Archaeological Exploration of Sardis

NEWSLETTER FROM SARDIS, 2011-2016

CONFIDENTIAL – NOT FOR PUBLICATION July 16, 2016

Dear Friends and Supporters,

It has been years since you have received a newsletter, for which I must apologize. It has not been for lack of things to write about; rather the opposite. A number of you have wondered what has happened at Sardis, and I am grateful for your patience and loyalty. I will try to summarize some of the results of our seasons in this newsletter, and then update you further on the current season in a later installment.

We are fortunate to be able to continue a very full excavation program, making new discoveries about Sardis through its long history as capital of the Lydian empire, as a Hellenistic polis, through its long Roman and Late Roman phases, to the final end of urbanism in much of the lower city in the 7th century AD. Publications continue apace, and we are undertaking large-scale conservation projects of buildings around the site and of objects in the depots. Our team has grown in size to fill these needs, and despite the recent events in Turkey, Sart is calm and we are secure here.

Field 49

Two natural spurs of the acropolis dominating central Sardis are a focus of excavation. Long ago Prof. Hanfmann suggested that one of them, "ByzFort," might be the site of the famous Palace of the Lydian king Croesus, and now we believe that this and the neighboring "Field 49" were part of a huge palatial complex spreading down from the cliffs of the acropolis (fig. 1). The major feature of the area is the system of monumental terraces that enclosed both hills, discovered and published by Christopher Ratté (*Lydian Architecture: Ashlar Masonry at Sardis*, 2011). These terrace walls stood up to 12 m (39 feet) high, and reveal a remarkable approach to urbanism and the natural landscape, creating a separate raised quarter whose gleaming white limestone terrace walls echoed the sheer, gently undulating reddish-yellow cliffs of the acropolis behind.

Fig. 1. Aerial view of Field 49 and ByzFort. The recent availability of affordable, high-quality drones has transformed photography and mapping in archaeology, and provides new insights and dramatic views of the complex topography of Sardis. It is the next best thing to being able to fly.

Our goal is to understand these terraces in their long and complex history. It calls for experienced and patient archaeologists, though, to untangle the remains from a millennium of occupation here. Will Bruce (Gustavus Adolphus College), Güzin Eren (Boston University), Ferhat Can (Middle East Technical University), John Sigmier, Monica Park (both Harvard University), and Erin Lawrence (UW-Madison) have painstakingly dissected the complex stratigraphy in order to transform the maze of intersecting walls and fills into

Fig. 2. Güzin Eren on the megalithic terrace wall on Field 49, discovered in 1981 and now exposed across the whole brow of the hill. This is perhaps the earliest monumental architecture at Sardis, dating to the reign of king Alyattes or one of his predecessors, Sadyattes, Ardys, or Gyges, or perhaps even earlier.

Fig. 3. The many phases of the terrace wall on Field 49. At the bottom is the early megalithic wall that Güzin found. On top of this is a later Lydian terrace built of limestone blocks. Only two courses survive, though; the upper part was rebuilt in the early Roman period, reusing the same blocks but cut smaller and set in cement. Will Bruce stands with one foot in the seventh century BC at the beginning of Sardis' history, and the other in the seventh century AD at its end.

a history of the terrace from the Lydian through the Persian, Hellenistic, Roman, and Byzantine eras. They traced the terrace wall along two sides of the hill, and discovered that it has at least two Lydian phases, an early wall built of massive boulders (fig. 2) and a later one of neatly squared limestone blocks; and that it was rebuilt in the Hellenistic and Roman periods using the same blocks, getting smaller and smaller each time they were recut (fig. 3). The Lydians thus set the stage on which the rest of the history of this terrace was played.

Within the terrace, however, Lydian buildings have been very difficult to understand, thanks to their deep burial under later structures. At the front of the hill Güzin found a well-preserved early mudbrick wall, with slots for massive timbers to support a building above (fig. 4); and Will uncovered a later, limestone wall, perhaps of the period of Croesus himself (fig. 5). But our hopes of uncovering a coherent Lydian palace on the hilltop have so far not been realized.

Lydian artifacts from the hill are very different, though, from what we find elsewhere in Sardis, and consistent with what one might expect in a palace. Among these are a jasper seal showing a wild goat (fig. 6), a small fragment of carved ivory (fig. 7), bronze dishes, bowls, and ornaments, painted and molded terracotta revetments from

Fig. 6. Jasper seal from Field 49, the first such seal from a Lydian habitation context. Beth Dusinberre (University of Colorado-Boulder) is preparing a publication.

Fig. 7. A chip of an ivory furniture inlay preserves the foot and garment of a figure and the mane of a lion, perhaps Cybele holding a pair of lions upside-down by the tail. Such ivory-inlaid furniture was synonymous with luxury (for instance Ahab's "house of ivory" and Solomon's ivory throne), and examples are known from many Near Eastern palaces. Reconstruction drawing by Cathy Alexander.

Fig. 8 A clump of arrowheads perhaps from a treasury in the palace. Dozens of other arrowheads found in this sector are perhaps the remnants of the battle between the Lydians and the Persians in 547 BC.

Fig. 4. Güzin was ecstatic on discovering this Lydian mudbrick wall, preserved about 6.5 m (21 feet) below modern ground level, and probably predating even the earliest terrace here. The gaps in the wall and postholes in the bedrock floor held timber supports.

Fig. 5. A wall built from reused limestone blocks, perhaps Lydian and part of the palace of Croesus, with Will Bruce and Brianna Bricker. The two faceted marble blocks in the foundations are reused from an earlier and rather fancier Lydian building.

a number of different buildings, fragments of jasper, probably used for royal tableware, fine pottery, and other unusual artifacts, all marking this area as a very special one in the Lydian period. A cluster of dozens of arrowheads melted together perhaps comes from an armory, known in other Near Eastern palaces (fig. 8). And disarticulated human bones from at least two casualties suggest a violent destruction, almost certainly the capture of Sardis by Cyrus the Great in 547 BC. This destruction level has been encountered in other spots around the city, and sometimes produces wonderfully preserved assemblages of household and other artifacts, skeletons of casualties of the battle, weapons, and other remains. Here, though, the hill seems to have been savagely looted and then abandoned. But we have only reached Lydian levels in a few spots, and hope for much more.

The Lydians returned to the hill only after Alexander the Great took Sardis and the city came under the rule of the Hellenistic kings. Well-excavated deposits here have helped Andrea Berlin (Boston University) establish a better sequence of Hellenistic pottery from Sardis, and learn about how the eating and drinking habits of the Sardians changed under Greek rule, how they responded to changing fashions in neighboring cities, and how their trade connections waxed and waned (fig. 9). Her study of Hellenistic pottery builds on Susan Rotroff's (Washington University of St. Louis) publication of the pottery found until 1997 (fig. 10).

Fig. 9. Andrea Berlin sorting through the Hellenistic pottery from Field 49 and the rest of Sardis.

Fig. 10. Susan Rotroff is studying locally produced red sigillata pottery, which is often difficult to distinguish from the imported original.

Fig. 11. Bronze triangle from Field 49. Kassandra Jackson (University of Chicago) argues (and I paraphrase her) that Neoplatonists believed that the goddess Hekate could assist philosophers in crossing from the material world of change, diversity, and perishability to the changeless, unified, immortal realm of the intellect. To get Hekate's assistance, a Neoplatonic theurgist had to coax the goddess to appear before him; Jackson suggests this and similar triangles might have served as a base for a statuette of Hekate used in such rituals.

Fig. 12. Yılmaz Erdal (Hacettepe University) excavating a Byzantine grave, and teaching conservators Jessica Pace, Eve Mayberry, and Harry DeBauche excavation techniques. Yılmaz Bey has identified the majority of the graves on Field 49 as women and children, and suggests that the higher-status men were buried elsewhere.

As elsewhere at Sardis, the Roman levels are ubiquitous and interesting. A fascinating discovery is a bronze "magic triangle" with incised figures of Hekate labeled "Amibousa," "the changing one," and magical symbols - *charakteres* (fig. 11). This is only the third example of this type of artifact known, and is being published by discoverer Will Bruce and Kassandra Jackson (University of Chicago).

We have no trace of the catastrophic earthquake(s) that seem to have leveled other sectors, but sometime after the hill was abandoned in the early Byzantine period it became a cemetery (fig. 12). This is a little-known period in Anatolian archaeology and the remains, although slight, are precious. But this marks the end of settled urban life at Sardis.

Return to Field 55

Below these high terraces is a lower artificial terrace called Field 55. In 2004 we realized that this was part of a sanctuary of the Roman imperial cult, whose temple is the so-called Wadi B temple just south of the terrace (fig. 13). One particularly juicy spot on the east side of the terrace was dug in 2005, but could not be pursued because the land owner was unwilling to rent or

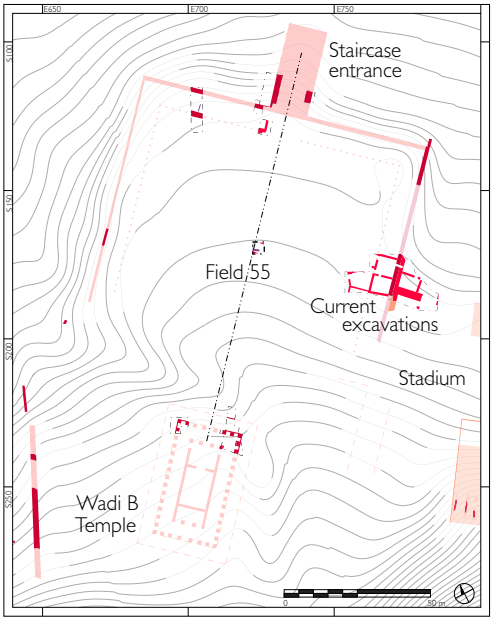

Fig. 13. Plan of Field 55 and the Wadi B temple. Our current excavations are on the east side of the terrace where later Roman remains are well preserved.

Fig. 14. Photographer Ricky Taylor (Harvard) and Lauren DiSalvo photographing the tumble of marble blocks in Field 55, collapsed in a massive earthquake.

Fig. 15. Teoman Yalçınkaya and the Citroën truck lifting a fallen marble column from the collapse. The vehicles brought to Sardis more than half a century ago, including the 1957 Land Rover and this 1959 Citroën, are still running, unbelievably, and in daily use. "Make do and mend" still applies here.

Fig. 16. Lauren surveys the destruction level in her room as it was standing when the complex was destroyed by an earthquake, after two seasons of recording and moving fallen blocks and masonry. The spolia wall behind Lauren is built almost entirely of statue bases, some with their inscriptions facing out and others frustratingly facing in, and from column drums, bases, and an inscribed architrave from the temple.

sell his land. A few years ago we had the opportunity to purchase part of this field, and archaeologists Lauren DiSalvo (University of Missouri), Eliza Gettel, Tony Shannon, Monica Park (all Harvard University), Sinem Çakır (Aegean University), Frances Gallart Marqués (Cornell University), and Paolo Maranzana (University of Michigan) have opened a large area, to learn more about this important early Roman sanctuary and its later life.

They found the area outside the terrace filled with a massive pile of marble blocks, collapsed here in an earthquake (fig. 14). Most of the blocks were reused: elements from the temple and other buildings of the sanctuary, as well as, inscriptions, and sculptures. Over the last three years architects Brianna Bricker (University of California Santa Barbara), Phi Nguyen, Alexander Meyers, Haibei Peng, Emma Silverblatt (all Harvard University), and Nathaniel Schlundt (University of Pennsylvania) have recorded them in plan and with 3d photogrammetric modeling. Teoman Yalçınkaya, our long-time and essential engineer, doer and fixer, lifted the blocks out of the trench (fig. 15), revealing the monumental building from which the marbles had fallen — made entirely from the fragments of earlier buildings (fig. 16).

Fig. 17. Bahadır Yıldırım and Ümit Güngör (Aegean University) studying sculpture from the temple of the imperial cult, including a lion-head spout, fragments of a figural frieze, and the legs of a female figure from the pediment of the temple.

Bahadır Yıldırım (Director of the Sardis office at Harvard and Assistant Director here at Sardis) and Phil Stinson (Kansas University) are studying the sculpture and architecture from this deposit, most of which belongs to the temple and associated buildings (fig. 17), to reconstruct the superstructure and decoration of this sumptuous temple. Another impetus for returning to this area was to allow epigrapher Georg Petzl (University of Cologne) to study the inscriptions for his forthcoming publication of all inscriptions discovered since the Expedition was founded (fig. 18). The hundreds of texts from the excavation here are mostly statue bases set up to honor prominent citizens of Sardis; they preserve a wealth of names of

Fig. 18. Georg Petzl recording one of the hundreds of inscriptions in Field 55. The text records that Myrinos, the chief financial officer of the Roman province of Asia, set up a statue at his own expense to honor his friend (whose name is lost) for construction and repairs at Sardis.

Fig. 19. A cast of thousands documented and conserved the extraordinary assemblage of late Roman eating and drinking vessels in the "taverna." From left to right, Cathy Alexander, conservators Harry DeBauche and Emily Frank, supervising conservator Tony Sigel (Straus Conservation Center, Harvard, returning after too long an absence), photographer Sara Champlin (UW-Madison), Marcus Rautman, and Lauren DiSalvo.

citizens, deities and cults, magistrates and high priests, buildings, neighborhoods, and streets of Sardis.

All in all a highly rewarding enterprise; and this is only the beginning, because the late Roman buildings are just as fascinating, and much more enigmatic. Built from the remains of one of Sardis' most important sanctuaries, the terrace and spolia walls are clearly monumental, but what was this? A civic building? A religious structure? A fortification? The trench we've opened is large and deep on an archaeological scale, but very small on the scale of this monumental complex, so we get only a small view of some much larger structure. A lightly incised menorah on the terrace wall, and a large stele inscribed with a menorah, lulav (palm branch) and ethrog (citron), published by Marcus Rautman (University of Missouri), attest a Jewish population around here; but that was probably quite common in late Roman Sardis. More to come...

Lauren found a small room, perhaps a "taverna," built against this monumental structure, with a gruesome tableau: fancy marble tables smashed and burned on the floor, bronze jugs and pans, an elaborate hanging lamp (*polycandelon*), agricultural implements, and in one corner, the incinerated skeleton of an unfortunate inhabitant of the room at the moment when the earthquake brought the walls crashing in, sealing it like a late Roman Pompeii (figs. 19, 20).

Crowning the terrace is another series of small rooms, nicely appointed with painted walls and tile floors. The paintings were barely clinging to the walls though, so conservators Jessica Pace (Brooklyn Museum), Carolyn Riccardelli (Metropolitan Museum of Art), Brian Castriota, Evelyn Mayberger, Harral DeBauche, Emily Frank, and Chantal Stein (all Institute of Fine Arts, NYU), Carol Snow (Yale University Art Gallery), Nuriye Arslaner, Güler Sarıoğlu, and Aybuke Sultan Koca (all Conservation Center, Ankara University) have spent thousands of hours consolidating and cleaning them to reveal an unexpectedly colorful and vivid scheme of faux marble (figs. 21, 22).

A devastating earthquake, or maybe a series of earthquakes, brought a sudden end to habitation here in the early seventh century. We have found traces of this catastrophe elsewhere at Sardis and other sites report earthquake damage as well. Numismatist Jane Evans (Temple University) is narrowing in on the date through careful study of the coins sealed under this debris. Surprisingly, she is finding that many of the coins circulating at this moment are centuries old — as if you pulled from your pocket a handful of change, and half of the coins dated to the early 19th century.

Fig. 20. Sara Champlin and Evren Işınak Bruce pose with some of the eating and drinking vessels from the "taverna" in Field 55.

Fig. 21. Harry DeBauche and Eve Mayberger consolidating and cleaning the wall paintings in the late Roman house in Field 55.

Fig. 22. Artist Cathy Alexander records the swirls and vivid colors of the faux marble wall paintings in watercolor. This is by far the most legible record of these paintings, moreso than photographs of the broken and encrusted paintings themselves.

Hellenistic Working Group

Paul Kosmin (Harvard University) founded a Hellenistic Working Group of scholars interested in this important period at Sardis. Paul, Andrea Berlin, historian and epigrapher John Ma (Oxford University), archaeologists Ruth Bielfeldt and Susanne Ebbinghaus (both Harvard), numismatist Jane Evans, architectural historian Fikret Yegül (University of California Santa Barbara), and Baha Yıldırım gathered in 2013 and 2014 for exciting and stimulating three-day seminars to share thoughts about Hellenistic Sardis. We discussed the transitions of the city from a Persian satrapal seat to a Hellenistic imperial capital and Greek polis, questions of ethnicity, acculturation, and Hellenization, and related topics (fig. 23). Paul is planning a conference at Harvard for the spring of 2017, with a publication to follow.

The Temple of Artemis

The greatest Hellenistic monument of Sardis is, of course, the temple of Artemis. Fikret Yegül has been documenting the temple in detailed plans, elevations, and restorations for a new, thorough publication.

But in the century since H.C. Butler excavated the building, the marble has become disfigured by black cyanobacteria and lichen, so that the original color and texture of the stone is completely obscured under black biological film (fig. 24). Conservators Michael Morris (Metropolitan Museum of Art) and Hiroko Kariya (private practice) have developed a new method of "cleaning" the temple using a gentle biocide. Left to cook in the sun for five days, the biocide works deep into the stone and kills the bacteria that infest the building; over the following months the stone slowly returns to its original color. A generous grant from the Kaplan Fund allowed us to undertake a five-year project, and Michael and Hiroko have trained a crack team of local women — the first women to work in the field here. It has been a tremendous success in every way (figs, 25, 26). The temple is returning to

Fig. 23. Hellenistic Working Group (Andrea, Baha, Ruth, Jane, Paul, Susanne), at "Krezüs Hastanesi" (Croesus' Hospital), perhaps a watchtower in the hills above Sardis.

Fig. 24. The Temple of Artemis in 2012, covered with lichen and black cyanobacteria. The overhanging block protected the wall beneath from infestation, preserving the original state of the marble; and providing a standard for the cleaning process.

Fig. 25. The temple during cleaning, 2014. The process is slow, taking a year or so for the biocide to kill the microorganisms and for the stone to return to its original color.

Fig. 26. Hiroko Kariya at the end of the 2014 season, after cleaning. This first year was so successful that we decided to keep the team working until the end of October.

its original state, revealing the original patina and veining of the stone and a wealth of details about its construction, while the women are engaged with their project and justifiably proud of their achievement. For me this has been one of the most satisfying projects of the past few years.

TEP & the Monumental Arch

The other undertaking to preserve the ancient site is the so-called Touristic Enhancement Project (TEP), aimed at the Synagogue and the Lydian fortification. The discovery, excavation, and restoration of the Synagogue at Sardis, the largest in the ancient world, was one of the great achievements of Prof. George Hanfmann, founder of the Expedition. Its peristyle court and basilica-shaped main hall were sumptuously decorated in mosaic and colored marble revetments, with inscribed panels recording the donors' names and their vows. Between 1963 and 1973 Hanfmann's team lifted the mosaic pavements of the building and reset them in reinforced concrete, making this one of the few ancient buildings in the world where you can safely walk on the original mosaics. But a half-century of exposure to rain and weather has caused the reinforced concrete backings to begin to crack and rust. In 2010-2012, another grant from the Kaplan Fund allowed us to conserve the mosaics. Now that the mosaics are stable, though, we must protect them from further damage. Unless we intervene, the corrosion will cause the backings to fail, and the mosaics will have to be completely lifted and reset. The only way to prevent this is to build a shelter roof over the building.

Across the highway and a thousand years older lies a different problem. At 20 meters (65 feet) thick and standing up to 12 m (40 feet) high, the Lydian fortification wall is probably the largest mudbrick structure in the Mediterranean. Unparalleled outside the great cities of Mesopotamia, it is a product of cultural and technological exchanges between Sardis and the Near East, and a testament to the aspirations of the Lydian kings to build their city on the model of Nineveh or Babylon. But this unbaked adobe brick wall has also suffered since it was first exposed, and needs a permanent roof and additional protective encapsulation. Architects Troy Thompson (SmithGroup LLC), Nathaniel Schlundt (Scott Henson Architect), Max Golden (Diad Architecture), and Brianna Bricker, conservators Michael Morris, Hiroko Kariya, and others have met at Sardis and the US for years to design protective roofs over these two buildings. This summer they reached the final design and structural analysis for the Synagogue roof (fig. 27). We hope to begin fundraising in the fall.

While Troy and others design the roofs, however, we can make progress in other aspects of the project. The late Roman Synagogue lies along a grand colonnaded, marble-paved avenue that was a major artery through Sardis, flanked by mosaicked sidewalks and shops, restaurants, and residences, a sort of ancient shopping mall (the "Byzantine Shops"). This route has been the main passageway from the Aegean to central Anatolia for almost 3,000 years: in the Lydian period the ancestor of this road led through a gate in the Lydian fortification; and until 2000, the Izmir-Ankara highway ran the same course, causing no end of traffic congestion (fig. 28). We wanted to open up a section of the marble-paved road just outside the Synagogue so that visitors would see the Roman avenue, and then be led back in time to its Lydian predecessor, in that remarkable continuity of cultures over the centuries.

Fig. 27. Design of the new shelter roof for the Synagogue, by Troy Thompson, Nathaniel Schlundt, and Max Golden.

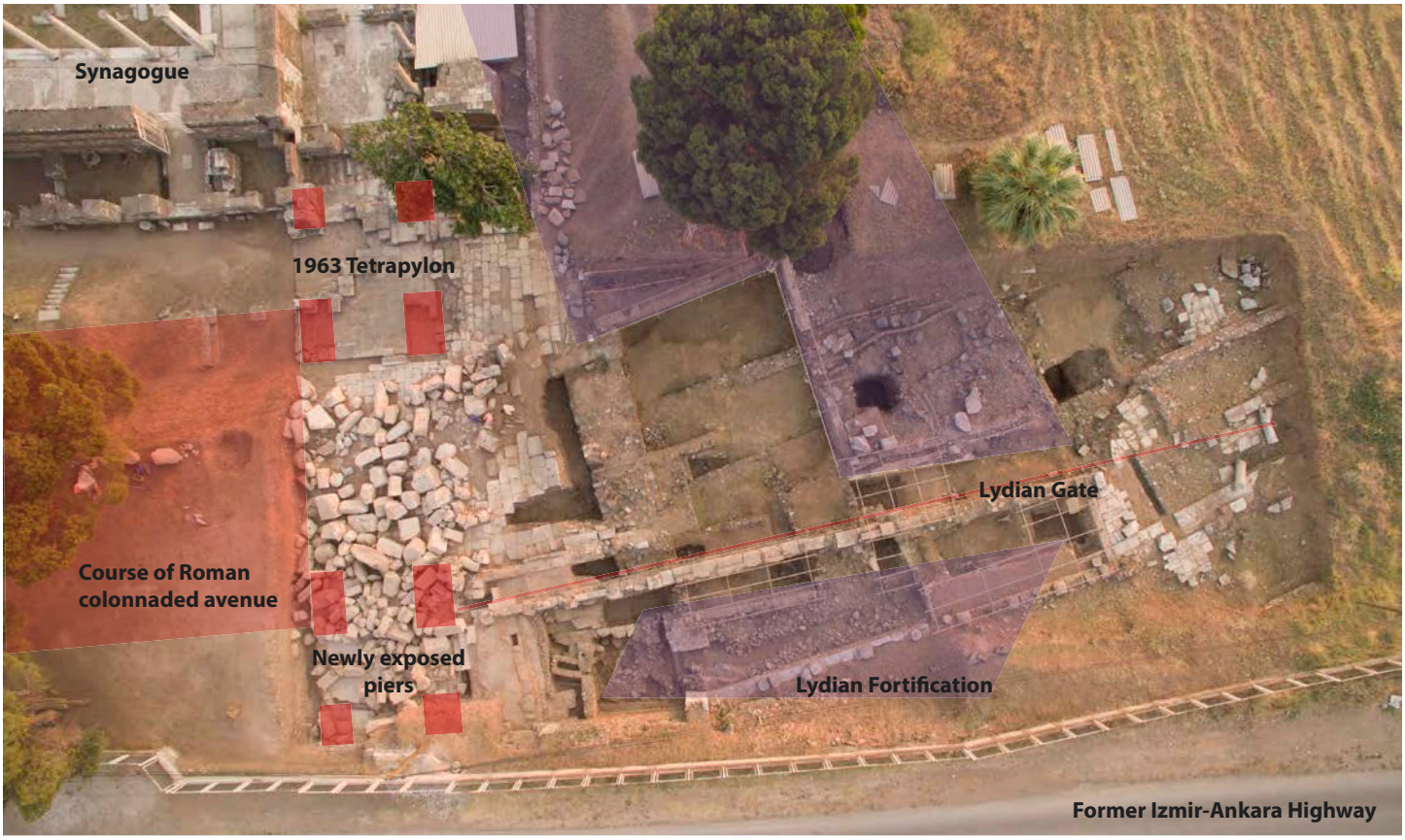

Fig. 28. Aerial view of the Roman colonnaded avenue, Lydian gate, Synagogue and the newly discovered arch.

This should have been the easiest excavation in the world: the fill over the road is virtually sterile, and we should have been able simply to dig down to marble pavement. Imagine our surprise, then, when the road surface was littered with enormous marble blocks, some of which had fallen from a great height, shattering the pavement below (figs. 28, 29). Gencay Öztürk (Aegean University), Jude Russo (Harvard) and Conor Fagan (University of Missouri) have now exposed most of these blocks, and Brianna Bricker and Bahadır Yıldırım discovered that many of them have a curved face, and must be voussoirs. They come in two general sizes. The smaller ones, 4 - 4.5 m in diameter, fit a set of piers uncovered north of our area in 1963; this was interpreted as a tetrapylon over the sidewalk. But the larger voussoirs have a diameter of about 13 m (43 feet!), and must belong to a massive arch that spanned the main road — just where they were found — from the piers found in 1963 to a corresponding set of four piers on the other side of the road. We therefore may reconstruct a colossal three-bayed arch standing on eight slender piers (fig. 30). This was 33 m (108 feet) wide, and perhaps 24 m (78 feet) high, as high as the Marble Court. The pile of blocks that looks so impressive on the ground, then, is but a tiny fraction of the original: if the reconstruction offered in fig. 30 is

Fig. 29. Baha, Brianna, and Jude are hardly visible among the huge blocks fallen onto the Roman avenue. It is hard to imagine that the arch might have stood as high as the Marble Court in the background.

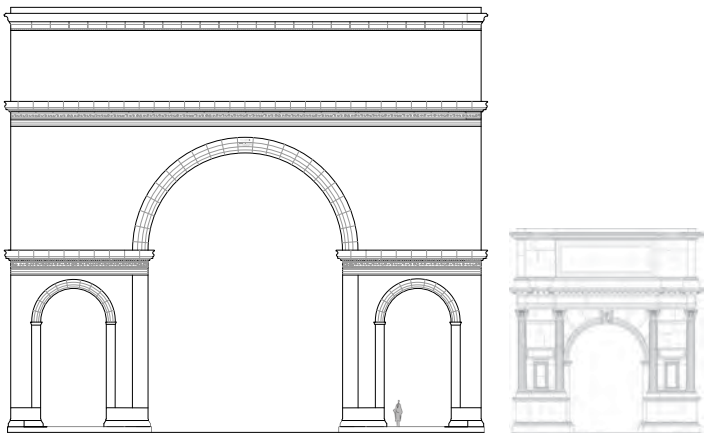

Fig. 30. This reconstruction of the arch is still very hypothetical: only a tiny fraction survives, and the superstructure may have looked quite different. The Arch of Titus in Rome, shown to scale, gives a sense of the magnitude of this new monument.

Fig. 31. Georg, Baha, and Brianna reading the inscription on the keystone of the arch, miraculously preserved where it fell. Unfortunately it does not offer a date for the arch or the circumstances of its construction.

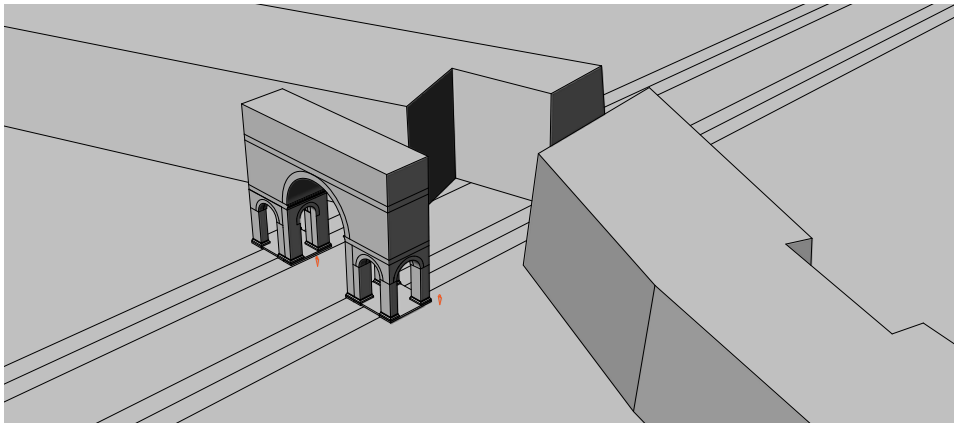

Fig. 32. A reconstruction of the arch and Lydian gate, which of course never stood together.

correct, roughly 97% of the blocks have been burned for lime, casualties of the very accessibility of this structure on a main road.

Imagine a visitor arriving at Sardis from Smyrna, Ephesus, or Pergamon. He or she would be faced with a huge triple arch marking the entrance to the city, a striking sight because, as far as we can tell at the moment, its 13 m central span makes this the largest arch in the Roman world. A careful observer, however, would notice peculiarities, such as the remains of flutes visible on the edges of the large voussoirs (barely visible in fig. 31). These large voussoir blocks strangely turn out to be spolia, reused column drums from the interior colonnade of the temple of Artemis. When and how did these drums make their way a kilometer away to be repurposed in this arch? And would our observant Roman know of the earlier Lydian gate at this entrance to Sardis, dating to the reign of Alyattes, which dwarfed even this largest of Roman arches (fig. 32)? Did traces or even the memory of the earlier gate remain, long after the end of the Lydian empire? And what brought a final end to this arch? The same earthquake, perhaps, that destroyed the buildings in Field 55? After the destruction, most of the blocks were burned for lime, though this main road was never cleared, but was left blocked by fallen debris. This unexpected discovery has interesting repercussions throughout the site, and Conor is just beginning to reach the block fall to the west of the arch; so stay tuned.

Karnıyarık Tepe

Since 1963 the expedition has worked on and off at one of the three great Lydian tumuli in the royal cemetery of Bin Tepe, known locally as Karnıyarık Tepe (fig. 33). Greenie (Crawford H. Greenewalt, jr.) dug tunnels through the mound in search of a chamber, and discovered the crepis wall surrounding an earlier, smaller tumulus, which had been left unfinished (fig. 34, 35). But after three summers

Fig. 33. Karnıyarık Tepe, one of the three colossal tumuli of Bin Tepe, with the excavation house from 1964 and spoil heap from tunneling. Although it is the smallest of the three, it is still as wide as the Great Pyramid of Egypt, and its top is the highest point in the great cemetery.

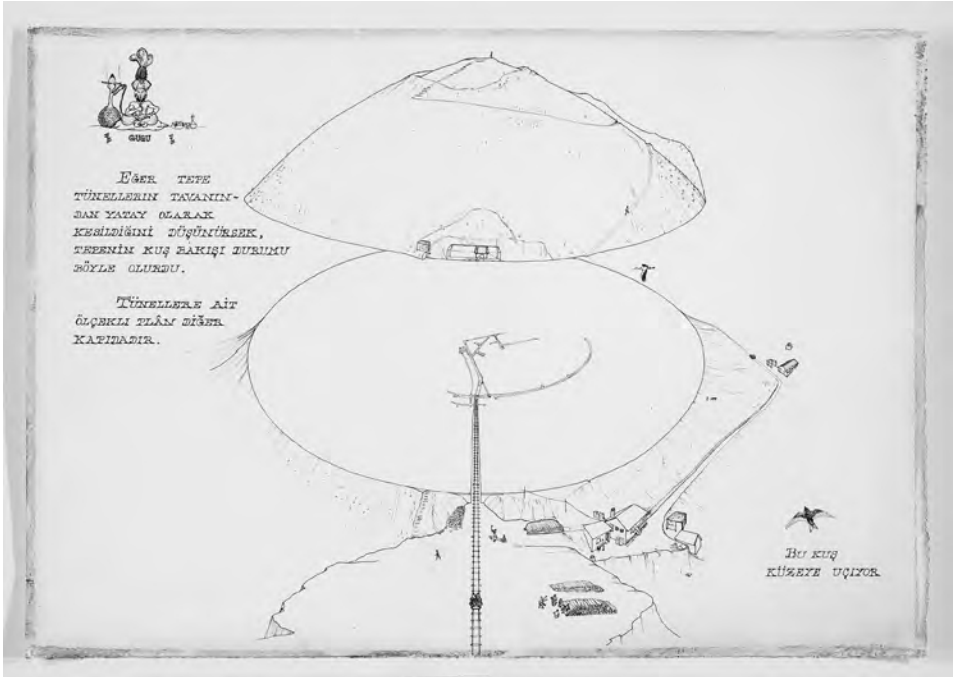

Fig. 34. Greenie drew this cutaway view of Karnıyarık Tepe in 1965 to explain to the workmen where they were digging and what they had found, since the architects' plans were difficult for them to understand. The circular tunnel within the mound follows the earlier crepis wall. The labels read "If the tumulus is thought of as sliced through at the tunnel ceilings, a bird's eye view of the tumulus would look like this" and "This bird is flying north."

of difficult and intense labor, they were forced to call a halt to the search.

Geophysical survey in 1992 led to a short program of coring in 1995, but this also failed to find a chamber. In 2011, Stefan Giese and Christian Hübner (GGH - Solutions in Geoscience) conducted another geophysical survey of the mound, and while their survey from the surface of the mound revealed nothing, the results of their survey within the tunnels seemed very promising (fig. 36). Three different methods all showed an anomaly at the same spot, not far from where Greenie had suspected a chamber might be located; and this was far from any known Roman robber's tunnel. The prospect of an unlooted, possibly royal Lydian burial was too important to ignore, and in September of 2012, with special permission granted in collaboration with the Manisa Museum, archaeologist Will Bruce, Teoman Yalçınkaya, Evren Bruce, Manisa Museum archaeologists Nur Soyer and Nilufer Parlıtı, a team of twenty workmen, and I began to investigate this anomaly.

Before we could start, though, we had to clear out half a century's worth of fallen earth and the rotted timbers from the 1960s, install a new railway, lighting and generator, ventilation pump, and 20 tons of new steel shoring to enable the men to work safely (fig. 35). With the infrastructure in place and with tremendous excitement all around, we drove our first tunnels through the anomaly, and found — nothing. It seems that a spall in the fill of the tumulus, caused by uneven drying along the tunnel walls, might have deceived the ERT (electrical resistivity tomography) survey; but we have no good explanation for the magnetic and radar anomalies here. We were disappointed, but the results were conclusive, as we reached bedrock at the floors of two tunnels.

Since we had the infrastructure and team in place, however, we decided not to abandon the project, but continued to tunnel within the mound for more than four months (fig. 37). Teoman, Will, and the team of workmen worked heroically: they moved 10-15 tons of earth by hand every day, each team progressing a bit less than 1 meter per day; and by December, when it was too

Fig. 35. The limestone crepis wall of an earlier tumulus within the larger mound of Karnıyarık Tepe. We can only speculate why it was abandoned unfinished: did another, more powerful person gain control of this prominent spot to build his own larger mound? Güzin inspects the masonry protected by the new steel shoring and electric lights installed in 2012.

Fig. 36. Stefan Giese and Christian Hübner conducting a geophysical survey of the tunnels in Karnıyarık Tepe.

Fig. 37. Excavating at Karnıyarık Tepe. All the work had to be done by hand; we did use railroad track from the 1960s, and a car left over from Butler's excavation.

cold to continue, they had dug 232 m of tunnels (compared to about 327 m dug in the three seasons from 1964-1966), spaced closely enough to be sure to find a chamber if one existed. They almost tripled the area within the early crepis wall where we can be fairly certain that there *isn't* a chamber, and did so safely and with amazing good cheer under difficult conditions. But as Prof. Hanfmann put it in 1964, "In the battle of Man against Mound, the Mound won" — again. Although we didn't find the chamber, we learned something about the construction of the mound, about excavation underground, patience, and the foibles of geophysics. We still cannot explain the anomalies, but we are certain they do not indicate a chamber at that spot. There are other geophysical techniques that might be more revealing, however, and I still hope to return to Karnıyarık Tepe someday.

Publications

As engaging as new research is, the publication of our results takes the front row in camp and during the year, overseen by Kathy Kiefer (Harvard). The most recent is Hans Buchwald's *Churches EA and E at Sardis*. Andrew and Nancy Ramage (Cornell University and Ithaca College) are bringing the final publication of the excavations of sectors HoB and PC to a conclusion, presenting the results of stratigraphic excavations at Sardis from the late Bronze Age into the Persian period. Gül Gürtekin Demir (Aegean University) is writing the catalog of artifacts from later Lydian levels from HoB. Georg Petzl has completed his manuscript of the inscriptions found since 1958; Jane Evans has completed hers on the coins found since 1971. Other manuscripts in process include the Temple of Artemis by Fikret Yegül, and the Synagogue by Andy Seager (Ball State University).

Any modern project needs a web presence, and we have been somewhat dilatory in this. In 2014, Theresa Huntsman joined the team as full-time Publications Data Manager. Vermonster LLC designed a new web site at http://sardisexpedition.org, which we hope you will visit. The on-line, searchable database of artifacts will often be more useful than a printed catalog, for instance in the case of Jane Evans' catalog of 8,000 coins.

Fig. 38. Crawford H. Greenewalt, jr. (1937-2012) at Karnıyarık Tepe during the geophysical survey of 2011.

Fig. 39. Greenie's watercolor of an imaginary mosaic showing the Judgment of Midas. With his characteristic thoroughness, Greenie wrote a learned description of the ancient sources he drew on, the ancient representations of the figures, details such as the forest growing from the ears of Tmolus, Hittite forerunners of mountain gods, personifications of cities, and the geometric border, which he drew after hours of study of the mosaics of the Synagogue.

In Memoriam

Finally to the sad news. On May 4, 2012 we lost a dear friend and colleague. Crawford H. Greenewalt, jr. (fig. 38) was a major figure in the archaeology of Lydia and Anatolia for half a century, as a scholar of East Greek ceramics, as the director of the Sardis Expedition, and as a friend and colleague of nearly everyone working in the field. He was deeply respected for his wide interests and knowledge, for his legendary generosity in every respect, and for his modesty. He first came to Sardis in 1959 as photographer, then as archaeologist, and spent every summer here until his death. In 1976 Greenie became director of the Sardis Expedition, and remained at the head of the excavation for 32 years, one of the longest tenures in archaeology. His interests and publications ranged widely, from general studies such as "Sardis in the Age of Xenophon" to studies of particular objects such as a canoe-shaped vessel or an iron helmet, to masterful analyses such as the peculiar "Ritual Dinners" involving the sacrifice of a young puppy. His best work, that which he enjoyed most, focused on "jewel-like" artifacts — his highest praise for a precise, beautifully crafted object — and everything he did had that crisp, lively, and glimmering quality. He never took anything for granted or believed that he had the final, true answer, and his rare open-mindedness allowed him to recognize, for instance, that the core of Lydian Sardis was not located along the Pactolus where Prof. Hanfmann had dug for twenty years, but under the Hellenistic and Roman city. He set a high standard for civility and thoughtfulness at Sardis, which I hope we can uphold.

Greenie was interested in archaeology and the Classics from childhood, but had he not become an archaeologist he might have become an artist: he had an exquisite hand, and did his own drawings and watercolors of pottery and other artifacts, for their scientific value but particularly for his own enjoyment, and because he could learn about the object through drawing. (His cutaway of Karnıyarık Tepe [fig. 34] is the best diagram of the mound, and was done not for an academic publication but for his workmen at the time, to show them what they were doing). Greenie was a gentleman in the best sense of the word, a man of a past century who embodied all the qualities of a humane upbringing, an excellent education, and a deep love of knowledge, friends, and humanity. I feel privileged to have known him, and he is deeply missed at Sardis.

Another love of his was classical music, and Greenie commissioned a number of compositions from the Turkish composer Kamran Ince, including the Sardis Symphony and an opera, "The Judgment of Midas." The opera was performed for the first time in April 2013; unfortunately, Greenie did not live to see its premiere. But the watercolor he had painted as a set design for the opera, of an imaginary mosaic depicting the contestants Apollo and Pan, Midas, Mt. Tmolus, and the cities Hypaipa and Sardis, was displayed at the opening (fig. 39).

Fig. 40. Concert in the Temple of Artemis at sunset, June 17, 2015.

Fig. 41. A few of Greenie's family and friends gathered in the Lydian Garden to remember our friend.

Last summer we hosted the Turkish premiere of the symphony and of selections from the opera, in an open-air concert at Sardis in front of the temple of Artemis. The Bilkent Symphony Orchestra came from Ankara to perform, and Kamran Ince himself conducted. Beginning at twilight, the orchestra played against the backdrop of the acropolis and the twin columns of the temple glowing red in the setting sun. As the concert progressed the stars emerged, and we were transported into a different world of light and music (fig. 40). The concert was attended by 800-1200 people, including the local workmen and their families. Best of all, members of Greenie's family, ages 1 to 89, together with many friends and colleagues, came from the US to see the site where Greenie spent so much of his life, and to remember and celebrate our dear friend (fig. 41).

Hans Buchwald, well-known architect and architectural historian, died in Vienna on Oct. 31, 2013. He was invited to publish the Byzantine church E at Sardis by Prof. Hanfmann, and worked on the manuscript for many years, visiting the site and studying the fragments of this and Church E's predecessor, Church EA. After his unexpected death, Marcus Rautman and Kathy Kiefer completed the manuscript as he would have wanted.

Ibrahim Akyar (known here as Ibrahim Çavuş or "foreman Ibrahim") was another man we are honored to have known. Foreman to the excavation on and off since 1959, he shared with Greenie a deep sympathy and humanity, an unerring sense of right and wrong, and they each deeply admired the other (fig. 42). Ibrahim Çavuş passed away on June 3, 2015, on Greenie's birthday, and is greatly missed by the expedition and by his family (he would proudly tell us that he lost count after 45 children and grandchildren).

But life and the expedition go on. "Başınız sağolsun" is how you comfort someone who has lost a relative here; and with healthy heads and strong hearts we will continue to answer important questions about Sardis and the Lydians, and to preserve the great monuments here for generations to come. We are privileged to be able to work at this lovely site, and this privilege is due to your support, for which, heartfelt thanks.

Nick Cahill
Director, Sardis Expedition

Fig. 42. Ibrahim Akyar (Ibrahim Çavuş, or Foreman Ibrahim, to us).