Session 2A: Workshop
Excavating Administration? Exploring the Methodologies of Studying Administrative Spaces in the Ancient World

Moderator: *Kaius Tuori*, University of Helsinki

Workshop Overview Statement

The workshop aims to explore and debate different methods of inquiry and their merits in detecting, analyzing, and modeling spaces that were used for public purposes such as administration. In recent years, the models offered by written sources for public building, such as royal palaces or public meeting places (i.e., agora and forum) have been criticized by recent studies that have proposed both a new way of conceptualizing public space but also the reenvisioning of the role of private buildings in public administration. The purpose is to bring together archaeologists, historians, and classicists for an interdisciplinary debate over how one can study administrative space in the ancient world, from the analysis of archaeological data to the models and interpretations that are drawn.

Significance to the discipline: To start a new, interdisciplinary discussion on how to interpret space and what models to utilize. While commercial or religious space has ready typologies and categories of finds, the study of administrative space has struggled beyond the identification of the *fora*, the putative city offices or archives to form a workable notion of how administration operated. The issue has become more pressing with new finds coming for example from the Metro C Line excavations in Rome.

The Chair opens with a short outline of the topic and the most recent theories. Presenter #1 compares the study of the spaces used in public and private spectacles such as readings and those of official proceedings such as trials. Presenter #2 discusses challenges in the identification of structures such as libraries and auditoria based on his excavations in Rome. Presenter #3 compares cases of Roman political administration in the cubiculum and considers the challenges that the multifunctionality of this space poses for these encounters. With comparisons of the small towns in the Greek and Roman worlds, Presenter #4 outlines methodologies of identifying activities in domestic settings. Presenter #5 discusses how to distinguish commercial and administrative activities in public spaces. After these methodological presentations, the chair will guide the discussion through four main themes: modeling activities, interpreting evidence, using spatial theories and comparison as method.

Panelists: *Kaius Tuori*, University of Helsinki, *Leanne Bablitz*, University of British Columbia, *Antonio Garcia Lopez*, University of Florence, *Harriet Fertik*, University of New Hampshire, *Samuli Simelius*, University of Helsinki, and *Steven Ellis*, University of Cincinnati

Session 2B: Open Session
Connecting Sherds to Big Questions in the Mediterranean

Putting My Best Leg Forward: Ritual Vessels, Neolithic Exchange Networks, and Prehistoric Corinth

Carolin Fine, Florida State University

The Neolithic was a critical period in human history, when the establishment of agriculture, sedentary society, and craft specialization all took place. Yet, despite an abundance of material from sites throughout Southeastern Europe during this period, overall little attention has been paid to elucidating connections between populations that were made across large geographic distances. This paper presents the results of new research concerning the Neolithic period at Ancient Corinth, focusing on a particular type of vessel known as the Neolithic *rhyton*. Conducted over a five-year period, this work focuses on reevaluating the prehistoric ceramic material excavated between 1896 and 2016, using both macroscopic techniques and pXRF analysis to help understand and establish Corinth's social and economic connections regionally and supra-regionally during the Neolithic. The Neolithic *rhyton* is an unusual—and therefore readily identifiable—shape that is broadly designated a "ritual object," though its use is debated and as yet unknown. This vessel shape appears along the Adriatic coast, the Balkans, and into Italy during the Middle Neolithic (ca. 5500–4800 B.C.E.), and in the mainland of Greece during the Late Neolithic period (ca. 5300–4200 B.C.E.). The results of the ceramic analyses will help to clarify Neolithic trade and exchange networks on various scales: tracking similarities in style, technology, and decoration help to prove the existence of communication between populations. Investigations carried out at Corinth have so far yielded 192 fragments of *rhyta*. Of the 29 known sites that have produced *rhyta* in mainland Greece, the largest number from another single site is at Lerna, where excavators have found 13, indicating the centrality of Corinth within this Neolithic network that includes areas of the Balkans, the Adriatic coast, and the Mediterranean. The outcomes of this research will further the discussion concerning ritual and its role within a continuity of practice in during the Neolithic period of Europe, with Corinth as its focal point.

Sherd by Sherd: A Quantitative Analysis of the Miniature Pottery from the SE Ramp Deposits at Ancient Eleon, Boeotia

Charlie J. Kocurek, University of Cincinnati

Miniature vessels are abundant at Archaic and Classical Greek sacred sites yet remain understudied by scholars of Greek religion and ceramic production. A major limitation in the study of miniature vessels has been the lack of stratified deposits from a single site, particularly spanning the transition from the Archaic to Classical period. In this paper, I present a quantitative study of 16,000 miniature vessel fragments deposited in a series of stratified ramp levels at ancient Eleon in central Greece to ask the question, how can we better understand ritual behavior through an examination of votive consumption trends at a Boeotian sanctuary

between 600 and 400 B.C.E. While no sanctuary architecture has been identified, the well-stratified fill deposits, composed of sanctuary cleanup material, located on the ramped entrance to the site provide a unique opportunity to evaluate diachronic changes in the quantity and decoration of miniature vessels. This paper demonstrates a new approach by utilizing all whole and fragmentary vessels to magnify patterns and show that miniature vessels can serve as chronological indicators in their own right. The results of my study show three distinct phases, which correspond to existing ramp levels that can be dated more precisely by the other wares present – Pre-550 B.C.E., third quarter to late sixth century B.C.E., and Pre-480 B.C.E. Despite consistent ritual activity across these three phases, patterns emerge that show a shift in preference from local, Boeotian Kylix Ware, to imported, primarily Corinthian miniatures, as votives during the sixth century B.C.E. and an explosion of miniaturized shapes in the Late Archaic period. This paper investigates these patterns as the reflection of growing connections with other regions of the Greek mainland and demonstrates, for the first time, the value of performing a comprehensive quantitative analysis of fragmentary material to clarify the chronology of miniature vessels.

Through Thick and Thin: Identifying Multiculturalism and Personhood through the Evolution of Cooking Wares at Prepalatial Mochlos

Luke Kaiser, University of Arizona

In an era in which immigration dominates our media landscape, multiculturalism in archaeology has become increasingly topical. Previously, personhood was tied to prestige goods and elite consumption. Legarra Herrero (Cambridge Archaeological Journal 26 [2016] 249–67), however, states that a new model that mirrors the people who populate a site should replace this "prestige model." Cookware, for example, represents persistent, learned activities, rooted in childhood and steeped in traditions that reaffirm both individual and group identity. This paper seeks to test this proposal on the cookwares from Prepalatial Mochlos (3000–1900 B.C.E) through an analysis of shape, surface treatment, and fabrics. The Early Minoan (EM) IA period sees the emergence of two wares, thin pierced dishes with untreated surfaces and burning on the exterior and thicker pierced dishes with dark burnishing and interior burning. These shapes have technological ties to the Cyclades and come in two metamorphic fabrics, one with silver micaceous inclusions and one without, both identified as local. A third, short-lived fabric appears in the EMIB period, a calcitic Kampos Group ware, that is associated with the Cyclades either through importation or imitation, appearing in both dish shapes. Finally, a fourth fabric surfaces late in the EMIIA period with granodiorite and gold mica inclusions. This fabric is not of local production and is associated with the Gournia-Vrokastro region to the west of Mochlos, and it is found in a new shape, the first cooking pot at Mochlos. This paper concludes that these fabrics and shapes imply a mature local tradition at the beginning of the Prepalatial Period with ties to the Cyclades. This local tradition is subsequently nuanced by a nonlocal technology and represents a new population at Mochlos, emerging due to population exchange, possibly intermarriage, between other communities with individuals bringing their own culturally persistent technologies with them.

Why Use the Wheel-Throwing Technique at Middle Minoan II (1800–1700 B.C.E.) Phaistos, Crete? Combining Experimental Archaeology with Macroscopic Analysis and Contextual Information

Ilaria IC Caloi, Ca' Foscari University of Venice

Several studies have been undertaken on ceramic technology in the last twenty years, and now there is a general agreement among scholars, about the introduction of the potter's wheel in Minoan Crete in (M)iddle (M)inoan IB (ca. 1900 B.C.E.), corresponding to the emergence of the first palaces on the island. Most recent studies on ceramic technology of MM pottery from sites of northern and eastern Crete have revealed that since the introduction of the potter's wheel in MM IB, the wheel-fashioning technique (a combination of hand-building and wheel) was the only forming technique used in Crete until the Late Bronze Age. On the contrary, in southern Crete and especially at the palatial site of Phaistos, recent studies have shown that the wheel-fashioning technique was not the only technique in use because in MM IIA (eighteenth century B.C.E.), at the time of monumentalization of the palatial site, the wheel-throwing technique was first introduced. Through this new forming technique, the rotative kinetic energy (RKE) is used from the beginning of the manufacturing process, thus making the production much faster and standardized. Through the eyes of the experimental archaeologist, we can now say that, adopting the clay in use in Minoan times and a small wheel similar to the ones found in MM II Cretan contexts, it is possible to create enough RKE to produce small wheel-thrown vases, like handle-less conical cups. Using experimental archaeology in combination with macroscopic analysis and requisite contextual information, new results can be provided on the reasons why the wheel-throwing technique was adopted at MM IIA Phaistos. It is argued that its first adoption is connected to the need of mass-produced cups to be used as ration bowls during building activities at the time of monumentalization of the site.

Portable X-Ray Fluorescence Spectrometer Analysis of the Pylos Linear B Tablets

Billy B. Wilemon, Jr., Independent Scholar, *Michael L. Galaty*, University of Michigan, and *Dimitri Nakassis*, University of Colorado, Boulder

During the summers of 2015 and 2016, over 1,000 Linear B clay tablets and sealings excavated from the Mycenaean palace at Pylos in Messenia, western Greece, were analyzed at the National Archaeological Museum in Athens. The results of that analysis, which point to significant compositional variation, are presented here.

The 3,000-year old clay tablets are generally economic in nature, and are not found in quantity outside the palace. Stamped clay sealings were used as labels for shipments of material goods. About forty different scribes have been identified.

There are a number of hypotheses that statistical analyses of the chemical data may help us address. The following are proposed:

- PXRF data can be used to identify and group tablets and sealings that were made in a discreet geographical location.

- Comparison of the chemical data and scribal hands leads to the hypothesis that a number of the scribes operated away from the palace and that sealings traveled with materials to the palace.
- Comparison of the chemical data with extant clay samples can help us identify geographical regions in which sealings and tablets were produced.

Answers to these questions can tell us much about the degree of palatial control and distribution of wealth. They also may help clarify the true role of the scribes, how they interacted with one another and managed the flow of material goods, and how economic information made its way into the official record.

This project, supervised by Dimitri Nakassis of The University of Colorado, Boulder, and Michael Galaty of the University of Michigan, is taking place under the auspices of Sharon Stocker and the University of Cincinnati Department of Classical Studies.

Session 2C: Open Session
Fieldwork and Survey in Egypt and the Ancient Near East

Fullery, Tannery or Bathhouse? Indigenous knowledge versus Classical Perceptions at Beth Zur

Laura B. Mazow, East Carolina University, and *Diane Strathy*, Independent Researcher

Excavations undertaken by McCormick Theological Seminary and the American Schools of Oriental Research at Beth-Zur in 1931 and 1957 revealed numerous vats and bath-shaped installations both clustered together and scattered across the site. According to Sellers final report of the first season, local knowledge at the time identified the buildings as a tannery, wool washing or dying plant, and artifacts indicative of a large-scale textile industry supported this reconstruction, but the final archaeological reports reject this interpretation in favor of identifying baths as bathing tubs, preferencing parallels with Hellenistic and Roman Egypt and the Aegean and interpreting these features as part of the Hellenization of the Southern Levant.

Beth Zur is one of several sites alternatively identified as either 'bathhouses' or 'fullonica' (buildings for fulling wool). While the activities associated with these buildings would have similar resource requirements—access to water and water disposal, a furnace, pools, and basins for bathing or fulling—the different functions undertaken in, and users for, these structures should leave a distinctive outline visible archaeologically.

Reexamining the archaeological context, with the support of ethnographic data, furthers the original suggestion of wool processing installations. Although evidence exists for woolen industries in Hellenistic and Roman Palestine, wool washing and fulling installations have not been identified. Using archaeological and textual evidence from the Mediterranean and North Africa, where there is better documented data, we build on the layout of the Beth Zur workshop to construct a footprint for these activities that can be used to identify wool processing in the

archaeological record of Hellenistic and Roman Palestine. Recognizing these bathtubs as better suited for industry than hygiene indicates they reflect a technological innovation rather than a Greek-inspired luxurious lifestyle, a conclusion that suggests we reconsider the impact and influence of Hellenization in the Southern Levant.

Working Among the Dead: A Report from the New Kingdom Necropolis at Gebel el-Silsila

Patricia Coletto, University of Exeter

Located in Upper Egypt and straddling the Nile at its narrowest point, the site of Gebel el-Silsila encompasses approximately 30 square kilometers and retains evidence of human occupation from the Epipaleolithic through Roman times. Though predominantly known for its massive sandstone quarries and the so-called Speos of Horemheb, Gebel el-Silsila also boasts dozens of 'sub-sites': cenotaphs, Nile shrines, stelae, rock art sites, a temple dedicated to the crocodile god Sobek, and the New Kingdom necropolis. It is this latter site, the necropolis, which has been the focus of the Gebel el-Silsila Project since 2016. Working under the auspices of Sweden's Lund University and with permission from Egypt's Ministry of Antiquities, the team has thus far uncovered 73 tombs and burials, including a two chambered shaft tomb containing the mass interment of over 100 individuals! Ongoing excavation and analysis of the archaeological and osteological remains have revealed a wealth of exciting insight into the lives of Silsila's ancient population, specifically the quarry workers. This field report presents the Gebel el-Silsila team's fascinating and most recent discoveries, revelations, and hypotheses from the necropolis.

Brown University Petra Terraces Archaeological Project: 2019 Methods and Results

Daniel Plekhov, Brown University Joukowsky Institute for Archaeology and the Ancient World, *Evan I. Levine*, Brown University Joukowsky Institute for Archaeology and the Ancient World, *Luiza O. G. Silva*, University of Chicago, and *Max Peers*, Brown University Joukowsky Institute for Archaeology and the Ancient World

This paper presents the methods and results of the second field season of the Brown University Petra Terraces Archaeological Project (BUPTAP). The 2019 field season focused primarily on the settlement and ritual site of Ras al-Silaysil and its associated systems of agricultural terraces, where we examined the connections between these agricultural and religious landscapes. Through the integration of survey, excavation, and architectural documentation, we document and analyze the immense typological and chronological variability of agricultural terraces in Petra's northern hinterlands. We investigate this variability through extensive mapping of terrace features, combining satellite and drone-based remote sensing and terrestrial LiDAR to document the morphological and associated geomorphological characteristics of terraces in different wadi systems. We augment these

digital approaches with architectural and landscape drawing, experimenting with different methods to capture the topographic complexity of Petra's landscape. At the scale of individual terraces, we document the stratigraphy of terraced sediments through excavation of test units along terrace risers. We employ optically stimulated luminescence and micromorphological study to date terraced sediments and characterize the sequence and nature of their accumulation. Archaeobotanical study of phytoliths also allows us to investigate the vegetation present within wadi systems through time, providing some clues about the kinds of crops grown there over the centuries. Through the integration of these various methods, we shed light on the long-term and dynamic history of land-use at Petra. The persisting use of agricultural terraces underscores their multifaceted roles in semiarid environments, serving functions relating to both soil retention and irrigation and allowing for the cultivation of a wide variety of crops.

The Kubba Coastal Survey, Lebanon: Archaeology, Heritage and Landscapes of Transformation

Jennie N. Bradbury, Bryn Mawr College

Until the past decade, the northern coastal strip of Lebanon had largely escaped the impact of mass urban sprawl and development affecting many other areas of the Levant. Since the late 2000s, this situation has rapidly changed and the area has been transformed by industrial and infrastructural projects. Over the past four years, through a combination of archaeological fieldwork and remote sensing, the Kubba Coastal survey has built up a detailed understanding of activity in this area, from the Paleolithic until the mid-twentieth century C.E. From extensive lithic scatters to hilltop settlements, our understanding of the utilization of this area, and its links to both the coast and further inland, as well as its wider role within the Levant have been elucidated.

This paper presents the major findings of four years of survey. I compare the *longue durée* settlement patterns seen in this area with those from the rest of Lebanon and interrogate some of the significant peaks and troughs in occupation, as well as potential gaps in evidence that need to be further explored. The paper highlights the benefits of bringing together an interdisciplinary team to combine traditional archaeological survey, remote sensing, underwater archaeology, geomorphology, history, and cultural heritage assessments in order to successfully tackle this diachronic approach. In addition, I explore the challenges and tensions of working in such a rapidly developing landscape and consider how we, as research archaeologists, can record and analyze different types of disturbances and threats to the archaeological record as part of our everyday work.

Session 2D: Open Session
Current Research in Athens and Corinth

Kneel Before the Grindstone: Cult Practice in the Sanctuary of Demeter and Kore at Acrocorinth

Mary Danisi, Cornell University

Analyses of the sanctuary of Demeter and Kore at Acrocorinth can substantially inform contemporary studies on the archaeology of cult. The site's well-documented topography and abundant assemblages of terracotta offerings warrant reconstructions of the ritual practices it once facilitated. From its monumental appearance in the sixth century B.C.E. until its restructuring following Roman conquest, the sanctuary contained an extensive dining complex. Situated in a portion of the precinct the American School has termed, "the Lower Terrace," this complex consisted of a series of closely associated, yet distinct, dining units, the interiors of each having displayed varying architectural features and spatial arrangements throughout the Greek period. These units enjoyed multiple phases of renovation, expansion, and compartmentalization during Classical and Hellenistic times, suggesting that they accommodated activities that were critical to sanctuary proceedings. But rather than assuming they were used simply for dining purposes, as the excavators originally construed, we might consider the following additional function, which recognizes the rooms' multifunctionality and capacity for alternative affordances. A new interpretation of the dining units reassesses their formal idiosyncrasies, together with analyses of their votive *likna* and organic remains, in order to suggest that a type of cult practice unprecedented elsewhere in Demeter cult occurred in the Lower Terrace. The peculiarities of the dining rooms can be explained as amenities designed for the production of grain goods dedicated to Demeter and consumed in ceremonial feasting. This reinterpretation complicates the contention that ritual activity was conducted exclusively within the "Middle Terrace" of the site. Additionally, it proposes that the dining complex provided the setting for a local, Corinthian variant of Demeter cult.

The Bouleuterion of the Areopagus in the City Eleusinion

Gerald V. Lalonde, Grinnell College

Scholars have long suggested that the Athenian homicide court of the Boule of the Areopagus met on the summit of the Hill of Ares or the terrace immediately below its northeast face, but, despite thorough investigation of the area, there is to date no probative in situ archaeological evidence of such a meeting place. Proceeding from the premise that the *Areios pagos* included topographically its extensive slopes, a wider survey of the published archaeology shows a unique concentration of epigraphic evidence of the Areopagite Council in an area extending roughly from the hill's northeast summit and the northwest face of the Acropolis to the wide region of the Stoa of Attalos and the Roman Agora. Of twenty-six relevant inscriptions found in this area, two give very specific evidence of the Bouleuterion of the Areopagus: (1) A stele with the Law of Eukrates (Agora I 6524; IG II3 1,

320) of 337/6 B.C.E., restricting the activity of the Areopagites in the event of tyranny, is likely the copy that was set up at the entrance to their Bouleuterion; (2) The palimpsest *horoi* of the Boule of the Areopagus (Hesp. 2013, 437–457; Agora I 5054a–b) from the fifth and fourth centuries B.C.E. were inscribed on a wall block at an entrance to that Bouleuterion. Literary *testimonia* (Antiph. 5.10–11; Ath.Pol. 57.4; Poll. 8.117–118) show that the estimated 150–200 Areopagite *dikasts*, in order to avoid pollution in trials of homicide, needed a large hypaethral court that could be entered directly from open public space. This necessity and the nearby finding places of the cogent inscriptions support a new thesis, that the perennial Bouleuterion and homicide court of the Areopagus were in the Archaic Peribolos of the City Eleusinion, a large level site that was kept open to the sky throughout its ancient history. In correlation with this thesis, published literary, epigraphical, and topographical evidence is adduced to support a conclusion that certain properties which Pausanias noted (1.28.5–9) in conjunction with the court of the Areopagus, namely, the unworked stones of Hubris and Anaideia, the shrine of the Semnai, and images of Plouton, Hermes, and Ge, were also located in the precinct where Demeter and Kore, as related chthonians, were established in Athens.

Excavations in the Athenian Agora

John McK. Camp II, American School of Classical Studies at Athens, Randolph-Macon College

This paper will summarize excavations carried out in the Athenian Agora over the past five years. The material recovered spans from Mycenaean to the Byzantine period along the northern side of the agora square, in the vicinity of the Painted Stoa. In addition to reviewing new information about the stoa itself, this paper presents new evidence concerning the probable location of the Leokoreion, one of the best-known landmarks of ancient Athens.

Kekrops or Erechtheus? Rereading the West Pediment of the Parthenon

Jenifer Neils, American School of Classical Studies at Athens

Once the Figures B and C on the north end of the west pediment of the Parthenon were correctly interpreted as an Attic king and his daughter, rather than Hadrian with his wife Sabina, most scholars have adhered to their identification as Kekrops and one of his daughters. However, this reading does not take into account the torso (Acropolis Museum 879) located under the horses of Athena. This male torso preserves a large round break at the level of the groin which can only be the beginning of a snake-like appendage. While some have suggested that this figure is a Triton like that under the horses of Poseidon, a more convincing identification is Kekrops, who is the only adult Attic king depicted with a snake-like lower body, as seen on the Pella Hydria. If this identification is correct, then Figure B must be the earthborn Erechtheus whose attribute is a snake. This serves to explain the bared left breast of his daughter (Figure C) who willingly sacrificed herself before the battle with Eleusis. It may also clarify the identity of this particular pair in a reduced Roman copy found near the greater Propylaia at Eleusis.

Polis Sites and Sightlines: Digitally Reconstructing Hellenistic Athenian Monuments

Petra M. Creamer, University of Pennsylvania, and *Gregory Callaghan*, University of Pennsylvania

Athens' golden age may have ended with the fifth century, but its monumental development certainly did not. In particular, the royal dynasties of the Hellenistic era (323-100 B.C.E.) spent vast sums to erect new buildings and monuments around Athens, in order to tap into the city's cultural legacy. These individual buildings, such as the Stoa of Attalos, have received considerable attention. Less systematic study has gone into the ways in which these alterations to Athens' built environment interacted with and changed the experience of its established landscape. The Polis Sites and Sightlines project aims to create a digital framework to understand how Athens' various monuments and buildings interacted with one another, how the populace experienced the city's civic and sacred heart, and how new additions such as Hellenistic or Roman dedications would have reshaped that experience.

This paper presents the results of the first season of the Polis Sites & Sightlines project, with an emphasis on the digital methodologies used both in and out of the field. A combination of digital 3D modelling, photogrammetry, and GIS are used to present a reconstruction of the built environment of the Athenian agora and acropolis. As a demonstration of the project's potential uses, the paper offers a focused analysis of the impact of Attalid dedications from the second century B.C.E. on that environment. Ultimately, however, the project is intended to be open-source and to allow the field to conduct detailed sightline analysis of the city's public space from multiple time periods, and the project's website will allow for crowd-sourced digital models of the buildings to be uploaded and plugged into the base model, while allowing users to filter these buildings in or out depending on the period of interest.

Session 2E: Open Session
The Materiality of Roman Imperialism

Mail Armor in the Middle Republic: Adoption, Prevalence, and Impact

Bret Devereaux, University of North Carolina at Chapel Hill

By the first century B.C.E., mail body armor in the form of the *lorica hamata* had largely replaced the preexisting armor traditions of Italy, becoming the most common and visible armor of the legions, despite being adopted by the Romans from Gaul. Although mail spread rapidly throughout the Mediterranean, its study has been neglected, especially when compared to the voluminous work on the later imperial *lorica segmentata*. In this paper, I assess the date and impact of the Roman adoption of mail in the third and second centuries B.C.E.

I examine the evidence for the introduction of mail in the Roman army and the related question of the prevalence of mail compared to native Italian armor types. Mail is rarely preserved in the archaeological record, so this examination relies on

a mix of archaeological, representational, and literary evidence to determine the timing of the adoption of mail and steady rise in its prevalence. While the expense of mail may have inhibited its adoption by others, the Italian armor tradition already favored an unusually high amount of metal body protection, suggesting that Rome may have been uniquely positioned to take advantage of this expensive new military technology.

I then consider the evidence for battlefield impact during the second century B.C.E. By comparing the weapons available with the defensive properties of mail armor, I determine which weapons would have had a high probability of defeating mail and which would have been rendered less effective. Notably, this advantage is reflected in Livy's reports (Livy, 37.44.2; 44.42.8) that Roman armies facing Hellenistic opponents suffered few fatalities but many soldiers wounded. Based on this analysis, I conclude that the preexisting Italian tradition of comparatively heavy armor enabled Rome's rapid adoption and wide use of mail, which in turn provided a significant advantage to Roman armies.

From Debris Field to Battle Map: Artifact Dispersal Study in the Aegates Battle Zone

William M. Murray, University of South Florida, *Adriana Fresina*, Soprintendente del Mare, Regione Siciliana, *Peter B. Campbell*, The British School at Rome, *Francesca Oliveri*, Soprintendenza del Mare, Regione Siciliana, *Mat Polakowski*, University of Southampton, and *George Robb*, RPM Nautical Foundation

Over the past fourteen years, RPM Nautical Foundation, working with the Sicilian Soprintendenza del Mare and Assessorato dei Beni Culturali e dell'Identità Sicilina, has mapped the site of a Punic War naval battle fought off the Aegates Islands (241 B.C.E.). We suspect that our detailed map of battle debris offers a unique opportunity to extrapolate the positions of warships at the moment of sinking. In order to make sense of the spatial relationships within the debris field, the authors conducted a drop experiment over an empty region of the battle zone during the summer of 2019. The objective of the experiment was to see how currents in the battle zone might have affected the distribution of recorded artifacts like amphoras and helmets. For the purposes of our experiment, we employed replicas of artifacts found at the site. Amphoras were filled with different contents—olive oil, fresh water/wine, and grain—and were sealed with leather caps secured by twine. Each artifact was fitted with an acoustical beacon so that its descent through the 80 meter-deep water column could be logged. Results indicated that an amphora's contents definitely affected its descent to the bottom. One amphora filled with grain to its neck floated for 900 m before its retrieval, just before sinking. It is hoped that further analysis with GIS will allow us to relate our results more precisely to the mapped artifact scatter.

Mevania and the Ancient Umbrian Valley: Landscape and Sacred Spaces between the Roman Conquest and Augustus

Elisa Laschi, Rheinische Friedrich-Wilhelms-Universität Bonn

Every human landscape with its cities, its routes, and architectural monuments constitute a structured reality in which sacred and cult places play a significant role in the development of collective identity. The Umbrians are one of the most influent populations of pre-Roman Italy, structured with several different centers scattered in a widespread area from the west side of Tiber to the east of the peninsula. The archeological evidence shows that in the time of Augustus, three centuries after the conquest, the major reorganization of the Umbrian landscape takes place, probably during the establishment of Regio VI. At the same time, the city of Mevania, which rises precisely in the center of the Umbrian Valley, loses its crucial role as a capital of Umbrian "league" in favor of Hispellum. This changeover is nowadays evident no more only in literary sources: a reinterpretation of archeological data displays a new system noticeable in the reorganization of cult places that remodeling the whole land. A new sacred way links Mevania and Hispellum, along which architectural evidence shows a complex religious system (e.g., the Temple of Parco Silvestri, the Nymphaeum of via Properzio, the Aisillum, and the Sanctuary of Villa Fidelia in Hispellum). Thanks to the combination of archaeological remains with the historical record, it is possible to offer a complete glimpse at the Augustan reorganization of Umbrian land and its political valence. Recent studies have indeed stressed as the image of the Umbrian "league" could be shaped by Augustus with the aim to find the unity wiped out during the civil wars. In this respect, this paper would be a portrait of the dynamics in Umbrian Valley between the Roman conquest and the first imperial time, with particular reference of archaeological and historical data from Mevania and its sacred spaces.

Minting Tarpeia

Jaclyn Neel, Temple University

In this paper, I reanalyze the coinage depicting Tarpeia (*RRC* 344/2b, *RIC* I² Augustus 299). This coinage has previously been understood in one of two ways: scholars either believe that the iconography depicts Tarpeia as a deity (relying on the "astral symbolism" of star and crescent; see particularly Ercolani Cocchi 2004 and Mazzei 2005), or they argue that the images illustrate Tarpeia's death by crushing in a manner similar to Livy's description in *AUC* 1.11 (most recently, Welch 2015). Recent scholarship on the relationship of text and iconography, however, has found that iconography does not simply depict scenes known from literature; rather, it has its own aims and means of communication (e.g., Small 2003).

Following this argument, my analysis focuses on the numismatic, rather than textual, models for these Tarpeia coins. In particular, I focus on the composition of *RRC* 344/2b, which finds parallels in other Republican coinage depicting military victory. This military iconography differs substantially from the literary tradition on Tarpeia; it has parallels, however, in other literary works on mythological women. My concluding argument suggests that Vergil has been influenced by the coinage in describing the companions of Camilla in *Aeneid* 11.655–664. A reader

familiar with the iconography would be able to predict Camilla's demise, while a viewer familiar with the *Aeneid* would understand the coins in two distinct ways.

Municipal Public Spending and Italian Urbanization in the Late Republic

Drew A. Davis, University of Toronto

The wave of urbanization that swept through Italy in the second and first centuries B.C.E. is viewed as a key aspect of economic development in the peninsula. Scholars routinely view this significant investment in urban infrastructure and public amenities as financed largely by the private fortunes of Roman and Italian elites who, newly enriched by Rome's Mediterranean expansion, sought to increase their sociopolitical power at home largely in the form of monumental civic building. However, this focus on elite euergetism fails to account properly for the considerable evidence of municipal public spending used to finance these projects. Indeed, the financial situation of the municipalities, colonies, and other communities outside of Rome is still poorly understood and often glossed over in discussions concerning the impact, economic and otherwise, that Rome's Mediterranean conquest had on Italy and her peoples. This paper seeks to correct this oversight by investigating how prevalent notices of public financing are in the substantial corpus of inscriptions pertaining to public building from communities across Italy. Through this investigation, I show that public money was used just as much, if not more so, than private wealth to fund Italian urbanization in the late republic. In so doing, I challenge the idea that elite private wealth was largely responsible for late republican urbanization. This study of Italian public spending, then, not only questions the scholarly focus on Roman wealth or the private fortunes of elites in the history of the late republic but also proposes that Italian communities autonomously controlled a much larger share of Italy's overall wealth than previously assumed, offering further insight into the process of Italian municipalization and urbanization.

Session 2F: Open Session
Looking Again at Roman Funerary Monuments

A New Look at Old Evidence for the Tomb of the Haterii

Jennifer Trimble, Stanford University

The Tomb of the Haterii in Rome is a major monument for Roman art and social history, illuminating artistic production, commercial life, and funerary ritual in the imperial period. Additional context has come from the suggestion made by several scholars, especially Filippo Coarelli, that the tomb's founder was identical with the Quintus Haterius Tychicus identified elsewhere as a *redemptor*, or contractor (CIL VI.607). Apparently confirming this suggestion is the construction crane depicted in one of the tomb's sculptural reliefs. As a result, the tomb's founder is widely described in the scholarship as a building contractor, and the tomb and its artworks are interpreted accordingly.

In this paper, I reexamine this link to Quintus Haterius Tychicus to show that the evidence points in a different direction. The inscription mentioning Tychicus does not survive; its earliest and most detailed reproduction is in the sixteenth-century Codex Pighianus. What has not been considered is that the inscription included images of a sculptor's pick and a headless sculpted torso. These images suggest that Haterius was a *redemptor* not for buildings but for sculpture.

This changes our understanding of the finds from Tomb of the Haterii. I argue that the famous crane relief refers not to building construction but to the use of cranes for mounting heavy sculpture. The monuments relief does not celebrate Haterius's role in the construction of the depicted buildings but his provision of their sculpture; this explains the puzzling prominence and large size of the sculptures depicted on those buildings. Another curious feature of the Tomb of the Haterii is its extensive reuse of decorative marbles; this becomes more understandable if its founder owned or controlled a sculptural workshop. These arguments come with caveats, but, overall, this reexamination can shed new light on sculptural production and commercial life at Rome.

The Specter of Nemrut Dağı and the Philopappos Monument in its Local Athenian Context

Gavin P. Blasdel, University of Pennsylvania

Prominently located atop the Mouseion Hill in Athens, the second century C.E. Philopappos Monument boldly celebrates the eminence of its eponymous honorand, a curious mix of Hellenistic king, Roman consul, and Athenian magistrate. Despite this complexity, most interpretations follow Santangelo (1947), Sullivan (1977), and especially Kleiner (1983) in viewing the probable funerary monument in light of Philopappos's status as a dynast of Commagene. These scholars argue or assume that many aspects of the monument consciously imitate Antiochus I's "temple-tomb" at Nemrut Dağı, and other such Commagenian complexes called *hierothesia*, in order to express Philopappos's alleged claims to divinity. Although recently Facella (2006) and Kropp (2013) have doubted that the *hierothesia* were inspirations for Philopappos, both have treated the problem only in passing. As a result, the shadow of Nemrut Dağı continues to loom large in scholarship.

In this paper, I argue that maximalist interpretations that stress the importance of Nemrut Dağı are unconvincing and that the local social, cultural, and political context of Roman Athens and of the Greek East more broadly offer a much better paradigm for the monument's interpretation. Through an analysis of the modes of representation deployed by the kings of Commagene and on the Philopappos Monument, I demonstrate that the often cited bona fide "Commagenian" elements of the monument—such as its location, the costumes and seated posture of the statuary, and the presence of Heracles—are misconceptions. Instead, these features can readily be explained as characteristic of late Hellenistic royal iconography or of civic elite display in the Greek East (cf. Smith 1998). By drawing upon epigraphic, iconographic, and literary evidence, I show that the monument was designed not just to project Philopappos's exceptional pedigree and stature, but above all to showcase his role as a citizen, civic official, and benefactor of Athens.

An Elite Tomb at Ancient Corinth?
Aileen Ajootian, The University of Mississippi

Roman identity in ancient Corinth, Colonia Laus Julia Corinthiensis, was established by monumental public architectural installations framing the Forum. Sculptural expressions of *Romanitas* included a unique statue base representing the Seven Hills of Rome and a rare marble group with Lupa nursing Romulus and Remus, plus images of Roma herself. Another type of Roman monument at Corinth, common in Italy and elsewhere in the empire, but rare in Achaia, adds a layer to these manifestations of Roman presence. A large marble panel (A-1974-29) adorned with two life-sized fasces in relief was discovered in 1974 built into the terrace at a farmer's field, about half a kilometer northeast of the Asklepeion at Corinth. The finished top surface was inscribed with Greek letters, probably mason's marks; the bottom preserves cuttings for a clamp and dowel. Another fragment (S 3622) from a big marble block, found in a marble pile southwest of the West Shops in the Forum, preserves one fascis, complete with axe and protome in the form of a woman's head. From disparate parts of the site, these non-joining pieces probably belong to the same monumental work because of scale, style, and details. Two types of Roman monuments, public and private, depicted fasces: imperial historical reliefs and aristocratic tombs. In the historical reliefs, imperial personalities and their entourages, including lictors bearing fasces, were combined with mythological figures and personifications. Roman funerary monuments also depicted fasces, sometimes carried by officials, or on their own, symbolizing power and status. In Athens, the unusual tomb for Commogene king Philopappos (114–116 C.E.) presented him as ruler, consul, and divinity. Philopappos in his chariot processes, lead and originally followed by fasces-bearing officials. A similar monumental tomb may once have stood at ancient Corinth, commemorating perhaps an aristocratic Greek in Roman style.

Fig Leaves, Photogrammetry, and a Third-Century Masterpiece Rediscovered
Robert Cohon, Kansas City Art Institute, and *R. Bruce North*, MSCE

The line between forged and genuine is sometimes blurry. On a large marble sarcophagus purchased in 1926 for Hearst Castle, lions attack stags, and in the middle two *Erotes* hold portraits in a shell. Vermeule (1962) and Brinkerhoff (1978) deemed it ancient; in subsequent private communications scholars condemned it. Stroszeck codified this opinion in the canonical *Die antiken Sarkophagreliefs* (1998). The bizarre portrait busts and fig leaves covering the *Erotes'* genitals were among the key problems. Each of these scholars is correct, but wrong: the sarcophagus is ancient but was partially re-carved in the early twentieth century.

In studying the sarcophagus, we employed traditional art historical analyses but added the tool of photogrammetry for hard-to-obtain precise measurements and detailed cross-sections. An ancient repair, traces of now-missing iron clamps, and the character of the chisel work authenticate the sarcophagus's tub-shaped body and reliefs on its narrow sides. Cross-sections confirm, however, that a restorer re-carved the damaged female portrait. He created fig leaves from the genitals themselves. As contemporaneous forgeries show, completeness and prudery sell.

Discrepancies in style between the left and right of the sarcophagus reflect not the inconsistencies typical of a forgery but Roman time-saving efficiency: the divided work of an aspiring sculptor and master. The photogrammetric model establishes how templates were partially used on both narrow sides, an ancient technique.

Style and iconography date the sarcophagus to about 260–280 C.E. Unusual features—e.g., the twist of the lions' heads and position of their raised paws—indicate not a forger's mistakes but an artist's creativity. The sophisticated design, harmonious proportions, and time-consuming work to undercut and carve such a large, deep relief are atypical of contemporaneous forgeries. With the help of photogrammetry, a major Roman sarcophagus has been rediscovered.

Session 2G: Open Session
Greek and Cypriot Architecture

Beyond Vernacular and Elite: Dependencies and Gradations of Social Status in Prepalatial Minoan Architecture

Carol R. Hershenson, University of Cincinnati

Distinctions between elite and vernacular houses have been recognized in previous scholarship on Prepalatial Minoan architecture as early as EM II. In this paper, I discuss architectural evidence for further social subdivisions, both below the status of the occupants of the main rooms in vernacular houses and among the occupants of elite ones.

The first category of possible sub-vernacular dwellings consist of suite 76–77 within the vernacular South-Central house at Fournou Korifi Myrtos and rooms 11 and 3 at Kephala Petras. Each has an assemblage similar to those of the larger architectural blocks to which they are attached, but with less than half the quantity of those goods compared to the neighboring household units; both, moreover, are doorless suites that lack visible means of access to public space without passing over or through the larger household units. These appear to be dependent impoverished households within vernacular houses.

A second category of possible sub-vernacular dwelling, *maisons-ateliers*, may be represented by the northeastern group of rooms of the West house at Vasiliki. This identification is suggested by parallels between their plans and relationships to the other rooms in the West house and those of the Protopalatial *maisons-ateliers* in Quartier Mu at Malia to elite houses A and B. The Protopalatial examples were identified on the basis of a wealth of other data, including fixtures and moveable contents, which is unavailable at Vasiliki.

Finally, among elite Prepalatial houses there may be some social differentiation between those that include a broad-room-and-corridor suite, which may have some relationship to later Lustral Basins, and those that did not. Recognition of these social differences encoded in domestic architecture in addition to the broader categories of vernacular and elite houses adds nuance to complexity of Prepalatial society.

Palatial Stone Masonry and Transport: A New Geochemical Study of Minoan Ashlar and Quarries in East Crete

Jonathan Flood, Frostburg State University, *Scott Pike*, Willamette University, *Jeffrey S. Soles*, University of North Carolina at Greensboro, and Douglas Faulmann, Institute for Aegean Prehistory in East Crete

Production and transport of cut-stone blocks were *sine qua non* in the development and design of Minoan "Palaces" and other defining elite architectural forms of Late Bronze Age Crete. Production of large rectilinear blocks from nearby geologic stock facilitated construction of stout upper-stories, sheer façades, pillar-supported open basement spaces, doweled wood-rock interfaces, and precisely angled interior and exterior corners. These architectural developments conveyed a sharp break from the happenstance geometry of natural, unmodified building materials of earlier times. Viewed monolithically, Minoan society was first in the Aegean to develop systematic quarrying technology and stone transport; yet at finer scales of temporal and geographic analysis, we reveal a spatial heterogeneity of geologic haves and have-nots that may explain the lag-time in the arrival of architectural monumentality at Minoan centers east of Mirabello Bay. The general eastward decay in abundance of suitable stone stock for hewed block production—namely poros limestone and gypsum—resulted in a suite of adaptive engineering solutions and the creation of intersite material exchange networks in east Crete. Lacking accessible gypsum and poros limestone, Minoan builders in the east exploited scattered deposits of biocalcarenite beachrock for ashlar fabrication.

This geochemical and geophysical investigation examines biocalcarenites from all known Minoan quarries and associated sites including and east of the palace and quarry of Malia (45 lithic specimens were analyzed). The study reveals the Late Bronze Age web of ashlar production and exchange in East Crete, and using XRF spectroscopy and petrography undertaken at the Malcolm H. Wiener Lab of Archaeological Science, has pinpointed the previously unknown source for ashlar blocks used in the construction of the palace of Gournia. The paper then concludes with a GIS-driven assessment of the distribution of ashlar blocks at Neopalatial Mochlos that lends insight into both social and engineering functions of this labor-intensive building material.

Cyclopean Walls on Acrocorinth: Mycenaean Presence or Not?

Ioulia Tzonou, American School of Classical Studies at Athens

Imposing fortification walls enclosed the citadel of Corinth, Acrocorinth, throughout its long history. Was the hilltop fortified in Mycenaean times? Cyclopean stretches of wall were located already in the nineteenth century and Andreas Skias argued for their Mycenaean date. This early date was rejected in the twentieth century. Rhys Carpenter asserted that the remains could not be Mycenaean since Corinth did not exist at the time. This assertion does not hold. A *tholos* tomb and an extensive Late Helladic settlement were excavated in the plain to the north of Corinth during the last decade.

Under this evidence, reexamination of the Cyclopean remains argues for their Mycenaean date. Comparison to Mycenae, Tiryns, the Pelargikon in Athens, and

Larissa in Argos, shows that the wall construction follows criteria set by the Mycenaeans. The Cyclopean parts are clearly distinguished from stretches of polygonal masonry, which were constructed during the Archaic period. Cyclopean remains are not scattered throughout the extent of the later walls, but concentrate in the eastern, highest and most precipitous half of the top of the mountain. A 3D reconstruction incorporating aerial images of the Cyclopean parts helps us visualize how the wall might have appeared in Late Helladic times.

Cyclopean walls were rare but existed in the Corinthia. On the road to the Saronic Gulf, a strong wall protected Perdikaria. A fortification wall most probably surrounded Korakou, Corinth's harbor in the Late Bronze Age. Mycenaeans inhabited the landscape in Corinth from Acrocorinth to a busy harbor on the Corinthian Gulf. Sisyphus's task of endlessly rolling his boulder uphill might be seen as a reflection of the labor required to fortify the great hilltop during the heroic past of the prosperous archaic city.

The Maa-Palaeokastro Architectural Documentation Project

Kyle A. Jazwa, Duke University

This paper presents the results of a fieldwork project that systematically documented and analyzed the standing architecture from the Late Cypriot IIC-IIIA site of Maa-Palaeokastro. In 2018, our team identified and recorded more than 200 distinct construction techniques that were employed for each building. These data were subsequently analyzed and evaluated for statistical correspondence among structures to help understand the typical construction methods, strategies for settlement planning, and organization/oversight of labor for the initial founding of the *ex novo* settlement and the subsequent rebuildings.

The analysis confirmed many of the excavator's (Vassos Karageorghis) general observations regarding the consistency of construction for the initial settlement event (Floor II) and the rather haphazard reconstruction following a catastrophic fire (Floor I); but, considerably more nuance was also gained, especially regarding the organization of labor during the initial settlement. Although the broad coherence to construction techniques suggests clear planning, oversight, and organization (even during the crisis in the eastern Mediterranean), individual "teams" of builders were identified for each major construction project (Buildings II, III, IV, and Courtyard A). This is evident from minor differences in construction between structures, such as the more consistent use of "anchor stones" for the exterior walls of Building II. Later renovations and constructions, however, do not maintain such a strict observance to those original construction methods, indicating less organized and more ad hoc constructions over the long-term.

As a final component to the project, the construction data from Maa were compared with similar data sets from mainland Greece to provide a new perspective to the much-debated question concerning identity of the settlers. An overwhelming lack of correspondence for the construction techniques between Maa and mainland Greece strongly suggests that Maa was not settled by Mycenaeans as was proposed originally.

At the Origins of Greek Monumental Construction: Concept, Fabrication, and Meaning of Corinthian Ashlar

Alessandro Pierattini, University of Notre Dame

Monumental Greek stone construction originates with the concept of building with standard cuboid blocks. As obvious as this concept may seem to modern builders, its particular implementation in Corinthian temple construction in the first half of the seventh century B.C.E. was a novelty in Greece and throughout the ancient Mediterranean and Near East. Without direct evidence of antecedents, scholars have hypothesized a connection with the centuries-old Corinthian craft tradition of stone sarcophagi. Yet to what extent—technical, conceptual, or symbolic—a crossover may have occurred remains an open question.

This paper addresses the problem with three different methods. First, it compares the production processes of the blocks from the two early temples at Corinth and Isthmia with those of previous and contemporary examples of Greek ashlar, asking to what extent the Corinthian peculiarities may derive from methods inherited from sarcophagus manufacture. Second, in comparing the chronologies of sarcophagi and architectural block production, it adopts an energetics approach to evaluate how these two industries may have boosted each other by increasing the number of craftsmen. Third, it explores questions of agency in relation to the concept and potential meaning of ashlar construction in Corinthian society.

It concludes that: (1) conditional to the production of the Corinthian blocks was the quarry technique by separation trenches, already used in sarcophagus fabrication but otherwise unattested in Greece through the EIA; (2) while the documented rise in sarcophagus production between the eighth and seventh centuries was quantitatively insufficient to boost craftsmanship, the effects of temple construction favored the subsequent rise in the number of sarcophagi; (3) the concept of using blocks rather than traditional double-skin masonry likely relates to craftsman-aristocratic patron relationships both practically and ideologically.

Session 2H: Workshop
Provenance Research in Museum Collections: Display, Education, and Publication

Sponsored by the Museums and Exhibitions Committee

Moderators: *Judith Barr*, J. Paul Getty Museum, and *Nicole Budrovich*, J. Paul Getty Museum

Workshop Overview Statement

As museum-related panels at past annual meetings have illustrated, provenance research remains a vital concern and ongoing interest for many museum professionals and academics involved with collections of antiquities from across the classical world. Since the previous workshops and last year's roundtable on provenance have addressed the methodological frameworks involved in conducting provenance research, we propose this workshop for Washington, D.C., in 2020 in order to further explore the next stages for developing this kind of research.

As more institutions have begun to invest in and to support opportunities for provenance research, new challenges have arisen: Once research has begun, how will this provenance information be displayed? Will it be published? How can provenance research and object histories be translated for use in diverse didactic settings and learning environments? What are the models for integrating the provenance of antiquities into publications within different media? Through a series of short case studies, participants will explore complex issues around the display and communication of provenance within collections of classical antiquities. These presentations will consider models for provenance outreach and display; how provenance and collecting histories can be taught at various levels; the publication of provenance through different avenues; and how exhibitions can prompt and promote archival reassessments of an object's history. The presenters will draw on a wide range of institutional and academic perspectives, which we hope will lead to fruitful connections and discussion throughout the panel. The initial section of presentations will be followed by a breakout session with moderated small groups in order to allow further conversations about the particular issues and challenges in addressing provenance research. Given this, we are requesting a two hour session. We hope that this portion of the workshop will allow colleagues from across the museum and academic communities to better understand effective and meaningful models for provenance outreach and display for antiquities collections.

Panelists: *Jacquelyn Clements*, AIA Los Angeles County Society, *Amelia Dowler*, British Museum, *Lynley McAlpine*, San Antonio Museum of Art, *Sara Cole*, J. Paul Getty Museum, *Katharine Raff*, Art Institute of Chicago, *Ann Brownlee*, Penn Museum, *Rebecca Levitan*, University of California, Berkeley, *Lisa Pieraccini*, University of California, Berkeley, and *Eric Beckman*, Indiana University, Bloomington

Session 2I: Open Session
Roman Waterworks: Aqueducts, Baths, and Pools

The Aqua Traiana before Trajan

Rabun Taylor, University of Texas at Austin, *Edward O'Neill*, Independent Scholar, *Katherine Rinne*, California College of the Arts, *Giovanni Isidori*, Independent Scholar, *R. Benjamin Gorham*, Case Western Reserve University, and *Timothy Beach*, University of Texas at Austin

The 2019 Aqua Traiana Project marks a decade of archaeological study of ancient Rome's famous western aqueduct, which originated in the hills and valleys surrounding Lake Bracciano some 40 km northwest of the city. Our main objectives were fourfold: (1) to document significant sites in the Aqua Traiana source network photogrammetrically; (2) to continue our environmental analysis of the regional hydrology; (3) to conduct a site survey of a critical node in the aqueduct's source network, the long springhouse at Vicarello, discovered in 2017; and (4) to analyze archival records referring to the Roman antiquities at Vicarello—especially payment ledgers for the construction of the Acqua Paola, the seventeenth-century

papal aqueduct that reappropppriated many of the ancient sources. Our new research, combined with a reappraisal of our past fieldwork, urges a reconsideration of the Aqua Traiana's chronology.

The aqueduct probably originated under Domitian. This emperor built and owned the Roman imperial villa at Vicarello; he also renovated the adjacent thermal spa known as Aquae Apollinares, expanding the baths and adorning them with a grand nymphaeum. The expansion drew upon springs in a nearby ravine, including the long springhouse that is the focus of our current research. Only after this phase was the aqueduct reimagined and augmented to suit the truly urban scale of the mature Aqua Traiana. The later phases of the project required a clean sweep of smaller or more remote springs in the region; in one branch nearby, we find evidence of a dramatic bridge redesign to accommodate a greater volume of water. Payment documents and land records indicate that our springhouse acquired the toponym Fonte Venere (Spring of Venus) in the medieval or early modern era, a name that we trace to a recently identified shrine dedicated to a female deity on the lakefront nearby.

Water to Aelia Capitolina: New Excavations at the Pools of Solomon

Mark Letteney, Princeton University

An archaeological assessment of the Lower Pool of the Pools of Solomon south of Bethlehem, Palestine, was carried out by the Albright Institute of Archaeological Research (Jerusalem) under the co-direction of the author in 2018 and 2019. This preliminary assessment was conducted as part of a larger project to repair, conserve, and develop the site by the Solomon's Pools Preservation and Development Center, funded by the United States Department of State Ambassador Fund for Cultural Preservation, and with the permission of the Palestinian Authority's Ministry of Tourism and Antiquities. The purpose of the survey was to assess the state of the Lower Pool through visual inspection, excavation, and three-dimensional photogrammetric modeling in order to determine the course of action for conservation and redevelopment works.

The three "Pools of Solomon" stand at the heart of an elaborate water collection and distribution system which provided water to Jerusalem at various points over their 2000 year history. Jerusalem's aqueduct systems have been the subject of significant archaeological investigation, but the pools have been largely ignored. However, this has not deterred scholars from suggesting dates for the construction of the pools and surmising the role of the pools within the broader system. This paper summarizes new data from the current project and suggests a date of construction corresponding to Hadrian's refounding of Jerusalem as Aelia Capitolina in the early second century. The paper also provides a new framework for understanding the history of the pools and, consequently, the water supply to Jerusalem over the ages.

Bath Remodel: The Stabian Baths at Pompeii
Ismini A. Miliaresis, University of Virginia

Roman baths were a place of innovation and ingenuity, where new technology and architectural elements were invented and implemented. The Stabian Baths at Pompeii are one of the earliest baths to have been discovered thus far. They were transformed from a rudimentary space heated by braziers to an elaborate complex with subfloor and intramural heating systems that influenced other structures in Pompeii and throughout the Roman world. This paper presents annual fuel consumption values for the Stabian Baths, and compares them to other bath complexes in an attempt to understand how heating systems were improved over time.

Computing fuel quantities reveals that later facilities were more efficient than the Stabian Baths, despite being larger and having more expansive windows. By comparing the heating systems and the structure of this bath to others in Pompeii and Ostia, it is possible to detect physical alterations that contributed to a more efficient bathing complex. For example, I previously have demonstrated that windows contribute a great deal of heat energy to warming spaces by comparing fuel consumption values in the Forum Baths at Ostia using heat transfer formulas. Both the Central Baths and the Suburban Baths of Pompeii contain large windows in their heated rooms, suggesting that Roman engineers began to appreciate the benefits of solar power.

In addition, the Stabian Baths contained both *tubuli* and *tegulae mammatae*, which were used to heat the walls of the baths. This arrangement is very unusual, and it is unlikely that these devices could have worked symbiotically. Rather, one device was probably being replaced by the other in the post-62 C.E. earthquake reconstructions that the bath was still undergoing at the time of the eruption. The efficiency of each of these wall devices will be presented, and this discrepancy will be addressed.

And in Some Balnea Is There More Delight: Report from the 2017–2019 Seasons at the Bathhouse of Cosa (Tuscany, Italy)
Allison E. Smith, Florida State University

This Field Report addresses the most recent seasons of the Cosa Excavations project (Tuscany, Italy). Conducted since 2013 under the auspices of Florida State University, Bryn Mawr College, and the Soprintendenza Archeologia Belle Arti e Paesaggio per le province di Siena, Grosseto e Arezzo, the project seeks to comprehend Cosa's public bath complex. Our excavation has primarily employed intrusive methods, which have been augmented by geophysical surveys performed by the University of Tübingen. Three-dimensional modeling aids in recording and analysis, and a coring survey of Cosa's port has been initiated to study the ecological history of the area. Legacy data from Cosa's past excavations are being reevaluated in light of new findings. As the final seasons of excavation approach, this report updates prior research and conclusions.

The bath complex seen today was constructed in the mid-second century C.E. and later refurbished. Recent excavations, however, have brought to light incorporated and modified architecture—walls of differing techniques, filled-in windows

and doorways, and substructures that pre-date this imperial construction phase. Whether the earlier structure held a similar function to the second century bath is a primary research question. Given its location in the town and the so-far excavated remains, however, the previous building may have functioned as a *domus*; further excavation is necessary to demonstrate this claim conclusively.

Using this imperial renovation, we reconsider the urban and social landscapes of Cosa presented by Brown, *Cosa I: History and Topography* (1951) and Fentress et al., *Cosa V: An Intermittent Town* (2003). Cosa's vitality during the mid-second century C.E. has been contested, yet this bath reveals significant signs of life before the town's recognized third century revival. The architecture, artifacts, and chronology of Cosa's bath prompt questions and debate, and we look forward to sharing our current hypotheses.

Desensationalizing the Grid 38 Bathhouse at Ashkelon

Simeon D. Ehrlich, Concordia University

Preliminary publication of the Roman/Byzantine bathhouse excavated in map grid 38 at Ashkelon posited a brothel above a sewer featuring remains of the prostitutes' unwanted offspring. Though later publications tempered or retreated from such assertions, the building's reputation of ill-repute persists. Recently, Liston, Rotroff, and Snyder (*The Agora Bone Well* [Hesperia Supplement 50, 2018]) and Carroll (*Infancy and Earliest Childhood in the Roman World* [2018]) have questioned this interpretation on grounds of bioarchaeological analysis and cultural practice. This paper questions it through reappraisal of the building's stratigraphy and material culture.

The argument here is that early publications drew unwarranted connections among three potentially scandalous finds—a bath with an inscription beckoning one to "enter, enjoy, and …"; a deposit of discus lamps with erotic imagery; a drain with the bones of about 100 infants—and highlighted their more salacious aspects to the exclusion of their more mundane details. The manner of initial publication—on a perforated page removable by offended readers—served to reinforce the supposedly shocking nature of the finds.

This paper presents a thorough reevaluation of the bathhouse based on careful analysis of the original field notebooks, artifact registries, photographs, and plans. This research represents the most thorough analysis of this material since its excavation in the late 1980s and early 1990s and is an important step towards the final publication of the building. Given the renewed interest in the bathhouse and the inability of publications working from the preliminary reports to overcome the initial speculative interpretations, there is a need for a more measured analysis of Grid 38. That offered here—of a run-of-the-mill bathhouse bordering a lamp shop and situated above a bend in the sewer where debris accumulated—is less enticing than the initial impression, but better supported by the material evidence.

Session 2J: Open Session
Excavating the Roman City

Corinth Excavations: Northeast of Theater 2019

Christopher Pfaff, Florida State University

From April 8 to June 28, 2019, the Corinth Excavations of the American School of Classical Studies continued its work in the area northeast of the ancient theater where a new campaign of excavations was begun in 2018. Seven trenches were opened up from the modern surface to the west and south of the trenches of the 2018 season. The work of 2019 revealed more of the *decumanus* at the north end of the excavated area, as well as more of the robbing trench that is likely to mark the line of a colonnade flanking the south side of the road. Further south, additional remains of the large Roman building discovered the previous year were exposed. As in 2018, the walls of the building were found to be robbed out in Late Antiquity, but additional portions of its aggregate floors were discovered in situ. The excavations of 2019 revealed that a series of fragmentary, rubble-and-mortar walls are likely to belong to a large, multi-room structure built in Late Antiquity over the earlier Roman building. This late antique building is probably to be associated with a well that produced a number of complete and nearly complete vessels of the sixth or early seventh century from its use fill. What initially appeared to be a contemporary tunnel connected to the shaft of this well proved to be a much earlier trench cut into bedrock and filled with late fourth-century B.C.E. pottery, including various imported Punic amphoras. The latest phases of the site are represented by four graves of the medieval or early modern period and a two-room building, probably a house, which appears to have been abandoned in the aftermath of the 1858 earthquake that displaced most of the population of the modern village of Corinth.

The Theater at Mandeure: 2019 Excavations

Daniel Schowalter, Carthage College, *Jean-Yves Marc*, University of Strasbourg, *Pierre Mougin*, Syndicat Intercommunal à Vocation Archéologique Mandeure-Mathay, and *Isaline Paccoud*, Architect, and *Séverine Blin*, Le Centre national de la recherche scientifique

Discovered and explored for the first time between 1817 and 1820, the Mandeure Roman theater (Doubs, France) has been the subject of new research since 2001. Work is concentrated mostly on the architecture of the last monumental phase of the building, but also on its earlier phases. The research also seeks to understand the extraordinary size and monumentality of the theater in the context of the Gallic provinces and Germanies.

In 2019, we opened three main sectors of excavation: above the south end of the theater, along the southwest façade, and in the *skene* building.

The area above the theater continued exploration of a previously unknown wall first discovered in 2018, roughly following the curve of the back wall of the *cavea* and then turning away to the southeast. One question remaining from last year

was why this wall was close but not exactly concentric with the *cavea*. In 2019 we discovered that at point where the wall turns there was a foundation built at the edge of the 30 m high cliff. Obviously it was necessary for the wall to turn at this point to keep people away from the edge of the cliff. A few meters north of the turning point, we also discovered a new entrance to the theater.

At the southwest façade off-season conservation work resulted in a newly exposed section of *opus quadratum* construction and a new view of the only surviving portion of the monumental façade. Careful excavation in the area resulted in new stratigraphic data and revealed blocks from a previously unattested earlier phase of construction.

Work in the *skene* building gave additional information about the plan developed after excavation in 2010. Small finds revealed clear evidence for occupation and activity during the fourth century and later.

New Excavations at the Punic-Roman city of Tharros, Sardinia

Steven Ellis, University of Cincinnati, *Eric Poehler*, University of Massachusetts at Amherst, *Leigh Lieberman*, Claremont Colleges, *Sarah Wenner*, University of Cincinnati, *Alex Marko*, Brown University, *Christopher F. Motz*, University of Cincinnati, *Angela Trentacoste*, Oxford University, and *Jane Millar*, University of Texas

The Tharros Archaeological Research Project (TARP; University of Cincinnati) carried out its first campaign of excavations in the summer of 2019. Situated on the west coast of Sardinia, the Punic-Roman city of Tharros served as a critical node in the network of important trade routes between the coastal ports of Spain (and the Balearics), Carthage, and Massalia. While best known for its unusually rich Punic tombs, these new excavations are targeting the city itself—particularly its residential and retail quarters—to establish a clear and more broadly contextualized history of Tharros's urban development, as well as to ask new questions about the socioeconomic fabric of the city's Punic and Roman levels.

The 2019 excavations focused on two distant and differently preserved areas of Tharros. Gennaro Pesce had excavated the first of these down to its latest surfaces in the 1950s, enabling us to begin our excavations from those latest ancient levels, as well as to engage with the legacy data itself. The second area was never previously excavated and thus allowed an opportunity to target the processes of urban abandonment. While the two areas revealed common urban structures at their uppermost levels, especially retail spaces, their distant locations allowed us to test the degree to which their growth spurts reflect common processes of socioeconomic development.

This first field report outlines the project's preliminary results, which include the discovery in both areas of sizable buildings of the Punic period that were oriented to urban street systems that do not survive to the Roman era. Attention will be given to the artifactual and bioarchaeological assemblages: first, to demonstrate the relationships between the various finds and their taphonomic contexts; second, to forward some reconstructions of the ancient diet, as well as to discuss the exploitation of plant, animal, and marine resources.

Re-Dating the Foundation of Roman Florentia
McKenzie Lewis, University of Waterloo

The origin of the Roman colony Florentia (modern Florence) began with Dante (Paradiso 16.140–50), who envisioned violent Roman colonization upon native Etruscan territory. Vasari (La Fondazione di Florèntia), Borghini (Dell'origine della città di Firenze), and pre-World War I scholarship arrived at similar conclusions.

A shift happened in the early 1900s when it became accepted that Florentia was founded by Julius Caesar and formalized as a colony by Augustus. This timeline is drawn almost exclusively from the fourth-century Liber Coloniarum (213.6–7) and during the 1940s and 1950s significant ideological importance saw Italy's first capital founded by a strong, imperial Rome (Capecchi 1996). Recently, Hardie (1965) and Campbell (2000) have argued for a similar imperial foundation. These interpretations omit contradictory evidence and uncritically follow historical testimony that places a Sullan colony at adjacent Etruscan Faesulae (modern Fiesole).

This paper argues that Florentia's origin dates to the settlement of Sullan colonists along the Arno River in 80 B.C.E., which is supported by textual evidence, archaeological data, and inscriptions.

Florus (2.9.27) records that Florentia was "put up for auction by Sulla" after the Social War. Granius Licinianus (36.34–5) states that the *veterani Sullani* settled at Faesulae lived in rural castella, which the native Faesulani attacked.

Late-nineteenth and early-twentieth-century archaeological reports (Milani 1895; Notizie degli scavi di antichità) show Florence as a Republican-era forum, with early-first-century B.C.E. houses along the later colony's *cardo*, late-second and early-first century B.C.E. coins under the Capitolium, and an Etruscan-era port, all of which gradually developed into Augustan Florentia.

A reexamination of inscriptions from Faesulae reveals only pre-Social War Etruscan and Flavian era Latin, with no epigraphy attributable to a Sullan or Augustan colony. At Florence, evidence suggests a Republican double community akin to mid-first century B.C.E. Pompeii.

A Craftsmen Association and Its Religious Worship in Later Roman Salona: Epigraphic Culture and Social History
Dora Ivanisevic, AIA Member at Large

Greco-Roman voluntary *collegia* had multifaceted aspects and functions, and here I explore the place of religion in a craft-based association, which has remained a comparatively underexplored topic partly due to the scant evidence, by looking at the epigraphic record of Salona, the principal city of Roman Dalmatia. I present an analysis of a group of four monuments that bear eight distinct inscriptions in Latin (CIL III, 1967a–b; CIL III, 1968a–d; CIL III, 8690; CIL III, 14725), the earliest of which I conjecturally date to the first decades of the third century, while the other four better preserved texts are dated by the consular dating to 302, 303, 319 and 320. The terms *minister* and *ministro* (Lat., "to assist, administer"), which encapsulate the religious activity of the individuals listed below, the topographical reference *ad Tritones* (Lat., "by the Tritons"), and the recurrent date of February 1

tie these texts together that then proceed with a list of the *ministri*, whose number varies across texts and ranges from eight to fifteen. There were a number of occasions for religious rituals and banqueting of *collegia* in the Roman west, such as the birthday of patron god(s), the patron's birthday, the anniversary of the founding of the association, and their participation in the imperial cult. With methodologically staying grounded in the archaeological and epigraphic record of Salona, I seek to show that these *ministri* were members of the *collegium fabrum*, namely "the association of builders," on whose behalf they performed the annual religious ritual dedicated to Hercules, likely the association's patron god, over the course of a century at least, of which they had these in-house records inscribed. I consider the association's religious commitment and political positioning with respect to the ever restructuring political, institutional, and religious relationships within the city and empire.

Session 2K: Joint AIA/SCS Workshop
The Future of Archaeology and Classics in American Academia

Moderators: *Mary T. Boatwright*, Duke University, and *Jodi Magness*, University of North Carolina at Chapel Hill

Workshop Overview Statement

The Humanities in general, and Archaeology and Classics in particular, are under threat in American academia, as numbers of student majors drop, departments and programs shrink, and positions are eliminated. This jointly sponsored AIA/SCS workshop aims not to complain about the situation but to discuss ways in which our professional organizations can help to remedy it, by bringing together Archaeologists and Classicists with experience as department chairs or senior administrators from different types of institutions. The goal is to come up with concrete suggestions that will enable our disciplines not only to survive but to flourish in the academic reality of today and the future. How can we attract more undergraduate majors? How can our larger numbers of simply interested enrollees "count" for our presence in the academy? How can we best train our graduate students for the changing job market? How can we stave off the shrinkage or elimination of departments and programs? We hope that the conversation between the panelists and audience in this workshop will yield productive suggestions to help us move forward.

Panelists: *Kathleen Lynch*, University of Cincinnati, *Steven L. Tuck*, Miami University, *Jeff Henderson*, Boston University, and *Jennifer Rea*, University of Florida

Session 2L: POSTER SESSION

"Some Sailors' Devize": Rudder Intaglios as Marks of Rank in the Roman Fleet

Lisa Anderson-Zhu, The Walters Art Museum

In this paper I argue that a small group of carved intaglios dated to the first century C.E. functioned as signet rings and when worn each was a marker of rank for the pilot (gubernator) of a Roman ship. In 1731, Andrew Fontaine recorded a gem bearing an image of a Capricorn in profile over a ships rudder and another of a dolphin in profile over a ship's rudder, in the collection of gems formed by Thomas Howard, Earl of Arundel as "Some Sailors' Devize" (Arundel nos. 100–101). A banded agate, acquired by the Walters Art Museum in 1909 from Charles Newton-Robinson, carved in intaglio with a peacock in profile to the left over a rudder is remarkably similar in shape, style, and insignia to the impressions of the now-lost Arundel gems and may have been created by the same artisan (WAM no. 42.127). To this group, three intaglios from the British Museum, all acquired in 1814 from the Townley Collection, each of which combine a cornucopia, a club, and a caduceus with a ship's rudder, can be added (BM nos. 1814,0704.1608; 1814,0704.1610; and 1814,0704.1612). The rudder (*gubernaculum*) is prominent in the design of all six intaglios, clearly emphasizing not just a ship but also the role of steering it, which supports Fontaine's eighteenth-century interpretation of the Arundel gems. Of the circa sixty-five unique Roman ship names preserved from antiquity, most are named after deities, personifications, bodies of water, and animals or constellations. Using numismatic evidence, particularly the symbols typically combined with deities on Roman coins, I argue that the specific imagery on these six intaglios can be linked to known Roman ship names (club=Heracles, cornucopia=Fortuna, caduceus=Mercurius, peacock=Iuno, and perhaps Capricorn=Augustus and dolphin=Neptune), which can be used as a starting point for future identification of gubernator signet rings.

Materials in a Fayum Mummy Portrait and Its 1920s Restoration

Christina Bisulca, Detroit Institute of Arts, *Ellen-Hanspach Bernal*, Detroit Institute of Arts, and *Aaron Steele*, Detroit Institute of Arts

As part of the J. Paul Getty Museum's APPEAR project (Ancient Panel Paintings: Examination, Analysis, and Research), the DIA conservation laboratory undertook a technical study of a mummy portrait. The portrait was acquired in 1925 and is believed to be from Antionoopolis (130/160 C.E.). The portrait was extensively restored by William Suhr (1896–1984), a well known paintings conservator who worked at the DIA from 1927–1935. The object was investigated with multiple noninvasive analytical techniques including X-ray fluorescence spectroscopy (XRF), Vis-NIR fiber optics reflectance spectroscopy (Vis-NIR FORS), Infrared reflectography (IRR), UV fluorescence imaging (UVF), and x-radiography. For binder identification a small sample was taken for Fourier transform Infrared spectroscopy (FTIR).

The portrait was found to contain iron oxide red, yellow and other earth pigments, lead white, carbon black, madder and indigo in a beeswax binder. This study highlights the advantages of Vis-NIR FORS as it can be used for the identification of some dyes and can give information to distinguish between different iron oxides (hematite, goethite) without removing a sample. The restoration was found to contain lead white, various earth pigments, carbon black, and synthetic alizarin. Although natural madder and synthetic alizarin cannot be distinguished in Vis-NIR FORS, they can be using UVF as only natural madder has a characteristic orange fluorescence due to the presence of purpurin.

Based on the results in the Getty APPEAR database, the materials identified in the portrait are consistent with those commonly encountered in other mummy portraits. The DIA is also researching the early restoration methods of William Suhr, as he treated many artworks at multiple institutions throughout his career. It is also important to characterize restoration materials, as these early treatments were typically not documented.

Painted "Doorway Panels": Investigating a Curious Feature of Pompeian Wall Painting

Amanda K. Chen, University of Maryland

Understated and seemingly unremarkable, two painted panels decorate the doorway at the end of the *fauces* in the Casa della Venere in Conchiglia (II.3.3) in Pompeii. Characterized by a series of four concentric rectangles and a single vertical line on a plain red background, they are notable for their simplicity but also their ambiguous function within the decorative program. The "doorway panels" have rarely been the focus of scholarly attention, yet they appear in a consistent pattern in at least two other structures in the city, suggesting a codified use in the repertoire of Pompeian painting.

This paper will consider these enigmatic panels to investigate their meaning and function within the context of transitional and domestic spaces in the city of Pompeii. It will explore, among other queries, whether the "doorway panels" mimic a real feature of Pompeian architecture, if they are symbolic, or if they are simply meant to fill vacant space. To answer these questions this paper will consider a broad range of comparanda from around the Bay of Naples, including painting and architectural embellishment, to suggest that the panels were intended to represent and enhance the appearance of monumental domestic architecture. In particular, it will examine the significance of the location of the panels within doorways and their similarity to other known types of painted decoration, such as faux stone blocks or fictive columns, in an attempt to better understand an often overlooked aspect of Pompeian wall painting.

Re-Inventing the (Potter's) Wheel: Modeling 3D Vessels from 2D Drawings
Christian F. Cloke, University of Maryland, *Ella D. Breden*, University of Maryland, College Park, *Quint Gregory*, University of Maryland, College Park, and *Emily C. Egan*, University of Maryland, College Park

In recent years, photogrammetry and laser-scanning have become near-essential components of the archaeological toolkit, allowing researchers to translate artifacts into the digital space. These approaches, however, depend on reliable access to objects and heavy computing power, are time consuming, and can prove challenging for certain finds, such as those with glossy or reflective surfaces.

To help overcome these impediments, we have developed a new technique for digitally modeling wheel-made pottery. Using the suite of 3D tools provided in Adobe Photoshop we are able to accurately form and decorate 3D models of vessels based solely on the information contained in standard, two-dimensional technical drawings. Our process can be applied to whole or partial vessels found during excavation or survey and can be completed either on site or at a later date, without ongoing access to the original finds. The process is simple to learn, inexpensive, and time efficient, and the resulting models can be used within a variety of 3D platforms (including virtual reality) and shared online.

Our process also provides new opportunities for developing comprehensive catalogues of vessel forms, both digital and physical. Extensive digital galleries of common shapes found in standard reference publications (e.g., the Athenian Agora series) can be easily assembled and manipulated. Portable 3D prints of diagnostic features such as vessel rims have the potential to aid ceramics experts as they study material in the field. Further, downloadable digital models and durable 3D prints of vessels produced using our method can serve as powerful visual aids in museum or classroom settings, expanding the reach and appeal of ancient ceramics research to new audiences.

Interdisciplinary Techniques for Studying an Engraved Etruscan Mirror with Tiur, Lasa, and Turan
Nancy Thomson de Grummond, Florida State University, *Matthew Brennan*, Indiana University, Bloomington, and *Nicholas C. Plank*, Indiana University, Bloomington

The poster introduces a bronze engraved Etruscan mirror from a private collection (provenance documented before 1970) remarkable for its scene with three goddesses inscribed with the names Tiur, Lasa, and Turan. This is the only inscribed image of the Etruscan moon goddess Tiur known so far, and the image of Lasa adds to the known corpus of representations of that goddess assembled by Antonia Rallo (1974). The field of the mirror includes two crescent moons, amplifying the symbolism. Preliminary study suggests the mirror belongs typographically, stylistically and iconographically to a group of mirrors from central or northern Etruria dating to the later fourth century B.C.E. In the initial study of the Etruscan mirror, new techniques of documentation, by means of μXRF (micro X-ray fluorescence) and photogrammetric 3D modeling, augmented the traditional methods of art historical and archaeological analysis and inquiry. The poster will explore the possibilities of digital and 3D technologies for the analysis, study, and

visualization of Etruscan mirrors, and offer preliminary results and best practices for scholars interested in performing similar documentation campaigns.

Measuring and Interpreting the Heterogeneity of Pompeian Assemblages
Kevin Dicus, University of Oregon

In this paper, I explore how statistical measures of heterogeneity help us to interpret formation processes of large artifact assemblages found within Pompeii. I take as my primary case study an assemblage found in the rear garden area of a domestic space. Joins of pottery and glass fragments found throughout the assemblage indicate that it resulted from a single, massive dumping event. The notably high degree of heterogeneity, including many types of artifacts uncommon in domestic assemblages, excludes the adjacent domestic space as its source. A second statistical examination of a domestic refuse assemblage supports this assertion. I measure the heterogeneity of a refuse assemblage coming from a Pompeian domestic cesspit and show that, in contrast to the large fill assemblage, it is much more homogeneous, composed primarily of materials related to domestic activities.

The only context, in fact, that exhibits an equally high degree of heterogeneity is an extramural dump. This evidence suggests that dumps were used to source materials to fill large voids of various types within the city. By comparing the heterogeneity of the individual stratigraphic units comprising the intramural fill and the dump, I then examine how these differences illustrate their different formation processes. The recurrent and periodic disposal events that formed the dump created strata of variable heterogeneity. When the strata of the dump were later removed for reuse as fill materials, the internal structure of dump assemblage became mixed. The mixed collection was transported back inside the city and deposited in a single event, erasing the stratigraphic differences that had characterized the municipal dump assemblage. By focusing on a single intramural fill and extending the examination to other contexts, this talk ultimately seeks to introduce new methods for juxtaposing various assemblages that on the surface may seem unrelated.

A Preliminary Report on Neolithic and Copper Age Settlement Chronology and Subsistence in the Middle Po River Valley, Northern Italy
Christopher J. Eck, University of South Florida, *Robert H. Tykot*, University of South Florida, *Andrea Vianello*, University of South Florida, *Alessandra Sperduti*, Museo delle Civiltà, Rome, Italy, and *Claudio Cavazzuti*, Museo delle Civiltà, Rome, Italy

The Neolithization of the Po Valley in Northern Italy has seen intense debate by scholars for decades. The fertile alluvial plain was the last region of Italy to receive the Neolithic package and undergo a commitment to agropastoral subsistence strategies, nearly 1,000 years after preliminary introduction in the southeastern Tavoliere plain. This hiatus in transition is underpinned by the rich natural abundance of wild resources available to preceding Late Mesolithic hunter-gatherers and to newly arriving agropastoralists. Early farming communities aggregated

and filtered portions of the Neolithic package to include well-known varieties of hulled and free-threshing wheat grasses and barley, and began to actively manage sheep, goat, cattle and pigs. The evidence for these domesticates derives primarily from archaeobotanical and zooarchaeological assemblages in the region.

The present study seeks to interrogate a collection of bioarchaeological materials excavated from five distinctive sites in southeastern Lombardy and reconstruct the diets of these early agropastoral groups utilizing biochemical methods, including stable isotopic analysis. Two new radiocarbon dates obtained for the two largest sites enrich the established chronology of Neolithic settlements within the research area. A subsample of 50 individual diets out of 109 samples, spanning the Neolithic and Copper Age, are reported utilizing δ13C and δ15N from bone and tooth roots obtained within a collaborative research project with the Museo delle Civiltà, Rome, Italy. This research is critically important to understanding past land-use at the beginning of agricultural production in the region, how the environment and biodiversity has changed, and the human sociocultural roles and identities that shaped and continue to affect the modern agricultural landscapes. Through isotopic ecology the earliest agricultural production, settlement patterns, and animal management, ancient lifeways inform contemporary sustainable cultivation and food production along the fertile alluvial plains of the Po River in Northern Italy.

Regional Variation in Plant Consumption in the Roman East

Jessica Feito, University of Reading

This poster uses archaeobotanical evidence in order to explore variation in crop choices and plant consumption in the Near East from the first millennium B.C.E. through Late Antiquity. Archaeobotanical sampling has a long history in the Near East and has seen a general increase in recent decades. Still, much of the archaeobotanical research produced for the region focuses on earlier time periods and topics, including the advent of agriculture, while the Iron Age, Hellenistic, and Roman periods have received less attention. In areas such as northwestern Europe and Britain, large-scale, synthetic studies have shed light on interesting shifts in crop choices that coincide with the advent of the Roman Empire. In these regions, the Roman period has been associated with the introduction and dispersal of new crops and agricultural practices, while in the Near East, which boasts a long history of urbanism and infrastructure, the larger shifts in plant consumption remain to be explored. As such, secondary data from the Iron Age through Late Antiquity has been collated and combined with new primary data, allowing for large-scale patterns in the archaeobotanical evidence to be detected. In this way, the effects of the incorporation of the Near East into the Roman empire, and the subsequent shifts in plant consumption that did or did not occur, may be better understood. Findings include a general decrease in glume wheats over time and regional variations in fruit representation.

The Vindolanda Archaeological Leather Project: Digitizing Demography of a Roman Military Site Using Footwear Deposition

Elizabeth M. Greene, University of Western Ontario, *Barbara Birley*, The Vindolanda Trust, and *Shereen Fayed*, University of Western Ontario

The Roman site of Vindolanda near Hadrian's Wall in northern England has produced critical evidence over the past fifty years for revealing the presence and activities of women and children within the communities of the Roman army. This evidence is mostly in the form of leather shoes that have allowed us to reconstruct the demography of the fort in different periods of occupation. The original study by C. van Driel-Murray (1993; 1998) of the shoes found in a barrack block of the Period IV fort (105–120 C.E.) showed that women and children likely cohabited with soldiers inside fort spaces, which entirely changed our understanding of life in Roman military settlements. This poster presents the most recent analysis and approach to organization of this extraordinary material. Since the 1990s, thousands more shoes have been found at Vindolanda and the assemblage grows every year, as does our understanding of the individuals who inhabited the site. We are now at the point that the assemblage is so large that in order to detect meaningful trends and patterns in the material, it must be digitized in a research-focused database with searchable fields that reflect current and future research questions. The Vindolanda Archaeological Leather Project is addressing these issues and extracting more information from the leather and footwear assemblage than ever before. In three parts this poster displays: (1) how this enormous amount of data is being organized to allow detailed queries of the material; (2) how we are assessing the future needs of researchers; (3) examples of the research questions being answered and refined with this unique material assemblage. Through specific case studies this poster shows visually how this extraordinary assemblage can reveal the individuals who comprised the military communities and who were central to Roman imperial conquest and control of a provincial region.

Epigraphy.info: Connecting Data for People

Aaron Hershkowitz, Institute for Advanced Study

This poster introduces Epigraphy.info to a North American audience and illustrates the major changes that Epigraphy.info intends to make to the digital epigraphic ecosystem. Founded in 2018, Epigraphy.info (http://epigraphy.info) is an international open community that works to gather and enhance the many existing online epigraphic efforts, and serves as a landing point for digital tools, practices, and methodologies for managing collections of inscriptions. To this point North American scholars have been underrepresented in the Epigraphy.info community, as has Greek epigraphy; this poster is part of an outreach program designed to spread awareness about Epigraphy.info and to increase and diversify its membership and partnered projects.

Epigraphy.info has held three workshop sessions to explore and define the goals and methodology of the community. Major initiatives to come out of those workshops include developing best practices to facilitate access to the ever-growing number of individual online epigraphic databases and projects, as well as finding

ways to preserve "dead" (static and/or moribund) digital publications. Additional issues addressed in the workshops include: guidelines, standards, and best practices; services for citation, revision, and exchange; financial support; and legal concerns.

Epigraphy.info is also working to construct a single web portal that can serve as a hub for a fruitful exchange of epigraphic data and digital solutions via Linked Open Data. Although there exists a rich ecosystem of online epigraphic content, at present there is no centralized hub through which a user can search for a particular inscription or fragment and receive a comprehensive accounting of the relevant information existing online. Epigraphy.info envisions creating a standard API to improve the ability of the digital epigraphic community to share information. This API would also allow for a centralized search-engine-type website which could provide comprehensive aggregated and indexed results in response to a user query.

Securing a Legacy: Examining the Dennis Stanford Paleo-Indian Collection Project

Catherine Hill, Smithsonian Institution, and *Molly Kamph*, Smithsonian Institution

In 2019, the Smithsonian Institution's National Museum of Natural History's Department of Anthropology began a collaborative project through the Smithsonian's Collections Care and Preservation Fund aiming to inventory the archival and artifact collections of late Paleo-Indian archaeologist Dr. Dennis Stanford. Through a team of professionals encompassing expertise in Stanford's career and collections, museum practice, and archives, the project continues the Smithsonian's collections strategy of maintaining the association between archaeological collections and metadata during the inventory and eventual cataloging and processing phases to increase the collection's value to future researchers and the public. The project will further establish Dr. Stanford's legacy by establishing the Dennis Stanford National Paleo-Indian Collection, a preeminent national resource for Paleo-Indian scholarship, while making his work more accessible and allowing future researchers to further the field through engagement with Dennis Stanford's collections. The poster will highlight the Dennis Stanford Paleo-Indian Collections Project's goals, methodologies, and challenges as well as encourage discussion about the preservation, physical and intellectual accessibility, and legacy of archaeological artifacts and records while highlighting the incredible career of one of Paleo-Indian archaeology's greatest voices.

Architectural Context and Aspects of Ritual Behavior at Late Minoan IIIC Kavousi Vronda

Kevin T. Glowacki, Texas A&M University, and *Nancy L. Klein*, Texas A&M University

The Late Minoan IIIC settlement at Kavousi Vronda, located in the northern foothills of the Thriphti mountain range in eastern Crete, consisted of about twenty houses clustered in complexes around the slopes and summit of the ridge, a large

"special status" building on the summit where communal feasting and drinking rituals took place, a shrine or temple on the southwest slope in which were dedicated numerous terracotta statues of the "goddess with upraised arms," and a kiln. Evidence suggests that the settlement may have been inhabited for four generations (or around 120 years, ca. 1170–1050 B.C.E.) before being abandoned at the end of the LM IIIC period. As an extensively excavated and published settlement site, Kavousi Vronda has provided insight into domestic activities, architecture, religion, and social organization of a small community during the Late Bronze Age to Early Iron Age transition on Crete. In this poster, we present an architectural analysis of the shrine/temple (Building G) focusing on building materials, construction techniques, design, morphology, and spatial qualities that define the physical context for ritual activities. Our approach responds to the methodological framework of earlier scholars, including Renfrew and Prent, who proposed a system of archaeological correlates for cult activity in the prehistoric Aegean. We use Building G as a case study in non-monumental, vernacular architecture to focus on the contribution of the constructed space to ritual activity. In association with terracotta statues and other cult equipment (e.g., snake tubes, *kalathoi*, plaques) found within and around it, the architecture of Building G provides important evidence for understanding the ritual behavior and religious practices of the Vronda community, especially in terms of the construction of space for dedication and display, attention focusing devices, and the potential for participation by members of the community both inside and outside of the building.

Late Bronze Age Central Euboea: An Update from the Swiss-Greek Excavations at Amarynthos / a-ma-ru-to

Tobias Krapf, Swiss School of Archaeology in Greece

The Euboean Gulf was diachronically an important maritime route. Bronze Age sites are located along its two coasts. During the Late Bronze Age, the region was strongly linked to the Boeotian centers with mentions of Euboean place names in the Theban archives. Since the excavation of Lefkandi, Kynos, and Mitrou, it becomes clear that the region flourished after the collapse of the Mycenaean palatial system. While the British School at Athens excavated at Lefkandi, little attention has been paid to the plain further East towards Eretria and Amarynthos, except for some small-scale interventions by the Greek Archaeological Service.

The Swiss School of Archaeology in Greece, in collaboration with the Ephorate of Antiquities of Euboea, identified in 2017 the extra urban sanctuary of Artemis Amarysia two kilometers east of modern Amarynthos near the Paleoekklisies hill, which was already known for its Bronze Age occupation. The discovery in 2019 of an inscription mentioning the place name of Amarynthos leaves no more doubt that it is this site that should be identified with Linear B a-ma-ru-to.

A massive wall with associated LH IIIC pottery down the slope, at the place where later Geometric and Early Archaic buildings developed, as well as large quantities of pottery of all LBA phases from slope deposits give first hints about this flourishing Bronze Age site. This excavation project starts shedding new light on the topographical evolution of Central Euboea at the turn of the Bronze to the Early Iron Age with crucial developments taking place before Eretria, whose LBA

remains are scanty, was founded half way between Lefkandi and Amarynthos in the eighth century B.C.E.

In this poster a selection of LBA finds from Amarynthos will be presented for the first time, replacing this site in its wider context of the Euboean Gulf.

In My Grownup Headdress: Childhood and Investiture in Classic Maya Art

Zach Lindsey, Texas State University

Proportionally distinct children are rare in Classic Maya art, rarer still in monumental art. But images of children do exist, especially at Piedras Negras, Palenque, and Yaxchilan. All the dynasties which have portrayed children were weakened in some ways: either their kings could not trace direct descent to lineage founders, or the dynasty lacked a male heir to serve as undisputed ruler. With this poster, I look at iconography and epigraphy of children in Classic Maya art. Rulers that used images of children in their iconographic suite may have been performing a long-term Gramscian War of Position in an effort to maintain their political dominance.

Knossian Religious Influence in the Cyclades? A Minoan Stone Ladle from Stelida, Naxos

Kristine Mallinson, University of Missouri, and *Tristan Carter*, McMaster University

While primarily known as a Paleolithic site, work at Stelida (NW Naxos) in 2019 revealed traces of later Bronze Age ritual activity atop its highest peak. While much of the peak sanctuary's material culture was local, the activities being performed at the site were clearly influenced by contemporary Cretan ('Minoan') religious practices. In this poster we detail one significant artifact, a stone 'ladle' of banded dolomitic limestone. This vessel type has long been associated with Neopalatial Crete, classified as Type 23 in Warren's Minoan Stone Vases (1969), dated to MM III – LM I. While the raw material is not inconsistent with a Naxian origin, this stone was also used by Cretan lapidaries suggesting that the ladle could be one of a few genuine Cretan imports at the sanctuary.

The significance of this piece is manifold: (i) stone ladles are only found in ritual contexts; (ii) only seven examples are known from outside of Crete, of which two came from peak sanctuaries (Agios Georgios on Kythera, and Troullos on Kea), with another from the Mycenae Shaft Graves; (iii) these vessels were allegedly employed in sacrificial rituals; and (iv) these vessels were specifically associated with the religious personnel of Knossos.

Here we argue that the Stelida example argues for a more directioned, Knossian influence over the later Bronze Age elites of Naxos, rather than seeing the peak sanctuary as a reflection of Cretan religious practices more generally.

Artifact Illustration Using Camera Lucida Technology: A Guide for Researchers
Jennifer Martin, Archaist LLC

Artifact illustration is an expensive and time-consuming process. As a result, only a select few artifacts will be illustrated from a large collection. While Photography and 3D Modeling have made great advances in disseminating information, they do not always convey the information a researcher wishes the audience to see. For this paper, I examine the use of a seventeenth-century technology which has been brought into the twenty-first century by means of a smartphone application. I provide a simplified guideline for using this technology. The use of the camera lucida has proven to increase speed and accuracy in producing artifact illustrations with the goal of lowering cost so researchers may share more information with the scientific community.

Dynamics of "Provincialization" and "De-provincialization" in Rural Roman Dacia
Matthew M. McCarty, University of British Columbia, *Mariana Egri*, Institute of Archaeology, Romanian Academy, *Aurel Rustoiu*, Institute of Archaeology, Romanian Academy, and *Matthew Naylor*, University of British Columbia

The Apulum Roman Villa Project (ARVP) studies the diachronic socioeconomic dynamics of Roman imperialism at the micro-regional level by focusing on a complex Roman villa outside the largest conurbation in Dacia. Despite growing interest in rural Roman archaeology, ARVP is one of the first systematic, interdisciplinary excavations of a villa in Dacia Superior. Whereas past excavations of villas focused on uncovering and interpreting layouts as inherent products of Roman cultural-economic imperialism, ARVP poses questions about the ways specific social, cultural, and economically productive practices developed through time in dialogue with the changing power structures and networks of interaction. The project focuses on the nature/impact of Dacia's "provincialization" (106 C.E. onwards) as a gradual process of incorporation into new networks of power and exchange as well as that of Dacia's third-century "de-provincialization" as disincorporation from those networks.

This poster presents results from ARVP's first two campaigns (2018–2019), funded by the Social Sciences and Humanities Research Council of Canada. Geophysical/pedestrian surveys sought to understand the layout, activities, and chronology of the site. The first season of excavation and interdisciplinary contextual analysis of all materials, alongside development of an innovative digital recording system, focuses on the luxury core and the multiphase working space.

Ceramics from survey suggest a very different trajectory than that observed in the northwestern provinces, with no immediate Iron Age predecessor; Roman provincialization created a substantial reorientation of territorial exploitation of land and other resources. The lack of settlement continuity may point to immigrant landowners, while the plan of the villa suggests that the villa owners were not simply replicating social and architectural patterns from other parts of the empire. Preliminary results from the current excavation season also point to the transformation of practices on the estate in the post-Roman period, with reoccupation and extensive quarrying of the luxury core.

Cistern, Streets, and Sigillata: The Venus Pompeiana Project 2019 Season in Detail
Marcello Mogetta, University of Missouri, *Ilaria Battiloro*, Mount Allison University, *Francesco Muscolino*, Pompeii Archaeological Park, *Lorenzo Arbezzano*, Sapienza Università di Roma, *Janan Assaly*, Mount Allison University, *Sarah Buchanan*, University of Missouri, *Mattia D'Acri*, University of Missouri, *Daniel P. Diffendale*, American Academy in Rome, *Matt Harder*, University of Missouri; *Giordano Iacomelli*, Museo Civico di Tolfa, *Kirsten Mason*, Mount Allison University, *Collin Osborne*, Mount Allison University, *Ivan Varriale*, Archeologia a Napoli, and *Parrish Wright*, University of Michigan

The Venus Pompeiana Project, a collaborative effort between Mount Allison University, the University of Missouri, and the Archaeological Park of Pompeii, has completed three seasons of study and fieldwork within the precinct of the Temple of Venus at Pompeii, seeking to better understand the earliest development of the temple precinct.

In 2019, our excavation of a Samnite-period cistern and associated subterranean water channel suggests the presence of more substantial pre-Roman structures, probably domestic, west of the north-south road first recognized in prior seasons. The fill of the cistern offers considerable data on the final phase of use of the neighborhood, in the mid-first century B.C.E., prior to its demolition for the first phase of the Temple of Venus, around 30 B.C.E. We present the materials from the cistern fill along with the remains of informal architectural features constructed in the remains of the Late Samnite structure, testifying to a transition in the use of the neighborhood. We also present data on the excavated preparation layers of the Vicolo di Championnet, demonstrating a post-Samnite origin for this street, at least in its north-south leg, and the spoliation of its basalt pavers in connection with the Flavian-period expansion of the precinct of Venus.

The Roman Villa and Late Roman Child Cemetery at Poggio Gramignano (Lugnano in Teverina, Umbria): Report on the 2019 Field Season
David Pickel, Stanford University, *Jordan Wilson*, University of Arizona, and *Roberto Montagnetti*, Independent Researcher

This poster discusses the results of the 2019 field season of the 'Villa Romana di Poggio Gramignano Archaeological Project.' This project—a partnership between the Soprintendenza Archeologia, Belle Arti, e Paesaggio dell'Umbria, the University of Arizona, and the Commune di Lugnano in Teverina—aims to better understand the development of the Roman villa at Poggio Gramignano and its associated late Roman child cemetery, as well as their connection to malaria and the larger history of Roman central Italy.

Located near the Umbrian town of Lugnano in Teverina (TR), this Augustan period villa was originally excavated in the 1980s and early 1990s under the scientific direction of David Soren. These first excavations uncovered not only significant sections of the villa's living quarters but also a unique child cemetery. It is currently hypothesized that this cemetery was the result of a malaria epidemic that struck the region sometime in the middle of the fifth century C.E.

Recent excavations have focused on the area of the cemetery. During the 2019 field season, eight new burials of varying types were uncovered, including two inhumed infants whose bodies were weighed down with stones and concrete. These newly discovered burials, together with those recently discovered during past seasons, brings the total count of distinct individuals found deposited within the villa's ruins to sixty. In addition, re-study of those burials previously discovered by Soren and his team has found evidence of midwife assisted birth. Finally, the 2019 field season saw the completion of a pre-Roman deposit of artifactual material, found to have been cut by the villa's foundation walls in close proximity to the area of child cemetery. Although study of this material is ongoing, it likely originates from an archaic settlement formerly located on or near Poggio Gramignano.

An Investigation into the Intensity of Pottery Production in Lerna III
D. Buck Roberson, University of Arizona

The end of the Early Helladic II (EH II) period in the Argolid provides an early high-water mark for social complexity in the Bronze Age on the Greek mainland. While some elements of EH II society such as power structures and trade mechanisms have received a fair amount of scholarly attention, others have not. One aspect underserved in the literature is the organization of pottery production. Despite the connection commonly drawn between increased social complexity and increased specialization in craft production, very little has been written directly on specialization in EH II pottery production in the region.

In order to help fill this gap, I examine the intensity of pottery production in Lerna III, the EH II type site for the Argolid. As intensity of production is closely tied to specialization, it can act as a good gauge of the level of craft specialization. I access this quality through the use of standardization analysis upon the published measurements of two common ceramic forms, the saucer and the bowl. These data sets are not only comparatively large but also contain identified hands in certain instances, which allows typically uncertain elements such as timespan and quantity of potters to be taken into account. The results of these standardization analyses I then compare to those of ethnographic studies into the relationship between the standardization of measurements and the intensity of pottery production across several cultures, which has been found to be generally consistent (Roux 2003). In doing so, I find that values from my standardization analyses of Lerna III pottery best correlate with production at very low intensity, suggesting that these two pottery shapes were most likely produced at the level of household production for domestic use throughout the period, running counter to the expectation of increased specialization in craft production.

Cultural Heritage and Rural Archaeology in the Alentejo, Portugal: A Case Study
Amanda Grace R. Santos, Boston University

Cultural Heritage Management is one of the ways archaeology stays relevant. The collaboration of Cultural Heritage Management and archaeology allows the data to be more accessible to the wider population, now as well as in the future.

The Direcao-Geral do Patrimonio Cultural (DGCP), established in 2012, oversees the many heritage projects within the historic Portuguese landscape. The DGCP lends itself as a model through which many local municipalities, and even entire countries, can cultivate their network of heritage projects and archaeological sites together. Lack of congruent local legislation, abundance of private land, and growing agricultural challenges are just a few limiting factors which produces a disconnected view of archaeology in the Alentejo region. Extensive travel throughout the Alentejo, participation in two archaeological digs in the area, and contact with local archaeologists revealed the multifaceted reality of cultural heritage management projects. Implemented correctly, these projects can overcome limitations and bridge the gap between the past revealed by archaeology and the reality of the cultural landscape today. GIS maps show a number of sites within the Alentejo which have management projects in place, those that have museums, and those which have potential to contribute with the rich narrative of rural archaeology in the Alentejo. A number of villages excel in bringing attention and support to their heritage in the form of small museums. Their success supports the need of a wider focus on cultivating heritage projects with the goal of a comprehensive narrative that successfully connects each municipality with local museums.

Petrographic Analysis Shows Differences between Early Medieval and Hellenistic Pottery, Grevena, Greece

Mary E. Savina, Carleton College, *Ian M. Peters*, University of Wisconsin, Madison, and *Nancy C. Wilkie*, Carleton College

More than 300 archaeological sites have been identified by the Grevena Project, an all-period archaeological survey of the 2,500 square km prefecture of Grevena, southwest Macedonia, Greece. Archaeological sites were variously inhabited at periods ranging from Early Neolithic (circa last half of eighth millennium B.C.E.) to Ottoman (fifteenth to early twentieth century). Sites of Hellenistic (fourth to first centuries B.C.E.) and Early Medieval age (seventh to tenth centuries C.E.) are spread across the entire area. We compared the composition and texture of 27 pottery sherds from coarse ware, 14 of Early Medieval age and 13 of Hellenistic age, counting at least three hundred points (including at least 100 inclusions) per slide. Results illuminate possible differences in methods used to create the pottery, including how long the clay was kneaded, the use of varying types and amounts of temper, and variations in firing temperature. For instance, compared to Hellenistic pottery, the fabrics of the Early Medieval sherds contain more void spaces and therefore seem to have been less worked (kneaded). EM sherds also have a larger quantity of natural temper (derived from the main pottery source) rather than manually added temper, such as grog (derived by breaking up older pots), though some do contain a grog component. Pottery derived from local sources can be identified by (a) components unique to the local geology, such as olivine, pyroxene and rock fragments from exposed ophiolite sequences; (b) poor sorting of non-matrix inclusions; and (c) overall higher percentages of inclusions. Using these criteria, we conclude that several, perhaps all, of the Early Medieval sherds could have used local soil. Hellenistic-aged sherds are considerably more variable in matrix percent, type of temper, distribution of inclusion sizes and holes, and other properties. Some of these Hellenistic sherds may have been imported.

Cypriot Art at the Ringling Museum: A New Gallery
Joanna S. Smith, University of Pennsylvania

The John and Mable Ringling Museum of Art in Sarasota, Florida, plans to install its first permanent gallery of ancient art in Gallery 12 in 2021 as part of a museum-wide gallery reinstallation project. Gallery 12 highlights especially The Ringling's large collection of ancient Cypriot art. John Ringling of The Ringling Brothers Circus acquired nearly all works of ancient art now at The Ringling during four days of auction at the Anderson Galleries in 1928. All those pieces were once part of The Metropolitan Museum of Art's collections in New York. In 1928 he also acquired a collection of ancient gems. At 3,500 objects, the ancient collection today is The Ringling Museum of Art's largest holding; 2,300 of those objects were unearthed by Luigi Palma di Cesnola on Cyprus between 1865 and 1876. Gallery 12 will connect viewers through thematic and contextualized displays with the history of ancient Cyprus and the history of the collection, Cypriot aesthetics especially as understood through approaches to detail and abstraction, and art and experience through sanctuaries and tombs. The centerpiece of the gallery is a crowd of limestone sculptures said to be from Golgoi, Cyprus. Archaeological context also informs the displays of dedications said to be from temples at Kourion and objects from *necropoleis* on the island. Objects found inside a tomb chamber excavated in 1961 by James R. B. Stewart at Karmi-Lapatsa form the endpoint of a *dromos*-like part of the gallery space. Provenance and object research have revealed many new object biographies for the 200 objects to be displayed in the initial gallery installation. Conservation, mount-making, casework, print and digital didactics, an online resource, and a print catalogue are currently underway. This poster summarizes the history of the collection and previews the new gallery.

The Digital Archaeology Toolkit Project: Prototypes and Next Steps
Rachel Starry, University at Buffalo (SUNY), *Smiti Nathan*, Johns Hopkins University, and *Zenobie Garrett*, University of Oklahoma

The Digital Archaeology Toolkit project (https://osf.io/v54zd/) aims to curate a crowd-sourced list of digital tools and learning resources of use to practitioners in archaeology and related fields. Built atop these resources, the project will also curate multiple "deployable" digital toolkits to address specific research problems and workflows, such as plotting 3D data in the programming language R or creating an interactive online map. The toolkits, published openly online, can be customized by users and tailored to specific research or pedagogical needs.

This poster reports on the initial crowdsourcing phase of the Digital Archaeology Toolkit project, launched during a roundtable session at the 2019 AIA/SCS Annual Meeting in San Diego. Additionally, the poster showcases both a prototype toolkit—consisting of tools and resources for working with geospatial vector data in R—as well as a wireframe mockup of the future web interface for the project. Participating in the poster session affords project collaborators an opportunity to speak with potential users and gather feedback on the proposed user interface design and toolkit components, which will be invaluable in moving forward into the next project development phase.

Developing the Greek Natural Cults Project: Lessons on Digital Envy, Privilege, and Paradata

Natalie Susmann, Massachusetts Institute of Technology

As archaeology pushes towards an open, digital future, a virtual wall is being constructed. With limited access to research resources and funding, many scholars are forced out of the conversation. We want to replicate the excellent approaches of our colleagues, but these may be out of our reach.

Mantras about open-access archaeology are intended to bridge this digital divide, but efforts are largely focused on final products. Open-access archaeological projects will reveal beautified data on an impressive interface, but hold back on their paradata: how and why that data was collected or analyzed, and challenges inevitably encountered. Such accounts are valuable data in themselves, particularly for colleagues working with limited resources. Paradata speeds up archaeological discovery. Paradata extends the benefits of funding dollars. Paradata allows our colleagues to start where we left off, and not where we had begun.

This paper describes novel ways in which archaeologists can extend their open-access efforts, including releasing project budgets, producing tutorials, and sharing research journals online. The Greek Natural Cults Project (GNCP) is presented as an example: this is a low-cost digital archaeological project designed to "grow up" with the principal investigator. For an early career scholar, GNCP provides a tangible research trajectory, and is operational with minimal permits and financial resources. With professional advancements, the project so expands. Through each of these phases, the project's digital work remains transparent: not just the interface codes and analytical results, but the processes, all the way from initial conception to future goals. In turn, like-minded scholars are provided with a research framework—for other regions, time periods, and questions—and can develop their own accessible, digital, landscape archaeology project from the ground up.

Using Pottery Profile Drawings In Photographic Reconstructions

Jeff Vanderpool, UCLA, and *Tina Ross*, UCLA

For our poster for the Archaeological Institute of America 2020 Annual Meeting, we present the working methodology for creating photographic reconstructions of ceramics objects based on profile drawings. Developed over several field seasons by archaeological illustrator Tina Ross and photographer Jeff Vanderpool, the methodology uses profile drawings to correctly position, light and photograph varying object fragments that belong to the same object but either do not have clear joins or where joins are too weak to mend.

This poster demonstrates the result of this process using case studies from excavations including Ancient Methone in Northern Greece and the Athenian Agora where Tina and Jeff have collaborated. We will use actual examples of objects of varying sizes, including some fine examples of wheel-made pottery and a large *pithos*.

The photography setup described includes a tethered capture system in which the photographer is able to overlay a profile drawing of the object onto the projected image of the individual pieces. The drawing is then used as a guide to correctly

position each individual fragment so that it corresponds correctly to the whole object. The tools required are a simple studio setup which includes a light table, one key light, transparent object positioning blocks, and a basic understanding of lenses and optical distortion.

The resulting photographs of the image fragments are then assembled using photographic post-production tools including Lightroom and Photoshop to create a photographic reconstruction of an object that corresponds directly with its profile drawings.

Biomolecular Investigations into the Use of Early Bronze Age Sauceboats from Ayia Triada Cave, Greece

Rachel Vykukal, University of Tennessee, Knoxville, *Fanis Mavridis*, Ministry of Culture and Sports, Department of Palaeoanthropology and Speleology, and *Zarko Tankosic*, Norwegian Institute at Athens

Early Bronze Age sauceboats from the Aegean have been the topic of much speculation regarding their intended function. It is generally thought that they were connected to ritual drinking or feasting practices, but the vessels have never been tested directly. Organic residue analysis via gas chromatography and mass spectrometry (GC/MS) provides a direct and well-established method to assess vessel function. In this project, sauceboats were sampled from the burial site of Ayia Triada Cave on Southern Euboea, Greece, as part of a larger project of residue analysis at the site and subjected to GC/MS to detect molecular evidence of their use. A range of animal and plant biomarkers were recovered. One sauceboat contained sterol evidence for a single plant, likely vegetable oil, while another contained substantial animal products, plants, and pine resin. The latter could represent a multi-ingredient foodstuff or drink, or successive uses of singular products, including sealants, throughout the vessel's life history. Notably, no evidence for wine was found in any of the sauceboats. The vessels yielded very different lipid profiles, suggesting they may have not been reserved for a singular substance. The vegetable oil could have been used for consumption or could be linked to ritual cleansing or other utilitarian use, given their finding within burial contexts. To our knowledge, these results mark the first biomolecular investigation into the use of the sauceboats. The chemical signatures call into question the connection of these vessels exclusively to drinking practices and suggest a revaluation of these culturally significant vessels.

Menander's Phyle

Robert S. Wagman, University of Florida, and *Andrew G. Nichols*, University of Florida

One of the most intriguing features of Menander's *Dyscolus* is the setting itself of the story, which is imagined to take place at the sacred cave of Phyle on Mt. Parnes. On stage, this cave is represented as a roadside shrine flanked by two small farms. The actual archaeological site, however, offers an entirely different view. The cave does not open onto a road, but is located forty or so meters above a river cutting

through a steep, rocky gorge crossing Mt. Parnes in the western reaches of the deme. Based on this discrepancy, most scholars assume that Menander's recreation of the Phylasian shrine and its surroundings was not founded on reality, but was a purely imaginary construct devised for stage use and grounded in the idealized perception of the countryside that a fourth-century B.C.E. city-dweller would have. In this poster we show that the opposite is actually true. Although rearranged in space and adapted to the limitations of contemporary stagecraft, all elements of Menander's scenery can be shown to have equivalents in the natural and archaeological landscape of the Parnes. We aim to show that even if no farming establishments could have existed in the immediate vicinity of the cave, there are traces of early cultivations located only a few hundred meters from it. Similarly, although no road could conceivably have passed through the ravine in which the cave is situated, in the area that stretches between the shrine and the site of ancient Phyle there are surviving sections of at least two major thoroughfares and several minor ones, including a path that runs only a few meters above the cave. The list could go on. Based on a new survey of the cave and its surrounding region, our presentation argues that Menander's re-creation of Phyle is more grounded in reality than it has been generally believed, except that the elements of the landscape have been rearranged in a more compressed space and shown in what could be defined a foreshortened view.

Environmental Archives: Assessing the Utility of Legacy Archaeobotanical Data
Alice C. Wolff, Cornell University

As the discipline of archaeology ages, archaeologists find ourselves increasingly confronting the issue of legacy data. In particular, archaeobotanists are often faced with the challenge of assessing overwhelming amounts of material without being sure adequate recording exists to allow the data to be publishable. This poster examines legacy archaeobotanical data by comparing samples by Brian Hope-Taylor in Northumberland in the 1970s with samples taken by Alison South in Cyprus in the 1980s. The excavators of these two sites both processed bulk soil samples through flotation, but the results were never sorted and analyzed. My work evaluates these two very different approaches to sampling, recording, and archiving archaeobotanical data in order to assess what a 'workable' legacy data set might look like and provide a jumping off point for discussions about archival botanical remains.

Commercial Beekeeping in Ancient Greece
Francesca Zwang, The University of Texas at Austin

In the early 2000s, reports emerged that a series of diseases, known collectively as colony collapse disorder, were decimating bee populations across North America. With over one third of the world's crops relying on honey bees for pollination, the rise of colony collapse disorder and bee fatalities quickly alarmed the public and the agricultural community. Alarm came from the prospect of colony collapse threatening to jeopardize the world's agricultural economy, projecting a four

billion dollar deficit for the United States economy alone. The growing dangers of bee extinction shocked Americans. Yet, prior to these events, the importance of bees was largely overlooked, as most Americans did not recognize the vital role that bees play in the health of our environment, economy, and community. This same invisibility of bees is also reflected in ancient scholarship, where their presence is often overlooked by archaeologists and scholars. Honeybees were particularly essential to ancient Greek culture because of the medicinal, nutritional, and recreational value of honey and beeswax. Although it is widely accepted among scholars that honey and beeswax were important for ancient Greeks, the commerciality of these products is unclear. This paper explores the economic role that apiculture played in the ancient Greek world from the Archaic through the Late Hellenistic period (ca. 700 to 31 B.C.E.). By analyzing the place of apiculture in the ancient agricultural economy through archaeological, literary, and scientific evidence, I will elucidate the extent of the production of honey and beeswax in Ancient Greece. However, due to the lack of apiaries and groups of hives found in situ, there are large data gaps in this identification process. After detecting the evidence that exists thus far, I will propose to fill those gaps using different types of scientific analyses such as gas chromatography.

UNDERGRADUATE POSTERS

Archaeometric Analysis of Southern Methodist University Bridwell Library's Brick from Ur

Rachel M. Thimmig, Southern Methodist University

Much of the ancient Near Eastern archaeological record is comprised of clay material, whether that be cuneiform tablets or mud bricks. Southern Methodist University's Bridwell Library is lucky enough to have many different types of ancient Near Eastern clay artifacts in their AV Lane Collection. One such object, acquired by the library sometime in the 1920s to 1950s, is a brick believed to be from the Great Ziggurat at Ur. Unfortunately, archival documents do not mention the brick, so the provenance is known only by word of mouth. To put this claim to the test, a small sample of Bridwell Library's brick from Ur underwent archaeometric analyses to examine the firing behavior and shed more light on the elemental make-up of the brick. Though the step-wise clay oxidation and neutron activation analysis utilized by this poster cannot definitively prove exactly where the brick is from, they do inform us whether the artifact from Bridwell follows the typical trends of ancient Near Eastern brickmaking. This poster demonstrates the many different stories a simple brick can share with archaeologists. Archaeometry helps determine whether this artifact's story is about the construction methods of great religious structures or the rampant fraud that plagued the antiquities market in the early-twentieth century.

A Geospatial and Archaeoastronomical Analysis of Marcahuasi, Peru
Abagail H. Schofield, Boston University

The site of Marcahuasi is a high plateau approximately 4,000 meters above sea level and 60 kilometers west of Lima, Peru. There are clear native Andean architectural remains, including habitational, storage, and burial structures, but also rock formations of debated origin and date. This project is a geospatial and archaeoastronomical evaluation of the site and surrounding landscape. Eleven of the rock formations, or markers, were assessed for astronomical relationships and evaluated for possible modification by human activity. A correlation between the orientation of these stone monuments with celestial phenomena such as solstices and solar zenith passage would suggest the formations were created or purposefully modified by ancient Andeans and are anthropogenic rather than natural formations. The use of geospatial technologies to uncover interactions between past peoples and their skies allows for the evaluation of a past culture's view of the cosmos and its translation to calendars and religious systems. This study created a GIS for the site involving the eleven markers. I analyzed the line of sight and viewshed of the area to determine if the formations aligned with surrounding mountains. Additionally, planetarium software provided a view of the sky directly above the marker and from the location and was used to recreate the path of the sun during special days. Combination of these analyses allowed for a multifaceted view of the markers and potential alignments. The results indicate that some of the markers could be the product of human intervention, but the majority of the markers do not appear to have significant alignments during the summer and winter solstices.

A Study of Medieval Intrasite Find Distribution on the San Giuliano Plateau, Lazio, Italy
Anna C. Gibbs, Baylor University

The site of San Giuliano in northern Lazio, Italy, has a long history of occupation, spanning from the Bronze Age to the medieval period. The San Giuliano Archaeological Research Project (SGARP) aim to understand the long-term transitions and habitation patterns of the occupants of the region through research and excavation of the medieval fortification atop the San Giuliano plateau. The discovery of artifacts through excavation over the past four years have contributed significantly to our understanding of medieval daily life, furthered by the implementation of Geographic Information Systems analysis. This poster seeks to better understand the medieval presence in the San Giuliano landscape through the application of recent technologies to the correlated features of artifact location and attributes, within the medieval fortification excavation atop the San Giuliano plateau. The process of recording artifact contextual features, such as relative find location within the site and physical attributes, and subsequently statistically analyzing these features through GIS, presents results regarding artifact density and networking across the fortification. A more comprehensive understanding of where artifacts are emerging, what their similarities are, and how they are in relation to one another reveals site formation processes—how things got where

they are because of natural occurrences, cultural waste, misplacement, etc.—and overall settlement transitions in the medieval space. Ultimately, GIS technology supports the conclusion that this medieval site is a form of "*incastellamento*" – a type of fortification that is characterized by the relocation of large parts of the medieval Italian population into defensible, fortified sites.

Session 3A: Colloquium
The "Church Wreck" and Beyond: Marzamemi Maritime Heritage Project, 2013–2019

Organizer: *Justin Leidwanger*, Stanford University

Colloquium Overview Statement

The Marzamemi Maritime Heritage Project is a collaborative excavation, survey, and heritage management initiative along southeast Sicily focusing on long-term structures of human interaction from prehistory through classical antiquity and up to the present. In 2013, the project began with new investigations of the sixth-century C.E. "church wreck," originally explored by Gerhard Kapitän in the 1960s. The vessel sank while carrying perhaps 100 or more tons of prefabricated architectural elements intended to decorate a church. Seven fieldwork seasons have yielded finds that fundamentally question much of the prevailing narrative surrounding this important wreck and its late antique historical context. Assorted columns, capitals, and bases complicate assumptions regarding their employment as a single set, while additional decorative materials suggest more complex networks of artistry and agency. An additional cargo of eastern Mediterranean wine reveals the commercial web of the ship and its sailors and the interdependence of high-end and everyday shipping. Varied galley wares suggest a crew from diverse cultural backgrounds, while clues from the ship itself fit a modest and well-traveled hull rather than a specialized stone carrier. These new finds offer a new window into the people, goods, and processes that tied together the Mediterranean during a transformative period at the end of the Roman world.

The Marzamemi project also aims to re-embed the "church wreck" and other local maritime heritage within the broader context of countless journeys along this shore. Situated between west and east, south and north, this corner of Sicily provides a vantage point for varied material manifestations of connectivity across millennia. Through survey of historic maritime material culture alongside innovative museum development and immersive exhibits, we juxtapose ancient ships with still older and more recent heritage at the heart of this "Middle Sea." Our goal is to contextualize maritime archaeological practice in the Classical world within a dialog on long-term seaborne interaction, its material manifestations, and the constant remaking of Mediterranean spaces and cultures. This colloquium offers an opportunity to reframe our fundamental understanding of one of the largest and richest archaeologically attested cargos from late antiquity in light of seven seasons of fieldwork and research, allowing us to rethink its place within the context of interaction across a fragmenting Mediterranean. At the same time, the session underscores opportunities to broaden twenty-first-century maritime