

ARCHAEOLOGICAL EXPLORATION OF SARDIS

NEWSLETTER FROM SARDIS, END 2023 & 2024

May 2025

Dear Friends and Supporters,

You did not mislay the second newsletter from 2023, nor a first newsletter from 2024; I can only apologize for not following up on the report on 2023's busy beginning with an account of its equally productive end, let alone the exciting activities of all of 2024. So this newsletter will try to cover a full year and a half.

One of the major projects of both years, indeed of the last decade and more, is the protective roof over the

Lydian fortification. The discovery of this colossal mudbrick wall by Andrew Ramage (Cornell University) and Nancy Hirschland Ramage (Ithaca College) almost 50 years ago transformed our understanding of Lydian Sardis, showing (as Andrew immediately grasped, but it took years of research to prove) that the city of Alyattes and Croesus spread along the north slopes of the acropolis and the plain below, not along the Pactolus

River, where Professor Hanfmann had believed it to lie. Greenie (Crawford H. Greenewalt, jr.) spent much of his long career as director of Sardis excavating in this sector (which he named MMS for "Monumental Mudbrick Structure"), revealing an adobe brick defense wall, 65 feet thick (!) and still standing 24 feet high. Its size was one of the things that made it so hard to understand: the wall is without parallel in Greece or Anatolia, but



Fig. 1. Teoman completed the roof over the Lydian fortification in October 2023, after more than a decade of planning. Its "dancing panels" echo the more regular design of the roof over the Synagogue in the background, built a couple years ago; but this roof had to conform to the irregular topography and complex archaeology of the sector, causing endless difficulties with design and construction.



Fig. 2. Two cranes block the former Izmir–Ankara highway as they lift a massive truss into place.



Fig. 3. Each of the 80- or 90-foot trusses is different, conforming to the topography and archaeology beneath. The hodgepodge of temporary corrugated roofs and (at right) the first curved roof, built in 1997, were left in place to protect the archaeological remains below; these old roofs are dwarfed by the new construction.

rather is in the tradition of great cities of Mesopotamia, such as Nineveh, Nimrud, and Babylon. For the first time, the fortification demonstrated the ambitions of the Lydians to build a world-class capital like those Mesopotamian mega-cities, and showed how the Lydians looked east for inspiration on urban design, rather than exclusively looking west.

Excavation at MMS ended 15 years ago, but left us with something of a white elephant: a colossal wall, the largest in Anatolia, but made of unfired mudbrick; monumental, but also water-soluble. The temporary roofs that have protected it for two generations have also prevented visitors—and us—from even seeing this unique fortification. We don't know how the Lydians protected the fragile mudbrick face, but you have read in previous newsletters about the long process of designing a permanent roof to shelter and display the wall, by architects Troy Thompson (SmithGroup LLC), Nate Schlundt (Building Conservation Associates), and Phil Stinson (University of Kansas), conservators Michael Morris and Hiroko Kariya (private practice), engineers Teoman Yalçinkaya and Taner Kurtuluş (Artabel Mühendislik), and others; and about the generous bequest from William Collins Kohler (a student of Prof. Hanfmann) that made construction possible.

We began construction in June 2023, and set aside the whole of that summer and autumn for the project. Each column and truss had to be designed individually, as the roof threaded its way through the complex Lydian and Roman archaeology beneath; and construction was unusually difficult, located right on the former Izmir–Ankara highway and without a good staging area nearby. Luckily we had gained practice by building a similar roof over the Synagogue a couple years ago. Huge cranes blocked the former highway as they gently lifted the 90-foot long steel trusses into place, installed the purlins and cables, and then stretched white fabric over the frame. As always, the devil was in the details. Questions about drainage, flashing, and a thousand other minutiae seemed easy on paper but turned out to be unexpectedly tricky on the ground. Teoman, of course, solved them all; and in the end, he completed the project before the deadline and under budget.

The roof, however, is only a beginning. Last summer began with the removal of the old temporary roof, left in place during construction to protect the wall beneath, and the dramatic reveal of the Lydian fortification for the first time since the 1990s. Only then, seeing the great mudbrick wall in its entirety for the first time since the 1980s, could we really appreciate Troy, Nate, Michael,

and Hiroko's design. It is light, airy, cool, spacious, comfortable, and itself a thing of beauty, framing and protecting but not obscuring or intruding on the archaeology beneath. When the architects arrived I held my breath, anxious to hear their verdict; but when they saw the results of their many years' work, they declared themselves satisfied (and I was deeply relieved).

Troy, Nate, and Michael focused their energies last summer on designing walkways and viewing platforms for tourists, and especially on designing a system that will protect the fragile Lydian mudbrick with a skin of new mudbrick and stone. Although we had the basic elements worked out, the details again pose unexpected problems. The original wall is not just plain mudbrick, but a colorful patchwork of green, brown, and purplish bricks cast to different standard sizes. Their interweaving courses show that these belong to the same phase of construction; but we don't completely understand the reason for this diversity. One idea is that it reflects the work of different crews of brick manufacturers and layers. The circuit required between 37 and 75 million bricks, and to sun-dry all those bricks at once would have required an area much larger than the city itself; so they must have outsourced the work to local towns and villages. Did



Fig. 4. Working in comfort under the new protective roof, architect Courtney Sohn and intern Frances Campos (Harvard University) survey the Lydian fortification and adjacent Roman buildings in preparation for the next stages of this project. Courtney (at the tripod) stands atop the colossal mudbrick wall, whose multicolored green, brown, and purple bricks you see at right. The stone wall behind the mudbrick is a Persian-era fortification set into the top of the earlier mudbrick wall. The red layer just left of our tallest extension ladder is the destruction debris from the Persian sack of Sardis in 547 BC, which buried and thus preserved the fragile mudbrick wall. Nobody has seen this view since 1983; the fortification has been continuously protected by temporary roofs.

they not specify the dimensions precisely enough? Such a system is documented in letters from Assyrian kings building the enormous cities in northern Iraq whose walls may have inspired the Lydian fortification. For instance (my favorite): “The king’s word to the governor of Calah: 700 bales of straw and 700 bundles of reeds [essential elements in making and laying mudbricks], each bundle more than a donkey can carry, must be at hand in Dur-Šarrukin [Sargon’s new capital] by the first day of the month Kislev. Should even one day pass by, you will die.” That’s how you got things done in Assyria.

In any event, even if we don’t quite understand them, we wish to replicate the diversity of colors and sizes in our new protective shell. So with the help of our experienced work crew, especially foreman Necmi Erdoğan and driver Mustafa Akça, skilled in traditional crafts like making mudbricks, Michael and conservator İzel Güngör (Istanbul University) located sources of all the right colors of clays in the hills around Sardis. By the end of the season the team had made enough green, brown, and purple bricks for the reconstruction. All this work is ably overseen by İzel.

The Lydian fortification owes its unique preservation, ironically, to its destruction by Cyrus the Great of Persia in 547 BC. Cyrus apparently considered Sardis too powerful a city to leave in his rear, and so tore down the upper part of its wall, whose debris buried the stub and so protected it. He also emptied much of the city and suburbs of their population, leaving the houses abandoned but still full of artifacts lying on the floors. In most of Sardis, these Lydian occupation levels lie deeply buried beneath layer upon layer of Hellenistic, Roman, and Byzantine buildings, making it very challenging to reveal a wide extent. A neighborhood across from the temple of Artemis, however, far outside the city center, was never re-occupied after the Persian sack, but became a cemetery. The Lydian houses therefore lie just below the surface, an ideal situation for studying the culture for which Sardis is unique. In 2022 we were able to facilitate the purchase of the field in the name of the Turkish Treasury, and began excavating the next year.



Figs. 5 & 6. Our experiments with making colored mudbricks to replicate the polychrome original were not always successful. The brown and purple are perfect, but the first trials of green clay shrank and cracked. We found a good source later in the season.

Fig. 7. Opposite the temple of Artemis, Eric and photographer Jivan Güner record a layer of pottery in the single room of a Lydian house Eric uncovered in 2023. The deep irregular hole at right is where a sarcophagus had been dug into the ruins of this house; its discovery in 2010 led us to identify this as a Lydian habitation zone. After the house was abandoned during the Persian conquest, the area became a necropolis.



In 2023 Eric Hensley (University of Wisconsin-Madison) uncovered a single room of a Lydian house, to get his bearings and set up a system to deal with all the finds this sector could potentially produce. For the first part of the season he exercised tremendous self-restraint, defining the walls of the room but leaving the floor carefully buried, so he could uncover, photograph, record, and lift the broken pottery at one go. Shortly after midseason, then, he started to uncover

the destruction level in earnest. How satisfying to see whole or partial vessels gradually emerge in the ground, smashed in place among the seemingly random scatter of sherds. Cleaning, drawing, documenting, and lifting layer after layer of finds took the rest of the season.

Sorting and mending all that pottery was among the tasks for 2024, overseen by conservators Beyza Rana Ekdi (Ankara University) and Kent Severson (private practice). They filled

the entire old conservation lab with tables and then spilled out onto the veranda outside, and still it was not enough space. It's like simultaneously solving several hundred jigsaw puzzles, whose pieces were jumbled together, some discarded, and then mixed with random, almost identical intrusions. But Kent and Beyza got to know each group of sherds personally, and could spot missing pieces from across the room. By the end of the summer, Beyza



Fig. 8. Among the finds from Eric's room were more fragments of this large black-figured skyphos, an import from Corinth, much of which was found here in 2010. Don't look too carefully at the painting, though; the cursorily drawn dachshund-like panther and goat, and somewhat slapdash rosettes, are too typical of the last phases of Corinthian black-figured pottery.



Fig. 9. All hands were called on deck in 2023 to carefully clean the smashed pottery on the floor of the Lydian house in the Necropolis. Conservators Brian Castriota (University College London) and Süheyla Şimşek (Ankara University), draftcreature Cathy Alexander (private practice), and intern Andrea Lanza (Harvard University) clean and lift sherds, while in the background poor Eric tries to keep up with writing tags for all the finds.



Fig. 10. Kent and Beyza filled the old conservation lab with broken pottery from one Lydian room in the Necropolis, carefully laid out by findspot and labeled to keep track of where in the room each sherd was found.

had sorted out a couple of column kraters for mixing wine, half a dozen jugs or oinochoai, and about a dozen skyphoi or drinking cups—enough for a pretty substantial party; as well as an interesting pyxis for cosmetics (?) and other finds.

Back in the Necropolis field, Eric opened an adjacent room in 2024, exposing another scatter of pottery, although not quite as dense as the prior year. Much of the room is taken up by a stone bench, something we've found in other Lydian houses as well; these can be used for grinding grain, working glass,

or other purposes. Just as exciting, he has uncovered part of a street and the corner of the neighboring house, expanding our focus from single rooms to a Lydian neighborhood.

Eric was joined in 2024 by Sammi Richter (Harvard University). Surprisingly, as she dug deeper and deeper in a trench south of Eric's, she found nothing but pure brown dirt, without even rocks or sherds. I was worried that the field would be largely barren. But she never gave up, and her perseverance paid off with the discovery of a substantial wall, among the most solid Lydian

house walls we've seen. She now has parts of a couple rooms or spaces and a door, perhaps to the street. Strangely, the rooms were completely bare of artifacts, as if the building had been abandoned taking every scrap of pottery. That deep, sterile brown fill, then, seems to be the remains of the mudbrick walls of nearby buildings, which melted after the destruction and covered the houses. We are moving slowly towards our first broad exposure and study of a whole Lydian neighborhood at this critical moment of Sardis' history, which would be impossible in the city center.



Fig. 11. In 2024 Eric expanded his one-room trench of 2023 to uncover more of this Lydian building, and in the process exposed a street or two and the corner of a building across the street, here being drawn by Courtney and Frances. This will be our first view of a Lydian neighborhood since the extensive excavations of Prof. Hanfmann at sectors HoB and PN in the 1960s.



Fig. 12. Sammi Richter's large (10 x 10 meter) trench to the south of Eric's revealed parts of a building with substantial walls and a nice pebbled floor, but not a single sherd; it apparently lay empty when the Persians arrived. The left-hand half of the trench has only been dug partway, and is absolutely featureless and sterile as she excavates through deep fill, perhaps of melted mudbrick walls from surrounding buildings.

Fig. 13. This view of the acropolis and the Lydian terraces of the upper city never fails to impress. The hill on the left, with all the protective roofs, is Field 49, where Will, Okan, Burçin, Güzin, and Leyla are excavating. On the right, the broad flat-topped spur is sector ByzFort, site of exciting discoveries in the 1980s, 1990s, and 2010s, including the most impressive monument of Lydian limestone masonry at Sardis and a unique, incompletely understood building full of very early Lydian pottery. Further excavation was not possible, however, since the land was privately owned. In 2023 we were able to facilitate the transfer of ownership of the field to the Turkish Treasury, and an expanse of unexplored Lydian palace awaits our trowels.



Meanwhile, excavations in the city center continued to reveal its extraordinarily long history. Will Bruce (University of Kansas), Burçin Güzel (Ege University), and Güzin Eren (Koç University Research Center for Anatolian Civilizations), joined in 2024 by Okan Emre Güney (Ege University) and Leyla Uğurer (Cornell University), continued their excavations at Field 49, part of the Lydian palatial complex, and the heart of the city for most of its long history.

In 2021 Will had reached that same Persian destruction level, and the stub of a Lydian terrace wall. This isn't a mere fieldstone house wall like those in Eric's and Sammi's trenches, but a monumental terrace built of enormous boulders and carefully cut white limestone blocks, part, we believe, of the famed palace

Fig. 14. This will be a familiar view from previous newsletters: we've been digging in this trench since 2012. But the trench continues to produce new and unexpected results as we make our way through the more than three millennia of Sardis' history preserved here, from the Bronze Age to the Byzantine period. The L-shaped wall of white limestone blocks and large boulders is the latest phase of a wall of the Lydian palace; Will's excavation to its left descends deeper into earlier levels. The wooden platform supports a winch to haul the buckets of earth up 23 feet from the eighth century BC to the present. In the lower right, fragile Byzantine graves are protected by a green sun shade.

of Croesus. On the burned destruction floor were a few charred scraps of human bones and a cluster of nine silver Lydian coins, among the earliest silver coins known in the world. Will, numismatist Jack Kroll (University of Texas, retired), and conservators Jennifer Kim (Los Angeles Art Conservation), Emily Frank (Institute for the Study of the Ancient World, NYU), Brian Castriota (University College London), Ameya Grant (Metropolitan Museum of Art), Süheyla Şimşek (Ankara University), İzel Güngör (Istanbul University), and anthropologist Yılmaz Erdal (Hacettepe University), have written an article (with

cover photo!) on these coins for the June 2025 issue of the journal *Hesperia*.

In 2023, Will dug beneath this destruction level, reaching levels of the early sixth century BC, the reign of Croesus' father, Alyattes. In 2024 he excavated still further down and back in time, moving from the historical era of the Mermnad kings into levels dating to the reign of Gyges, and of earlier, slightly fairy-tale kings, supposedly the descendants of Herakles. But here, as at most archaeological sites, one problem is that as you dig deeper, your trench gets narrower and narrower: you find walls and features you don't want to remove, so





Fig. 15. İzel helps photograph the Lydian amphora she restored.

you dig in between them; Will's trench is now deeper than it is wide.

But it's paid off: in that narrow space, Will exposed the corner of an earlier building or room, with a beautiful Lydian amphora broken on the earth floor. This room was built over a garbage pit full of animal bones and other trash (but treasures for archaeologists).

Will and Okan then descended further into a deep terrace fill, part of a long-term program of terracing that transformed the steep natural topography. They soon found an earlier phase of the boulder wall, exactly under the final phase but slightly differently worked,

and with its own distinctive associated stratigraphy. This dates to the early sixth or perhaps late seventh century BC, the era of Alyattes. When they reached the bottom of that wall, now about ten feet high, they left a shelf of earth to give the wall a firmer footing while they dug still deeper; again, they're expecting at least another 30 feet of fill, and safety is an important concern.

That deep terrace fill kept going down and down, but one day a workman pointed out another course of massive boulders, lurking unsuspected beneath what we thought was the bottom of the wall. Carefully digging away the shelf revealed a still earlier phase of this long-lived wall. By the end of the season they had apparently reached the bottom of the wall, exposing three phases of this massive wall, preserved 16 feet high.

Fortunately, the foundations of this earliest (known) phase of this wall were immediately buried by terrace fill, rather than being dug into earlier terrace fills. It's hard to date walls by their masonry alone, but we can date the pottery from that fill, the latest of which should be contemporary with the construction of the wall. That pottery seems to belong to the ninth or eighth century BC, the shadowy Heraklid dynasty of the early Iron Age, before the historical kings like Gyges, Alyattes, and Croesus. Will



Fig. 16. Will, Okan, and Jivan stand in levels of the eighth century BC, while the massive three-phase Lydian wall towers above them. You can make out the change in construction between the top three courses (sixth century BC) and the more roughly worked courses beneath (late seventh or early sixth century). The distinction between the three preserved courses of that phase and the lowest five courses, which probably date to the eighth century BC, is more subtle, but secure in both masonry techniques and stratigraphy. At the bottom of the trench the somewhat ragged line of mudbricks is not a wall per se but probably an ephemeral feature meant to delimit the areas of responsibility of different work teams during construction, as we have found in other monumental Lydian earthworks.

Fig. 17. Just next to Will's descent into the little-known early Lydian period, Burçin uncovers a building of the Byzantine era, another period hardly attested in the lower city of Sardis. The well-appointed rooms with mosaic floors were later filled with graves, built of reused Roman tiles and stones.



and Okan's wall is now the earliest, best-preserved, best-dated monumental architecture of this little-known period of Lydian Sardis.

Their discovery feeds into our evolving understanding of the Lydian city center and of its early history. In his excavations of contemporary eighth-century levels at sector HoB, Prof. Hanfmann found only the remains of insubstantial huts. He concluded, reasonably, that eighth-century Sardis was a relatively small village or town, like contemporary settlements in Iron Age Greece. But Prof. Hanfmann believed that HoB was the center of Lydian Sardis; now we know that HoB was actually in the outskirts of Sardis, not the city core. This early monumental architecture of Field 49 implies a strong centralized, probably royal power, which established an architectural tradition that continued until the very end of the Lydian Empire. Güzin Eren in previous years has also found the remains of another monumental terrace wall of this era, showing that Sardis was already thinking big, moving colossal boulders around, constructing buildings and transforming the landscape on a scale unthinkable in neighboring Greek cities.

Burçin Güzel is digging right next to Will, separated by a tall and fortunately well-built wall, and also by a couple

millennia. Typically of Sardis, at about the level that Will was encountering early Lydian remains, Burçin is digging a building dating to the Byzantine period, another era almost unknown elsewhere in the lower city. In previous years we thought that this was a late Roman building that had somehow survived the devastating earthquake which destroyed the city in the early seventh century AD. We now realize that it's a new, Byzantine construction cut into the ruins on the side of the hill, probably an ecclesiastical building to judge from the number of crosses found associated with it. This must have been a rather splendid structure, with mosaic floors and plastered walls, but when it went out of use its doors were all blocked and the rooms filled with graves.

Burçin has dug more than a dozen graves this year, bringing the total to about 30, both adults and children. Some graves contain two, three, or even four interments, the earlier burials carefully set aside to make room for later; often the heads face the rising sun. Yılmaz Erdal and his students came to help excavate and study these Byzantine Sardians, and to take samples for DNA and other analysis. He has also been studying a double burial excavated in 2018 on the other side of the hill. These two men were buried in Islamic fashion, facing Mecca; and they died violently,

covered with wounds on their bodies and hands. Dating to the eleventh or twelfth century, they belong to the period just after the Battle of Manzikert, when the Seljuk Turks defeated the Byzantines—another battle that changed the course of history and another period we know relatively little about at Sardis.

On the north end of the spur, Güzin continues to explore the monumental Lydian terraces that are among the most impressive monuments of early Sardinian urbanism. Like the terraces in Will's trench, these were built and rebuilt over centuries, but while Will's wall was rebuilt on exactly the same foundations, here the Lydians expanded and reoriented the

Fig. 18. Burçin and Hacettepe University students Sıla Sağlamlı and Seçil Işık excavate a Byzantine burial with three skeletons just adjacent to Will's early Lydian levels.





Fig. 19. In order to expose the critical junction between two of her Lydian terrace walls, Güzin had to move about 35 fallen boulders, many weighing 1,000–1,300 pounds, and safely lower them down the steep hillslope without letting them get away and bounce into the stadium below. Necmi and his skilled team accomplished it safely, using simple tools, careful planning, and long experience.

terrace; and understanding the relationship between the different phases is not so straightforward. The answer lies at the intersection between two terrace walls, which should show which one was built first; but this intersection is obscured by huge boulders from the wall's collapsed superstructure. Maneuvering them down the steep slope is no easy matter, but Necmi Erdoğan and his team achieved it safely, and now we have an even greater appreciation for the Lydians, who hauled these boulders up the hill, and then fit them together perfectly.

Even after we exposed part of the intersection of the two walls, though, the situation was still frustratingly

ambiguous. But there were unexpected bonuses. In her earlier excavations, Güzin found that some of the Lydian terrace had been completely robbed out during the Persian era when central Sardis was abandoned. But last summer, beneath the fallen boulders, she found Hellenistic and very early Roman pottery, suggesting that this stretch of wall collapsed in the earthquake of AD 17, “the greatest earthquake in human memory,” as Pliny describes it, after standing for many centuries. This earthquake was one of the turning points in Sardian urbanism, giving the early Roman builders a sort of tabula rasa to reconstruct the city. Although the earthquake is well known

from ancient literature and inscriptions, the Romans did such a good job cleaning up afterwards that we see few archaeological traces of the destruction itself, any more than we would see traces in San Francisco today of the earthquake of 1906. Güzin's collapse, never cleaned up, is among the few surviving physical remnants of that historic catastrophe.

One of the great projects in the aftermath of the earthquake was a luxurious new sanctuary dedicated to the cult of the Roman emperors on a lower terrace at Sardis, called Field 55. Work here over the past two decades is the subject of an article (and another cover photo) in the July 2024 *American Journal of Archaeology*, by architect Phil Stinson, archaeologists Marcus Rautman (University of Missouri), Bahadır Yıldırım (Sardis Expedition, Harvard Art Museums), Frances Gallart Marqués (Cornell University graduate), numismatist Jane DeRose Evans (Temple University), wall painting specialist Vanessa Rousseau (University of St. Thomas), and ceramicist Liz DeRidder Raubolt (Grand Rapids Community College). They conclude that the temple



Fig. 20. The late Roman houses in Field 55 continue to surprise us. Liam watches the workmen clean a mass of collapsed bricks, roof tiles, and blocks filling a room of his late Roman house, which would seem to be collapsed debris from the earthquake which also brought down the columns still lying in the courtyard.



Figs. 21 & 22. (left photo) Liam's room in 2023, filled with fallen bricks and tiles: obviously debris from the earthquake that destroyed the rest of the city; underneath (right photo) Carson and Frances in 2024 reached floor level in the large room which leads into the courtyard. At right is a bench, or perhaps the remains of a staircase leading to an upper floor; in the far right corner, the workman cleans an oven and cooking area.

was dedicated to the emperor Claudius (reigned 41–54); that the temple went out of use some three centuries later, when pagan cults were being closed throughout the Roman Empire; and that blocks, inscriptions, and sculptures from the abandoned temple were then reused in luxurious private houses built on the terrace of the former sanctuary. These houses thrived over another couple centuries, until they were leveled in another earthquake that destroyed the city in the early seventh century AD.

These late Roman houses are the main focus of excavation in this sector. In

2023 Liam Devlin and Arsen Nişanyan (Harvard University) opened rooms to the north of a great paved courtyard. Arsen opened and excavated a room at the edge of the terrace, abandoned and bare like the other rooms in this house. It had gone through a number of phases, but without many features or finds that would help us understand its use. Arsen eventually reached the early Roman terrace fill belonging with the sanctuary.

In his adjacent trench, Liam found a large room with a cooking area at one end, opening onto the courtyard. A door with a fine marble threshold leads out

to the unexcavated space to the north. This seems to be the only entrance to the court and other rooms of the house, so it is clearly an important space. Liam found it filled with collapsed debris, which we naturally associated with the earthquake of the early seventh century. By the end of that season, he hadn't quite reached floor level.

In 2024, Frances and Carson Riggs (Cornell University) excavated down to the floor. Like the courtyard, it was almost bare of artifacts, but they did find fragments of a very distinctive brown-glazed jug and a lid, a type of pottery



Fig. 23. Frances shows her confusing brown-glazed cooking pot, which turns out to be our first example of a rare and early type of Byzantine glazed ware made in Constantinople.



Fig. 24. Caitlin and Kiernan had to figure out how to remove the sculpture without damaging it or, more difficult, the late Roman wall into which it was built.



Fig. 25. Baha never ceases to find treasures lurking in plain sight in the depot. Here he gives a seminar to recorder Jordan Murphy (Cornell University) and interns Elijah Johnson and Frances Campos (both Harvard University).

we've never found at Sardis before. It resembles Byzantine glazed wares such as those Burçin is finding, which are much later than that seventh-century earthquake. This caused a certain amount of consternation: if we find Byzantine pottery underneath and therefore earlier than the earthquake debris, were we wrong about the date of the earthquake (which we had just published)? Or was this room alone reoccupied—and if so, what other rooms might have been reoccupied as well? What else do we not know about Byzantine Sardis? However, a bit more research soon turned up an exact

parallel from a shipwreck that sank in about AD 625, close enough to the date of our latest coins from the destruction in Field 55, about AD 616. We have never found this type of pottery at Sardis before, and indeed it is rarely found outside Constantinople; it demonstrates this elite household's relations with the capital, even at this very late date. So we seem to have an early example of this rare type of pottery, not a stratigraphic conundrum.

Frances and Carson then moved to the room to the east, which is a mishmash of walls, earlier walls, drains, and other features, attesting major renovations and

changes, endlessly confusing. A particular treat was their discovery of part of a statue of a female figure with windblown drapery, one of the acroteria that graced the roof of the temple of Claudius nearby, now casually reused as building material. Conservators Kiernan Graves (Site & Studio Conservation) and Caitlin Gallupe (Queens University) carefully extracted the statue without damaging it or destabilizing the wall, and in one of his almost legendary moments of insight, Baha realized that this was a twin of a statue found in 1982, a random piece turned in by a farmer.

At the western edge of the city, Gencay Öztürk (who just successfully defended his PhD at Ege University—congratulations!) continued to excavate the largest Roman arch in the world, which he himself discovered 10 years ago. His goal was to establish the limit of the scatter of blocks that fell in the same earthquake that destroyed Field 55, and make sure that we have as complete a picture as possible of this huge but somewhat mysterious building. The few blocks Gencay found were high up in the fill, not part of the earthquake collapse but probably dragged here later to be reused; so we do seem to have exposed the full extent of the collapse. Gencay did, however, find the collapsed remains of the portico and arcade which led up to the arch, with a Corinthian capital and brick arch lying on the pavement of the street just as they fell in the earthquake.



Fig. 26. Gencay inspects the fallen capital from the Roman colonnaded avenue that led through the arch (whose collapsed blocks cover the pavement above him). Behind Gencay you can make out the bricks belonging to the arcade that the column supported.



Fig. 27. Ursi, Andy, John, and Brianna thread their way among the fallen blocks of the arch, with the Synagogue in the background.



Fig. 28. Teoman and Necmi direct the careful extraction of a few critical marble blocks from the collapsed remains of the largest Roman monumental arch in the world. It's like a colossal game of Jenga, trying to remove one block without removing (or worse, destabilizing) too many others in the process.

Now that the limits of collapse are established, Ursula Quatember (Technical University Berlin), Andrew Leung (private practice), and John Sigmier (who just completed his PhD at the University of Pennsylvania—further congratulations!) can proceed with their study of the building with confidence. John spent much of the summer making detailed three-dimensional computer models of the blocks, which can then be re-assembled virtually. But to do this, he had to lift a number of particularly important blocks.

One of these was the western keystone of the arch. Like the eastern keystone, it bore an inscription naming someone who had restored something; but in the earthquake that brought

down the arch, this block plummeted from the apex of the arch onto the road below, and buried itself in the marble pavement, making it impossible to read most of the text. I have been terrified of trying to lift this block, imagining that its lower part had been pulverized by the impact, and we would face a nightmare of extracting and restoring slivers and chips of marble. But Teoman and the skilled crane operator successfully lifted the block, and it proved unexpectedly well preserved. And also unexpectedly long; for while the eastern keystone is neatly inscribed on a single block, this one continues lopsidedly onto the next

block to the right and even has one letter on the block to the left, forcing us to lift those blocks as well. John, Ursi, and Andy's study showed that the three blocks never fit together properly, and that the keystone is, alone of the visible voussoirs of the arch, not a reused column drum from the temple of Artemis. One conclusion is that the keystone is a later replacement of an original voussoir, reproducing the original inscription but in larger, sloppier lettering. And that original voussoir was perhaps itself a late addition to the arch, for now that we can see the whole text, it reads "[Good luck!] Aurelius Montanus, the supervisor of the

Fig. 29. Okan helps with final photography of the rear chamber of the tumulus at Bin Tepe he excavated (officially BT05.026, but now informally called Okan Tepe). What's perhaps not obvious in the photo, indeed is barely visible in person, is that this chamber, and its two funerary couches, were carved almost completely out of the natural bedrock, which rises behind Okan all the way to the ceiling. The ceiling is a single enormous slab of limestone weighing some 14 tons, perfectly fitted to the chamber walls, with a thin sheet of lead, perhaps to seal the joint.



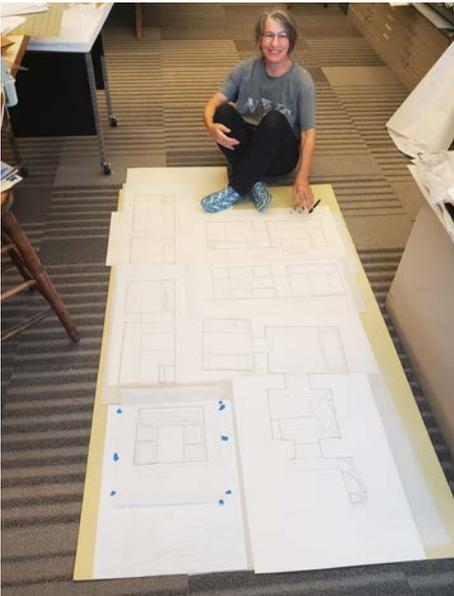


Fig. 30. Back at the Sardis Office in the Harvard Art Museums, Cathy Alexander poses with some of her beautifully hand-drawn drawings of Okan Tepe.

building, after gilding (the statue of) the forefather Dionysos with his own funds, has re-established it”—recording not the construction, but the reconstruction of this arch in the third century. All in all, a complex but satisfying project. This was even lifted just in time for Georg Petzl (University of Cologne) to include it in the supplement to his recent monograph on Greek and Latin inscriptions.

At the necropolis of Bin Tepe across the valley, Okan completed the rescue excavation of a tumulus tomb in 2023. The architecture of this tomb is fascinating, partly carved out of bedrock, the rest built from a minimal number of enormous blocks, most of which span the full length of a chamber. They are fitted perfectly without mortar or, in most cases, clamps or dowels, and yet still perfectly aligned even after thousands of years and devastating earthquakes. Careful study of

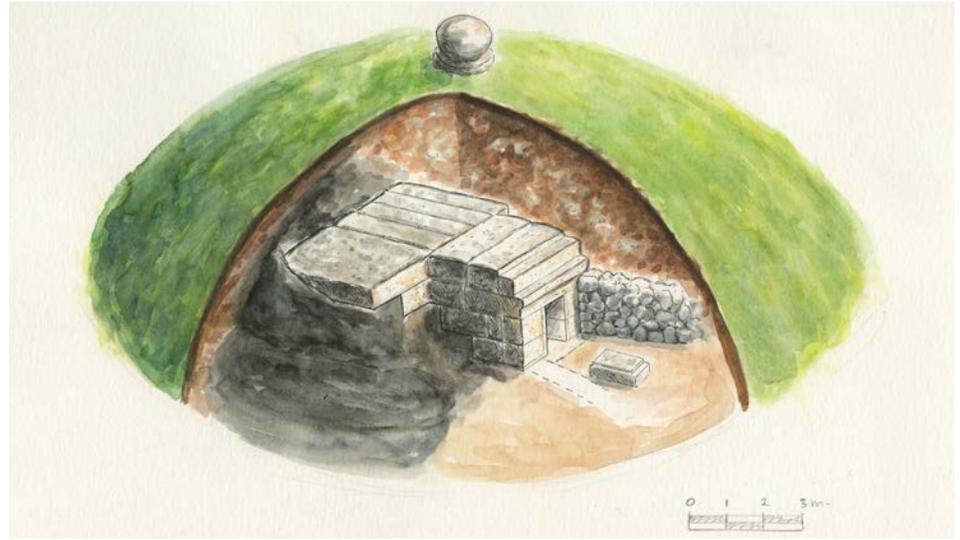


Fig. 31. While digital technologies like photogrammetry can capture what we can see, including even tool marks and other almost-invisible traces, Cathy's watercolor expresses what we can know only after long observation, discussion, trial sketches, and hypothesis-testing. The goal of this painting was to show how the tomb chamber is nestled into a cutting into the bedrock, and the slightly peculiar arrangement of roof slabs, including the 14-ton monolith that sealed the rear chamber.

the tool marks reveals how the Lydians achieved this remarkable degree of perfection, which to them was entirely normal.

Of course we wanted to document the three-chamber tomb complex as completely as possible, to record the three funerary beds, doors, and the details of how the blocks were carved and fit together. In this case, low tech is sometimes best: with string, tape measures, a sharp pencil, and keen eyes, Micah Tichenor (Architectural Preservation Studio), Cathy Alexander (freelance), Zichen Liu (Harvard University), and Brianna Bricker (Sardis Expedition), far more perceptive than any digital technology, produced beautiful hand drawings recording the tool marks and other documents of how this tomb was built. But we also waylaid John Sigmier from his work on the arch to do a high-resolution photogrammetric

documentation, producing a three-dimensional computer model that also captures those details. Zichen produced a schematic computer model showing how the blocks fit together—difficult for us to work out since we only see the inside of the chamber; and Cathy used this as a basis for a watercolor recording what we can't see without digging away the whole mound: how the chamber was partly cut into a natural outcropping of limestone bedrock. This was especially critical because once we had finished documentation, we had to rebury the chambers to protect them. We then restored the tumulus to its state before it had been bulldozed, a task that gave us new appreciation for the labor that went into even a fairly modest tumulus.

The grave goods from the tomb were shattered by the looters and dispersed through the earth that filled the chambers, but patient water-sieving of about twelve tons of earth back at the camp proved unexpectedly productive. The conservators were able to restore more than two dozen vessels dating from the Persian into the Hellenistic



Fig. 32. When he had finished clearing and cleaning the chamber, Okan rebuilt the mound to its original contours to protect the chamber from further looting.

Fig. 33. Caitlin, Süheyla, and İzel mending smashed pottery from Okan's tumulus. Caitlin and Süheyla have a couple Fikellura amphoriskoi, vessels probably for perfumed oil or unguents, imports from Miletus on the coast of Türkiye; İzel has a local perfume container, a lydion. That anything survived from this brutally robbed tumulus is a bit of a miracle.



era, documenting at least three phases of use of this long-lived tomb. Okan also found four arrowheads, a surprise since weapons are very rare in Lydian tombs. And they found tiny bits of gilded bronze, remnants of valuable object(s) that the looters had plundered. All in all, it was a remarkably successful project, and “Okan Tepe” is now the most completely documented tomb in Bin Tepe—worth every pixel and drop of ink.

The less monumental chamber tombs that surround the city are the subject of ongoing survey by Susanne Ebbinghaus (Harvard Art Museums) and Annetta Alexandridis (Cornell University), with Leyla, Okan, and others. These tombs were excavated in 1910–1914 by Howard Crosby Butler, and produced some of the most beautiful objects from Sardis, now

in the Istanbul Archaeological Museum, the Izmir Archaeological Museum, the Metropolitan Museum of Art in New York, and elsewhere; but we don't know where all those tombs were. Their survey has proven remarkably successful: the first year (2022) they located almost 300 tombs, including chamber tombs, sarcophagi, and tumuli; in the last two summers they found at least 100 more chamber tombs and other features. The work remains extremely challenging, as the team scrambles along steep slopes through dense brush, to try to locate tombs that are often filled in and all but invisible. Among their discoveries of 2023 is the original findspot of the largest collection of Lydian inscriptions. They had been found in 1912, reused in a wall in the Necropolis (which is

why most of our Lydian inscriptions are gravestones); but like so many finds of that era, the exact location was uncertain until Susanne, Annetta, Leyla, and Okan found it. These inscriptions are being studied by Slava Oreshko.

The other survey project is Benjamin Anderson's (Cornell University) and Jordan Pickett's (University of Georgia) survey of the acropolis of Sardis, “the strongest place in the world” according to Polybius. One question that has puzzled generations of scholars is whether the citadel of Sardis was much larger in antiquity than it is today. The soft conglomerate erodes easily, leaving sheer cliffs and impressive, undulating spires; and devastating earthquakes might have caused large parts of the citadel to fall away. Surviving sections of the Byzantine



Fig. 34. In one of the hundreds of chamber tombs of the necropoleis that surround Sardis, Leyla and Okan clean the remains of two limestone sarcophagi left here after the excavations of Howard Crosby Butler in 1910–1914, and rediscovered by them, Susanne, and Annetta.



Fig. 35. Jordan Pickett, Aylin Karadaş and Berkay Yılmaz wield a heavy coring machine in an initial geological sample just above the temple of Artemis. The coarse, gravelly fill proved very challenging, but with perseverance they were able to obtain useful data from the foothills of the Acropolis.



Fig. 36. The Synagogue is now protected under a roof, and visitors are asked to keep to a carpeted path to avoid further wear on the mosaics. At right the team restores missing areas of mosaic that were lost in the restoration of the 1970s.

fortifications, perched precariously on the sheer cliffs and with gates leading out into the void, give the impression that the citadel was much larger in the Byzantine period, and presumably larger still in Roman and Lydian times; but we know little about its geomorphological history.

So last summer Jordan and paleogeographers Mehmet Doğan, Aylin Karadaş and Berkay Yılmaz (Ege University), and Prof. Rifat İlhan (Adiyaman University) drilled a series of cores below the acropolis to learn about the history of deposition, and from that, to try to estimate how much of the citadel has fallen away, and when. This is perhaps an impossibly complex task, but even a rough estimate would be more than we know now.

The team of women and men working in the Synagogue continued their painstaking restoration of its mosaics, overseen by conservators Michael Morris, Hiroko Kariya, Jen Kim, Emily Frank, and Kiernan Graves. Three years ago they started with relatively simple mosaic panels, with only black and white tesserae. As the team moved into panels with a wider range of colors, however (presumably reflecting the greater resources and generosity of the individuals and families that sponsored them), finding sources for all those colors became a challenge. But after a good deal of research, they have located sources for most of the colors and work could proceed, slowly and carefully. This remains one of the most satisfying projects of recent years, and a source of

real pride to the work team. Moreover, the project continued through the fall under a new initiative of the Ministry of Culture and Tourism, the “Heritage for the Future Project.” This allows work to be extended beyond the regular season, overseen by a Turkish archaeologist; and we are extremely fortunate to have Prof. Dr. Musa Kadioğlu (Ankara University), the director of the excavations of Teos, as our Coordinator.

Finally, we make progress towards an important step in protecting the site: inscription of Sardis and Bin Tepe on the UNESCO World Heritage list. After years of careful planning and documentation, the team at the Ministry of Culture and Tourism in Ankara, particularly Zeynep Tuna Yüncü, Pınar Kuşseven, Gökhan Bozkurtlar, Kına Arcak, Şehnaz Eraslan, Pınar Baykal, and İpek Özbek, submitted the application in January 2024. A representative of ICOMOS, Adrian Olivier, visited the site in September 2024, and spent a week touring the ancient city, the suburbs, and Bin Tepe. We will hear the results this summer, and I hope to have good news to report in the next newsletter.

Nick Cahill
Director, Sardis Expedition



Fig. 37. The UNESCO World Heritage team from Ankara and members of the Sardis and Kaymakçı excavations toured the site in September; here they visited “Croesus’ Hospital” in the mountains above Sardis, actually perhaps a Persian-period sanctuary or watchtower.



Figs. 38 & 39. An unexpected conservation project of 2023 was to lift and preserve two Wild Goat-style friezes painted by Greenie at Karniyarık Tepe, a colossal tumulus not far from Okan’s mound. Greenie (here seen during a seminar there in the 1980s) spent three summers in 1964–1966 tunneling within the mound, whose chamber still remains undiscovered. Transportation in those days was very difficult, so he and the workmen lived in a small excavation house at the base of the mound. In free moments between overseeing the tunneling and writing his dissertation, Greenie, an extraordinary artist as well as a scholar, decorated the porch of his house with friezes derived from the Orientalizing Lydian pottery he loved so much. In recent years vandals have damaged the house; we thought it prudent, therefore, to remove the paintings from the walls before they were damaged further. Here conservators İzel, Caitlin, and Kiernan have applied protective facing to the painting before removing it. After long and tiring days, the team successfully preserved these important relics of the history of the Sardis Expedition. We’ll frame and hang them in the Sardis excavation compound.

This is also preparation for a new life for Greenie’s house. İbrahim Sudak, the Culture and Tourism Director of Manisa province, conceived a brilliant plan to control looting at Bin Tepe by patrolling the region with drones equipped with night-vision cameras. Centrally located in the midst of this cemetery, the house is a perfect site for this security station, so with the help of a grant from the American Embassy in Ankara, Teoman renovated it from top to bottom, and we have now turned it over to İbrahim Bey for his team.



Fig. 40. At a seminar in the temple of Artemis, Phil Stinson explains his work on the subtle curvatures of the building. Like the Parthenon and other prestigious temples, this did not have simple horizontal floors and vertical columns and walls, but every element leans and curves very subtly, like a living thing. This curvature has been studied since the 1980s, but Phil has significantly added to our understanding.

Fig. 41. Not only the Hellenistic walls, but even the superstructure of the Roman colonnade was curved. In order to study the curvature of the uppermost elements of the building, Phil arranged to flip the single surviving intact architrave—the 24-25 ton beam that spanned between the cella wall and the porch column—to reveal its underside for the first time since 1912. Fikret Yegül (University of California-Santa Barbara) is writing another book on the temple of Artemis, for which he is conducting additional studies of the building, and discussing these fascinating and important questions with Phil.