

ASOR Virtual Annual Meeting

2020 Poster Abstract Book

*This is a working document and content is subject to change.
Posters are categorized into groups by theme/topic. Groups are listed alphabetically.*

Bronze Age Mediterranean Trade and Politics

Presenter: Abstract Order

Leanne Campbell
Louise Hitchcock
Laura Pisanu

Human Iconographies in the Late Bronze Age: Conscious Representations of Interconnections

Leanne M Campbell
Independent Scholar, Australia

In this poster, designed for ASOR 2020, I will share my theses that my selected iconographic evidence, from the Late Bronze Age Minoan, Mycenaean and Egyptian Amarna frescos, reliefs and sculptures, provides us archaeological and artistic traditions portraying cultural interactions as well as social communications and stylistic influence and exchanges which are present in the images for us to read and to utilize to inform our greater understanding of these cultures and their social and political and artistic developments. It is recognised through archaeological evidence that these societies interacted and communicated resulting in a broad range of interconnections. Iconographic evidence documents and demonstrates the transfer of cultural and artistic exchanges and influences. In producing and creating new images, these Bronze Age peoples were conscious of neighboring artistic traditions, stylistically self-aware, and deliberately manipulating their own choices of portrayals of body shapes, dress codes and hairstyles, among other visual cues. Through my PhD research, I analysed 18 examples from my catalog of Bronze Age iconography encompassing these temporal and geographical areas, I compared and contrasted details in order to document analogous comparisons and contrasts between these neighboring societies and cultures who influenced each other in complex interacting relationships, and I will demonstrate how, through such analyses of the figurines, frescos and sculptures, we can indeed glean and learn more about the cultural, social, economic, artistic, and political developments throughout the Late Bronze Age.

The Deep State in the Ancient World: Bureaucracies as Constraining and Enabling Socio-Political Structures

Louise A Hitchcock
University of Melbourne

The term “deep state” (sometimes referred to as the steady state) was coined in the 1990s to refer to social resistance to government bureaucracy. Although used by conspiracy theorists in order to

characterize career civil servants as a self-interested secret cabal manipulating the lives of individuals to some nefarious end, it is neither, deep nor mysterious, rather it is a highly visible part of the normal workings of government. As unelected public officials, the civil service can help to advance or to slow down the policy goals of a political leader whether they are democratically elected as in modern times or hereditary as in ancient times. If the policies of a leader are deemed impractical, ill-conceived, harmful, or threatening to civic and social institutions, the civil service can thwart these through ignoring them, slowing down their execution, or implementing them to fail. It operates according to its own compass heading regardless of who is formally in power. In this way, bureaucracies form a set of institutional practices that can constrain or enable human action. Using Minoan Crete as a case study, my poster aims to promote a session for ASOR in 2021 whereby contributions will be sought that will investigate the relationships between ancient bureaucracies and rulers with the goal of elaborating whether this relationship was collaborative, adversarial, or something else. The objective is to arrive at more nuanced understandings of early state societies.

A Bronze and Iron ages net across the West and East Mediterranean Sea: Sardinia and Cyprus inter-relations.

Laura Pisanu

University of Cagliari

The poster investigates relationships among Cyprus and the Bronze and Iron ages communities who lived on southern Montiferru and the Campidano valley nearby (Western Sardinia). Between 17th and 10th centuries BC, Sardinia played an important role in Mediterranean long distance inter-relations and maritime routes in order to export and import raw materials, valuable goods and to share technological innovations, ideas and craftsmen with Eastern Mediterranean communities.

Since 17th century BC, Montiferru was occupied by Nuragic communities because of the richness of local resources (water, stone, arable land and metals) that was probably at the basis of widespread occupation (16th -11th centuries BC). Although a fragment of Mycenaean vase (LH IIIA-2/IIIB) found at Su Murru Mannu (Cabras) dates the earliest connections between Western Sardinia and Eastern Mediterranean, the first evidence of relationships between Montiferru, Campidano valley and Cyprus is a bronze double-headed axe of Cypriot production (12th century BC) found near the sites of Banatou and Mura (Narbolia) with two axes probably produced locally through the reproduction of Cypriot models. Moreover, a bronze thymaterion, discovered likely at nuraghe S'Urachi in San Vero Milis district, resembles Cypriot ones which were produced over the Iron age. Although these artefacts could be generally considered as exchanged goods between Nuragic and Cypriot people who had similar positions inside their own communities, I suggest that they might be just a small part of wider exchanging net between the two islands as the exploitation of local resources that in Montiferru were closely controlled by Nuragic communities.

Digital Archaeology

Presenter: Abstract Order

Abduljabbar Assaghir

Rachel Banks

Debra Foran

Jane Holmstrom

Matthew Howland

Ann-Kathrin Jeske

Shuyuan Wang

Jessica White

Digitization Work of the Ghadames Association for Heritage and Manuscripts

Abduljabbar Assaghir

Ghadames Association of Heritage and Manuscripts, Ghadames, Libya

The Ghadames Association for Heritage and Manuscripts is a Libyan civil society organization dedicated to documenting and preserving the cultural heritage of Ghadames, an oasis town recognized as UNESCO World Heritage located near Libya's border with Algeria and Tunisia. This poster describes the recent documentation and digitization campaigns of the Association, including the digitization of manuscripts of the trans-Saharan, a project conducted in partnership with ASOR and the Hill Museum and Manuscript Library and with the support of the Whiting Foundation. This poster also describes the frontiers that our group plans to explore in the coming years.

The Spaces Between: Spatial Reconstruction of a Proposed Iron Age IIB Domestic House at Tel Halif, Israel

Rachel Banks¹, Cassandra DeGaglia^{1,2}, Amy Dixon¹, Kara Larson^{3,4}, James W Hardin^{1,4}

¹Mississippi State University. ²Smithsonian Institution. ³University of Michigan ⁴Cobb Institute of Archaeology

At the archaeological site of Tel Halif in the Southern Levant, researchers uncovered the remains of a domestic Iron IIB (930-700 BCE) occupation near the edge of the Tell in Field IV. Two well defined households were uncovered in the northern end of the field in Area F7 and in the southern end of the field in Area K8. The spaces between, Areas I7, I8, J7, and J8, were excavated and documented, but a lack of clearly defined structures limited interpretations at the time of excavation. This poster presents the previously neglected artifacts and preserved architectural features uncovered in Areas I7, I8, J7, and J8 to determine if a domestic household, like those uncovered in Areas F7 and K8, was present. Here, using spatial analyses in conjecture with well-established household methodologies, evidence of a domestic household is suggested through artifacts, such as loom weights, figurines, and pottery, in association with remnant architectural features. With the assemblage gathered by the excavations, this research argues in favor of an additional Iron IIB domestic space between Areas F7 and K8. The remains of household structures and the artifacts within them provide archaeologists with local evidence of regional shifts in social, economic, and political contexts and open windows into daily life at Tel Halif in the Iron Age IIB.

Four Millennia in Three Dimensions: Digital Media at Khirbat al-Mukhayyat

Debra Foran¹, Grant Ginson¹, Andrew Danielson², Stanley Klassen³, Gregory Braun³

¹Wilfrid Laurier University. ²UCLA. ³University of Toronto

The Town of Nebo Archaeological Project (TNAP) was established to investigate the site of Khirbat al-Mukhayyat and the surrounding area, with a particular focus on its occupational history and role in religious activity throughout antiquity. A survey conducted in 2000-2001 revealed remains dating to the Iron Age, Hellenistic, and Byzantine periods. Four excavation seasons, conducted between 2014 and 2019, confirmed the presence of material from each of these occupational phases.

This poster will examine recent developments in the digital documentation of archaeological fieldwork at Mukhayyat. Digital records from the past four excavation seasons are combined with previous survey data to give new insights into the distribution of archaeological material across the site. These records include a large amount of three-dimensional data gathered from photogrammetry and survey techniques. This data has been integrated using three-dimensional editing software to provide comprehensive documentation of the excavated material. This has also provided a workspace in which new insights can be made through the manipulation of this data, such as the reconstruction of architecture and archaeological features.

The use of these techniques will not only inform the selection of future excavation areas, but it will also aid in the understanding of Mukhayyat's lengthy and complex occupational history.

Using Commemorative Text Locations and Least Cost Path Analysis to Perform Predictive Site Modelling for Iron Age Fortress Sites in Armenia.

Jane Holmstrom, Tiffany Earley-Spadoni
University of Central Florida

This interactive, multimedia poster presentation will critically examine the potential of using commemorative texts as an investigative lens for understanding mobility and fortress location in early first millennium BCE Armenia. While hundreds of Iron Age and Urartian sites have been identified in archaeological survey since the 19th century, recent investigations in Armenia show that unknown networks of forts and fortresses can still be revealed in the context of regional archaeological survey. To facilitate the process of discovery, the Vayots Dzor Fortress Landscapes Project (VDFLP) employed an unlikely ally—the findspots of hundreds of Urartian commemorative texts (the Corpus dei Testi Urartei), which were often carved into living stone. The authors digitized and mapped the findspots of the CTU and performed a GIS Least Cost Path analysis to identify routes that the Urartians may have travelled in the course of expanding their empire into Armenia in the 8th century BCE. Based upon the known Urartian predilection for situating forts and fortresses along roads and at the intersection of roads, the authors have identified future locations for ground truthing. Furthermore, the validity of the method is supported by comparing the results of the GIS analyses to areas already investigated by the VDFLP.

Accessible Assemblages: Publishing Levantine Ceramics in 3D and in Context

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¹University of California, San Diego ²UCSD Levantine Archaeology Laboratory, Amman, Jordan

Publishing of archaeological ceramics often takes the form of written descriptions, illustrated plates, and occasionally photographs. These publishing strategies are adequate; however, more is possible thanks to developments in technology and a developing ethos of open data. Specifically, the collection of data facilitating the production of 3D models is now a matter of course. This approach can — and has been — applied to ceramics. Models produced through this workflow can be published in accessible ways through online 3D model hosting platforms such as Sketchfab. Archaeological contexts can also be published online, through digital mapping platforms. Ultimately, a combination of publishing models and their contexts through accessible platforms can serve as a more open basis for sharing archaeological data than existing modes of ceramic assemblage publication. This paper describes such a workflow for publishing a ceramic assemblage from Khirbat al-Jariya, Jordan, as open data through Sketchfab and ArcGIS StoryMaps.

Documentation of secondary marks on archaeological objects: methods, feasibility and standardization

Ann-Kathrin Jeske^{1,2}, Kyra Gospodar²

¹University of Vienna ²German Archaeological Institute in Cairo

Every human interaction with objects leaves traces, some are visible, and others are more subtle. A detailed study of secondary traces offers valuable insights into the history of single objects as well as human practices, i. e. construction techniques, everyday use, and religious or administrative customs. Unfortunately, secondary marks are rarely the focus of archaeological research. A recently launched project hosted by the German Archaeological Institute Cairo intends to fill that void and develop a cost-effective and comprehensive digital workflow to document secondary traces. The workflow and methods are intended to be as easy as possible, economical and effective in recognizing and recording secondary marks. The project is split into an experimental phase and an extended trial period. During the former, a reference catalogue of secondary marks will be developed with dummy objects. This catalogue will later help to interpret such traces on archaeological objects and to reconstruct potential causes. All dummy objects will be documented with a variety of digital documentation methods (e. g. SFM and RTI) to identify the most adequate method in terms of visibility of secondary marks. In the second phase, the workflow will be applied to archaeological objects stored in international museums and magazines in Egypt, specifically focusing on relief fragments and scarab seals. This will facilitate further refinement of the workflow to optimize outcomes, establish equipment practicability and address cost issues.

Classifying archaeological ceramic photomicrographs using machine learning: experience with samples from the eastern Mediterranean.

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¹UCSD ²Spatial Information Systems Laboratory, SDSC ³Department of Anthropology of UCSD. ⁴Institute of Archaeology University College London

Ceramic petrography is an important technique for tracing prehistoric and historic period trade routes in the eastern Mediterranean. Collections of archaeological ceramic photomicrographs have been assembled for both coastal and inland sites in the region and made available online. However, specialist training is required to identify various types of ceramic inclusions, textural details, and other characteristics that allow for technological and provenance interpretation. We report on the initial experience of developing Convolutional Neural Network (CNN) models to

automatically label ceramic photomicrographs, using labeled training sets from Pottery Neolithic Cyclops Cave (Yioura, Greece), Chalcolithic Northern Negev (Israel) sites, and Late Bronze Age Kommos (Crete,. Developing CNN models for archaeological photomicrographs is particularly challenging, due to: a) relatively small number of labeled images available for training; b) uneven number of images across categories; c) large size of images (3168x4224); d) the need to train models for entire images rather than subsets to ensure that training captures overall patterns characteristic of different petrographic fabrics. To avoid overfitting and improve model performance for the small image sets, we implemented a range of image enhancement and bootstrapping strategies, including category aggregation, noise reduction, chunking, binarization, edge detection, and image rotation/shifting, with varying success. We have also experimented with different model architectures (RESNET-50, RESNET-101, VGG-16, VGG-19, Inception V3, MobileNet) in several transfer learning scenarios, using pre-trained CNN models. We demonstrate that a chain of image enhancement techniques and the VGG-16 model architecture lead to higher labeling accuracy, and outline directions for improving model performance.

Digital Solutions for Processing Ceramic Data: Exploring Methods and Challenges

Jessica T. White
Roanoke College

The challenge presented to all researchers working with ceramic finds is the sheer amount of pottery that needs to be collected, processed, and analyzed. This poster will explore the value and downsides of two different digital recording systems for ceramics. The Realities of Life (RL, German Archaeological Institute) uses a FileMaker Pro database to process its data and which formats the data into a specialized table. Kom el-Hisn Provincialism Projects (KHPP, Roanoke College) partnered with InfoSol to build a dashboard for the analysis of KHPP data and a database that allowed the input and organization of data to be guided by the methodology of the project.

For the purposes of processing archaeological data, and ceramic data in particular, InfoArch is the better choice in database technology. InfoArch allows for data input to occur in-field which eliminates post-processing input from paper forms. InfoArch's database is also able to process not only textual and numerical data but incorporate drawings and photographs as well. Where FileMaker Pro databases are relatively easy to create, InfoArch is more versatile and gauges its formatting differently for large or smaller amounts of data. By incorporating archeological methodology into database technology, InfoArch's data processing is becoming better suited for archaeological research and more user friendly than the FileMaker Pro database. This kind of interdisciplinary collaboration, or cross-training during courses of study as early as the undergraduate level, could lead to more specialized and effective research technology.

Environmental

Presenter: Abstract Order

Loren Clark

Meir Edrey

Parke Funderburk

Andrew Johnson
Kendall Mahony
Roey Nickelsberg
Gilad Shtienberg

Land use and Fire in the Fertile Crescent During the Chalcolithic – Iron Age II: New Environmental Insights from the Kebara Wetland Sedimentary Sequence, Israel

Loren Clark^{1,2}, Gilad Shtienberg^{1,2}, Richard Norris³, Jade d’Alpoim Guedes², Assaf Yasur-Landau⁴, Thomas E Levy^{1,2}

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The Southern Levant holds a wealth of archaeological and environmental evidence for the documentation of human impact to the landscape. The current study is conducted along the Carmel coast of Israel, the critical narrow connector along the western arm of the Fertile Crescent, where human and environmental interactions can be tracked for millennia. We have collected sediment cores reaching up to 15 meters in length from the Kebara wetland in NW Israel that have the potential for providing a continuous high-resolution dataset for the Levantine coast. Correlative dated sequences in nearby cores suggest that our records show an extensive Holocene record with sedimentation rates of up to 10cm/100 years in wetland peat, pond deposits and paleosols. Optically stimulated luminescence (OSL) and ¹⁴C dating techniques are applied for samples retrieved throughout the core and will be used for the creation of a high-resolution age model. Combining these absolute dating techniques with sedimentological analysis, palaeobotanical identification, and charcoal analysis will allow for an ever-clearer picture of the environmental change that occurred along the Carmel coast. Alongside the existing archaeological data, this will enable the correlation between the environmental transitions and anthropogenic processes. The conclusions from this investigation are especially important for understanding the significance of the wetland as a resource for ancient communities and lend to a broader understanding of land management and resource exploitation along the Carmel coast during the Chalcolithic through the Iron Age.

The COVID-19 Pandemic and Remote Collaboration at an Underwater Archaeological Excavation

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The COVID-19 pandemic has acutely disrupted archaeological collaboration and numerous international expeditions were forced to cancel upcoming excavation seasons. While other intellectual collaborations can continue using emails, video conferences, and file-sharing, these can hardly replace hands-on fieldwork. Nevertheless, the possibilities for real-time sharing of on-site activities significantly improved in recent years. Tools such as drone photogrammetry, 3D-models, and live streaming provide reliable and accurate means of following the excavation process remotely. However, the situation underwater is far more difficult. Beyond the challenges underwater archaeologists regularly face, such as sea-and-weather conditions, dynamic environment, poor visibility, and limited survey and excavation sessions, the possibilities for real-time sharing is highly restrictive as the water masks Wi-Fi and cellular signals.

Nevertheless, during the month of October 2020, the Leon Recanati Institute for Maritime Studies, University of Haifa, and the UC San Diego's Scripps Center for Marine Archaeology carried out a real-time remote collaboration excavating a submerged Neolithic site located ca. 100m off the Carmel coast, in northern Israel. This was facilitated using regular work sessions via video conference tools, live streaming IP cameras, and an on-site underwater HD camera linked to an above-water laptop connected to a cellular router. Furthermore, communications were enhanced through a personalized chat room in 'rocket chat', and 'Sage2' a desktop collaboration environment. These tools allow the UC San Diego team to actively participate in the excavation process carried out by the UH team and open new opportunities for remote archaeological fieldwork collaboration both in land and sea.

Sedimentology and geochemistry of a Late Pleistocene – Holocene wetland record from NW Israel: new insights utilizing X-ray fluorescence

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Wetland sediments capture the environmental history of its aquatic basin and surroundings. Here we analyzed a cored wetland sequence from the critical narrow connector along the western arm of the Fertile Crescent that contains an expanded sequence of the environmental history of this culturally-significant region. The extracted cores, 12.5m and 4.5m in length, were described based on color, texture, and accompanying features, and analyzed with x-ray fluorescence (XRF). Similar units in each core were then categorized into core-specific groups, and principal component analysis (PCA) was applied to the XRF data to aid in interpretation. The 12.5m core, drilled near the center of the catchment basin, predominantly consists of alternating gray-brown clayey-silt units with dark-gray to black clayey silts units, the first richer in Ca and the second in Br. The majority of this sequence is interpreted as being deposited in a wetland environment during the African-humid-period. The 4.5m core, drilled at the western edge of the catchment basin, consists of alternating gray and dark gray clayey-silt units, the first being richer in Ca and containing red-tan calcareous clasts from Mt. Carmel. It also contains two separate dark brown silty sand units, both interpreted as terrestrial paleosols. The lithological differences between the two cores seem to reflect a spatiotemporal variation of the wetland, likely caused by regional climatic fluctuations. This study contributes to establishing a continuous environmental record for the Levant coast during the Late Pleistocene – Holocene periods for examining human interaction with their environment.

Exploring Coastal Change and Human Adaptation Using Paleoenvironmental Analysis: New Understandings of Paleoenvironment from the Sedimentary Sequence at Tel Dor, Israel.

Andrew C Johnson¹, Gilad Shtienberg¹, Richard Norris², Simona Avnaim-Katav³, Assaf Yasur-Landau³

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Around the ancient Mediterranean seafaring became an important means of travel that connected sites and civilizations. Many sites situated on coasts were transformed from simple coastal settlements to harbor

cities. Since the first archaeological excavations in the 1960s, Tel Dor, a coastal settlement on the modern-day Carmel coast of Israel, is known to have been an important maritime city from the early 2nd millennium BCE. While Tel Dor has been intensely excavated, detailed paleoenvironmental studies that investigate the coastal changes that took place between the Bronze Age and modern day are scarce. Dafna Kadosh et al. in 2004 took a sequence from the Tantara Lagoon at Dor to provide the paleoenvironmental framework for the transition from hunter gatherers to agriculture in the Levant. This study aims to construct a paleoenvironmental framework at Tel Dor from the Middle Bronze Age - Iron Age. This project examines sediment cores taken from the terrestrial side around Tel Dor at a high resolution in order to model changes in the depositional environments and geomorphic chronology of Tel Dor. Microfossil assemblages were time constrained and identified to differentiate between marine, brackish, and freshwater environments. The results of this study provide a framework aimed for assessing how natural environmental changes (climate variations, sea-level changes, and progradation) influenced settlers of ancient coasts. It has been suggested by Avner Raban that there could have been a Middle Bronze Age anchorage east of the tel, near where our sequence was taken from and this project aims to test this hypothesis.

Initiation and termination of the African Humid Period in a southeastern Mediterranean wetland archive: New insights from the Kebara marsh, Israel

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Wetlands along the NW coast of Israel preserve an extensive record of both environmental and cultural change over the Holocene. We obtained two 15m long cores in this ancient wetland; correlations to existing dated cores suggest our records span the last ~9000 yrs. Therefore, we have an unusually expanded record of marsh history, with decadal resolution, from the Neolithic to the Iron Age in the western Fertile Crescent. Sediments from the cores include peat, grey and brown soils, and pond deposits that sit on pre-Holocene paleosols and fossil dune sandstones. They are rich in carbonate sand derived from the Carmel Mountains, carbonized plant remains, pyrite, charcoal, polished aeolian quartz grains, along with ostracodes, foraminifera and fresh-water snails. Charcoal and sedimentological analysis are applied on samples retrieved in 5cm spacing from wetland peat, pond deposits, and paleosol units. These paleoenvironmental proxies will be coupled with ¹⁴C and OSL dating techniques to form a high-resolution time constrained local, environmental, and regional climatic understating for the Levantine coast. Early indications suggest that the oldest wetland deposits record the last-glacial. Peat is well developed in the lower part of the Holocene, likely recording the relatively wet and warm climates of the African Humid Period ending about 5000-6000 years ago. Overlying the peat-rich interval are paleosols, and grey pond clay of the more seasonal Mediterranean climates of today. The outcomes will establish a high-resolution dataset for the Levantine coast complementing previously published environmental archives from the deep sea and eastern parts of Israel.

The first underwater excavation of the Habonim North Pottery Neolithic site: A multi-scalar approach to studying the submerged settlements of the Carmel Coast

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The coast of the Carmel is a treasure trove for the study of submerged Pottery Neolithic sites. During the last 30 years such sites have been the focus of research primarily conducted through underwater survey and less through underwater excavations.

The site of Habonim North, a recently discovered submerged Pottery Neolithic site, was chosen as a case study to thoroughly investigate, through archaeological excavations, questions of human adaptation to coastal condition as well as to climate change during the Holocene. This site is situated on the eastern slope of a submerged Kurkar ridge ca. 150 meters west of the current coastline at a depth of ca. 2.5 -3 meters sea water (msw). The first season of excavation was conducted in 2020 as part of the collaboration between the Recanati Institute for Maritime Studies of the University of Haifa and The Scripps Center for Maritime Archaeology, University of California San Diego supported by the Koret Foundation. In order to retrieve as much information as possible the excavation combined methods from stratigraphic land excavations, underwater excavation, manual sediment coring and 3D photogrammetry. The materials retrieved were analyzed with a variety of methods including micro-geoarchaeology, ceramic typology and petrography, archaeobotany, radiocarbon dating, palynology, and archaeozoology. Here we present preliminary results of the first season of excavations and offer initial insights about the ancient coastal environment, Pottery Neolithic human subsistence practices and human utilization of coastal resources.

A Unique Levantine Late Pleistocene - Holocene Embayment: Paleoenvironmental Change in the South Bay of Dor, Israel

Gilad Shtienberg¹, Omri Gadol², Thomas E. Levy¹, Richard D Norries¹, Tammy M Rittenour³, Assaf Yasur-Landau², Anthony Tambarino¹, Michael Lazar²

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The Mediterranean coast reflects complex long-term relationships between natural marine, terrestrial, and aeolian processes that shape this dynamic environment and have affected human settlement over time. Tel-Dor, northwest Israel, is a city mound adjacent to a bay that evolved from coastal paleosols into a marine marsh and finally a largely enclosed bay from the late-Pleistocene to present. Sediment and archaeological records preserved at this site provide an opportunity to investigate environmental change and human-coastal interactions. Interpretations of seismics collected from transects across the bay show six seismic-units that have been correlated to dated and described sediment units in boreholes, enabling a detailed a deep-time reconstruction of the coastal system over the last ~75kyr. The earliest borehole deposits are low-stand aeolian and terrestrial sediments that were subsequently flooded by mid-Holocene transgression. Underwater excavation conducted in Dor's south bay reveals, similar to other underwater Carmel coast sites, a submerged Pottery-Neolithic (PN; 8,250-7,800 YBP) site situated on the Holocene wetland surface. It seems that Dor's south bay PN habitats settled on the dry wetland surface landward of an aeolianite mound benefiting from the organic rich wetland surface as well as the protective properties of the bay. The wetland deposits are buried by beach sand recording sea level rise in mid and later Holocene. The results of this study provide a framework for other coastal settings aimed at assessing the impact of natural processes on coastal societies.

Gender and Other Elements of Community in the Ancient Near East

Presenter: Abstract Order

Ariadne Argyros

Anna Dean

Robert Middeke-Conlin
David Mulder
Wing Yin Au

Man, Woman and Beast: An Evaluation of Gender in the Opening of the Mouth Sacrificial Scenes

Ariadne T Argyros
University of Chicago

Scholars of ancient Egypt have attempted to discern the significance of the Opening of the Mouth ritual with regard to ancient beliefs about the afterlife as well as to illuminate the social impact that this ceremony had for the royals and the masses. The sacrificial and offering scenes have also been relatively well-documented due to their importance in the overall revivifying function of the ritual; however, few researchers have endeavored to examine the gender-specific roles that the chief participants played in these episodes. Therefore, using primary iconographic and textual sources and the available secondary literature, the primary aim of this study serves to investigate the gendered parts performed by these actors in the elements of ancient Egyptian ritual slaughter in order to gain a more complete understanding of the importance of these episodes to the transformation of the deceased into an *Ax*, a blessed one. This thesis examines the functions of the men and women involved in the episodes, the divine symbolism of the roles they played, and how these roles changed through time. Sacrificial and offering scenes like those present in the Opening of the Mouth ceremony provide evidence for an association between animal sacrifice and gender, thereby underscoring ancient human agency in a way not previously focused upon in prior research.

Power in Symbols: Discerning Shifting Societal Roles for Women in Ptolemaic Egypt

Anna R Dean
University of Chicago

The office of queenship during the Ptolemaic Empire greatly expanded beyond the role it played during pharaonic times. The evidence for this can be seen in physical representations of ruling couples, often shown performing the ritual office of kingship together and in similar or equal hierarchical scale. This naturally would have had an effect on non-ruling women living in Egypt at this time. I wish to demonstrate how this consistent narrative of women living among Egyptian Hellenized society as goddesses affected the status of other women living outside of the palace. This is evident within the archaeological record. For example, the lily scepter is shown in the hands of female family members of the royal family during pharaonic times. During the Ptolemaic Dynasty the statues of non-royal priestesses in Thebes are shown holding the same lily scepter. This is physical evidence of a shift within the role of non-royal women during this time period with a direct link to the royal women themselves. My plan of research is to define the role of pharaonic queenship, ascertain how that role shifted or expanded during the Ptolemaic, and then look for signs of the ‘democratization’ of this role in the lives of non-royal women. This research will help to further elucidate the dynamic role of women in Egypt within the shifting socio-political landscape of the Hellenistic world.

Literacy in the Old Babylonian City of Nippur

Robert W Middeke-Conlin
University of Copenhagen

The applicability of education is an elusive subject in Assyriology. Few systematic studies of the applicability of education exist for the ancient Near East. The present project fills this gap by focusing on the acquisition, use, and development of knowledge in a distinct and remote population: the ancient city of Nippur during the early Old Babylonian period. It asks, “How and to what extent did education relay the practical scribal knowledge necessary for a professional career?” To answer this, it examines literacy between male and female professionals from Nippur, the intellectual capital of Early Mesopotamia. Three forms of literacy are explored: Prose literacy, or the skills and knowledge needed to read and comprehend a text, document literacy, or the skill and knowledge to understand and manipulate a text’s format, and numeric literacy, or the skill and knowledge to interpret and calculate with numeric symbols (numbers, measurement values, etc). Research concentrates on economic and academic texts from Nippur in order to produce an image of scribal knowledge and the importance of education in this city. This project is the first in a series of studies on literacy in the ancient world, which will allow for a comparative study of the impact of education on individuals and the economies they participate in, studies which could be of use to Assyriologists and historians of science as well as economic researchers, educational researchers, and policy makers as case studies to compare against future endeavors.

The Sculptors of Nimrud under Ashurnasirpal II

David N Mulder

Wake Forest University

The sculpted orthostats of the palace and temple complexes of Ashurnasirpal II’s (883-59 BCE) citadel at Kalhu (Nimrud) have accrued an immense mass of art-historical and archaeological literature over nearly two centuries. The craftspeople responsible for these remarkable works of art, however—masons, carvers, scribes, engravers, painters, and others—remain poorly understood and are seldom more than obliquely addressed by modern scholarship. When questions of facture have emerged in recent work, the dominant model is one of direct vertical transmission of a master design from the king to an undifferentiated mass of artisans responsible for the works’ physical execution.

By reviewing the surviving evidence both from the archaeological remains (including patterns of variation among the sculptures, corrected and uncorrected errors, and tool marks, as well as pictorial representations of sculptors at work and hypothetical “sculptors’ models”) and from texts (including lists of professions from the 9th century BCE and later Sargonid documents pertaining to the creation of royal sculptures), this paper attempts to give a more complete picture of the working methods and specializations of the Nimrud sculptors. I argue that complex horizontal exchanges of knowledge and designs among specialists in various media and at various stages of the process of execution were as important as the top-down transmission of a prescribed design.

Telling Egeria’s ‘Herstory’: Reconstructing Monastic Lives at Khirbat al-Mukhayyat

Wing Yin Au

Wilfrid Laurier University

Although the account of Moses’s death in Deuteronomy is traditionally associated with Mount Nebo proper, the entire region was imbued with spiritual significance. This association with the biblical narrative led to the establishment of a series of monasteries during the Byzantine period

(4th – 7th centuries CE), including the large coenobium at Mount Nebo and several small communities of ascetics. One of the earliest accounts of the monastic presence in the Nebo region is that of the pilgrim Egeria dated to the late 4th century CE.

In addition to an extensive network of monastic communities, the Nebo region was also populated by small rural settlements such as that at the site of Khirbat al-Mukhayyat (the Town of Nebo). Inscriptions in the mosaic floors of the churches in these villages sometimes mention individual monks. The name of Julian the monk, for example, appears in an inscription in the Later Chapel of the Priest John at Khirbat al-Mukhayyat alongside the names of local inhabitants. This inscription incites several questions. Was Julian a monk at the neighbouring monastery of al-Kanisah? Was he related to the others named in the inscription? What is the connection between the monastery and the village?

Inspired by Egeria’s memoir, this poster will present a reconstruction of the relationship between the lay and monastic communities at Byzantine Mukhayyat through the application of historical storytelling techniques.

Pedagogy, Public Outreach, and Preservation

Presenter: Abstract Order

Christian Casey

Abdelhafid Massalati

Faraj Qumati

The Gardens of the Roman Empire Project

Kathryn L Gleason ¹, Christian D Casey ²

¹CIAMS, Cornell University ²ISAW–NYU

The Gardens of the Roman Empire Project began at a 1995 conference at Penn Museum to gather all known Roman gardens and characterize the state of the field. In 2018, a large print volume of essays, *Gardens of the Roman Empire*, was published by Cambridge University Press.¹ As planned, the second publication of the project presents short descriptions, plans, and photographs of over 1,000 garden sites identified by archaeologists over the years. The challenge has been to find a means of digital publication suited to the navigation of ancient gardens. The ISAW Library has devised a plan to digitize the dataset creating a “digital encyclopedia” of ancient gardens using a static website built in Hugo.

During an ISAW Library Summer Internship, two enthusiastic students learned the requisite technical skills to build the website. After two months of development, the team debuted the first version of the Gardens of the Roman Empire Project website. This fall a digital seminar at Cornell brings a new cohort of students to work on the project.

This poster illustrates the development and design of the new Gardens of the Roman Empire website—a free resource, which will be publicly available upon completion. We seek ongoing contributions of new gardens, parks, temple and cemetery gardens, and other designed landscapes.

1. Jashemski, W., K.Gleason, K. Hartswick, A-A Malek, eds. Gardens of the Roman Empire. Cambridge University Press, 2018.

Suitcase Museums in Benghazi, Libya

Abdelhafid Massalati

Suitcase Museum Project, Benghazi, Libya

Despite its rich history, Benghazi is a city with few cultural centers serving the public. While it is Libya's second largest city, there is no formal museum. The Suitcase Museum project conducted in partnership with ASOR has sought to remedy this deficiency, tapping into a considerable demand for cultural programming among the city's residents. Describing the multi-layered past of the city, from its establishment as a Greek colony in the sixth century B.C. to the present day challenges of post-conflict recovery, this program provides an expansive overview of Libyan cultural heritage. It also explains the nature of current threats to heritage sites and collections around the country, as well as the work of local authorities and the public to protect these resources.

The Role of the Libyan Boy Scouts and Girl Guides in Protecting Cultural Heritage

Faraj Qumati

Libyan Boy Scouts and Girl Guides, Tripoli, Libya

As the oldest and largest civil society organization in Libya, the Boy Scouts and Girl Guides are well positioned to assist local authorities in protecting cultural heritage sites and collections. This poster describes some of the recent activities of our group in partnership with ASOR to increase public awareness of Libyan heritage and increase public participation in efforts to protect these resources. Alongside members of the Suitcase Museum team and the Libyan Department of Antiquities, we have been able to clean and stabilize portions of two UNESCO World Heritage sites, Cyrene and Sabratha, and see promise for future similar collaborations.

Pottery

Presenter: Abstract Order

Lilly Hickox

Albert Leonard, Jr.

Sakura Sanada

Shedding Light on an Ancient Past: The Analysis of Ceramic Oil Lamps from the Roman Fort at Humayma

Lilly G Hickox

Queen's University

Tucked away in the northwest corner of the Hisma desert of Jordan, lies the archaeological site of Humayma, approximately halfway between Petra and Aqaba. The site has a long history of permanent settlement, beginning with the indigenous Nabataeans, followed by Roman, Byzantine, and Islamic occupations. The Roman auxiliary fort at Humayma was

constructed shortly after Trajan's conquest of the Nabataean Kingdom in 106 CE, emerging alongside a pre-existing trade route renamed the Via Nova Traiana.

Excavations at the fort, directed by J. P. Oleson of the Humayma Excavation Project in 1995, 1996, 2000, 2004, and 2005, unearthed a collection of ceramic oil lamps, comprising four complete lamps and fifty-four fragments. During the summer of 2020 the author (under the guidance of M. B. Reeves) carried out a remote analysis of these lamps based on project images, descriptions, and contextual information in order to create a catalogue and report on this assemblage. The framework involved in the analysis centered on the derivation of the forms, locations, places of origin, and cultural connections from the archaeological contexts. All lamps found in the fort were of types produced from the 1st c. - 5th c. CE and corresponded to Nabataean, Roman and Byzantine forms. The Nabatean rosette lamp and Byzantine slipper lamp were the two most prevalent types, while few Roman lamps were found. This poster summarizes the ceramic lamp findings, identifies anomalous items, and considers the significance of chronological aberrations in relation to the fort's military and civilian occupations over 400 years.

The “Chalcolithic Fine Ware” From Kataret es Samra, Jordan

Albert Leonard, Jr.

Harvard Museum of the Ancient Near East

Kataret es-Samra is strategically located on the interface of the ghor and the zor of the East Jordan Valley ca. 40 km. NW of Amman and ca. 5 km. north of the confluence of the Jordan River and the Wadi Zarqa (Biblical Jabbok). In 1985, as part of a larger project, I directed the excavation of a small (three-week) sounding on the Kataret es-Samra plateau that produced a decorated pottery that I described in the preliminary publications as a “Chalcolithic Fine Ware” and suggested possible connections with the Amuq (Phase D) and other manifestations of the entity formerly known as Ubaid. This pottery is now housed at the Harvard Museum of the Ancient Near East (formerly, the Harvard Semitic Museum) where I had been preparing it for integration into the HMANE catalogue system when the Covid-19 virus struck. After the campus reopens, I plan to continue that work with the goal of expanding access to the material and eventual publication. Specifically, following a review of the stratigraphy of the sounding, this poster will consider the definition of the Kataret es-Samra Fine Ware, as well as its chronology and the terminology used to describe it – all with an eye towards reintroducing the results of a 1985 sounding to a 2020's audience.

How pottery handles were introduced into Egypt from the Southern Levant?

Sakura Sanada

Jagiellonian University, Institute of Archaeology

Pottery vessels in Egypt and Lower Nubia in the Early and Middle Neolithic periods did not show handles, while pottery vessels in the southern Levant were equipped with handles in various forms from the beginning of use of pottery, which was in the second half of the 7th millennium BCE, there. If we assume their Levantine origins, then we should ask when, what, and how were the pottery handles introduced into Egypt? Their chronology can be traced back with reference to the published data. Apart from imports from the southern Levant, pottery assemblages in Egypt, influenced by the Levantine pottery vessels, started to show handles from the late Neolithic period onwards: the Badarian (dated to c.4400-4000 BCE) (Hassan 1984,

1985; Holmes and Friedman 1994) in Upper Egypt, and the Fayum Neolithic (dated to c.5480-4260 cal. BCE) (Shirai 2010) in Lower Egypt. In addition to knobs and loop handles, which have been observed at the Neolithic sites, ledge handles, thumb-indented ledge handles, and wavy handles appeared for the first time in Egypt in the first half of the 4th millennium BCE. Especially in Lower Egypt, the last mentioned three kinds of handles seem to have appeared almost simultaneously. This simultaneous emergence is one of the principal reasons for the terminological confusion that is sometimes seen in publications about Neolithic pottery in Lower Egypt.

Survey and Excavation

Presenter: Abstract Order

Mitchell Allen

Craig Barker

Jeffrey Howry

Regina Fairbanks

Ehud Arkin Shalev

Afghan Sistan in the Achaemenid and Hellenistic Periods

Mitchell Allen^{1,2}, William B. Trousdale¹

¹Smithsonian Institution ²University of California, Berkeley

The impact of the Achaemenid and Hellenistic Empires on the region of Sistan is well known on the Iranian side of the modern border. Known as Zranka or Drangiana, it contained sites such as Dahan-i Ghulaman and Qal'a-i Sam, which have been well studied by Italian scholarly expeditions and more recently by Iranian scholars. But across the border in Afghan Sistan, that time period is almost completely unknown. The Helmand Sistan Project (HSP) conducted the only extensive survey of the lower Helmand Valley in the 1970s and is now producing its results. HSP's survey work has identified a small number of sites from this era (6th-2nd centuries BCE), and its excavation at the site of Kona Qala II offers the first stratigraphic data. This presentation will summarize what HSP learned about Achaemenid and Hellenistic Sistan, will attempt to explain why there is so little evidence, and will seek to connect this new information to the better understood Iranian Sistan and southern Afghanistan to provide a broader historical understanding of the overall region. HSP learned about

Re-evaluating Roman Cyprus: New Evidence from the Paphos Theatre Archaeological Project

Craig Barker

The University of Sydney

The University of Sydney with the Department of Antiquities of Cyprus have overseen the excavations of the Hellenistic-Roman theatre of Nea Paphos since 1995. Although much work has concerned the development of an understanding of the architectural history of the theatre

structure over the more than six centuries it was used for performance, in more recent seasons attention has been focused on the infrastructure of the theatre precinct during the Roman era; including the excavation of sections of a paved and colonnaded road and a nymphaeum. These structures along with the corresponding phases of the theatre building itself have provided an insight into the urban development of Cyprus' capital city under the reign of the Antonine and Severan dynasties. This poster will review the evidence revealed to date by the excavations and will contextualise the profound changes occurring on the island in the middle of the second to early third centuries and reflect upon Cyprus' interconnectedness with the rest of the Roman Empire.

Historic Landscapes in the Jezreel Valley

Jeffrey C Howry

Harvard University

The historic trade route east from Caesarea Maritima to the Galilee provides an opportunity to examine a variety of sites ranging from the Roman period through the late Ottoman and Mandate eras. The poster will present LiDAR images of a number of archaeological sites and discuss how the imagery reveals features that ordinary terrestrial survey would not provide, while also providing insights into historic land use and occupation that might be easily overlooked. One portion of the poster will present a 3D visualization of a portion of Palestine in the Jezreel Valley as it appeared in 1945.

Early Bronze Age Archaeobotany: Agricultural and Storage Practices at Tel Yaqush

Regina A. Fairbanks, Chantel White

University of Pennsylvania

Tel Yaqush is a mid-sized Early Bronze Age village located in the upper Jordan Valley that was inhabited from the mid-4th to the mid-3rd millennia B.C.E. Recent excavations at Tel Yaqush uncovered an assemblage of carbonized seeds and wood retrieved primarily through flotation, but also through dry sieving sediment. Macrobotanical remains recovered during the 2018 excavation from the north-western corner of an EB 1B structure named 'House 8' were microscopically sorted and analyzed at the Center for the Analysis of Archaeological Materials at the University of Pennsylvania. The 'House 8' structure includes a long, brick-red feature with a fine black outline and several nearby burnt patches which contained high levels of wood charcoal and concentrations of charred grain. The analysis included up to 25,000 specimens, most of which were highly fragmented and poorly preserved. Cereal grains represent the vast majority of identified specimens. The comparatively large quantity of barley suggests this structure may have contained a barley storage feature. Notably, two broken storage vessels were discovered in situ next to and east of the concentrations of charred grain. Storage of crops, and particularly cereals, became increasingly important at the end of the EB I throughout this region. In addition, the analysis revealed the presence of emmer and einkorn wheat, small quantities of lentil, olive, and grape, and some likely crop weeds. This analysis of archaeobotanical material from Tel Yaqush provides insight into agricultural developments during the EB IB/EB II transition period in this relatively understudied area.

A Levantine Coastal Economy: New Evidence from the Dor Harbor for the Maritime Transport of Locally Quarried Stone

Ehud Arkin Shalev¹, Anthony Tamberino², Thomas E Levy², Assaf Yasur-Landau¹

¹Leon Recanati Institute for Maritime Studies, University of Haifa ²Department of Anthropology and Scripps Center for Marine Archaeology (SCMA), UC San Diego

The easily accessible aeolianite sandstone ridges along the Southern Levantine coast have long provided a convenient source of stone. Widespread coastal evidence for use of this sandstone, known locally as 'kurkar' rock, is demonstrated by its utilization for the building of homes and public structures dating back to the Neolithic. These activities reached their peak during the Roman and Byzantine periods, as attested by the 6th century CE coaster shipwreck, Dor 2001/1, which sank laden with recently quarried building stones in the Tantura lagoon near Tel Dor (Kahanov and Mor 2014).

Here we present new evidence found underwater at Dor for the maritime transport of quarried stone along the Levantine coast, and related harbor infrastructure. A 17 meters long by 7 meters wide concentration of newly hewn stones has been documented resting on the seafloor, inside the Dor harbor basin. This deposit likely originated from an overturned barge used to ferry the stones. In addition to this a mooring installation, which may have been used by such barges and other vessels, was also excavated within the same harbor. These new data point to the extensive framework within which the complex enterprises of quarrying, transport, supply, use, and re-use of stone successfully operated along the Levantine coast.

Tombs and Burial

Presenter: Abstract Order

Cecelia Chisdock

Alexandra Ptacek

Alice Maksimowski

Stress in Megiddo's Early Bronze Age East Slope Tombs

Cecelia Chisdock¹, Eric Cline², Alison Brooks², Susan Guise Sheridan¹, David Hunt³

¹University of Notre Dame ²The George Washington University ³Smithsonian National Museum of Natural History

The Early Bronze Age I (3500-3000 BCE) skeletal remains from the east slope of Megiddo have not received extensive study since their excavation in 1925-1933, though they represent an important period in the site's history, roughly contemporary with the EBI temple in Area J. This study compares the incidence of linear enamel hypoplasia (LEH), an indicator of childhood physiological stress, in three tombs in the Smithsonian's collection. We used LEH to investigate whether variance in childhood stress existed between those interred in different contexts. T-910 is a high-status, multichambered rock-cut tomb while T-903 Upper and T-1103 are both partially natural ossuaries for secondary burial, though T-903U is slightly more sophisticated. Chi-square tests were used to compare whether the ratio of permanent teeth with and without LEH had any statistically significant differences between tombs at $p < 0.05$. Significant differences were found between T-910 ($n=55$) and both T-903U ($n=389$, $p=0.001293$) and T-1103 ($n=36$, $p=0.007344$) but not between T-903U and T-1103 ($p=0.6115$). T-910's high percentage of teeth with LEH (74.5%) compared to T-1103 (44.44%) and T-903U (50.39%) appears to be the cause of these results. If these results were not overly affected by the aggregate nature of the ossuaries it is possible that the high-status individuals in T-910 represent a group which did not have access to resources in childhood that they presumably did in adulthood.

Incorporation of Faunal Remains in Kerma to Napatan Period Burials from the ASU BONE Concession, Sudan

Alexandra J. Ptacek, Brenda J. Baker
Arizona State University

The role of animal remains as burial accompaniments in the rites of separation of the deceased is not often systematically examined in archaeological and bioarchaeological studies. Faunal analysis was completed on 652 skeletal fragments from 48 Kerma to Napatan period (c. 2500-300 BCE) graves excavated from the Bioarchaeology of Nubia Expedition (BONE) project area between the fourth and fifth cataracts of the Nile River in Sudan. Most fragments were from intrusive rodents and reptiles, but 14 graves contained nonintrusive fauna (NISP = 40) including artiodactyl (specifically domestic bovid), bird, and fish fragments. Remains are fragmentary (25.6% right angle/transverse outline breaks) with evidence of environmental water damage exacerbated by human disturbance. Unlike food offerings found in the core area of the Kerma state, fauna from the BONE cemeteries are mainly elements with low meat utility. Despite the low meat utility, fragmentation, and presence of carnivore teeth marks on a limited selection of fauna, the association of artiodactyl remains with beads placed as grave goods in the same burial implies the faunal remains were purposefully interred and not carnivore discards that were accidentally included in the backfill of the grave. The human modification and purposeful interment of the fragmentary artiodactyl remains may represent remnants from, or symbolize, a funerary feast as previously proposed for burials at H29, an Early Kerma period cemetery in the Northern Dongola Reach. Similarities between H29 and the BONE project area cemeteries likely reflect their use by rural communities and potential economic constraints.

Bronze and Beads: A Collection of Grave Goods from the Region of Mount Nebo, Jordan

Alice Maksimowski, Parker Mandryk
Wilfrid Laurier University

The Town of Nebo Archaeological Project (TNAP) was established to investigate the occupational history of Khirbat al-Mukhayyat and the site's relationship to the surrounding landscape. A survey of the area around Mukhayyat was initiated by Dr. Gregory Braun in 2017 and continued in the summer of 2019. During the second survey season, a cave site, that we have named Mughara Abu-Ghanem, was brought to the attention of the survey team. The cave is located on the south side of the Wadi Jadideh, to the west of the site, approximately 4 metres above the wadi bed.

Inside Mughara Abu-Ghanem, skeletal remains of several individuals were recovered. Unfortunately, looters had disturbed the top level of the deposits, but lower layers were still intact. From these loci, a small collection of beads, pottery fragments, and bronze jewelry were retrieved. Preliminary analysis of these artifacts indicates a Byzantine or Early Islamic date for the remains in the cave. Through a more thorough investigation of these objects, this poster aims to elucidate the possible nature of the deposits in Mughara Abu-Ghanem and provide insight into the site's relationship to the contemporary monastic settlements in the immediate vicinity.

Given the disturbed nature of the remains in Mughara Abu-Ghanem, the collection of artifacts recovered from the site only tells a partial story of the individuals interred within. However, through analysis of their grave goods, the significance of this area for local inhabitants will hopefully be illuminated.

Trade and Movement

Presenter: Abstract Order

Caroline Gerkis

Stuart Ibrahim

Brady Liss

Zeinab Raya

Jackson Reece

Mirrors of the Pharos Lighthouse: The Tangible and Metaphorical

Caroline Gerkis

Independent Scholar

The mirror is the literal path to reflecting an individual. Beyond that the mirror becomes metaphorical, generating countless debates over the thousands of years since the earliest crudely made mirrors. As an artifact the tangible mirror can be small to display one's self-importance or enormous reflecting fires set ablaze atop ancient lighthouses saving vessels from destruction.

The mirrors of the Pharos Lighthouse (built c. 280 BCE), designed by the renowned architect Sostratos of Cnidus for the Ptolemaic city of Alexandria, are unique since their existence is a subject of numerous debates. Moreover, the actual design of the lighthouse is still unknown and yet is a structure that not only became the symbol of ancient Alexandria, but enchanted so many to become part of the Seven Wonders of the Ancient World.

This poster will consider the metaphysical aspects of the Pharos Lighthouse mirrors, how they influenced seafaring, which according to ancient sources were utilized when a fire was lit, creating a band of light that emanated outwards reaching ships many kilometers away. These mirrors can also be understood as intangible, manifesting the power and vanity of the Ptolemies. Furthermore, the Pharos mirrors were repurposed and reimagined long after the last Ptolemy, Cleopatra VII who died for her Egypt in 30 BCE, in lands farther than the literal light that the mirrors radiated. The Pharos Lighthouse survived an astonishing seventeen centuries until its collapse (c. 1300s), its mirrors attesting to the tangible and metaphorical of the Ptolemaic era in Egypt.

Identifying Cultural Packages in the IA I-II Levantine Archaeological Record at Rafa

Stuart John Ibrahim

University of Melbourne

Starting in 2017, I have analyzed the fate of the northern Sinai / southern Levant Egyptian fortresses ending at Gaza (the Ways of Horus) in the period between the Bronze Age collapse and the Levantine campaign of Shoshenq I (c. 924 BC), using contemporaneous archaeological and textual evidence in the region.

The limited textual and archaeological evidence, the Medinet Habu Battle relief and Papyrus Harris, dating to the 20th dynasty reigns of Ramesses III and IV, show that this fortress chain lasted until after Ramesses IV. The 21st dynasty Papyrus Golenischeff and the archaeological

evidence in the Eastern Nile Delta and South Levant confirm that two to four sites in the Delta survived, while other groups resettled those sites in the Levant which were not abandoned.

The cultural groups are present here, though, is another matter entirely. The archaeological evidence confirms that the Philistines, Canaanites, and Israelites had varying degrees of influence in this region. Part of my analysis ascertaining the best way to interpret the limited evidence available, by focusing on those sites where architecture, ceramics, and artefacts belonging to the same cultural group are all found together.

“Send for water to ‘Ain el-Ghweibeh”: Copper Production and Provisioning the Regional Network of Iron Age Faynan, Jordan

Brady Liss^{1,2}, Matthew D. Howland^{1,2}, Brita Lorentzen³, Mohammad Najjar², Thomas E. Levy^{1,2}
¹University of California, San Diego ²UCSD Levantine and Cyber Archaeology Lab ³Cornell University

The Faynan region of Jordan is one of the largest copper ore deposits in the Southern Levant. These ores were exploited throughout history, and during the Iron Age (~1200-800 BCE), copper production in Faynan reached an industrial scale. Excavations by the Edom Lowlands Regional Archaeology Project focused on three main copper smelting centers associated with the Iron Age industrial landscape: Khirbat en-Nahas (KEN), Khirbat al-Jariya (KAJ), and Khirbat al-Ghuwayba (KAG). KEN and KAJ are characterized by substantial slag mounds, attesting to their significant role in copper production. However, the slag at KAG is sparse in comparison, leading to its interpretation as a small-scale smelting site. Nevertheless, KAG is uniquely positioned adjacent a perennial spring, ‘Ain al-Ghuwayba. Today, ‘Ain al-Ghuwayba even yields enough water to support local orchards including fruit trees. Moreover, when Nelson Glueck (1935:29) visited KEN during his surveys of Faynan, he noted a lack of available water saying: “We were compelled to send for water to ‘Ain el-Ghweibeh”. Considering the harsh terrain and climate of Faynan, and as Glueck attested, this spring and the ability to grow fruit trees was likely important and valuable to the Iron Age inhabitants of the region. In this light and with archaeobotanical evidence, this poster offers a holistic perspective on the development and provisioning of a regional network of copper production in Iron Age Faynan.

Glueck, Nelson

1935 Explorations in Eastern Palestine, II. *Annual of the American Schools of Oriental Research* 15: 1-288.

Shell exploitation in the Middle Bronze Age site of Sidon-Lebanon (College Site, 2000BCE-1550BCE).

Zeinab Ali Raya¹, Jwana Antoun Chahoud^{1,2}

¹Lebanese University ²CNRS, Lyon, France

College Site is a Bronze Age settlement in Sidon on the southern Lebanese coast. Archaeological excavations conducted since 1998 have yielded a continuous occupation from the beginning of the third Millennium BC till the medieval era. Zooarchaeological studies have established a pattern of faunal offerings in mortuary practices and meat consumption outside burials and in temples. Along with other finds, shellfish have been recorded in these contexts (burials, platforms and temples). Therefore, in order to understand the exploitation of shell and their contribution to the diet and the practices of the Sidon inhabitants, shell remains were studied

from the Middle Bronze Age phases. The archaeomalacological methodology was used; methods included species identifying, quantification, measurements of shell and the study of marks (Taphonomy or weathering). A wide diversity of mollusc species were identified that were used as food and played a role in the subsistence economy of Sidon. Shells were used also as artefact for ornaments, and other activities that could be related to rituals and funerary practices. Finally, it is noted that archaeomalacological studies are scarce from Lebanon and that molluscs are an important indicator for interaction between human and animals and their environment.

Distribution Patterns of Roman Fish-Processing Sites in the Mediterranean: A Tale of West and East

Jackson T Reece¹, Assaf Yasur-Landau², Alexandra Ratzlaff³, Thomas E Levy¹

¹University of California San Diego, Department of Anthropology, Scripps Center of Marine Archaeology ²University of Haifa, Department of Maritime Civilizations ³Brandeis University

Salsamenta (salted fish) and *garum* (fish sauce) were dietary staples across the Mediterranean in the Roman Period. Hundreds of fish-processing facilities, or *cetariae*, have been found to date around the western Mediterranean, northwest Maghreb, and Black Sea, indicating that the knowledge and technologies required for fish-processing were widespread. Nevertheless, only a handful of *cetariae* have been found in the eastern Mediterranean, where many coastal industrial sites have been predominantly interpreted as purple dye installations. In order to better understand the possible causes of this distribution pattern, the present study proposes two research questions: (1) What variables make a location more favorable for fish-processing? (2) Does the distribution of *cetariae* follow a similar pattern to the distribution of these ideal zones? To address the first, we develop a *chaîne opératoire* model for fish-processing that derives necessary raw materials and favorable environmental conditions from the steps necessary to produce *salsamenta* on an industrial scale. Then, we conduct a series of spatial queries in ArcGIS to map ideal zones and compare them with the distribution of all known Roman *cetariae* around the Mediterranean and Black Sea. Finally, we discuss preliminary findings and pottery dating from the 2018-2019 aerial and ground surveys of the “Purple Dye Factory,” a Roman industrial site on the coast of Tel Dor, Israel. This project continues to explore one of the most prominent Roman coastal industries and challenges current assumptions about its distribution around the Empire.