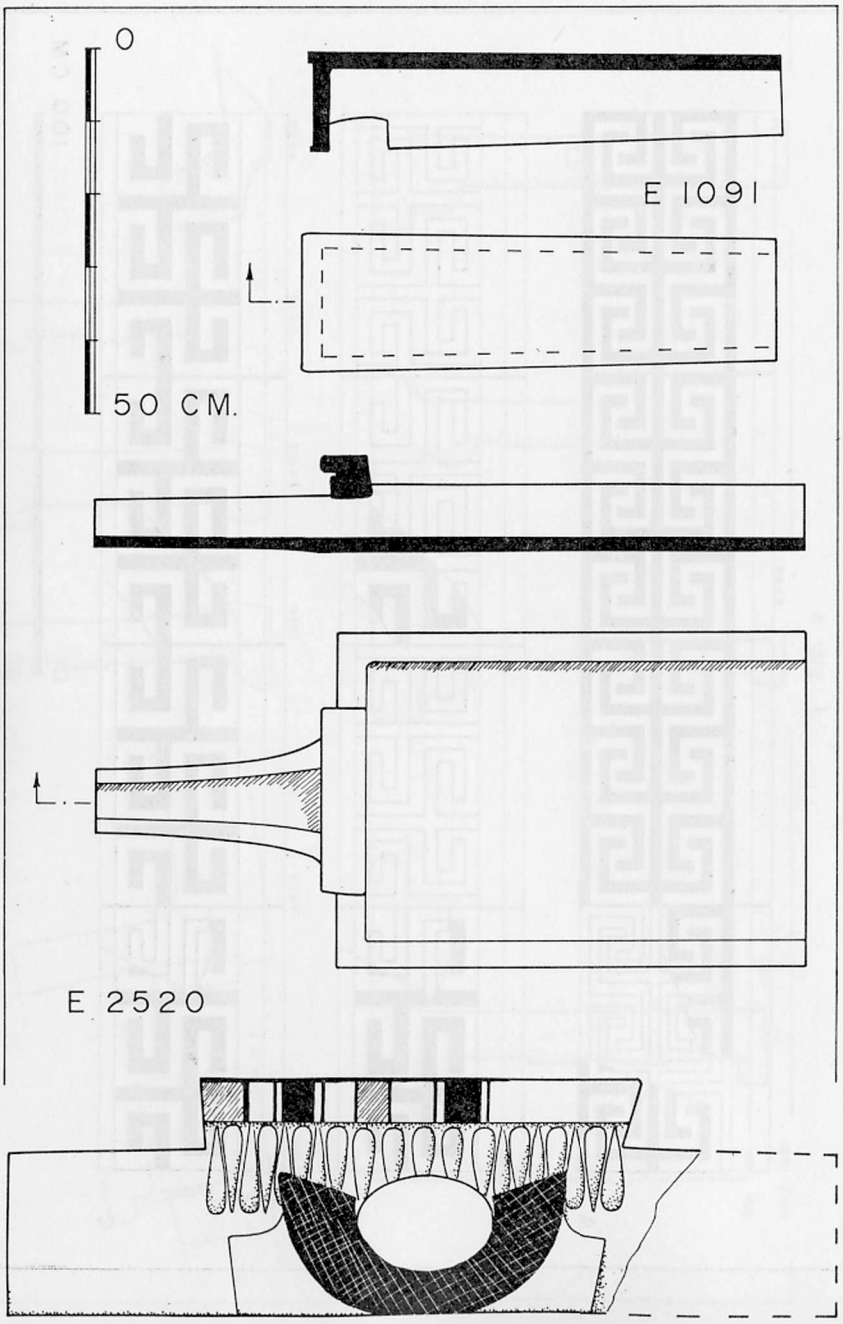


Fig. 5

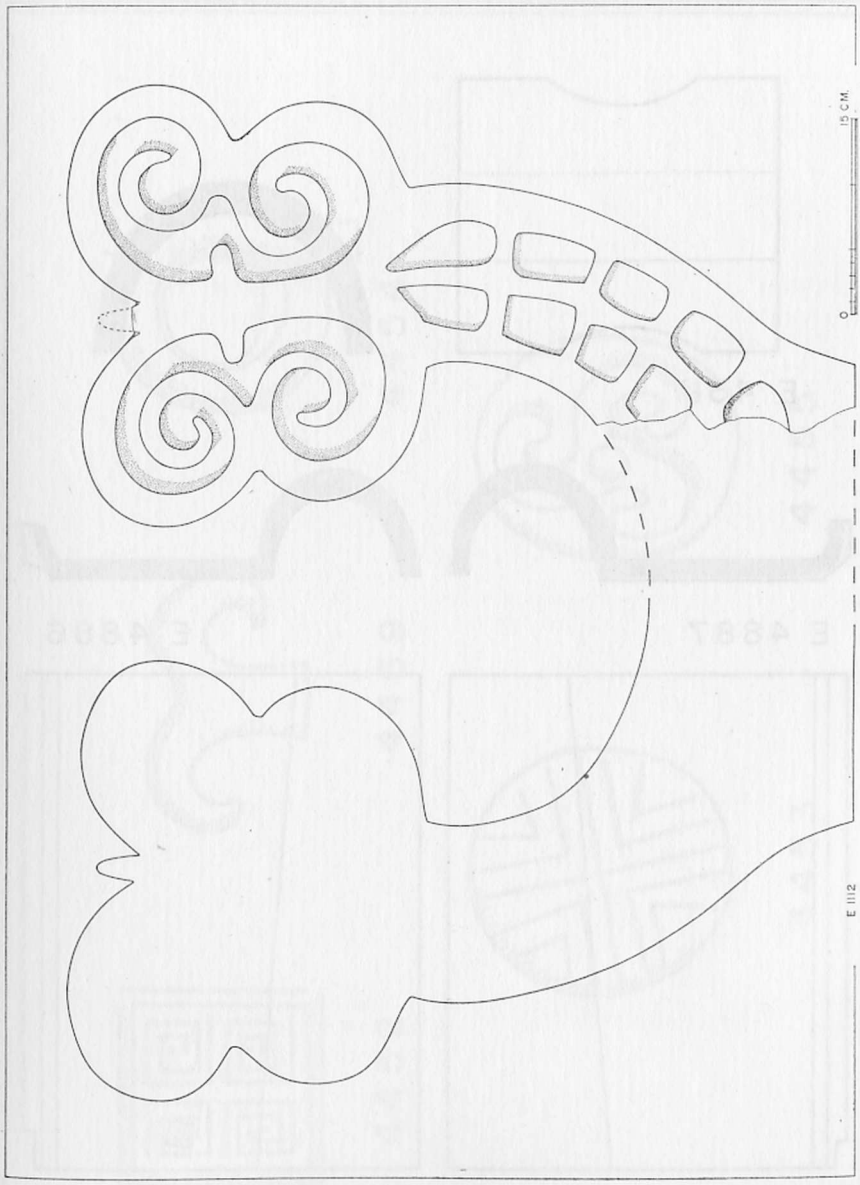


Fig. 6

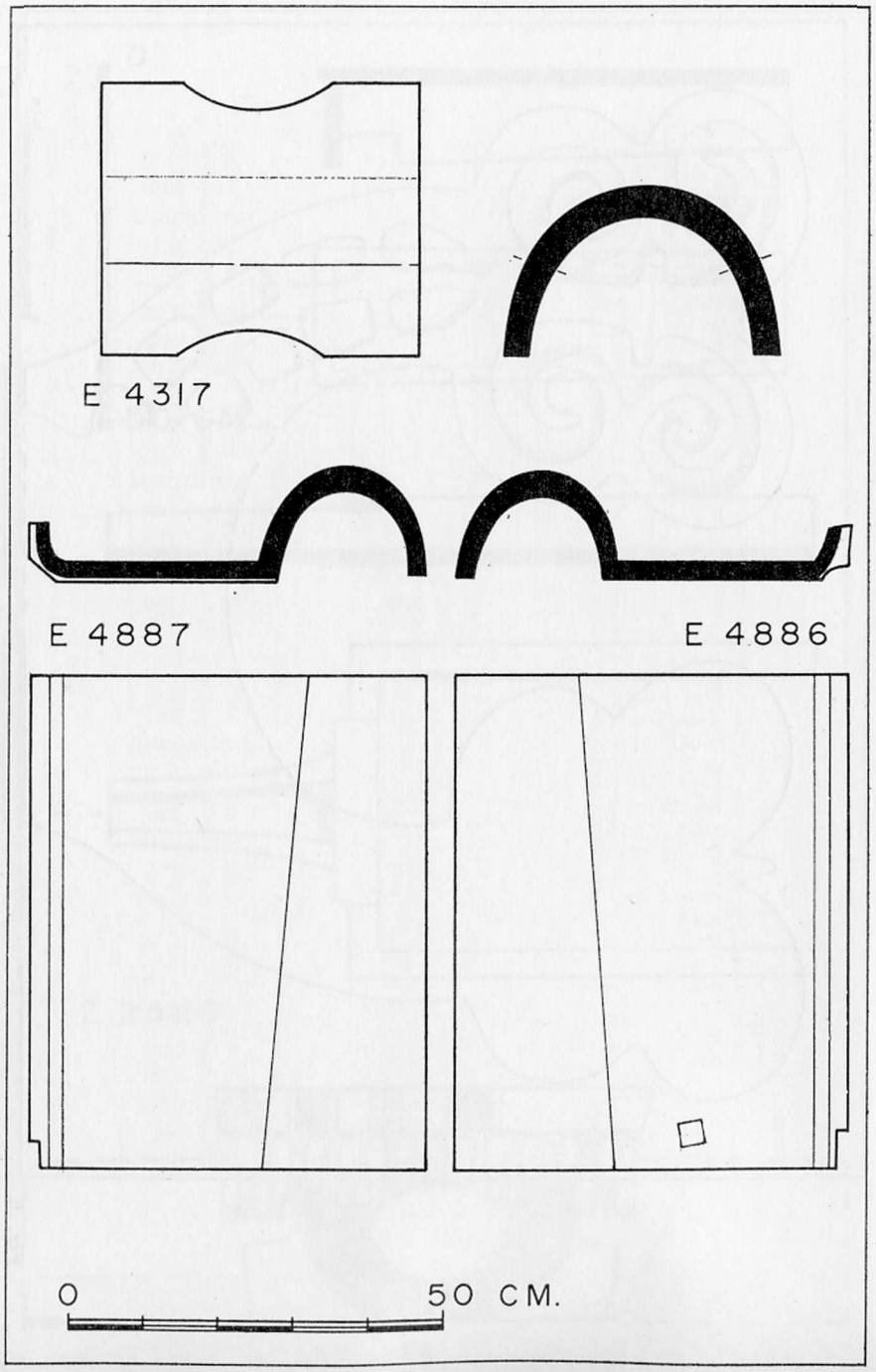


Fig. 7

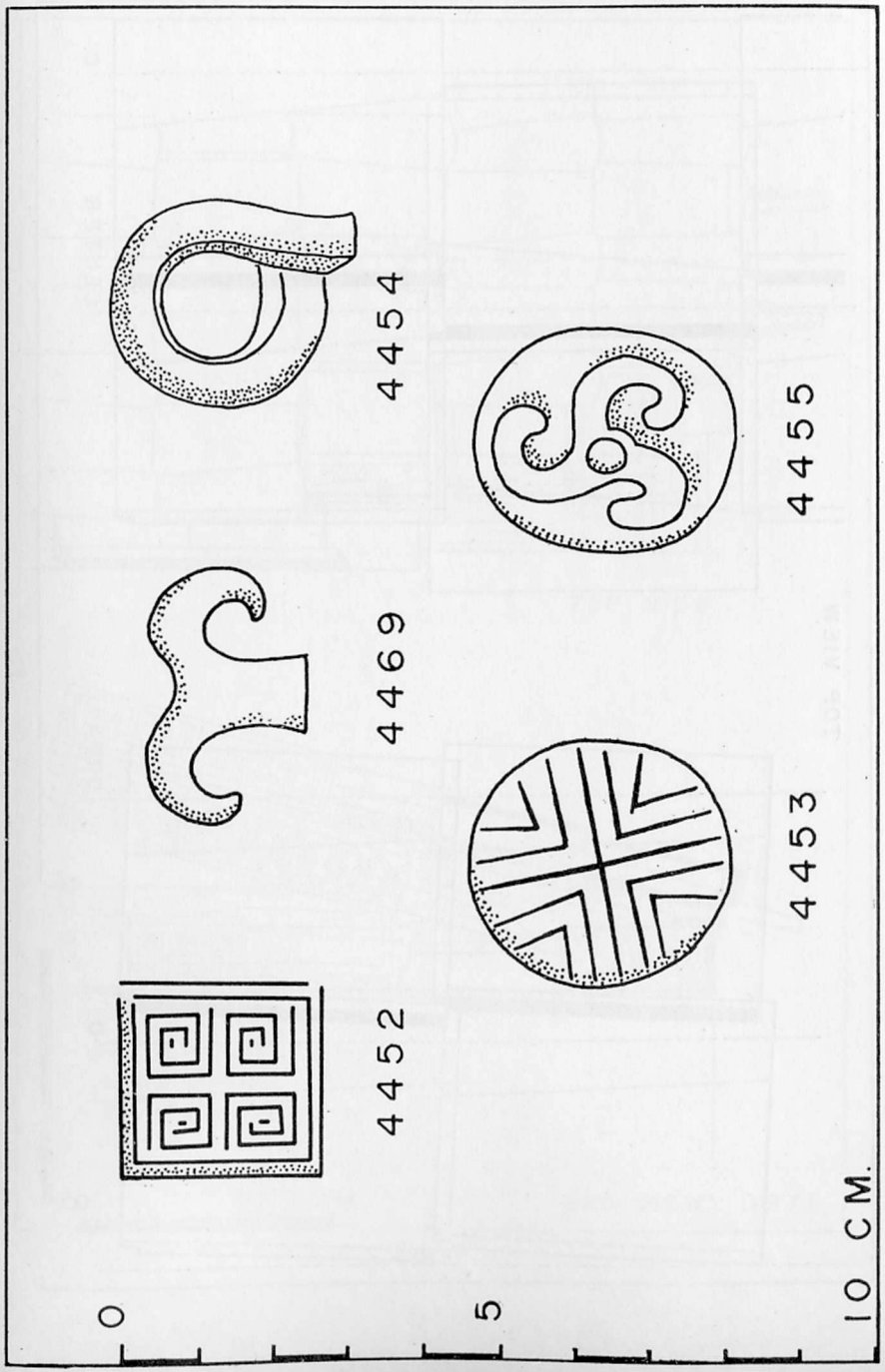
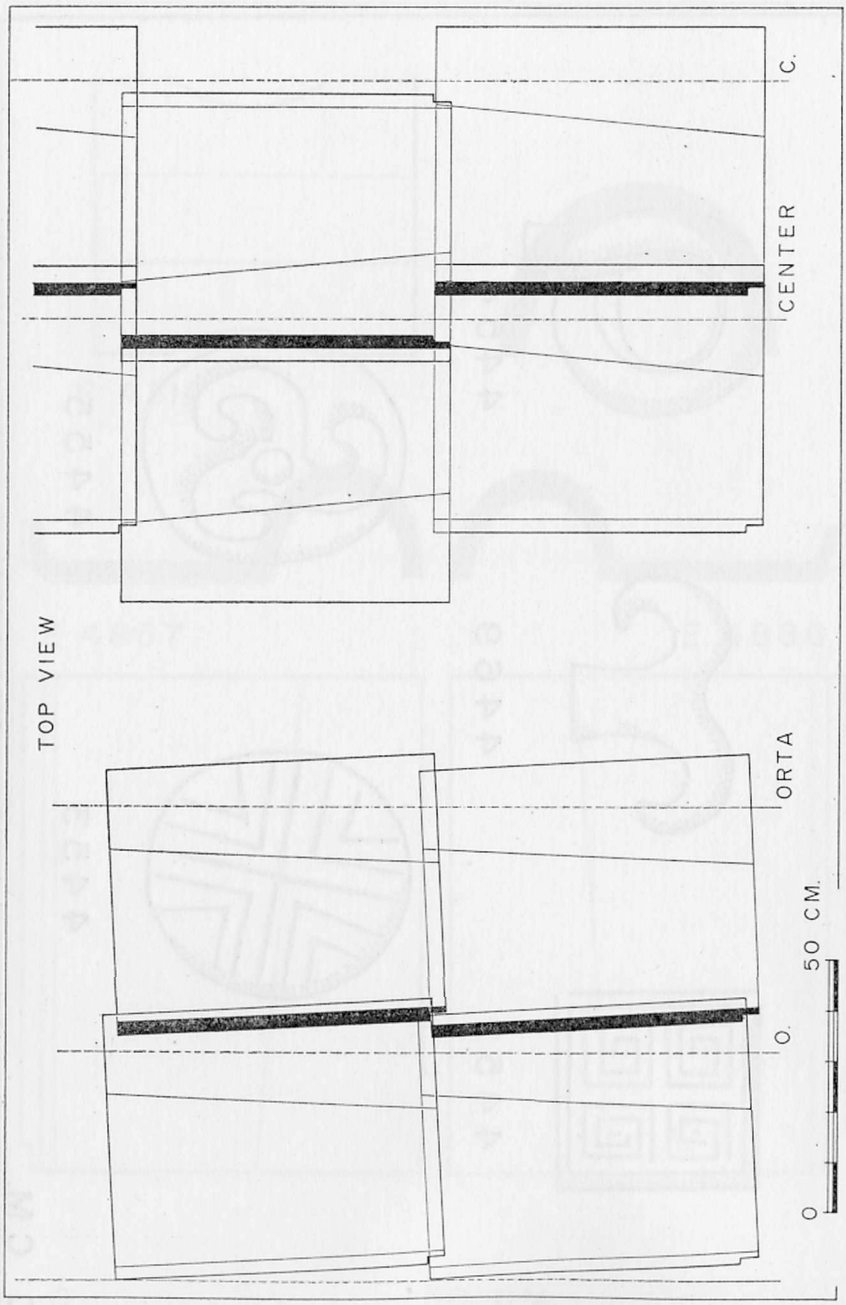


Fig. 8



Fig

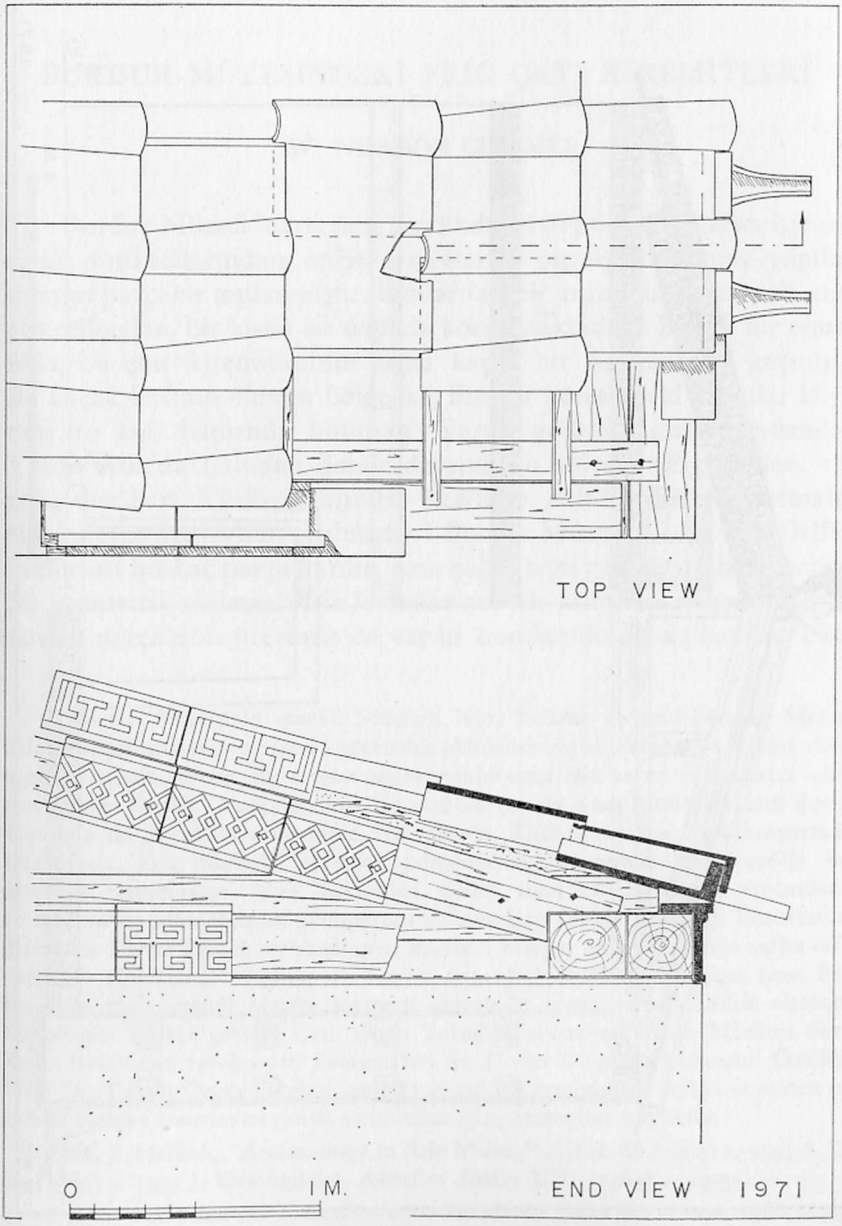


Fig. 10

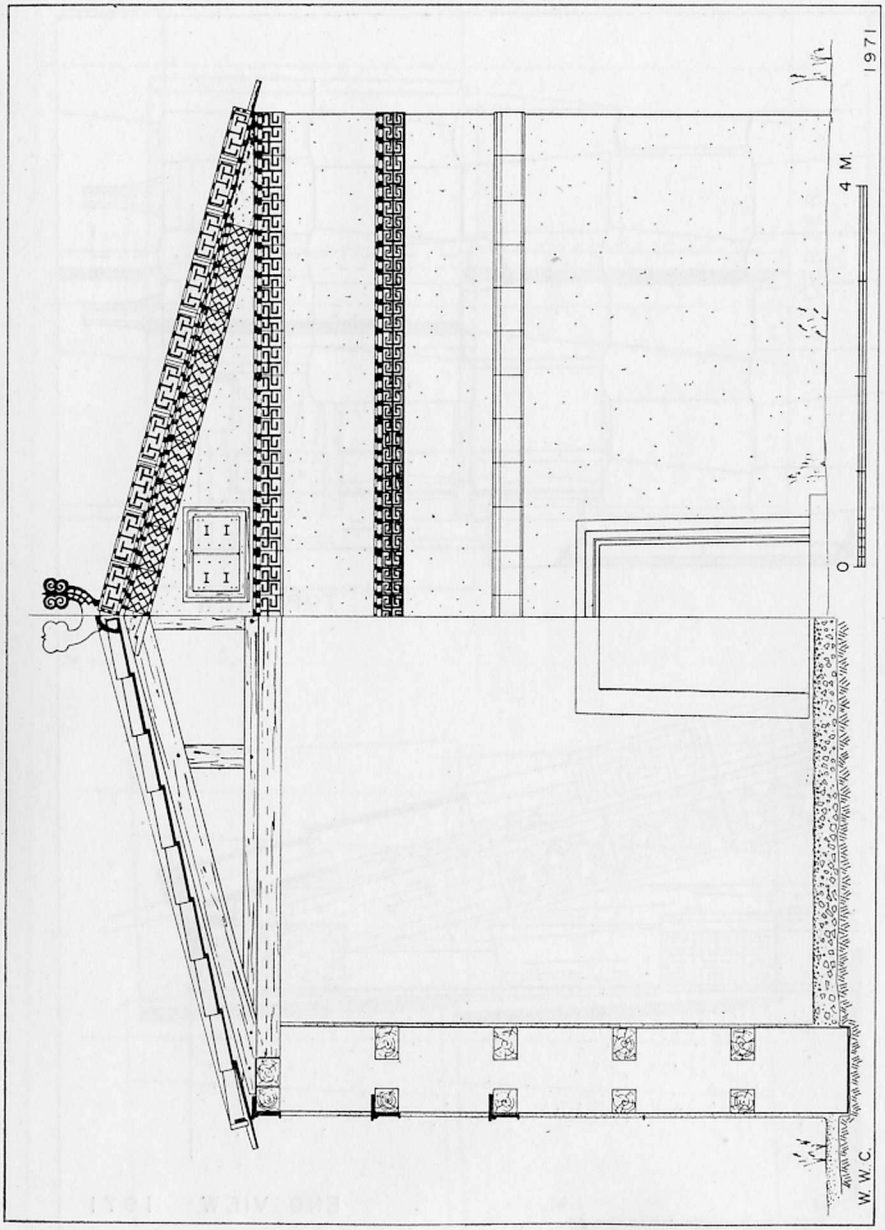


Fig. 11

BURDUR MÜZESİNDEKİ FRİG ÇATI KİREMİTLERİ

W. WILLSON CUMMER

Burdur Müzesi idarecileri tarafından 1963-64 yıllarından itibaren civar antikacılarından önemli miktarda pişmiş topraktan yapılma mimari parçalar toplanmıştır. Bunlardan bir kısmı müze salonlarında gösterilmekte, bir kısmı ise depoda korunmaktadır.[1] Büyük bir olasallıkla, bu çatı kiremitlerinin hepsi kaçak bir kazıdan ele geçmiştir. Bu kaçak kazının olduğu bölge ise, Burdur yöresindeki Hacılar köyünün 10 km. batısında bulunan Yarışlı gölünün doğu kıyısındaki Yarım Ada'da bulunan demir devrine ait kaledir (Fig. 1, lev. 1).[2] 1964 den beri, Türkiye dışında, üzerinde Atlı-Griffon kabartmaları olan epeyce friz levhası satılmıştır.[3] Burdur Müzesinde bu Atlı-Griffon frizine ait bir kaç parça vardır, ama çoğunluğu geometrik bezemelidir. Bu geometrik süslemeli friz levhalarının bir kısmının desenleri, dışarı satılan parçaların üzerinde de vardır bundan dolayı da bazıları bilin-

[1] Burdur Müzesinin emekli Müdürü Nuri Balköse ve yeni Müdür Mehmet Yılmaz'a çalışmalarım sırasında göstermiş oldukları büyük nezaket ve ilgiden dolayı teşekkür etmek isterim. Bu araştırmanın yapılmasına izin veren ve ilgilerini esirgemeyen Eski Eserler Genel Müdürü Hikmet Gürçay ile Kazı İşleri direktörü Burhan Tezcan'a da teşekkürüm derindir. Bu çalışma, Türk-Amerikan İlmi Araştırmalar Derneğinin, Frig mimarisi üzerinde çalışmalarda bulunmam için verdiği burs süresince yapılmıştır. Mali bakımdan destek olan büyüklerimin yardımlarına ve sabırlarına minnettarım. Kitaplığını kullandığım İngiliz Arkeoloji Enstitüsünün direktörü David French ve yardımcısı Richard Harper çalışmalarımda safha safha yardımcı olmuşlardır. Mimar ve İngiliz Arkeoloji Enstitüsü burslusu olan Peter Burridge'ninde vermiş olduğu kıymetli görüşlerle restorasyonda katkısı olmuştur. Makalenin Türkçe çevirisi Orta Doğu Teknik Üniversitesi Müze Müdürü Sevim Buluç tarafından yapılmıştır. Fotografları ise Tayfur Dişçioğlu basmıştır. Özellikle, Prof. Dr. Tahsin Özgüç'e daimi cesaret ve yol göstermesinden dolayı ve ayrıca makaleyi baskıya hazırlayıcı pratik yardımları için, minnetim büyüktür.

[2] M. J. Mellink, "Archaeology in Asia Minor," *A.J.A.* 68 (1964) s. 159; A.J.A. 69 (1965) s. 143; J. Birmingham, *Anatolian Studies* XIV (1964) s. 29-33.

[3] Ake Akerström, *Die Architektonischen Terrakotten Kleinasiens*, Lund, 1966 (Aşağıda, *ATK*), xiii, 218, fig. 70; Adolf Greifenhagen, "Ein Architektonisches Terrakottarelief aus Kleinasien," *Archäologischer Anzeiger* 81 (1966) s. 44-47.