# SARDİS, 1979

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The 1979 field season of the Archaeological Exploration of Sardis, cosponsored by the Fogg Museum of Harvard University and by Cornell University, took place during two and a half months (June-September) and was managed by a staff of twenty-four. The program again was primarily a threefold as one of reconstruction, survey, and excavation, and included study of material recovered in earlier seasons[1].

(1) As in past seasons, many friends, colleagues, and institutions in Turkey ensured the successes of the Sardis Expedition's program in 1979. The Department of Antiquities and Museums, notably acting director Murat Katoğlu, deputy director Çetin Anlağan, and excavations director Kudret Ata, implemented fundamental permissions and provided sympathetic and ready assistance in all matters (and Mr. and Mrs. Anlağan and Mr. and Mrs Ata honoured the Expedition with visits to Sardis in July and August). Likewise, officers of the Manisa Museum, especially director Kubilây Nayır, deputy director Attila Tulga, and assistants Mustafa Tümer and Hasan Dedeoğlu, provided similarly basic help and heartening encouragement throughout the season, and were generous with time and efforts on the Expedition's behalf. An important part of the Expedition's survey program (geological and botanical research) was effected through permissions and assistance provided by Pek-Su Sondaj Sanayii, Manisa, the T.C. Orman Bakanlığı Ağaçlandırma ve Eroziyon Kontrollü Başmühendisliği in Salihli, and Messrs. Mutahar Başoğlu of Ödemiş and Kaya Bengisu, MP İzmir.

The Government Representative to Sardis in 1979 was Meral Gözübüyük (Department of Antiquities and Museums, Ankara), whose sensible advice and energetic, unstinting efforts on behalf of Expedition projects proved invaluable.

The following made up the 1979 season staff : C. H. Greenewalt, jr. (University of California at Berkeley; field director); T. Yalçınkaya (Betonsan, A.S., Manisa; administrative advisor and agent); A Ramage (Cornell; associate director and principal investigator for Urban Survey Project); J. A. Scott (Harvard; executive director); E. El. Sterud (Archaeological Institute of America, National Office; Urban Survey Project); E. E. Freedman (Yale University; Urban Survey Project); D. F. Belknap (University of South Florida; Urban Survey Project); D. G. Sullivan (University of California at Berkeley; Urban Survey Project); N. H. Ramage (Ithaca College specialist for Attic pottery and draughtsman); K. P. Erhart (University of Southern California; recorder, acting conservator, archaeologist); T. M. Schwager (Wills, Denoon and Partners, Sydney; architect); S. N. Güven (Cornell; architect); R. L Vann (University of Maryland; architect); S. Shipps (Emerson College; photographer); E. R. Hostetter (University of Michigan; Reconstruction Project, director); B. L. H. Andreasen (Reconstruction Project); M. D. Morris (Harvard University; Reconstruction Project); T. A. Corey (Trinity College, Rome; Reconstruction Project); V. J. Harward (Harvard; archaeologist); C. S. Harward (Tufts University; archaeologist); B. K. McLauchlin (University of California at Berkeley; archaeologist); C. Foss (University of Massachusetts, Boston; specialist for Lydian topography); R. S. Thomas (Tufts University; specialist for terracottas).

**Lydian Terracotta Reconstruction Project**

The aim of this Project is to convey the visual effect of Lydian roof and revetment tiles in their architectural context and in the landscape setting of Sardis, by means of full-scale reproductions of tiles made with authentic materials. The project was managed in 1979 by a team of four: E. R. Hostetter (again director), a professional potter (B. L. H. Andreasen), sculptor (M. D. Morris), and painter (T. A. Corey). The program concentrated on tile production and on preparation and design of the display zone.

Tile production was facilitated by the use of an electric kiln, made to order at the site (Fig. 2). Two new tile types were recreated: a raking sima tile and a combination pan and horizontal raking sima tile (for the corner of the roof). The raking sima tile is decorated with a chariot scene, attested for Sardis sima tiles by a fragment in Istanbul (Figs. 3, 4)[2]

Archaeological reverses rarely are appropriate subjects for preliminary reports; but one of the Reconstruction Project's reverses precipitated an adventure in experimental archaeology that deserves to be reported here. The red "glaze" or slip that has been used to paint the tiles and was prepared from clay obtained in 1976 was exhausted during the 1979 season, and a new supply of appropriate clay had to be obtained. The original clay for the red slip had been supplied by potters of Urganlı village (ca. 37 km. west of Sardis, in the Hermus plain), who quarry their clay from many sources distributed over a very large region and who are not concerned with subtleties of its fired color, since they use the clay exclusively to make pottery vessels. The Urganlı potters had forgotten the location of their 1976 source; and none of the clay from their 1979 sources yielded a slip with the color and texture of the ancient terracottas' red slip and of our own 1976 preparation. Only after clay deposits in some thirty sites in the Hermus plain had been sampled and sixty different clay preparations (varying in clay combination and in settling time) had been made and tested was a satisfactory slip finally achieved (with clay obtained from the south shore of the Gygean Lake [Mermer Gölü]).

The Reconstruction display zone was completed, except for the structure on which the tiles are to be mounted (a corner of an hypothetical Lydian building). This zone is located at the southeast corner of the Expedition Compound (for reasons of visual effectiveness and security) and was created by expanding the Compound boundary by 3-7 m. to the North and East and by reducing the interior Compound space by 10-13 m. to the South and West. The terraces and boundary walls were redesigned (by T. M. Schwager) and, after excavation in the zone (see below) were completed (under the direction of T. Yalçınkaya).

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(2) The fragment is Istanbul Archaeological Museum 5972; A. Akerström, *Die Architektonischen Terrakotten Kleinasiens* ("Skrifter Utgivna av Svenska Institutet i Athen 4°." XI; Lund 1966) 70-71.

**Urban Survey Project**

The aim of this Project is to obtain broad topographical information, primarily by exploiting the resources of artifacts to be found on the ground surface and of geological and botanical evidence, that can complement the narrow, intensive focus of excavation. In 1979 the Project's program (coordinated by Principal Investigator A. Ramage) included topographical reconnaissance, sampling and study of surface artifacts, geological drilling, and vegetation studies; and was managed by anthropologists (E. L. Sterud, E. E. Freedman), a geologist-geomorphologist (D. F. Belknap), and a geomorphologist-palynologist (D. G. Sullivan).

Limited topographical reconnaissance was performed (by Sterud and Freedman) at Bin Tepe and at the northwest periphery of Sardis, on a low spreading mound ca. 600 m. west of the Pactolus stream (Sart Çayı) and ca. 300 m. north of the İzmir-Ankara highway. Diagnostic artifacts observed on the surface of the mound suggested occupation there during Lydian times, and included an Ionian black-figure sherd of Clazomenian type (retrieved and inventoried, NoEx 79.9). The study of surface artifacts (also by Sterud and Freedman) concentrated on sampling collections made in 1977 and 1978. Sampling of surface artifacts, geological drilling, and vegetation studies were the Project's major activities (in 1979).

**Urban Survey, Sampling of Surface Artifacts.**

Surface artifacts were sampled (by Sterud and Freedman) by means of systematic strategies at two locations, in northwest and northeast regions of the city site.

The *northwest region* is a hillslope, now planted in olives, located just outside a segment of Late Roman fortification wall, at ca. E60-80/S295-330 on the 'B' grid (cf. Fig. 1). The sampling design was a systematic, aligned, random one, in which the "universe" of 21 m. by 35 m. was divided into fifteen 7 $m^2$ "sectors," and all artifacts were collected from the southeast 2.5 $m^2$ square of each "sector" (the collection, from a total 93.75 $m^2$ of the 735 $m^2$ "universe," thus represents a 12.76% sample). Chronologically diagnostic artifacts (mainly pottery) ranged from Lydian through Byzantine and were mainly Roman and Late Roman. An unusual feature of debris in this region (observed also in 1976) is the concentration of chips and hunks of colored stone, including jasper and sard, yellow chert, and amethyst, which, together with a few fragments of fine quality glass (millefiore?) and worked ivory, suggests for this region a specific spatial function, viz. luxury craft center.

The *northeast region* is a low mound, now planted in olives, located just northeast of "Building C" at ca. E520-690/N370-410 on the 'B' grid (cf. Fig. 1). The sampling design was a simple one, in which all surface debris was collected from three 5 $m^2$ squares approximately located at the center and two ends of the mound's long axis. Chronologically diagnostic artifacts (mostly pottery) were mainly Roman.

The western square yielded quantities of slag, which, perhaps together with the mound's location on the leeward side of the city site, suggests for this location? another specific spatial function, viz. a metal working and "heavy industry" center.

**Urban Survey, Geological Drilling and Coring.**

Geological drilling and coring were conducted (by Belknap and Sullivan) in order to clarify the history of sedimentation, vegetation, and seismic activity at the site. Drilling was performed by means of a water well drilling rig (employing a 1.2 metric ton hammer, "Wheler" bucket sampler, 5 m. – high quadrapod, cable winch, and gasoline engine; rented from Pek-Su Sondaj Sanayii, Manisa; (Figs. 5, 6). Sediments at nine locations within a 6 $km^2$ area of the Hermus plain north of the Sardis Acropolis were sampled to depths of 10-16 m. (with samples taken at 0.20-0.50 m. intervals, depending on the kind of rock encountered. Coring was performed by means of a "vibracorer" (a device consisting of a standard cement vibrator attached to a section of irrigation pipe, which can be introduced by vibration into "unconsolidated and semiconsolidated water-saturated sediments" and which can recover cores of undisturbed deposit in "continuous lengths up to 11 m."[3]. Cores of 2-4 m. length were obtained from seven locations at Sardis and from Gölcük on Mt. Tmolus (Bozdağ).

Results of drilling and coring await thorough analysis of data. The data is capable of furnishing information of fundamental importance: stratification of sediment units and size and shape of sediment particles show the sequence of deposition and its environment (e.g., mud slide, alluvial fan, fluvial deposit); pollen grains provide a record of vegetation; sedimentary structures in cores from lake deposit may indicate seismic activity; and chronologically diagnostic context remains, i.e., artificats and organic materials appropriate for $C^{14}$ analysis, provide chronological references.

**Urban Survey, Vegetation Study.**

This study (by Sullivan) aims to reconstruct the vegetation history of Sardis, by obtaining a pollen record of earlier vegetation (see above) and by identifying existing vegetation. To identify existing vegetation, some 50-60 plant species were either collected and pressed or "contact printed" (i.e., in ink on paper) and pollen bearing surface material was sampled from Sardis and environs (i.e., on transects between Sardis, the Gygean Lake [Mermer Gölü], and sites in Mt. Tmolus [Bozdağ]), Vegetation maps and statistical records were made available by the Ağaçlandırma ve Eroziyon Kontrolü Başmühendisliği of the T.C. Orman Bakanlığı in Salihli.

(3) W. H. Hoyt, "Vibracore System, University of Delaware Department of Geology: Description and Acquisition Information" (MS).

## EXCAVATION

### General.

Excavation in 1979, as in 1978, focused on the region south of the Roman Synagogue where the remains of a "colossal Lydian structure" create a conspicuous low hillock, and concentrated on sectors MMS, MMS-N, and MMS-S (Fig. 7). Two Late Roman graves located in a dale between spurs of the Acropolis on the east side of the Pactolus valley and ancient remains in the southeast corner of the Expedition Compound also were excavated.

The material recovered in excavation belongs mainly to Lydian and Roman periods. Particularly noteworthy results include evidence that the "colossal Lydian structure"survives *in situ* to an height of ca. 9.50 m. and discoveries of a monumental Lydian building of stone embedded in the mud brick superstructure of the "colossal Lydian structure," of a monumental Lydian building faced with elegant limestone masonry ("Lydian East Wall"), and of a Roman inscription that alludes to the Emperor Tiberius' munificence to Sardis after the city's devastation in the earthquake of A.D. 17.

### Excavation, Sector MMS.

Among the most interesting results of excavation at Sardis in 1979 were obtained in small sondages on the summit of the hillock at sector MMS. This hillock is privately owned and planted in vines; but the owner permitted excavation between the vine plants. The first sondage was made at a place where burnt mud brick had been observed on the ground surface in line with the west face of the "colossal Lydian structure," a segment of which was exposed ca. 12 m. to the northeast (in 1978 excavations; Fig. 7). The sondage, 0.50 m. by 4.50 m., revealed only a few centimeters below ground surface a massive construction of mud brick (not burnt), with a face to the East (Fig. 8). Location and orientation show that this construction belongs to the mud brick superstructure of the "colossal Lydian structure" and establish that here the superstructure survives to a height of 6.80 m. (some 60 courses)[4].

An unusual or infrequently documented feature of superstructure design (predicted, however, by A. Ramage in 1978) is the pronounced incline of the face, which is sloped at an angle of 28 degrees (Figs. 8-10)[5].

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(4) i.e., if the level of the socle top directly below the sondage is the same as it is 12 m. further to the northeast, where socle and a few courses of mud brick superstructure were exposed in 1978 excavations.

(5) At Troy (II and VI) the socle or lower wall with its inclined face supported a superstructure with a vertical face, C. W. Blegen, *Troy and the Trojans* ("Ancient Peoples and Places," 32; London 1963) 44, 122; R. Naumann, *Architektur Kleinasiens von ihren Anfangen bis zum Ende der hethitischen*

The mud bricks of the superstructure face are made of a green-colored, oily clay, which has suggested to A. Ramage a deliberate attempt on the part of the ancient builders to give water repellence to bricks in exposed surfaces[6]. To investigate Ramage's idea and establish the depth to which bricks of green-colored, was expanded to the West. Just behind the top edge of the face, however, the mud brick construction terminated in a ragged line; and 1.50 m. behind the edge (and only a few centimeters below, in places even grazing, modern ground surface) appeared the edge of a stone building, set into the brick mass (Figs. 11-12). This stone building was explored in three small sondages that show it to be ca. 5.70 m. wide, more than 10 m. long (combining east and west faces[7]), and more than 2.00 m. high or deep (bottom not reached); and to have roughly parallel east and west faces backed with rubble packing (Figs. 9, 10).

Both faces are built with roughly trimmed blocks of irregular size and shape, with leveling chips, and without mortar. The predominant stone is limestone, but schist and sandstone also are present. Several of the limestone blocks have smoothly chiseled surfaces or draughted borders on one more sides.

The kinds of stone, the absence of mortar, parallels in construction to the "Lydian West Wall" in sector MMS-N (see below) and the massive Lydian wall on Acropolis South[8], and the plentiful Lydian pottery (of bichrome, streaky glaze, and grey ware fabrics) that was recovered against both east and west faces suggest that, like the "colossal Lydian structure," the stone building was created in the Lydian period, 7th-5th centuries B.C. The disturbed condition of the mud brick superstructure in which the stone building rests, however, indicates that the stone

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*Zeit*[2] (Tübingen 1971) 246, 248 fig. 315. The same was true of the citadel fortifications at Zincirli, Naumann 262 fig. 334, 264; R. Koldewey in F. von Luschan, *Ausgrabungsbericht und Architektur; Ausgrabungen in Zendschirli* II ("Mitteilungen aus den orientalischen Sammlungen," XII; Berlin 1898) 117-118. At Gordion, however (as P. I. Kuniholm reminded the writer), the outer slope of the pre-Cimmerian fortification wall is maintained to an height of 30 feet, R. S. Young, "Gordion: Phrygian Construction and Architecture," *Expedition* (1960) 9; idem, "Gordion: Phrygian Construction and Architecture: II," *Expedition* (1962) 2, 4-5.

Some examples of lower walls and socles with inclined faces are collected in C. H. Greenewalt, Jr., "The Sardis Campaing of 1977," *BASOR* 233 (1979) 25-26. inadvertenly ommitted was C. F. –A. Schaeffer, "Les Fouilles de Ras Shamra– Ugarit; Dixième et Onzième Campagnes (Automne et Hiver 1938-1939), "*Syria* 20 (1939) 289, pls. 42, 43. K. Bittel, *Hattusha, the Capital of the Hittites* (New York 1970) 147-148 contains an important reference to other examples in Anatolia (as again Kuniholm has kindly informed the writer).

(6) J. A. Scott has kindly reported that according to F. Afshar lamb fat as well as vegetable extract, certain refined clays, burnt lime, and cinder ash are used in the Near East today to render mud brick and give it water and weather resistence; cf. A. Cain, F. Afshar, J. Norton, "Indigenous Building Methods – Mud Brick Vault and Dome Building, *Appropriate Technology* (Intermediate Technology development Group; London 1975) 18-19.

(7) The west face and some of its rubble packing have long been exposed in the north scarp of the hillock; but until the discovery of the east face they had been assumed to belong to a Roman intrusion (the terracotta water pipes of which appear in the scarp immediately to the east).

(8) G. M. A. Hanfmann, "The Sixteenth Campaign at Sardis (1973)," *BASOR* 215 (1974) 31-33.

building is a secondary feature, added, or rather introduced into, the "colossal Lydian structure." Broken and burnt mud brick filled the space between the disturbed edge of mud brick construction and the east face of the stone building, and also appears in some quantity outside the east face (both superstructure and socle) of the "colossal Lydian structure"; this brick debris presumably represents disintegrated and displaced superstructure. If the colossal Lydian structure was a defensive work, as has seemed highly probable, the stone building might represent a strengthening added to defenses that had been weakened in a conflagration.

**Excavation, Sector MMS-N.**

At this sector (located north of the "colossal Lydian structure" and between the İzmir-Ankara highway and the Roman Gymnasium-Bath complex) the trench begun in 1978 was expanded to the East, West, and North. Excavation exposed more of the main colonnaded avenue of Roman Sardis, more early Roman or late Hellenistic features of undetermined significance, and two monumental Lydian structures (Figs. 13-19).

*Roman Avenue.* Of the avenue, parts of the street and of the colonnaded ambulatory to the south were exposed (Fig. 13). Both rise towards the East, the street on an incline, the ambulatory evidently stepped (as is indicated by an additional course, exposed in the easternmost part of the trench). As was the case in other excavated parts of the avenue, collapsed building debris (brick, tile, mortar), presumably from one or both ambulatories and datable on the evidence of context coins to the early 7th century A.D., overlies the avenue in a concentration that is thinnest at the middle of the street and densest over the ambulatory. Resting on a very thin lens of debris (i.e., up to 0.10 m. thick) overlying the road surface and distributed over a space of some 40 $m^2$ were some fifteen large stone architectural members. Two of these (each weighing ca. 4-6 tons) belong to the Artemis Temple (ca. 1 km. distant), specifically to the high column pedestals at the east end of the Temple. The chronological relationship of this assemblage or assemblages of blocks to the 7th century destruction is unclear.

In the western part of the street is an expanse of paving noteworthy for its pristine condition and neatly cut and fitted blocks (Figs. 13, 14). East of the 'B' grid E. 133 line only sporadic paving blocks survive. A coin of the late 4th or 5th century A.D. (no. 2159) recovered underneath one of the paving blocks at the eastern end of the trench provides a *terminus post quem* for that part of the paving [9].

(9) The covered drain and open ditch at the south side of the street that appeared in other exposures of the street also existed in that part exposed in 1979. In the 1979 exposure the ditch had been nearly obliterated by a disturbance that evidently occured after the renewal of street paving over the ditch and before the 7th century destruction.

The rear wall of the south ambulatory was exposed during the 1978-1979 winter months (as a result of rain and erosion) and establishes the ambulatory's depth as 7.90 m. (nearly 1 m. deeper than the north ambulatory, which fronts the "Byzantine Shops"). A segment of the inner face of this wall was cleared. Preserved to an height of ca. 1.80 m., it is built of fieldstone and poor quality mortar, and has a brick relieving arch and a pier of stone blocks (some of the stones reused). A small sondage dug at the rear of the ambulatory, in a space where neither of the two consecutive mosaic pavements were preserved, revealed that (as excavator V. J. Harward had surmised in 1978) the mosaic pavements had been preceded by an *opus sectile* paving (attested by its mortar bedding, with tell-tail ridges at the paving stone joints; located ca. 0.47 m. below the earlier mosaic pavement). A coin of the late 6th century A.D. (Tiberius II, 578-582; no coin 2057), recovered in or below the later mosaic bedding, and a coin of the early 6 th century (Justinian I, 527-565; no. coin 2100), recovered in or below the cobble border that frames the earlier mosaic at the rear of the ambulatory, indicate that the date of these mosaics is considerably later than previously had been supposed.

Resting in destruction debris in the ambulatory was a marble cylinder (1.60 m. high, ca. 0.62 m. in diameter) inscribed with a text in Greek (18 lines, except for the last line, which has been partly effaced; IN 79.8; Fig. 15). The inscription records honors by the people of Sardis to the Emperor Tiberius, who is designated "uncle of Emperor Claudius," signifying that the honors were posthumously accorded, some 4-17 years after Tiberius' death during the principality of his nephew; and "founder of the city" *(poleos ktisten)*, an epithet that refers to Tiberius' benefaction to Sardis and ten other cities of western Asia Minor after their devastation by earthquake in A.D. 17[10]. L. Robert has opined that the cylinder is a statue pedestal.

*Post-Lydian Features beneath the Roman Avenue.* Several features belonging to Roman or late Hellenistic periods rested beneath the Roman avenue (Fig. 16).

Under both street and ambulatory are some fourteen terracotta conduit pipes (several partly exposed in 1978), all approximately oriented in the direction of the avenue.

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(10) For the epithets *ktistes tes poleos and ktistes heni kairo dodeka poleon* and for the earthquake of A.D. 17, D. Magie, *Roman Rule in Asia Minor* (Princeton 1950) I, 499-500; II, 1358-1359; E. Koestermann, *Cornelius Tacitus, Annalen* I ("Wissenschaftliche Kommentare zu Griechischen und Lateinischen Schriftstellern"; Heidelberg 1963) 341; cf. also G. M. A. Hanfmann, N. H. Ramage, *Sculpture from Sardis: The Finds through 1975* (Archaeological Exploration of Sardis Report 2; Cambridge, Mass. 1978) 178, 180-181 (no. 275 and the Puteoli Base).

Two dowel holes on either side of center appear on the bottom surface of the cylinder, a central dowel hole or a centering hole and two dowel holes on either side of center on the top surface. Whatever its original or intended purpose, the cylinder might have been reused as a column drum. As found it was oriented toward and not far distant from one of the column bases of the ambulatory colonnade.

Under the street are three substantial foundations built of fieldstone, reused stone blocks, and mortar. These foundations are oriented east-west, are parallel to one another, and ca. 4 m. apart. Shared features of construction, orientation, and spacing suggest that they may be contemporary and have served a common purpose. The southernmost (partly exposed in 1978) is 3 m. high; the others were not completely excavated. Two of them extend between older structures ("Lydian West Wall" and "Lydian East Wall," see below), to which they are approximately perpendicular.

Under the street several paving surfaces were detected. The most substantial (or least elusive) consisted of fieldstones and mortar and was located between and slightly below the preserved top of the south and middle foundations reported above, with which it is evidently contemporary or later in date. The same surface or another rests directly above and to the east of the northernmost foundation (at the north end of the trench).

Below the surfaces at certain places in the east part of the trench (i.e., betwen "Lydian West Wall" and "Lydian East Wall," see below) is a thick deposit or deposits of sand and gravel. Whether this feature is natural or man-made is unclear.

*Lydian features.* Two monumental Lydian structures rest beneath the Roman street: the thick stone basement of a wall that was partly exposed in 1978, "Lydian West Wall"; and a structure of which a corner, faced with elegant coursed limestone masonry, was exposed in 1979, "Lydian East Wall" (Fig. 16).

"Lydian West Wall," oriented approximately north-south, is 3.30 m. thick[11] and was exposed for a total length of 12 m. At its north preserved end it may have been destroyed by the northernmost Roman or late Hellenistic foundation (see above), and at its southern exposed end it appears to extend under the Roman avenue's south ambulatory[12]. As evident in 1978, the west face (Fig. 17) is much more carefully and substantially constructed than the east face.

"Lydian East Wall," whose nickname is retained for the sake of convenience, is located 10.50 m. east of "Lydian West Wall" and has approximately the same orientation. The structure's two contigous sides, which face west and south and meet in an obtuse angle, are built of ashlar masonry and retain a solid core, exposed

(11) Excavation in 1979 showed that the second east face of "Lydian West Wall" that was exposed in 1978 is not continuous and terminates some 6 m. short of the Wall's north preserved end.

(12) Near the back wall of the Roman avenue's ambulatory, in a place on line with the west face of "Lydian West Wall" where neither of the mosaic pavements survived, a sondage was made below ambulatory floor level to determine whether "Lydian West Wall" continued beneath the ambulatory as far as the ambulatory's back wall. No west face was detected in the sondage, but "Lydian West Wall's" west face conceivably might rest at or slightly beyond the west edge of the sondage, and large stones and boulders in all parts of the sondage at the level of "Lydian West Wall" packing might belong to the Wall's core.

to a depth of 4 m., of large fieldstones. Four courses of masonry survive on the west face, three on the south. The first and second course of the west face and the first course of the south face are sandstone, and the two uppermost courses are limestone. All blocks are precisely jointed, and the faces of the limestone blocks have chisel-draughted borders and punch-stippled centers (Figs. 18, 19). The impression of a block from a fifth course is preserved in the east end of a Roman or late Hellenistic foundation that abuts "Lydian East Wall." The resemblance to clamp holes of two swallow-tail shaped cavities in the upper surface and at the back edge of one limestone block implies that block may be reused; on the other hand, according to the excavator (V. J. Harward), "the excellent jointing of all courses ... and the clear of working chips to the west guarantee that the blocks were trimmed *in situ.*" Immediately to the west there appears to have been a ramp of mud brick or clay with a cobbled surface sloping upward toward the lowest course of the west face; this feature may be a component part of "Lydian East Wall."

The relationship of these two structures is unclear. Middle Corinthian pottery fragments (P79.9: 8434) in a lens of debris that underlies both the "Lydian West Wall" and the "limestone working chip layer that runs up against the lower two courses of the "Lydian East Wall"[13] suggested to the excavator (V. J. Harward) that both Lydian structures were built after ca. 575 B.C.[14] Lydian East Wall's" elegant limestone masonry is standard for Lydian tumulus chambers at Sardis and Bin Tepe, and also was used for the "Pyramid Tomb" at Sardis; in non-funereal buildings, as "Lydian East Wall" presumably is, however, it is rare, one of the few known examples being the complex of terrace walls on the north slope of the Acropolis[15].

**Excavation, Sector MMS-S.**

At this sector (located directly south of the "colossal Lydian structure" hillock) the trench begun in 1978 was extended to the Southeast, in order to explore the nature of antiquities south of the massive Roman east-west wall that formed the

(13) V. J. Harward, "MMS-N Final Report," p. 7 (MS).

(14) Of undetermined significance is a short segment of wall or terracing, preserved to an height of two or three courses and exposed to a length of ca. 2.80 m. between "Lydian East Wall" and the Roman avenue's colonnade, under whose stylobate it extends. This feature is built of fairly large, smooth stones with rounded edges. It faces east and its face is flush stones with "Lydian East Wall's" west face (Fig. 17).

(15) For some examples of tumulus architecture with this kind of masonry, G. M. A. Hanfmann, "The Fifth Campaign at Sardis (1962)," *BASOR* 170 (1963) 52-59 with figs. 42-44 on pp. 61-64; idem, "The Seventh Campaign at Sardis (1964), "*BASOR* 177 (1965) 27-35; idem, "The Ninth Campaign at Sardis (1966)," *BASOR* 186 (1967) 43-52; A. Ramage, "The Fourteenth Campaign at Sardis (1971)," *BASOR* 206 (1972) 11-15.

For the "Pyramid Tomb's" masonry, H. C. Butler, *The Excavations Part I, 1910-1914, Sardis* I (Leyden 1922) 167-170.

For the Acropolis terrace walls, Ramage (supra) 15-20.

south limit of the 1978 trench, and to the West, in order to locate a west face of the "colossal Lydian structure," whose core had been exposed in the 1978 trench (Fig. 20). (Private ownership of the land immediately east of the trench thwarted exploration for an east face of the "colossal Lydian structure.").

*Roman Remains.* The southeast extension revealed part of a Late Roman room or corridor, bounded on the east and west as well as on the north by walls, which exhibit several building phases and construction styles. The east wall preserved slight traces of painted plaster. The floor is paved with tiles. A large number of roof tiles in the thick lens of fallen debris that covered the floor suggest that the space was originally roofed. A coin of Phocas, A.D. 607-608 (C79.23) that was recovered on the floor suggests that the room or hall may have been destroyed at the same time as the Roman colonnaded avenue and "Byzantine Shops."

The massive east-west wall, which is the room or corridor's north boundary, continued to form the south limit for the west extension of the trench. This wall was exposed for a total length of 16.50 m. and stands to height of 4.50 m. It exhibits four different segments of construction style and technique, and contains an arched opening (not completely excavated; Fig. 21)[16].

At a level ca. 1.40 m. below the threshold of the arched opening, traces of a plaster floor surface appeared intermittently throughout the trench. Just under the north scarp opposite the arched opening in the east-west wall, an intact column shaft, discovered by chance towards the end of the excavation season, rests *in situ* at approximately the level of the plaster floor.

At a level ca. 0.55 m. below the plaster floor are two drains, which meet at right angles. Both drains are made of brick, fieldstone, and mortar, and are covered with schist slabs. One drain, oriented east-west and partly exposed in 1978, runs some 1.75-3.00 m. north of the east-west wall. The other drain, oriented approximately north-south, passes under the east-west wall, where it is covered by a brick vault, and has, close to the wall, a square "manhole," whose top was approximately flush with the plaster floor.

Noteworthy small finds from the MMS-S trench Roman levels include a well-preserved and elegantly carved Ionic capital, which rested askew over the drain "manhole" (S79.10:8465), and a bronze brooch inlaid with colored glass (J79.1/G79.5/M79.3:8439; Fig. 22)[17].

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(16) The voussoir bricks of the arch were partly restored at the end of the season.

(17) Two round brooches or fibulae of bronze inlaid with colored glass were recovered in one of the "Byzantine Shops," on the north side of the main avenue of Roman Sardis (Shop E8, where in Late Roman or Early Byzantine times they had been tucked into chinks of the walls, J73.1:8221 and J73.2:8222; G. M. A. Hanfmann, "The Sixteenth Campaign at Sardis (1973), "*BASOR* 215 (1974) 52-53.

*Lydian Remains:* Immediately below the Roman material and partly intruded by the long east-west wall and the drains are remains of the "colossal Lydian structure," which fill the entire trench, i.e., extending some 14 m. in an east-west direction.

The mud brick superstructure contains layers of thin fibrous material, matting or rushes, and of sticks and beams[18], which, like the bricks, have an approximate southeast-northwest orientation (Fig. 23).

The stone socle of the "colossal Lydian structure" exhibits several features that are puzzling, perhaps partly because of their very limited exposure: what appears to be an inner face (i.e., against the mud brick) that is oriented southeast-northwest, and, buried in a disorderly mass of large stones and boulders some 4.50 m. short of the west end of the trench, a west face of stone blocks three or four courses high (Fig. 24). Many of the blocks of this face are neatly cut, but they are laid in an irregular manner that creates a ragged face. Since an accumulation of large stones that appear to have been deliberately placed lies below the face's bottom course and extends further west, apparently continuing beneath theRoman north-south drain, the west face may not have been the final outside west face of the "colossal Lydian structure."

**Late Roman Tombs (Tombs 79.2 and 79.3).**

In a dale between spurs of the Acropolis on the east side of the Pactolus valley, two Late Roman subterranean built chamber tombs *(hypogaea)* became exposed by chance during the 1979 spring months, as a result of deep ploughing. The same valley contains the "Tomb of Chrysanthios" (Tomb 76.1), which was cleaned and excavated in 1976 and 1977, and probably many other Late Roman *hypogaea*[19].

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In their design and base metal, the Sardis ornaments resemble the inlaid bronze and iron ornaments of Roman Britain and Europe, the inlays of which, however, are commonly enamel, K. Exner, "Die provinzialrömischen Emailfibeln der Rheinlande," *RGKomm* 29 (1939) 31-121. In some aspects of design, e.g., undulant radial lines, the Sardis ornaments also resemble the splendid Merovingian and Migration Period brooches and fibulae of precious metal and copper gilt inlaid with semi-precious stones and glass, J. Hubert, J. Procher, W. F. Volbach, *Europe in the Dark Ages* (London 1969) 234-238, 360-361; R. Jessup, *Anglo-Saxon Jewellery* (New York 1953). A silver cross set with glass inlays has been recovered from Anemurium (verbal report of H. Williams) and a silver fibula set with garnets from Dura Europos, P. V. C. Baur, M. I. Rostovtzeff, *The Excavations at Dura-Europos; Preliminary Report of Second Season of Work, October 1928-April 1929* (Yale 1931) 78, 81-82, pl. 44.1.

(18) This material had not been observed in 1978.

(19) For the "Tomb of Chrysanthios" and other tombs in the same valley, C. H. Greenewalt, jr., "The Sardis Campaign of 1976," *BASOR* 229 (1978) 61-64; idem, "The Sardis Campaign of 1977," *BASOR* 233 (1979) 4-9; C. Foss, "The Fabricenses *Ducenarii* of Sardis," *"Zeitschrift für Papyrologie und Epigraphik* 35 (1979) 279-283.

Tombs 79.2 and 79.3 are located at the southeast corner of the valley (at W41.6/S576 on the 'B' grid, Fig. 1). Built against one another "head to foot," they share a north-south orientation but are not axially aligned. Tomb 79.2, the more southerly, rests at a slightly higher level than Tomb 79.3 and rises correspondingly higher, presumably in conformance to the natural incline of the valley at this location.

Both tombs are rectangular, barrel-vaulted chambers, originally accessible from entrance holes at the north ends and by means of steps, three per tomb, anchored in the north walls. The entrance holes' frames and covers and the steps are schist slabs. A hole dug through the common wall between the two tombs and rough niches hacked at the south end of Tomb 79.2 and the north end of Tomb 79.3 presumably were created by grave robbers (the niches representing abortive probes for more tombs to the north and south).

The inside wall and vaulting surfaces of Tomb 79.2 were covered with white plaster and painted with decorative motifs in a variety of colors. Lacunae in the plastered surfaces exposes radial vault construction in brick and mortar. The painted decoration follows the conventional program of such Late Roman *hypogaea* at Sardis[20], with a dado surmounted by free-field garlands, birds (a dove and partridge-like and pheasant-like birds in this case), baskets of fruit or flowers, and individual flowers; the larger motifs decorating the lower vaulting, the smaller individual flowers spangling the upper vaulting (Figs. 25, 26). Most of the surviving decoration appears on the two long walls and vaulting; that of the lunettes is either worn beyond recognition or covered by an opaque muddy calcareous deposit.

Tomb 79.3 was not plastered inside. Its walls were built of fieldstone and occasional re-used cut stone set in mortar, except for the upper parts of the lunettes, which like the vaulting were built of brick and mortar. For that part of the north end corresponding in length to the width of the entrance hole, the lower part of the vault is made with bricks set radially, as voussoirs, the upper part with bricks set horizontally, as corbels.

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Five other Late Roman painted hypogaea in other locations have been studied: within and northeast of the Artemis Precinct; on the east bank of the Pactolus stream between sectors PC and PN; and near the Izmir-Ankara highway west of the Pactolus stream. For these, H. C. Butler, *The Excavations Part I, 1910-1914, Sardis* I (Leiden 1922) 174, 181-183; T. L. Shear, "Sixth Preliminary Report on the American Excavations at Sardes in Asia Minor," *AJA* 26 (1922) 405-407; G. M. A., Hanfmann, "The Fourth Campaign at Sardis (1961), "*BASOR* 166 (1962) 30-33; G. M. A. Hanfmann, J. C. Waldbaum, *A Survey of Sardis and the Major Monuments Outside the City Walls* (Archaeological Exploration of Sardis Report 1; Cambridge, Mass. 1975) 59-60. Another tomb located near the Izmir-Ankara highway west of the Pactolus, discovered, in the Spring of 1979 and excavated by the Manisa Museum, is to be published by K. Nayır and A. Tulga.

(20) For the decoration of other Late Roman *hypogaea* at Sardis, see the references cited above in n. 19; for the decoration of Late Roman *hypogaea* elsewhere, N. Fıratlı, "An Early Byzantine Hypogaeum Discovered at İznik," *Mansel'e Armağan / Mélanges Mansel* (Türk Tarih Kurumu Yayınları VII. 60[a]; Ankara 1974) 919-932.

No artifacts were recovered from Tomb 79.2. From Tomb 79.3 were recovered a small pottery bowl, a bronze buckle, and two bronze coins, one of the 4th or 5th century A.D., the other of the 5th century A.D. (no. 1848 and C79.7).

**Expedition Compound Excavation**

Excavation in the southeast corner of the Expedition Compound, necessitated by the exposure of antiquities during leveling and terracing operations for the display zone of the Lydian Architectural Terracotta Reconstruction Project (see above), revealed walls belonging to Roman Unit "NW" of the Artemis Precinct and a large number of fragmentary artifacts.

In its limited exposure, Unit "NW" appears to have been a structure of rather complex design, with several closely-spaced walls running parallel and at right angles to one another. Some of these walls (i.e., walls together with their foundations ?) stand to heights of over 2 m. They are built of brick, fieldstone, and mortar, and some have plastered surfaces with "combed" patterns in the plaster. The unit underwent several building phases, as is shown by at least one blocked doorway and by a colonnade (the column shafts of which are built of fieldstone and mortar covered with fine stucco) that was blocked to form a solid wall and subsequently built over on a slightly different directional line. Associated pottery items (sigillate wares, molded bowls) suggest that the unit was originally built in the early Roman period; a fragment of Byzantine-Islamic pottery immured in a blocked doorway shows that the unit was used as late as Middle Byzantine times.

Artifacts of particular interest include a marble plastering iron (S79.7:8419; Fig. 27)[21], an unfinished marble bowl or mortar (S79.6: 8418), a well-preserved sigillate bowl (P79.30: 8475), two bowl molds, one with an erotic symplegma scene (P79.6: 8426; Fig. 28), and a small glass inlay cut with an intaglio device representing Artemis of Ephesos (GEM 79.1/G79.8: 8476; Fig. 29)[22]. The last, taken together with its provenience in or on the periphery of the Artemis precinct, might provide support for the identification of the precinct's Artemis with Artemis of Ephesos[23].

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(21) For this instrument, R. Martin, *Manuel d'Architecture Grecque I. Matériaux et Techniques* (Paris 1965) 428-429.

(22) For the iconographic type, R. Fleischer, *Artemis von Ephesos und verwandte Kultstatuen aus Anatolien und Syrien* ("EPRO," 35; Leiden 1973); idem, "Artemis von Ephesos und verwandte Kultstatuen aus Anatolien und Syrien, Supplement," *Studien zur Religion und Kultur Kleinasiens; Festschrift für Friedrich Karl Dörner zum 65. Geburtstag am 28. Februar 1976* I ("EPRO," 66; Leiden 1978) 324-358.

(23) Other evidence for this identification would include the reference in an Hellenistic inscription from Ephesos to an *hieron* of Artemis at Sardis founded by Ephesians, D. Knibbe, "Ein religioser Frevel und seine Suhne. Ein Todesurteil hellenistischer Zeit aus Ephesos," *JOAI* 46 (1961-1963) 175-182; the invocation of Artemis of Ephesos in Lydian funerary texts of Sardis, R. Gusmani, *Lydisches Wörterbuch* (Heidelberg 1964) 130-131, 250-251 nos. 1, 2; the similarity in ground plan of the Artemis Temple at Sardis to the Artemision at Ephesos, cf. G. Gruben, "Beobachtungen zum

**Study of Material Recovered in Earlier Seasons**

In preparation for publication of material excavated between 1958 and 1976 certain groups of objects were studied by those involved in the publication program: Attic pottery by N. H. Ramage, ceramic evidence for Iron Age chronology and occupation at sector HoB by A. Ramage with J. A. Scott, and terracotta figurines by R. S. Thomas.

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Artemis-Tempel von Sardis," *AM* 76 (9161) 155-196, esp. 179-181; G. M. A. Hanfmann, J. C. Waldbaum, *A Survey of Sardis and the Major Monuments outside the City Walls* (Archaeological Exploration of Sardis Report 1; Cambridge, Mass. 1975) 75-76.

With so modest and portable an item as a glass inlay, however, there need be no connection between device and provenience. A Sardian Artemis also appears to have been invoked in one Sardis funerary text, Gusmani 130, 255 no. 11.