



ARCHAEOLOGICAL EXPLORATION OF SARDIS

SECOND NEWSLETTER FROM SARDIS, 2021

March 30, 2022

Dear Friends and Supporters,

It is a truth universally acknowledged among archaeologists that no matter how long your excavation season lasts, a couple weeks or many months, the most spectacular finds always are made on the last day. There's no explanation, but it happens too often to be coincidence. This year it was the next-to-last day, but we think that still proves the rule. On August 4 we were wrapping up the excavation, preparing to pack up the finds, write reports, and for most of the team to go home. Frances Gallart Marqués (recently Harvard Art Museums) and Gencay Öztürk (Ege University) had finished their work on Field 55, we had taken final photographs and architectural drawings, but Will Bruce (University of Kansas), digging in the Lydian palace quarter on Field 49, still had some of the brick destruction debris left to excavate. He had been working slowly through the remains of the final destruction of the palace, a layer of mudbrick debris left when Cyrus of Persia captured Sardis in 547 BC. As I mentioned in the first newsletter, there was little evidence of significant remains preserved on the earth floor beneath. In other parts of the city where we have found this destruction debris, later cuts into the floor often offer a preview of the masses of restorable pottery and other artifacts left by the destruction, allowing us to prepare for a complicated situation or even put it off for another year. But here there had been relatively little: the preview in the scarps revealed almost no pottery or

other artifacts on the floor, although Will had found a few arrowheads in the fill above and a shapeless lump of bronze on the floor. So I thought it would be a relatively easy closing. I was so wrong!

Early in the morning, Will called to say that he might have found a bit of human bone. We texted a photograph to anthropologist Yılmaz Erdal (Hacettepe University), who immediately confirmed that it was human. Will continued to find a few more bits and pieces, all burned and crushed, and then a roundish lump that wasn't a bone, wasn't a rock, but had a purplish cast which identified it as

corroded silver. With a bit of squinting one could even make out the lion and bull head on one side, and its size was exactly right for a Lydian silver coin—a stater about the size of an almond, but much heavier. And then there was another coin, a twin of the first, nestled in a pocket of soft fill among the bones. The day then became a balancing act, figuratively, since for security reasons we didn't want to leave the coins in the ground for too long, but we also needed to understand and document their context by carefully excavating around the coins before removing them.



Fig. 1. Will Bruce and workmen discover a scatter of burned human bones, and first two, then seven more silver Lydian coins in the destruction debris of the Lydian palace on Field 49. I regret now that I didn't capture on film the whoops of joy and high-fives that erupted when he recognized what the grayish lumps were; I have never seen anyone so excited.

Fig. 2. In order to understand the context of these coins before we removed them from the ground, we called all hands on deck: here Will, Hiroko Kariya, Brian Castriota, and Güzin Eren carefully clean to expose more bones and any other artifacts.



So we called the conservation team, Brian Castriota (private practice), Hiroko Kariya (private practice), and Ameya Grant (New York University). Even at the hectic end of the season, nobody is too busy to come excavate Lydian silver coins! Archaeologist Güzin Eren (Boston University) joined them, and of course the representative of the Ministry of Culture and Tourism, Okan Cinemre (Museum of Anatolian Civilizations, Ankara). Will's

trench became also literally a balancing act: suddenly there were half a dozen people trying to find a spot to squat, uncomfortably, and delicately wield bamboo skewers and fine paintbrushes, picking at the hard mudbrick to reveal the tiny, fragile scraps of burned bone, without stomping on what had been already uncovered. As they dug through the afternoon, it seemed as if the two large coins got together and had babies, as four, five, six, and then seven more

tiny coins appeared beneath, all in a tight cluster as if once gathered in a cloth or leather bag. Nearby was an iron knife with traces of a wooden handle, probably belonging to this unfortunate victim. In the end, the bones never became really coherent: the team uncovered a scatter of fragments of skull and teeth, and fragments of an arm and hand in the proper alignment, but all very incomplete and fragmentary. This was not a burial, but a casualty of



Fig. 3. Brian Castriota uses a bamboo skewer to clean around the coins, with Okan Cinemre; next to the coins is an iron knife belonging to the victim, with a fragment of arm bone behind.



Fig. 4. Artist Cathy Alexander's careful colored pencil drawings record the situation, perhaps even more clearly than the many detailed photographs of the bones.



Fig. 5. Some of the coins are recognizable as croeseids, with a lion on the left roaring at a horned bull on the right. Others are just Rorschach tests until we clean them next season.



Fig. 6. The iron dagger found with the bones, and the bronze arrowheads found scattered nearby, are vivid testimony to the violence of the last moments of the Lydian empire here.

battle left unburied, left exposed on the surface to animals and the weather. It is remarkable that anything survives at all.

The hoard includes nine coins: two big staters weighing ten grams each (think two nickels), four twelfth-staters, and three tiny twenty-fourth staters weighing less than half a gram each. (The Lydians, like the Babylonians, used a weight system based on units of fractions of six rather than ten). Since the end of the season was upon us, the conservators did not try to clean the coins, but you can make out the characteristic lion and bull of Lydian coins of the time of Croesus, and the incuse punch or punches on the

back. It's very rare to find Lydian coins in excavations: since 1958 we have found only eight of them, so Will more than doubled our total finds in one morning. And this is only the second hoard of Lydian coins—that is, a group of coins that were lost or hidden together—ever found at Sardis. The other was found in 1922: thirty gold staters in a small jar, worth much, much more, of course, but its context is not certain, perhaps a tomb, perhaps another kind of building. More significant than mere lucre, then, is Will's discovery of these coins in such a significant and closely datable context, in the ruins of the Lydian palace, and even

found with their owner (or what remains of him or her), a casualty of the historic battle between Cyrus and Croesus.

Once we had the coin hoard secured, we still needed to finish the excavation. Will kindly agreed to postpone his departure for a couple weeks—teaching his first classes of the semester from Sardis via Zoom—and so was able to complete the excavation with the care and attention it deserved. Meantime, Brian and Ameya focused on some of the other finds from his trench, including that formless lump of bronze Will had found earlier. Ameya's careful cleaning revealed that it was a series of sheets or



Fig. 7. Ameya and Brian cleaning the first (I believe) fragment of a large-scale Lydian bronze sculpture found at Sardis.



Fig. 8. As always, Cathy Alexander's drawing makes many details of the fragment's design and construction clearer than the original.

plates, with delicate wing feathers on one sheet, and decorative rivets holding two others together. It's apparently part of a much larger sculpture, which looks as if it was wrenched or torn apart in the sack of the palace. Large-scale Lydian bronze sculpture is very rare; this is the first example I can think of. So even this sadly incomplete fragment is valuable testimony to the arts of this kingdom.

The violence of the battle was dramatically illustrated in the scatter of a couple dozen arrowheads that littered the northern part of the floor. The arrowheads are almost all of the two-leaf type rather than the three-leaf type. The distinction between these types, though, is not clear yet. I suspect the two-leaf type is Lydian and the three-leaf type Persian.

This is the first time we have found this Persian destruction debris here in the palace quarter of the Lydian city. Elsewhere on the hill we have found only deep robber's trenches and disturbed contexts, where the valuable contents of these buildings were carried off and then even the stones themselves of the buildings removed for reuse. This small corner, though, suggests what we are missing, and gives hope for future work here.

In Field 55, once part of the sanctuary of the cult of the Roman emperors and later converted to luxurious Roman houses, Frances Gallart Marqués continued to clear a broad marble-paved courtyard with painted walls. This must have been a spectacular room, divided by a portico with at least five columns, two of which were found where they had toppled in the earthquake that destroyed the house. As so often in late Roman houses, the builders took delight in incorporating a diversity of reused elements. Frances found a beautiful Corinthian column capital lying near the top of its fallen shaft, but the adjacent column had a non-matching Ionic capital; both were reused from earlier buildings. The inhabitants might have amused themselves with two game boards incised into the floor. These slightly mysterious circles, like wheels with eight spokes, are not uncommon; another is carved into the floor at the entrance of the Synagogue, and others on the marble road. They seem to have been some kind of game, but there is no agreement on just how it was played. One of Frances's games is smaller and less carefully drawn, the other has catenary arches like a spider web, all carefully drawn with a compass;

and there are many other variations. Do these differences suggest differences in the way the game was played, or just the whims of the creator?

On the other side of the colonnade, she found no more debris from the earthquake, no more fallen column drums, capitals, well-preserved marble floor, or chunks of brick masonry fallen in place, but a chewed up mess of displaced blocks and earth. It seems that after the early seventh-century earthquake, people returned to salvage the marble slabs from the floor and other structures from this side of the court. Conveniently, they left a few tell-tale artifacts datable to after the earthquake, such as a bronze buckle found near the very bottom of the ancient robber's trench, in addition to the two lead uterus amulets mentioned in the first newsletter. Again, this is new information about a period of Sardis's history about which we know very little. I wonder if these Byzantine Sardians, living in the wreckage of that earthquake, were searching for blocks to construct the impressive fortifications on the Acropolis, a process that stripped the lower city of much of its marble architecture. And it illustrates one of the things I love about Sardis. Other sites



Fig. 9. Frances studies the Corinthian capital of one of the collapsed columns embedded in the earthquake debris; the Ionic capital of the next column is visible behind her.



Fig. 10. One of the many challenges ably dealt with by Frances was the mass of wall painting fragments slumped from the wall of the court. Some still adhered to the wall, others had partly slipped away, making excavation and conservation particularly difficult. Luckily Sevinç Akça, one of the workers trained in the temple, has become very skilled in the careful excavation and cleaning of wall painting, and was a great asset to the team.



Fig. 11. On Field 55, Frances oversees the cleaning of her expansive trench. The pavement on the right was excavated in previous years; she has uncovered a bit more, but much remains hidden beneath the collapsed columns and brickwork that run across the center of the room. These were not disturbed by later occupants returning to salvage marble from the left side of the room. You can see some of the blocks they abandoned, resting at an angle that probably indicates the sides of the pit they dug through the ruins.

have well-preserved Roman houses with their courtyard pavements intact, made of neat, identical blocks cut specifically for this one purpose. Everything at Sardis, though, is embedded in its long history. Some marble blocks in Frances's courtyard were reused from the sanctuary of the Imperial cult of centuries earlier, like the inscription described in your first newsletter, and so tell us about Sardis in the Julio-Claudian age. The disruption of the pavement brings us into the

Byzantine era, the construction of the fortifications on the Acropolis, and the profound transformations that Anatolia underwent at the end of antiquity. Nothing is simple here—or if it seems simple, we're probably wrong.

The effects of the earthquake that brought an end to settled life in the lower city are visible everywhere. Walls were split and displaced, the whole courtyard cracked and turned slightly as the earth moved under it; we have found fissures

in excavation throughout the terrace, one extending almost 30 feet under the ground. Understanding and mapping the seismic fault was one of the research projects undertaken by the geophysical team of Caner Öztürk, Buğra Kaya, and Mustafa Yağlıdere (GeoIm Ltd), led by Mahmut Drahor (Dokuz Eylül University). Using Electric Resistivity Tomography they measured virtual cross-sections up to 160 feet deep into the ground. These sections enabled



Fig. 12. Photographer Jivan Güner (private practice) taking final photographs of Frances's trench; here Frances points out the two game boards incised into the pavement of the court in a staged but informative pose.



Fig. 13. Geophysicists Mahmut Drahor and Buğra Kaya run the sophisticated equipment that sends pulses of electricity through their cable, almost 1,000 feet long, stretching through the whole of the Roman sanctuary.

Fig. 14. Güzin Eren shows recorder Christine Muron (Cornell University), Okan Cinemre, and Cathy Alexander the early Lydian mudbrick wall she discovered some years ago. One of the exciting results of the summer was a series of new Carbon-14 dates for this building, dating it in the ninth century BC, further evidence for our recent re-evaluation of the importance of Sardis before the famous dynasty of Lydian kings like Gyges, Alyattes, and Croesus.



them to identify the geologic fault that runs through this part of Sardis; the fissures we have encountered in excavation are only tiny local cracks caused by the earthquakes. They also continued to survey the city center with ground-penetrating radar, adding considerably to our understanding of the Roman buildings in this area, and investigated the possible Lydian gate in the fortification on the northern side of

the city, discovered in a small sondage by Andrew Ramage way back in 1985 and still on our long to-do list.

Despite the small team to allow social distancing, there was a remarkable variety of research projects going on in camp. Rostislav Oreshko (University of Leiden, and CNRS, Paris) visited to look at a Lydian inscription found in 1912 by the Butler expedition and now in the Izmir Museum. He intended to

check the reading of one slightly problematic letter of the inscription on the front of the stone; imagine his surprise, therefore, when he discovered another, previously unnoticed Lydian text on the side of this stele! This prompted a longer study, with the generous support of Seval Konak, twice representative at Sardis of the Ministry of Culture and Tourism, and now assistant director at the Izmir Museum, and her assistant Elvan Tural.



Fig. 15. Hiroko Kariya (right) and Süheyla Şimşek continued to consolidate the Lydian Gate in MMS/N.



Fig. 16. Slava Oreshko studies the previously unnoticed Lydian inscription on the side of the grave stele of Alikres, son of Karos, now in the Izmir Archaeological Museum.



Fig. 17. Among Gül's projects this summer was to study some of the "puppy dinners" excavated in the early years of the excavation. These assemblages typically consist of a single plate, a drinking cup and pitcher, a cooking pot, an iron knife, and the bones of a small puppy, a few weeks to a couple months old. They were published by Prof. Crawford H. Greenewalt, jr. in his monograph *Ritual Dinners in Early Historic Sardis* (1978), and his own brilliant photograph in that scholarly work showed one of those assemblages with a small Alsatian puppy, looking up wistfully at the camera. Gül and Jivan here recreate that photo with a remarkably cute puppy belonging to Ferat Serin, our long-time cook and also a Master of Animals.

Slava's discovery is a big deal, in the small world of Lydian studies—only a hundred-odd Lydian inscriptions survive, and many of them are just a single word or a few letters, so this adds considerably to our corpus.

With the publication of the [House of Bronzes—Lydian Trench](#) finished (and her new and beautiful volume on Lydian pottery at Gordion hot off the press), Gül Gürtekin-Demir (Ege University)

continues her work on Lydian pottery in the depots at Sardis. Among her studies is the Neutron Activation Analysis done in the early 2000's by Michael Kerschner (Austrian Archaeological Institute); I joined her in working on the similar analysis done by Lisa Kealhofer (Santa Clara University) and Peter Grave (University of New England, Australia). The hope is to identify imported vessels and, just as interesting, various local

and regional production centers of Lydian pottery, some of which can be distinguished only through chemical analysis of the clay. Gencay Öztürk (Ege University) continued his study of the gems and semi-precious stones of Sardis, greatly aided by archaeogemologist Çiğdem Lüle (Kybele LLC). Phil Sapirstein (University of Toronto) returned to continue his study of Lydian rooftiles and revetments, making some



Fig. 18. Çiğdem Lüle and Gencay Öztürk studying the tiny gems from previous excavations at Sardis.



Fig. 19. Traditional and digital recorders share their experiences: Phil Sapirstein explains to Cathy Alexander how he creates three-dimensional models of objects from small rooftiles to huge marble blocks in the computer, and from those models derives extremely precise two-dimensional drawings of each side of the object. Both old-fashioned pen-and-ink and modern digital techniques have equally comfortable places on the project.

Fig. 20. The steel trusses for the new Synagogue roof were assembled and painted in the palaestra, exciting much interest among the visitors to the site.



fascinating discoveries and observations. Phil also kindly continued to help with the documentation of the fallen blocks of the Roman arch, which occupied John Sigmier (University of Pennsylvania) all summer. The two of them were roped into other side projects as well, such as making a 3d model of Frances's collapsed architecture of the courtyard. Such 3d documentation supplements traditional plans and photographs, and is particularly critical for features like this collapse which we intend to dig away.

The main event of the season, though, was the construction of the new roof over the Synagogue. Teoman Yalçinkaya (Sardis Expedition representative), Taner Kurtuluş (Artabel Engineering), and Ümit Güngör (Ege University) continued to coordinate the teams pouring the concrete beams that would support the roof, and the masons hiding the stark concrete beams behind a skin of masonry carefully built to replicate the original Roman construction, as described in the first newsletter. Once the beams were

poured and cured, the steel workers could take final measurements, and then fabricate the steel columns and the long trusses that would hold the roof—52 tons of steel in all. These arrived in a series of huge trucks, converting much of the palaestra of the Bath-Gymnasium into a staging area to assemble and paint the components. A crane arrived to lift the columns into place, a ticklish operation as the workmen clambered on the narrow walls

to guide each heavy steel member into its proper spot. The trusses had to be shipped in two parts since they are too long to fit even in a long 18-wheeler. The steel team assembled the trusses and then joined two trusses with cross-members and stainless steel cables into stable assemblies that could be lifted directly onto the columns. A huge crane then lifted the truss assemblies into place. Teoman and the architects had thought everything out

Fig. 21. Lifting the completed truss assemblies onto the columns of the Synagogue demanded a highly skilled crane operator, and agile workmen to guide the trusses into place. We were blessed with calm weather and the work went very smoothly.





Fig. 22. With the steel in place, Teoman and Ümit prepare for the next stages of the project, the canvas, gutters, and other accoutrements of the roof.

long ahead, of course, so the work went amazingly smoothly, with only the occasional unforeseen delay. Yet another crew came to measure, and then to craft and stretch the tenting material that covers the structure. This fabric is lightweight but extremely strong; three people could walk together on it with hardly any deflection. The devil is in the details, here as always, and different teams carefully installed the gutters and downspouts, and

stretched bird netting so the roof would not become a haven for birds who would foul the mosaics beneath.

The roof construction continued into the fall after most of the team had left, leaving a few scholars working in the depots. We were blessed by good weather, though, as work continued through the end of November, with Teoman and Ümit overseeing the final construction. This project, conceived in 2008, has been

finally brought to completion, on time and within budget, despite the now-familiar problems with shortages, kinks in the supply chain, and other limitations of our new world. A generous gift from Patrick Healy of Hellman & Friedman funded the construction; Mr. Healy joins an illustrious group of benefactors since the fourth century AD whose generosity built, restored, and preserved this magnificent synagogue.

While construction was in progress, the team of trained marble-cleaners addressed the mosaics of the Synagogue. Over the past 50 years, the same kinds of lichen and cyanobacteria that had turned the temple of Artemis dark and ugly had also damaged and discolored the mosaics of the Synagogue. These women and men therefore used the techniques developed by Michael Morris and



Fig. 23. Before starting to clean the mosaics of the Synagogue in earnest, Hiroko Kariya tested the technique on a particularly badly damaged area. This low spot by one of the shrines has collected rainwater for 50 years, and even when wet, the pattern is hardly distinguishable behind the thick black biofilm. The team sprays a dilute solution of Preventol on a small area of the damaged mosaics, and after gentle scrubbing, covers it with plastic sheeting and burlap.

Fig. 24. It will take weeks or months until the biocide has completely killed the bacteria, but even after a few days, the treated area (the checkerboard pattern and border behind) began to return to its natural colors, in contrast to the untreated border (on the right, being swept).



Hiroko Kariya on the colorful mosaics. The transformation was equally astonishing. Areas completely obscured by black gunk were revealed; the subtle blue-gray and red and yellow stones, muted by biofilm, returned to their vivid natural colors and patterns. As with the Temple, looking back at old photographs makes me wonder how we took its stained and degraded state for granted.

As one project always seems to spawn another, the roofing and cleaning accomplished this year are the inspiration

for further work. For some years we have talked about a mosaic restoration project, to remove some of the hodgepodge of concrete fills and patches installed in the 1960s where the original mosaic was not preserved, and replace them with more aesthetically pleasing materials. Now that the building is cleaned and protected from further damage, we can begin this next stage; more on this, I hope, in the 2022 newsletters.

As always, we are deeply grateful to all of you who have made this season,

and our work throughout the year, possible. I also apologize for the lateness of the second newsletter, which I started back in August and which somehow stayed on a back burner for too long. As I write this, in March, we have our permit for the 2022 season, and I look forward to sharing more news with you this summer.

Nick Cahill
Director, Sardis Expedition

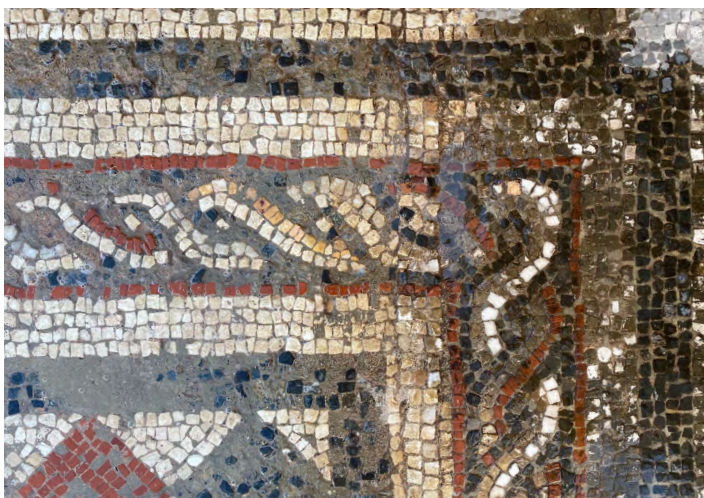


Fig. 25. Before and after: follow the white band from the treated area on the left into the uncleared area on the right—what a difference!



Fig. 26. After testing the method, the team took on the large areas of the Synagogue, and treated the entire building by late September for a final set of photographs before it was covered by the protective roof.



Fig. 27. From the air, the “dancing” panels of the new roof break up what might have been an intrusive structure, just as architects Troy Thompson (SmithGroup LLC), Nathaniel Schlundt (Building Conservation Associates), and Phil Stinson (University of Kansas) envisioned it. The curves and offsets of the roof offer their own visual interest without overwhelming the ancient remains. Most importantly, they will preserve this largest synagogue in the ancient world from further damage.

If you would like to be added to our list of recipients of future newsletters, or for more information about our activities and how to support our work, please send an email to am_sardis@harvard.edu.

Past newsletters are available on our web site <http://sardisexpedition.org>



Figs. 28 & 29. Baha and I visited Sardis in March, 2022 in preparation for the upcoming field season, and delighted in seeing visitors admiring the new roof. The light beneath is even and gentle, and in the hot summer will be refreshingly cool. The structure has protected the mosaics through their first winter under shelter since the seventh century AD.

David Gordon Mitten (1935-2022)

The Sardis community, and the archaeological world in general, has lost one of its most beloved friends. David Gordon Mitten was a central member of the Sardis Expedition since he first arrived as a graduate student in 1959. He was put in charge of excavations in the Byzantine Shops, the Marble Court, and then in the southeast area of the Bath-Gymnasium complex, where in 1963 he discovered the ancient world's largest synagogue. In 1968 he turned his attention from the Synagogue to the Early Bronze Age at Sardis, undertaking major excavations on the shores of the Gygaean Lake. This was typical of David, whose truly extraordinary diversity of interests and expertise ranged from ancient bronzes to Roman coins to the Bronze Age of Anatolia. He remained vitally interested in every project at Sardis throughout his life, and eagerly awaited news and ideas as we returned from the field, with insightful comments and helpful suggestions.

David was a deeply committed teacher; many of you reading this newsletter are interested in Sardis because of David Mitten. He taught everybody: graduate seminars, undergraduate lecture courses, Harvard Extension courses for 44 years, all of them of legendary popularity.

David was one of the warmest and most open people it has been my privilege to have known. He had an extraordinary memory, especially for people, and knew the names and family histories of every workman who worked with him, with wonderful anecdotes and insights. He maintained close ties with many of them, speaking their particular village Turkish with great enthusiasm. And they treasured him: each year still, the older members of the team ask after Daoud Bey, how

he is, when he is coming back to Sardis. This year it will be a sad duty to tell them of his passing. He will be deeply missed by everyone who knew him.



One of David's many important discoveries at Sardis was the Cybele Monument, perhaps the most famous known work of Lydian sculpture. Here David uncovers this sculpture in the Synagogue in 1963, the building he had discovered earlier in the season. Isn't it typically Sardian that David could discover both a Lydian masterpiece of the sixth century BC and the monumental late Roman synagogue of the fourth century AD together?