Hylkema, Mark (California State Parks)

[231] Middle Holocene Projectile Points from the Santa Cruz County Coast of Northern Monterey Bay, California

A group of Middle Holocene aged archaeological sites along the Santa Cruz County Coast have produced a large number of chert and obsidian projectile points. Sites SCR-3, SCR-7, SCR-10 and SCR-40 have the same range of point types and materials, and are all within 10 miles radius of each other. The diversity of types and materials indicate that ancestral Native Americans of the region were highly mobile hunters who also opportunistically harvested marine mollusks, fish and sea birds while hunting on the coastal terraces. Ranging between the southern San Francisco Bay, over the Santa Cruz Mountains and onto the open Pacific Coast, these mobile hunters eventually became territorially circumscribed and with the advent of the Late Holocene the emphasis was on managing resources within a narrower territorial range.

Hylkema, Mark [231] see Lightfoot, Kent

Iannone, Gyles (Trent University)


The IRAW@Bagan project is striving to generate an integrated socio-ecological history for residential patterning, agricultural practices, and water management at the Classical Burmese (Bama) capital of Bagan, Myanmar (11th to 14th centuries CE) across a range of significant ecological, climatic, economic, socio-political, and religious changes. This objective is being achieved through a settlement archaeology study within the peri-urban (mixed urban-rural) settlement zone immediately surrounding Bagan’s regal-ritual epicenter, which is still clearly defined by remnants of its original walls and moat. The significance of this ongoing program of survey, excavations, and geo-spatial inquiry is grounded in addressing the continuing bias toward upper echelons of Bagan society, namely high-ranking nobles and religious institutions. This program of settlement archaeology will ultimately: 1) generate a more nuanced understanding of Bagan as a dynamic capital city; 2) provide insights into the unique characteristics of early urbanism in the tropics; and, 3) contribute to considerations of resilience and vulnerability in contemporary tropical metropolises.

[199] Discussant

Iannone, Gyles [300] see Macrae, Scott

Ibarra, Bebel [55] see Washburn, Eden

Ibarra, Eugenia (Universidad de Costa Rica)


This paper will explore the relationship between “rich” men and trade and exchange, particularly in polyglottal Costa Rica and Panama in the sixteenth century. It will focus on these caciques’ social organizations, their representatives, their political responsibilities, their power exertions, and their rivalries and conflicts. I will also underline how their status and power was nurtured by the possession of particular material objects and non-material knowledge. In sum, this paper will explain the dynamics between “rich” caciques, social organization, and political displays within trade and exchange networks in the polyglottal, sixteenth century, southern Central America.

Ibarra, Georgina [38] see Solleiro-Rebolledo, Elizabeth
Ibarra, Thania (Proyecto Arqueológico Tepeticpac - Centro INAH Tlaxcala), Lane Fargher (Cinvestav Unidad Mérida) and Aurelio López Corral (Instituto Nacional de Antropología e Historia Tlax)

[68] Thread Production in Ocotelulco, Tlaxcallan, Mexico

Archaeological excavations undertaken by the Tlaxcallan Archaeological Project have recovered an important sample of spindle whorls from Late Postclassic – Early Colonial (1420-1540 A.D.) domestic contexts in Ocotelulco, a subsection of the urban site of Tlaxcallan, Mexico. In this paper, we present the results of the analysis of identified whorl types and group proportions to better understand local thread production. These results are then compared with a sample from Tepeticpac, another subsection of Tlaxcallan. In this latter sample, we previously recorded a high proportion of whorls associated with processing fine and short fibers, such as cotton. We discuss the socioeconomic and technological implications of these results, as well as provide a wider panorama for textile production in Tlaxcallan.

Ibarra Asencios, Bebel

[396] Ancestor Veneration or Funeral Practices? An Examination of Recuay Mortuary Variability in the Basin of Puccha (Ancash) between AD 200-900

Mortuary studies have followed different perspectives, such as ancestor veneration mostly based on intrasite analysis. This paper examines the regional distribution of Recuay’s funeral practices and its implications for ancestor worship studies. Radiocarbon dates available for the valley show an occupation between AD 200-900, and it correlates with the presence of kaolin ceramics, associated with Recuay style. Excavations in funeral and ceremonial contexts from three sites reveal the existence of different types of tombs, such as subterranean chambers, chullpas or above ground tombs, and cists. The variation of tomb architecture is very substantial but changes in civil/public architecture and ceramics are minimal. Particularly, I will present the results of excavations in Huamparán a patio group complex that had important modifications to its architecture, such as incorporation of cist tombs ca AD 500, that can be understood as the inclusion of ancestors in political life. The building and use of several types of tombs suggest the existence of diverse funerary practices, not all of which relate to ancestor veneration.

Ibarrola, Mary (University of Florida)

[414] Purposeful Unpatterning: Investigating Maroon Site Distribution In Colonial Florida

During the colonial era, Spanish Florida built a reputation as a refuge for self-liberated people escaping from slavery in the Carolinas and Georgia. However, following the Treaty of Paris in 1763, Florida was passed from one government to another and the Maroons’ freedom was under constant threat. Florida Maroons were constantly on the move and their communities were ultimately disrupted and displaced by the U.S. government. Consequently, a low density of materials, deficiency of known sites, and lack of contemporary Maroon presence plagues Maroon archaeology in Florida, and Maroons have been largely relegated to a supporting role in Florida history. However, I argue that by turning our attention away from the sites themselves, and placing Maroon sites within a comparative framework, we will be able to identify significant spatial relationships between known Maroon sites and Euro-American and Native American sites, as well as recognize patterns in Maroon movement through the region; ultimately creating an opportunity to reinterpret the role played by self-liberated Africans and African descendant peoples in Florida’s history.

Ichikawa, Akira

[330] Double-Headed Serpent in the Southeastern Maya Frontier: Late Classic Deposit Unearthed from San Andres, El Salvador

This paper aims to report a new ritual deposit dated to the Late Classic (A.D. 600-900), unearthed at San Andres, El Salvador. The items in the ritual deposit include vessels, Spondylus shells, and two pieces of jade artifacts, one of which was decorated with a double-headed serpent. In this paper, I present new data obtained from our recent excavation and tentative iconographic interpretations in comparison with the 1940s excavation data from the site. According to the excavation and iconographic interpretation, these artifacts were carefully buried in the central axis of the monumental architecture known as La Campana, and were possibly an offering dedicated to one of the construction phases of La Campana. These data will provide a better understanding about the symbolism of the regional political center in the Southeastern Maya Frontier, which remains poorly understood.
Iglesias, Christina (California State University, Los Angeles) and Michael Prout (California State University, Los Angeles)

[360] Reinterpreting a Sacrificial Ossuary at Chichen Itza

During the widening of the air strip at Chichen Itza in 1967, a small subterranean chamber, located some 300 m north of the Cenote of Sacrifice, was discovered. The feature, variably called a cave or a chultun, contained two small chambers, the larger of which was only 4 x 5 m. These chambers contained human skeletal material, a portion of which was removed and the collection divided between Chichen Itza and Merida. The collection was finally reunited by the creation of the Physical Anthropology Laboratory at the Centro Regional del Sureste and analyzed by Lourdes Marquez after 1980. Despite the small size of the feature, Marquez identified 109 individuals, 97 of whom were subadults. During the 2018 season, the Gran Acuífero Maya project interviewed the discoverer of the chamber in order to obtain additional details on the archaeological context of the material. Additionally, investigations of similar features allows us to clarify the context of the find.

Iizuka, Fumie (University of California, Merced), Pamela Vandiver (University of Arizona), Kazuki Morisaki (Agency for Cultural Affairs), Masami Izuho (Tokyo Metropolitan University) and Mark Aldenderfer (University of California Merced)

[416] Ceramic, Lithic, and Settlement Variability of the Incipient Jomon Sites on Tanegashima Island, Japan

Although conventional thinking has associated the advent of pottery with farming, sedentism, and groundstones, more recent research suggests that emergence contexts vary. Case studies on intra-regional variability are required to better understand the timing and behavioral context of the adoption of pottery. In this study, we provide the case of the first pottery on Tanegashima Island of southern Kyushu, Japan dated to ca. 14,000/13,500 Cal BP, during the Incipient Jomon period. We visually analyzed ceramics from the Incipient Jomon of the Onigano and Okunonita sites on Tanegashima to infer technological and behavioral variability. We also obtained data on chipped and ground stone technology and archaeological features for comparison. Results suggest that whereas Onigano contains non-local ceramics, Okunonita pottery does not have a signature of non-local production. The manufacturing technique is similar, a slab technique, but Onigano tends to have thicker and larger slabs. The degree of sedentism inferred from stone tools are similar although Onigano has chipped stone tools that are non-local. We suggest that the local production of pottery and stone tools occurred at both sites but Okunonita had more access to non-local products.

Iizuka, Yoshiyuki (Academia Sinica)

[141] Nephrite Jade Mapping in Southeast Asian Prehistory: Petrological and Mineralogical Study of Stone Artifacts

On-site and laboratory geochemical analyses have been carried out on jade and jade-like artifacts including unfinished pieces in the mainland of Southeast Asia by p-XRF and SEM-EDS respectively. In Vietnam, the results from more than 100 analyses show that the lingling-Os and double animal-headed pendants from central Vietnam are made of various colors of nephrite. So far only two lingling-Os show geochemical fingerprints of Taiwan’s green nephrite. On the other hand, slit rings and a lot of worked disks are made of tremolitic white nephrite from northern Vietnam. Up to now, in Myanmar, 15 worked disks and bangles are made of actinolitic (green) nephrite from stone workshop and settlement sites in the central plain area. In Thailand, actinolitic nephrite artifacts were recognized from the Malay Peninsula area. A series of geochemical analysis indicates that there were at least two major nephrite sources that existed in prehistoric Vietnam, excluding Taiwan’s green nephrite. And at least a potential nephrite source is expected from the metamorphic geological region in northern Myanmar. Some results may suggest long-distance and multiple cultural interactions were occurring in mainland Southeast Asian Prehistory.

Iizuka, Yoshiyuki [299] see Uchida, Junko

Ikawa-Smith, Fumiko (McGill University)

[74] Changing Perspectives for the Palaeolithic Research of the Japanese Archipelago

Apart from sporadic finds of human bones and artifacts, systematic research on the Palaeolithic began in Japan with the Iwajuku excavation in 1949. In spite of the relatively short history of 70 years, and the negative impact of the “Fujimura Scandal” of 2000, which resulted in nullification of nearly 200 “Early” and “Middle” Palaeolithic sites, the
Palaeolithic Period is represented by over 15,000 assemblages, and Palaeolithic research is thriving in Japan. It is, however, taking a new direction in recent years. The earlier emphasis on artifact typology and the search for Japanese ancestors is being replaced by an endeavor to elucidate hominid behaviour during the Quaternary Epoch through a variety of inter-disciplinary approaches. The Palaeolithic assemblages of Japan are being placed in the context of the circum-Japan–Sea interaction sphere, and in the broader global perspectives of out-of-Africa dispersal of the behaviorally modern humans.

Ikehara-Quebral, Rona (Int’l Archaeological Research Institute, Inc.), Judith McNeill (Int’l Archaeological Research Institute, Inc.), Michele Toomay Douglas (Int’l Archaeological Research Institute, Inc.) and Michael Pietrusewsky (Dept. of Anthropology, University of Hawai’i-Manoa)

[29] Apotguan Revisited: A Bioarchaeological Analysis of Latte Period Burials from Guam

Cultural Resources Management studies in the Mariana Islands have consistently expanded opportunities for in-depth bioarchaeological research. Burial assemblages originating from historic preservation compliance obligations generally derive from one of three contexts: displaced fragmentary remains; isolated burials; or cemeteries. For example, the ancient inhabitants of Apotguan Village, Guam, unearthed during construction of the Agaña Beach Condos in 1990, represent a relatively large cemetery-derived sample. Over 150 Latte Period individuals were recovered by International Archaeological Research Institute, Inc. Since then, research related to this site has generated technical reports, conference papers, journal articles, and book chapters, expanding understanding of the ancient Chamorros and their culture. The original bioarchaeological study, completed in 1992, analyzed the Apotguan burial assemblage as a single statistical sample. Recent archaeological research has identified burial subgroups, which motivated a re-examination of the burial assemblage. By integrating the newly designated Apotguan subgroups with the osteological record, this paper focuses on discerning familial ties and spatial variability in health and biocultural practices.

Ikehara-Quebral, Rona [29] see Rieth, Timothy

Ikeshoji-Orlati, Veronica [310] see Zori, Davide

Iles, Louise

[363] Chair

Ingalls, Teresa and Danny Gregory (New South Associates, Inc.)


“Paperless archaeology” is becoming increasingly normal. Professionals in both academic and corporate spheres have turned to digital methodology as a means to organize and manage their projects and collect data. Normal field equipment now includes tablets and laptops using customized databases, apps for creating spatial data on site, digital cameras, and a host of pre-loaded digital reference materials for field use. But how do we measure the success of implementing a digital methodology? How do we know that the digital way of doing things is a better way? In this presentation, we will look at the digital methods we’ve implemented at New South Associates and discuss the metrics we are developing to quantify their effectiveness. While we are just beginning to track these metrics, we believe understanding and measuring our digital initiative is key to both meeting our business objectives as a CRM company and ensuring that we manage the archaeological resources to the best of our ability.

Ingalls, Victoria (The University of Texas at San Antonio)

[345] Community Formation through Movement: Focal Nodes and Community Landscapes of the Mopan River Valley, Belize

Movement is often implicitly assumed when exploring the ancient makeup of communities. We conceptualize movement at different scales of interaction – at the hyperlocal through households, as well as between and across communities, polities, and landscapes. Here, I will explore how movement to/from focal nodes on a landscape may
shape community identity through the creation of space/place. Public spaces are focal nodes for local community- and regional polity-making processes, embedding social hierarchies, ideologies, and social memories into the physical landscape. However, relatively little attention has been given to public spaces within rural communities. Using the ancient community of San Lorenzo, Belize, this paper focuses on movement to expand our understanding of how access to and through specific places changed over time. The dynamics of how focal nodes form within a landscape is examined by analyzing the potential for movement and interaction across the built and natural environments of the San Lorenzo community and the surrounding Mopan River Valley.

[345] Chair

Ingleman, David

[212] Pre-Contact Hawaiian Animal Burials: Interspecies Interactions and Embodied Experiences

Zooarchaeological analyses of pre-contact Hawaiian midden deposits have yielded significant information on subsistence practices and, to a lesser extent, associated foodways practices. Archaeologists have also occasionally excavated burials of non-human domesticated animals, including dog, pig, and chicken. These ritual deposits provide unparalleled opportunities to reveal osteobiographical information about animal husbandry practices and taphonomic information about cause of death and mortuary treatment. At the time of European contact, humans and non-human domesticated animals in the Hawaiian Islands led imbricated lives and shared household living spaces, as well as food resources. This multi-species ontological similarity may have contributed to the maintenance of Hawaiian epistemologies, which blur distinctions between humans and non-human animals. Thus, analyses of non-human domesticated animal burials may also potentially provide important proxy information about the lived experiences of humans. Macroscopic analyses of a sample of pre-contact non-human domesticated animal burials are presented in osteobiographical format, and contextualized with ethnohistorical information, to shed light on interspecies social interactions and embodied experiences.

Ingram, Scott [9] see Axelrod, Ella

Ingram, Scott (Colorado College) and Shelby Patrick

[188] A Comparative Synthesis of Depopulation in the North American Southwest, 1100 to 1450

Given the urgency of local to global sustainability problems, archaeologists must make progress toward understanding and interpreting for the public and policymakers the dramatic population declines that occurred in the North American Southwest during the 12th through 15th centuries. Southwestern-scale syntheses that seek insights beyond the particularities of our sub-regional interests and expertise are rare but have the potential to generate insights beyond the Southwestern past for the future. This presentation offers the first results of a systematic cross-case comparative study of the initial conditions of demographic decline (collapse) throughout the Southwest. Initial conditions investigated include the extent of conflict, resource depletion, demography, immigration, inequality and other variables that are often considered causal factors of depopulation. The aim of the presentation is to demonstrate the potential of Southwest-scale comparative studies, to generate hypotheses for more specific testing, and to provide one example of synthetic analyses Keith Kintigh and others have recently advocated “to advance science and benefit society.”

Ingvoldstad, Megan [129] see Maeyama, Kimberly

Inomata, Takeshi [79] see Golden, Charles

Inomata, Takeshi (University of Arizona)

[309] Overview of Archaeological Investigations in the Middle Usumacinta Region

The Middle Usumacinta Archaeological Project started investigations in the Department of Tabasco, Mexico, in 2017. Its main objectives are to examine the relationship between the residents of the Maya lowlands and those of the Olmec region and to trace social change during the Preclassic period. The research began with the analysis of
LiDAR data obtained by the Mexican governmental institution of INEGI for the entire study area of roughly 3000 km². An area of 110 km² was selected for a higher-resolution LiDAR survey. We identified the site of Aguada Fénix, which contained a large platform and other formal ceremonial complexes of the Middle Preclassic period, which we called the Middle Formative Usumacinta pattern. In the 2017 and 2018 season, we conducted excavations at Aguada Fénix and La Carmelita. These data show that the Middle Usumacinta region participated in active inter-regional interaction during the Middle Preclassic period.

Inwood, Jamie [32] see Mercader, Julio

Inwood, Jamie [2] see Lee, Patrick

Inwood, Jamie (University of Calgary)

[278] Molecular Starch Degradation and Their Fingerprints: Insights from Modern African Taxa

Ancient starch analysis is a controversial technique, as the polymer’s chemical survivability over long periods of time is not understood. Our objectives are to establish the molecular composition of starch granules from sub-Saharan taxa of ethnobotanical relevance subjected to diagenetic processes, and to determine if these byproducts have diagnostic potential. Starch was placed into solution with an amino acid and reacted under heat and pressure in order to mimic diagenesis. The end stage of this process created melanoidins, stable high molecular weight compounds resistant to degradation. Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (FTCIR-MS) was utilized to analyze the molecular composition of the products of this reaction. Laboratory degradation resulted in a range of compounds. Discrete chemicals are exhibited, varying in functional groups and cyclic structure. As the reaction progressed, more breakdown products and smaller compounds formed. These are more stable than their precursors, and it is expected that they might have increased survivability in archaeological time scales. The structure of melanoidins and other breakdown products have the potential to become fingerprints to identify the presence of starch in ancient contexts.

[278] Chair

Ion, Rodica-Mariana [88] see Turcanu-Carutiu, Daniela

Iovita, Radu (New York University), David Braun (George Washington University), Matthew Douglass (University of Nebraska), Simon Holdaway (University of Auckland) and Sam Lin (University of Wollongong)

[247] Revisiting the Evolutionary Significance of Stone Tools

Because lithics preserve better than almost any other trace of human existence in the deep past, they receive the lion’s share of attention from Pleistocene archaeologists. In this paper we explore the theoretical and practical limitations of using lithics as subjects of evolutionary analyses. We base our discussion on rejecting the notion that lithic aggregates as found (or defined) in the course of archaeological work can be interpreted as reflecting intentionality or even ‘average behaviors’. This is because the co-occurrence of artifacts (recovered as and defined traditionally as an ‘assemblage’ from an excavation) is the result of fragmented multiple actions by often unrelated and chrono-spatially distinct agents (including the researcher who undertakes the analysis). We then revisit key concepts such as ‘adaptation’, ‘cultural transmission’, and ‘behavioral complexity’ in the absence of detectable intentionality and ‘cultural norms’. For this exercise, we distinguish between two scales of analysis: the artifact as ‘extended phenotype’ (Dawkins 1982) and the aggregate as record of human behavior and discuss the way selection, fitness, adaptation, cultural contact and acculturation, and others apply differently at these two scales.

Irvine, Benjamin (BIAA (British Institute at Ankara))

[359] Howdy Neighbour – Transgressing Borders and Peering over the Fence to Examine the Application of Isotopic Analyses to Bioarchaeology in Anatolia

Stable isotope analyses contributing to archaeological research in Anatolia was a relatively late bloomer, beginning in the early 2000s and only gathering pace in the last 5-10 years. Currently research into dietary habits, subsistence...
practices, and mobility has focused on early proto-sedentary and sedentary agricultural populations in Anatolia and in later historical periods. This has resulted in ca. 5-6000 years of prehistory being relatively untouched by such quantitative scientific techniques. Instead, research in these intervening periods has focused primarily on material culture, where artefacts are studied individually, largely detached from their surrounding environment and social, cultural, technological, and economic contexts. This is starting to change now in conjunction with the realisation of the importance of bioarchaeology as an encompassing field, providing a holistic approach to examining prehistoric populations.

This talk will discuss the importance and valuable contribution of stable isotope analyses in better understanding dietary and subsistence practices, and mobility. Furthermore, how when applied in conjunction with human osteological, archaeozoological, and archaeobotanical analyses we can begin to greater understand human interactions on an inter-population level and pan-regionally, as well as on a more local and intra-population level in these pivotal periods of societal development in Anatolia, and further afield.

Irving Pease, Evan [20] see Dimopoulos, Evangelos

Isbell, William (SUNY - Binghamton), Barbara Wolff (Montgomery College), Ismael Perez Calderon (Universidad San Cristobal de Huamanga), Gonzalo Rodriguez Carpio (Huari Urban Prehistory Project) and J. Alberto Carbajal Alegre (Huari Urban Prehistory Project)

[250] Investigating Huari Urban Residences: An Overview of the 2017-18 Excavations

Excavations in an ancient non-elite area of Patipampa, Huari reveal remarkable new information about vernacular environments of the early city. Architectural remains consist of a limited range of very distinctive buildings, where life was probably ground-oriented, and experience of the city emphasized dark and enclosed spaces communicated via labyrinthine routes. However, residents ate well, probably feasting frequently in elaborate social and religious rituals. Quotidian life may have been organized around mortuary rooms where local ancestors were interred, although none of these tombs have been found intact. Huari residential buildings experienced complex histories of occupation, abandonment, and re-purposing that resulted in deep stratigraphy, complex sequences of floors and multiple occupation surfaces. Water was apparently a problem in the city, and carefully constructed canals are found below numerous floors. What was probably “common space” in patios shows multiple remodelings, suggesting dynamic processes governing some kinds of space, through time. These new characterizations provide a basis for comparing Huari residential buildings at other Wari and non-Wari architecture.

Isbell, William [250] see Antonio, Luz

Iseminger, Bill (Cahokia Mounds)

[22] Five Decades of Public Archaeology at Cahokia Mounds

During nearly five decades of working in public archaeology at Cahokia Mounds State Historic Site, I have witnessed and experienced the importance of public awareness of archaeology and American Indian cultures and found the need to overcome stereotypes the public has about both. This has been accomplished at Cahokia through exhibits, public field schools, on- and off-site presentations, special events, lecture series, publications, social media, and events with Native American participation. I will review the philosophy and planning behind these various approaches and how they have evolved over the years.

Ismail Al-Juboury, Ali [298] see Hill, David

Issavi, Justine [388] see Twiss, Katheryn

Iversen, Rune [196] see Kroonen, Guus
Izuho, Masami (Tokyo Metropolitan University) and Jeffrey R. Ferguson (MURR Archaeometry Laboratory, Research Reactor Cen)

[392] Temporal Changes in Obsidian Procurement Strategy during the Upper Paleolithic on Hokkaido

Reconstruction of obsidian procurement strategies based on systematic obsidian sourcing analysis in the Upper Paleolithic on Hokkaido will provide an important basis for examining several key issues of human evolutionary history, including how modern humans adapted to the cold, harsh environment of the north, and how these adaptations allowed for the possible migration to the Americas. Here we discuss temporal changes in obsidian procurement patterns between the early Upper Paleolithic and the middle Upper Paleolithic on Hokkaido. We examine these temporal changes by comparing site-based reconstructions of procurement patterns from two different regions, the Ishikari lowland and the Tokachi plain, where lithic raw material environments are quite different.

Jackson, Kendal (University of South Florida)

[99] Of Marsh and Mangal: Political/Historical Ecology in Tampa Bay's Coastal Wetlands

Today, dense mangrove forests dominate the intertidal wetlands of the Tampa Bay Estuary System in west-central Florida. Following the publication of seminal ecology studies in the 1960's, sub-tropical mangrove forests became a major focus of coastal environmental protection and restoration initiatives in Florida. Recent GIS-based historical research by the U.S. Geological Survey suggests that Tampa Bay’s coastal wetlands converted en masse from salt marsh to mangrove forest since the late-19th century. In this study, I explore the historical and political ecologies of this wetland conversion by ground-truthing historic survey mapping through geoarchaeological analyses of sediment cores, and by reconstructing how the Americanization of the region has interacted with climate change and sea-level rise to produce an industrial seascape that is often mistaken and marketed as ‘natural’.

Jackson, Sarah (University of Cincinnati)

[161] Crafting Human/Hieroglyph Relationships in Classic Maya Contexts

The study of Classic Maya hieroglyphic writing (ca. AD 250-900, Mexico and Central America) has yielded rich understandings of texts in recent years through increasingly nuanced ways of reading, contextualizing, and interpreting hieroglyphs. Beyond examining hieroglyphic texts as culturally contextualized documentary sources, however, they also must be understood as “made” materials, crafted and created, and subsequently related to. This sense of texts as crafted requires not only connecting to their materiality and their involvement with the objects on which they appeared, but also understanding processes of writing (and reading) as culturally-moored productive acts (that is, ways of making), with attached beliefs and practices. In visual representations on painted ceramic vessels, we see examples of hieroglyphs leaving the boundaries of “text” and crossing over to enter human territory, indicating that we need to understand hieroglyphs as materialized and real in a human world. This paper looks closely at how Maya texts were understood to inhabit human spaces and how humans (textual writers and readers)
saw themselves as related to or positioned in social relationships with writing. These discussions impact our modern methodological stance by shifting understandings of key ideas related to written evidence such as authorship, production, literacy, and textual control.

[161] Chair

Jackson Legare, Lora (Four Corners Research Inc.) and David Greenwald

[413] Implications of Socio-economic Organization Based on Architectural Associations and Modified Sherds from Ricochet Village, White Sands Missile Range, New Mexico

Archaeological investigations of the western portion of Ricochet Village (LA 76465), a late Mesilla to Dona Ana phase site at White Sands Missile Range, encountered clusters of structures and pit features and recovered a sizable assemblage of modified sherds, comprising 3.2 percent of the assemblage. Patterns within structure and storage pit spatial arrangements indicate that residents organized themselves within finite areas defined by feature layout, or household clusters. Modifications of ceramics represented specific tools and functional forms. Production methods included rough flaking, minimal-to-extensive edge grinding/smoothing, perforations (uni- and bi-directional), and incising to produce forms such as scoops/dippers, plates, “paint palettes,” pottery scrapers, “spoons,” awls, discs, whorls, gaming pieces and objects of unknown function. De facto refuse on house floors included several large vessel fragments that may have served as plates or trays, or were used for parching/food preparation. This paper examines socio-economic implications of the architecture and the modified sherd assemblage, making comparisons with assemblages from other regional sites.

Jacobi, Keith [325] see Simpson, Diana

Jacobs, David (Arizona State Historic Preservation Office) and Douglas Craig (Northland Research, Inc.)

[246] Portals to the Past: Public Architecture and Storytelling Traditions in Hohokam Society

Culture is adaptive, and defined as a group’s learned, shared set of beliefs and behavior patterns that are transmitted across generations. Research at Hohokam sites indicates the presence of long-term well-established residential groups who tend to reside next to public spaces, the location of platform mounds in the Classic Period. This spatial circumstance creates the ideal situation for storytelling traditions and their ritual performances that integrate and maintain the community. The architecture, spatial design, and associated features of platform mounds demonstrate the creation of special places where ritual performances can be performed for the community.

Jacobs, Jennifer [87] see Austin, Anne

Jacobs, Jordan

[178] Discussant

Jacobs, Loe [95] see Van Gijn, Annelou

Jacobson, Nicole (University of Wyoming)

[207] Mobility in the Big Horns: GIS Analysis of Upper and Lower Canyon Creek and the Implications for Prehistoric Movement

Least cost pathway research focuses on creating a baseline model of human movement constructed on defined variables. The stark landscape of the Bighorn mountains, from a Plains or Basin perspective, can be incredibly steep and difficult to navigate, without high cost or risk. The study uses GIS to identify least cost pathways as possible routes of migration through Upper and Lower Canyon Creek, between plains and alpine ecological zones on the western flank of the Bighorn mountains in Wyoming. This research is conducted using an archaeological landscape consisting of over 100 previously identified sites ranging from Paleoindian to Protohistoric temporal periods, across
80,000 acres, and tests the least cost pathway and the veracity of this analysis to model human movement. The assessment of how prehistoric peoples exploited and settled the landscape was aided by using a comprehensive analysis of site assemblages, site locations, and GIS models.

Jadot, Elsa [349] see Testard, Juliette

Jaekel, Ulla (FU Berlin - Berlin Graduate School of Ancient Studies [LAA] and Harvard University)

[65] The Intention of Actions—A Cross-Cultural Study on Ancient Backfilling Processes

During the last few decades, the study of ancient entombment processes at prehistoric sites has aroused research interest: besides the architectural features, the surrounding layer structure came into focus. A fundamental distinction is made between natural layers and deliberately deposited material. In contrast to geological erosion or debris layers, the fill consisting of very uniform and presumably carefully laid out material, is assumed to be the result of intentional human action.

In this paper, this phenomenon, also known as e.g. “Temple Entombment”, will be discussed based on ritual sites of the Central Andes as well as case studies from other cultural areas of prehistoric times. While on all those sites conscious entombment processes and the active preservation of architectural structures seem to be a common feature, I will be focusing on the similarities and differences in the “intentional” process of entombment of monumental structures. Specifically, the question of tracing intentionality will be addressed. How can concepts of conscious and deliberate actions be identified in archaeological contexts? Are different levels of intentional actions visible? This paper seeks to offer the formulation of some possible motives and interpretations of this practice.

Jaillet-Wentling, Angela (PENNDOT)

[61] Moderator

[292] Discussant

Jalbert, Catherine (Memorial University of Newfoundland/Moore Archeological Consulting, Inc.)

[149] “The Chilly Climate Is Not Warming as the Old Guys Leave”: Identity-Based Discrimination in Archaeology, an Example from Canada

Research that considers the ways current socio-political issues affect our understanding of the past and our interactions with each other in the present are not new to the field of archaeology. However, a renewed focus on ‘turning our gaze inward’ has revived the dialogue regarding equity-based issues in the archaeological workplace, and importantly, is providing a significant opportunity to expand and build upon this area of inquiry in more intersectional ways. This includes examining how traditional modes of archaeological education and practice, as well as our interactions with fellow practitioners, might be operating at multiple levels to marginalize and exclude a variety of underrepresented, equity-seeking groups. With this in mind, this paper will present results from my Ph.D. research that broadly focuses on areas where participants felt they were impacted by identity-related discriminatory attitudes/practices and the ways in which these interactions affected their experiences in archaeology. Conducted through a mixed-methods research design that collected both survey and interview data, I will present results that illuminate the current status and demographic composition of archaeologists in Canada before further contextualizing these data through individual, narrative responses.

Jambrina-Enríquez, Margarita [417] see Hernández, Laura

Jambrina-Enríquez, Margarita (Archaeological Micromorphology and Biomarkers Lab, ULL, Tenerife, Spain), Antonio V. Herrera-Herrera (Archaeological Micromorphology and Biomarkers Lab), Lucia Leierer (Archaeological Micromorphology and Biomarkers Lab), Gilbert Tostevin (Department of Anthropology, University of Minnesota) and Carolina Mallol (Archaeological Micromorphology and Biomarkers Lab)

[417] Molecular and Compound-Specific Stable Isotope Analysis of FAMEs on Charred Plant Tissues: A Comparative Approach of Experimental and Archaeological Evidence

GC-C-IRMS analysis of FAMEs has been used successfully to distinguish among different animal fat groups. However, plant oils from different tissues (with the exception of seeds) have not been widely investigated even
though organic residues from leaf, root, and wood tissues are preserved at archaeological sites (e.g. sediments from combustion structures). By applying molecular and compound-specific stable isotope analysis to different anatomical parts of modern and fresh plants, to charred plant tissues in controlled laboratory heating sequences, and to sediment from experimental fires, we infer aspects related to the temperature of combustion and biomass burning. This information is compared with charred organic residues from combustion structures from two Middle Palaeolithic sites: El Salt (Spain) and Crvena Stijena (Montenegro), providing valuable information related to combustion substrates and combustion residues.

James, Steven (California State University at Fullerton)

[319] Zooarchaeological Research at Pueblo Grande: Preclassic and Classic Period Hohokam Hunting and Fishing Patterns

In the late 1930s, a Works Progress Administration (WPA) crew under the direction of Albert H. Schroeder excavated Trash Mound No. 1, a Preclassic Colonial period deposit (A.D. 775-950) at the extensive Hohokam site of Pueblo Grande along the Salt River in Phoenix, Arizona. This material remained largely unanalyzed at the Pueblo Grande Museum and results of the analysis are presented here. Comparisons are then made with a large Classic period (A.D. 1150-1400) zooarchaeological assemblage (26,000 specimens) recovered elsewhere at Pueblo Grande and analyzed by the author in another study. Although there are contrasts between the two assemblages that are the result of different recovery methods, other differences appear to be related to habitat degradation and overexploitation of animals in the vicinity of Pueblo Grande. Due to these considerations, the Hohokam inhabitants made changes in their subsistence strategies with regard to animal protein acquisition during the Classic period. The WPA excavations in Trash Mound No. 1 also recovered intrusive domestic chicken bones from the very late prehistoric or early historic period. Based on modern AMS radiocarbon results, this may be one of the earliest chickens reported from the American Southwest.

James, Sydney (Coastal Carolina University), Jonathan Reeves (George Washington University), Matthew Douglass (University of Nebraska, Lincoln) and David Braun (George Washington University)

[390] The Influence of Raw Material Availability on Lithic Assemblage Variability in the Koobi Fora Fm. (Kenya)

A defining feature of human tool use compared to our closest living relatives is the transport of tools. This distinction is most evident in the Early Stone Age where transport is a feature of even the earliest industries. Spatial variability in raw material proportions has often been assumed to reflect transport patterns; however, these measures must be considered with respect to other factors that influence raw material accessibility. Raw material availability is usually characterized by estimating the distance between primary raw material sources and archaeological sites. This measure is accurate for localities limited to primary sources. However, secondary sources (e.g. rivers) change their location and carrying capacity over time. Thus, more nuanced methods for characterizing availability are needed. Here we estimate landscape-scale raw material availability in the Koobi Fora Formation of Kenya. We use a systematic survey to characterize raw material abundance across relatively synchronous land surfaces. We use inverse distance weighting interpolation to estimate the availability of stone at known archaeological localities. These availability estimates were then compared to measures of reduction intensity at different localities. Measures of stone tool utilization often track raw material availability; however, there appear to be significant deviations that need further inquiry.

Jamieson, Alexandra (University of Oxford) and Greger Larson (University of Oxford)

[20] Adventures of the Mountain Hare: An Ancient DNA Study

Mountain hares today can be found from Scandinavia to Eastern Russia with isolated populations in Ireland, Scotland and the Alps. While their modern distribution is well understood, the extent of their past range and interactions with humans remains unknown. The primary aim of my research is to assess the natural and human-aided distribution of mountain hares across their circumpolar region. I am employing an ancient DNA approach to assess the geographic and temporal shifts in mitochondrial haplotypes. The study initially focuses upon the westernmost edge of their range, the Western Isles of Scotland. Mountain hares are thought to be a non-native species to the islands and their place of origin is unknown. They first appeared in archaeological deposits of the Mesolithic period. I will present here initial results showing where these mountain hares may have originated and how they came to be on the fringe of Europe. This not only informs us more about the species itself. It may even give us insights into the Mesolithic people’s trade routes or possibly even the origins of the people themselves. This is only a start to my investigation into the movements of mountain hares and their interactions with past people.
Janes, Stephen and Michael Cloud

[220] Ground Survey Evidence for a Regional East to West Chacoan Road Passing through the Southern San Juan Basin New Mexico and across the Chuska Mountains into Arizona

Ongoing large scale archaeological ground surveys are being conducted primarily in the southern San Juan Basin of New Mexico to determine if regional Chacoan Roads connect various great house outliers there. These surveys identified a series of linear sherd scatters following an east to west trend between the Standing Rock Great House Community and the Peach Springs Great House Community. Following this discovery, a series of north to south survey transects were conducted and confirmed that linear sherd scatters define a Chacoan Road crossing the southern basin and extending into the Chuska Mountains. Additional surveys conducted in Arizona indicate that this road crosses the Chuska Mountains and extends into Arizona at least as far west as the Second Mesa in the Hopi Nation.

Janetski, Joel (Brigham Young University) and Charmaine Thompson (US Forest Service)

[420] Puebloan Patterns in Montezuma Canyon: Insights from the Nancy Patterson Ruin

The Nancy Patterson Ruin is one of several large, multi-component pueblos, positioned at the mouths of side canyons draining into Montezuma Creek. Although occupations at Nancy Patterson span at least Basketmaker III through late Pueblo III, the most visible occupations are late Pueblo I and mid-Pueblo III. Unique features include a 16 m diameter, benchend Pueblo I plaza in the upper ruin, a probable multi-storied Pueblo II great house on the northwest corner of the lower ruin, and an unusual Pueblo III kiva on the southeast corner of the upper ruin. Modest excavations over four seasons focused on comparing household units from the late Pueblo I and late Pueblo III periods and found stark contrasts in architecture, treatment of space, and subsistence. The architectural patterns combined with subsistence data suggest shifts in regional interaction and dietary stress resulting in site abandonment by AD 1275 or so.

Janetski, Joel [420] see Matheny, Ray

Janik, Liliana (University of Cambridge)

[74] New Approaches to Jomon Dogu: Case Studies from Eastern and Western Japan

This paper presents a study of the clays used in the manufacture of ceramic figurines, or dogu, from the Jomon period of Japanese archaeology. Analyses of clays in dogu from sites in Niigata (eastern Honshu) and Okayama (western Honshu) using a handheld XRF machine will be discussed in the context of current approaches to the circulation of commodities in Jomon Japan. The great majority of the over 20,000 known dogu are from eastern Japan, with a much smaller number known from the west. Recent and current work in western Japan, however, including the development of a Western Jomon Database at Ritsumeikan University in Kyoto, is casting new light on our understanding of the Western Japanese Jomon. Comparisons will be made to studies of Palaeolithic figurines from Siberia, where specific materials were selected to represent particular forms of figurine.

Jankauskas, Rimantas [353] see Holder, Samantha

Janssen, Marco [33] see Wren, Colin

Janulis, Klint (University of Oxford), Cory Stade (University of Southampton) and Mansoor Ahmad (Oxford Palaeotechnology Society)

[186] Give Me Shelter: Reverse Engineering a Paleolithic Home

Humans today are ubiquitous shelter makers but despite this, relatively little is known about the construction of the earliest shelters built by palaeolithic humans. While there is possible evidence for earlier shelters, archaeological evidence in Europe and Asia indicate shelter construction had become habitual by the Upper and Epi-Palaeolithic,
coinciding with the extreme climate of the Last Glacial Maximum. Most of these data result in 2-Dimensional footprints of fire hearths, activity locations, post holes, and possible thatching material. This provides a rough shape and indicates what materials were used but leaves the method of construction of these shelters to be largely hypothetical in nature. Looking to understand the interwoven nature of shelter, subsistence and thermoregulation at the end of the Last Glacial Maximum, the authors set out to construct a shelter that would match the archaeology of Upper Palaeolithic sites. Setting as conditions a shelter which would require a minimal time investment, retain heat effectively, repel moisture, and be constructed using stone age tools and materials, the authors used ethnographically derived examples of shelters constructed in colder climates. The process, methodology, and implications of effective shelter building for human evolution are discussed in this presentation.

Janusek, John (Vanderbilt University)

[24] Living Landscapes of Night in Tiwanaku, Bolivia

Most treatments of Andean urbanism and urban life emphasize the acts and rhythms of daily life. Ethnohistoric documentation of life in Cuzco, nevertheless, details a rich corpus of ritual sequences and domestic activities that ideally took place under cover of night. In Tiwanaku today, night is an ontological domain in which dangerous nonhuman beings and powerful, ancient carved monoliths may awaken. Recent research on Pre-Columbian centers in the Lake Titicaca basin has demonstrated the importance of nightly observations of the sky and the central role of celestial movements and rhythms in ordering monumental landscapes. In this paper, I draw on these rhythms but redirect attention back to the urban landscape of Tiwanaku itself. I muster evidence from spatial arrangements, routes of human flow, the placement of carved monoliths, and common objects, such as ceramic burners, in an attempt to specifically address nighttime ritual practices and domestic activities. I suggest, among other things, that night was critical for the animacy of carved monoliths that occupied some of Tiwanaku’s most important monumental spaces.

Janusek, John [290] see Bowen, Corey

Janz, Lisa (Trent University)

[415] Why Choose Small Packages When There Are So Many Big Packages Around?

The trajectory of diet change in Northeast Asia, is distinct from that in the Near East, whose archaeological record has shaped our most enduring models for changes in human diet. Traditional optimality models, as applied to the archaeological record, predict that small game will only significantly contribute to diet when the availability of large game declines. This is typically taken to mean that an increased focus on small prey is related to resource depression – either through overhunting due to increased population density or due to environmental degradation. Neither case seems to hold true for the intensified use of small game and seeds across Northeast Asia, which rather correspond to a continued abundance of large game, relatively low population density, and climatic amelioration. Here, I reconsider the idea of optimality and investigate how changes in the distribution rather than quantity of resources may increase demand for small packages when there are still plenty of big packages around.

Janzen, Anneke (Max Planck Institute for the Science of Human History), Mary Prendergast (Saint Louis University) and Katherine Grillo (University of Florida)

[82] Early Herding Practices in Tanzania Revealed through Strontium Isotope Analysis

East African pastoralists today rely on extensive social networks through which livestock are exchanged to maintain herds. The role of such animal exchange networks among ancient pastoralist communities can be revealed through stable isotope analysis. Pastoral Neolithic sites are broadly distributed across southern Kenya and northern Tanzania. Luxmanda is the largest and southernmost known Pastoral Neolithic site, and its early date signals a rapid expansion of PN herding groups across the region. Here we present the first strontium isotope data from livestock from Tanzania, which clarify how the earliest herders in Tanzania used the landscape, as well as their participation in livestock exchange networks with herders elsewhere. Strontium isotope ratios from sequentially sampled livestock teeth are generally high and extremely variable, reflecting the region’s diverse geology. However, one cattle specimen exhibits highly distinct 87Sr/86Sr ratios compared to other livestock at the site, suggesting this non-local individual arrived through exchange. The individual closely matches those from some Kenyan PN sites which were herded on much younger geologies, and it may be possible that cattle were a medium of exchange used to maintain connections with herders elsewhere. However, we caution that additional research is needed, especially in northern
Tanzania.

Jarboe, Chandler, Emily Schach (Arizona State University), Jane Buikstra (Arizona State University) and Donna Nash (University of North Carolina at Greensboro)

[290] Differential Diagnosis of Tuberculosis in a LIP and Late Horizon Skeletal Sample of Southern Peru

The Moquegua Valley of southern Peru is known for multiple studies regarding the presence, origin, and evolution of tuberculosis in the pre-contact Americas. These studies have primarily focused on tuberculosis in Middle Horizon and Late Intermediate Period contexts and the continued presence and evolution of the disease during the end of the Late Intermediate Period and Late Horizon has yet to be examined. Initial differential diagnoses of vertebral lesions identified during analysis of a skeletal collection excavated as a rescue project during the construction of a new bus station in Moquegua, Peru is presented here. Tombs at this site contain decorated ceramic styles consistent with the later part of the Late Intermediate Period and the Inka defined Late Horizon. A skeletal sample containing 250 individuals was analysed during 2018, with ten individuals exhibiting vertebral lesions possibly consistent with tuberculosis. Here we present differential diagnoses of these individuals, four of whom possess lesions most resembling tuberculosis. Since this sample from the Terminal Terrestre dates largely to the latter half of the LIP and Late Horizon, the presence of TB in this sample shows that this disease continued to be present in the Moquegua valley during these time periods.

Jarrett, Jordan (United State Forest Service) and Erin Hegberg (University of New Mexico)

[189] Analysis and Interpretation of the Bandelier Landfill Site: Determining the Information Potential of a Multicomponent Historic Trash Site

The Bandelier National Monument landfill site represents a historic period artifact scatter containing many diagnostic artifacts. In the 1930s, workmen belonging to the Civilian Conservation Corps (CCC) camped at this site while tuff stone was quarried from mesa top outcrops for use in the construction Frijoles Canyon Historic District. Evidence of this includes spoil piles of tuff refuse as well as charcoal from campfires, but no diagnostic artifacts from this era have been documented at the site. Surface artifacts seem largely to belong to the 1940s-1960s time frame, during which Mrs. Evelyn Frey operated the Frijoles Canyon Lodge, feeding and housing overnight visitors to Bandelier National Monument. Refuse from the lodge includes dishware that she designed and special ordered herself as well as glass receptacles for foods she cooked and served. Although the parcel of land within which the landfill is located belonged to the Atomic Energy Commission between 1942 and 1961, no artifacts which are evidence of the Department of Energy activity at this location have been observed. The present study aims to determine the information potential of this site and to contribute to what is known about the park and its visitors during the historic period.

Jaskowski, Clay [320] see Golitko, Mark

Jatmiko, [247] see Veatch, Elizabeth

Jazwa, Christopher (University of Nevada, Reno), Kyle Jazwa (Duke University) and Stephen Collins-Elliott (University of Tennessee, Knoxville)

[35] Applications of the IFD and IDD to Complex Societies

The Ideal Free and Ideal Despotic Distribution (IFD/IDD) models have become increasingly popular in the archaeological and anthropological literature because of their flexibility to be applied at a variety of geographic scales. With some exceptions, however, most of the applications of the models have been to hunter-gatherer or horticultural populations, with less attention given to more complex urban and agricultural populations. This paper demonstrates the breadth of IFD/IDD by expanding their applications. We provide examples of settlement in Bronze Age (ca. 3100-1050 BCE) Greece over rising complex palatial society and northwest Morocco before and after its annexation by the Roman Empire (ca. 200 BCE – 500 CE). In these regions, settlement patterns are consistent with the predictions of the IFD/IDD. We also discuss changes in settlement consistent with a transition from the IFD to an IDD among these populations and complex hunter-gatherer-fishers in California. This study demonstrates the flexibility of the IFD/IDD models not only at different geographic scales, but for different population sizes and
degrees of social stratification. These applications are promising for future avenues of ecological research and the use of Human Behavioral Ecology models, especially in the case of complex societies like those around the Mediterranean basin.

[240] Chair

Jazwa, Christopher [70] see Sunell, Scott

Jazwa, Kyle [35] see Jazwa, Christopher

Jefferies, Richard [145] see Moore, Christopher

Jeffries, Peter [305] see De Koning, Sarah

Jenkins, Dennis [47] see Lubinski, Patrick

Jenkins, Dennis (Museum of Nat. & Cult. Hist., University of Oregon)

[249] Dating the Western Stemmed Tradition in the Northern Great Basin

Recent University of Oregon investigations at the Paisley and Connelly Caves have resulted in 300+ radiocarbon ages including coprolites with human DNA. Earliest human occupations have been established at the Paisley Caves by stone tool cut marks on bone dated to 12,380 ± 70 14C yr B.P. Western Stemmed Tradition (WST) points are present in deposits dated between 12,760 ± 35 14C yr B.P. and 10,200 ± 35 14C yr B.P. Obsidian hydration dating of WST points supports the radiometric assessment that they are likely 14,000 years old at the site. New radiocarbon dates associated with WST points at the Connelly Caves range from 11,104 ± 45 14C yr B.P. to 9171 ± 40 14C yr B.P. WST points are the only types found in the oldest deposits at both the Paisley and Connelly Caves.

Jenks, Kelly [122] see Ferrales, Esmeralda

Jenks, Kelly (New Mexico State University), Shannon Cowell (New Mexico State University) and Hannah Dutton (New Mexico State University)

[208] Tracking Broken Pots across Paraje San Diego, New Mexico

Paraje San Diego is a historic campsite situated on El Camino Real de Tierra Adentro National Historic Trail in Doña Ana County, New Mexico. Documents from the Spanish colonial, Mexican, and American periods indicate that travelers regularly stopped at this site to collect water and rest before continuing their journey. Archaeological survey, evaluative testing, and surface collection projects conducted at this site in 1991, 1994, and 2017 produced collections of ceramic artifacts discarded by early travelers. This poster combines ceramic and spatial data from all three projects in order to identify and interpret patterns of ceramic use and discard at this site.

Jennings, Justin (Royal Ontario Museum)

[356] Understanding Quilcapampa

As the papers in this session have demonstrated, the site of Quilcapampa La Antigua in a previously isolated region of southern Peru is notable for its long-distance connections, strong Wari influence, and brief occupation during the tenth century AD. In this closing paper on our excavations, I want to summarize some of the project’s key findings and attempt to answer a deceptively simple question: what was “Wari” in this particular context? Outside of Moquegua, Quilcapampa boasts the strongest evidence for being founded by Wari-affiliated settlers. What, though, was the relationship of these settlers to the Wari state? To the greater Nazca region that they likely came from? To
the local population in the Sihuas Valley who likely help build the site? Although definitive answers to these and other questions cannot yet be given, we suggest that the Quilcapampa data point to more dynamic, often fraught, relationships linking settlers, distant homelands, and contacted people—all attempting to navigate life amidst the tumult of a new cultural horizon.

Jennings, Thomas [325] see Smallwood, Ashley

Jensen, Anne (University of Alaska Fairbanks/Bryn Mawr College)

[251] We Can’t Save Them All: Thoughts on Prioritization

Archaeological sites are important sources of data on past human behavior and as valuable resources for paleoenvironmental reconstruction. They can also inform attempts to adapt to environmental change in a sustainable way. Equally importantly, they are part of the tangible cultural heritage of descendant communities, and of humanity writ large. Just as new methods increase our ability to access information from these sites, accelerating environmental change poses a dire threat. The scale and urgency of the threat requires new models for funding, education and recruitment of staff, engagement with the public and long-term curation of rescued samples. One critical issue is how to prioritize salvage of sites, since we cannot save them all, or even come close. A variety of approaches will be highlighted, in hopes of fueling subsequent discussion.

Jerbic, Katarina (Flinders University, Adelaide, SA, Australia)

[240] Connecting Survey and Fieldwork: Archaeology of the Core

Based on a PhD research case study in the Croatian Adriatic, the paper demonstrates a step further into investigating coastal and submerged archaeology. Seabed mapping methods adopted from marine geology, such as side-scan and multi-beam sonar surveys and shallow water sub-bottom profiling are now considered the standard in maritime investigations. Whether on the basis of economics, politics, culture, or other reasonable grounds and unfortunately for continental shelf archaeology, this is often the moment when most fieldwork research stops. In the rare cases when the research is continued further, it involves diving and excavation. These investigations represent a stressful risk for both the archaeologists and the investors, not only because it involves diving and underwater excavations, but also because of the high likelihood of a negative archaeological result, regardless of the promising preliminary surveys. The paper proposes a research-based and tested interdisciplinary method: a combination of geological, environmental and archaeological fieldwork and laboratory techniques, under the colloquial term “Archaeology of the Core.” Seabed coring provides an insight into the submerged environment, and of the cultural layers of a mapped site. Therefore, the risk of “empty” trenches is minimized, and the sediment contents represent a wholesome connection between archaeological survey and fieldwork.

Jeremiah, Kristen (Public Archaeology Laboratory, Inc. [PAL])

[169] Written in Stone: Lithic Analysis at the Acushnet LNG Site

The Acushnet LNG Site is a multicomponent Native American campsite located on the Brayton Point peninsula in southeastern Massachusetts. Brayton Point extends into Mount Hope Bay and is at the confluence of the Lee and Taunton rivers, an area with numerous documented Native American sites. The Public Archaeology Laboratory, Inc. (PAL) identified the Acushnet LNG site and determined it to be a minimum of 71,000 square meters in size. Diagnostic artifacts and the results of radiocarbon dating indicate that the site was occupied from the Early Archaic through Middle Woodland Periods. The recovered artifact assemblage consists of lithic tools and debitage, fauna and flora remains, fire-cracked rock, and raw materials manuports. Recovered chipped stone tools were predominately bifaces with lesser amounts of projectile points, utilized flakes, scrapers, an adz, drill, knife, and preform. In addition, nearly 7,000 pieces of lithic debitage and non-chipped stone tools, including a plummet, abrader, nutting stones, a grinding stone, and groundstone fragments, were recovered during the investigations. The
Acushnet LNG site is a significant Native American campsite during the pre-contact period, and a valuable resource with the potential to provide new information about Native American settlement patterns along the Mount Hope Bay.

Jerrems, William and Richard Rosencrance (University of Nevada, Reno)

[274] *Paleoindian Osseous Barbed Weaponry in the Intermountain West: Distribution, Chronology, and Function*

Some have suggested that osseous projectile weaponry preceded that of stone—that bone, antler and even ivory barbed points and sagaie (osseous rods) might have been the hunting and fishing weapons of choice for the earliest peoples. Early technology using meticulously fashioned barbed osseous materials for weaponry takes us back to Katanda, Zaire 95 kya, is prevalent in the Upper Paleolithic of Europe and the terminal Pleistocene/early Holocene in North America, and was used into the Holocene on several continents. Unfortunately, however, there are only rare occasions that this organic material survives in the archaeological record. In this presentation we examine the distribution of these osseous weapons in the Intermountain region of North America, focusing on the northern and western Great Basin where the majority of osseous barbed points and rods have been recovered. The few radiocarbon dates associated with barbed technology in the region suggest primary use during the Younger Dryas, while distribution suggests use as hafted fishing/hunting projectiles. In sum, we believe that this industry is quite old in the New World and played an important part in hunting and fishing at the end of the Pleistocene and possibly earlier.

Jervis, Ben [351] see Sykes, Naomi

Jeu, Michael (Eastern New Mexico University) and Heather Smith (Eastern New Mexico University)

[117] *A Spatial Analysis of a Knapper's Replication of Debitage Debris from Hunter-Gatherer Camp and Hunting Sites*

As hunter-gatherer groups manufacture and rejuvenate stone tools at hunting and residential sites, they left behind traces of these behaviors in the form of spatial patterns of discarded lithic debris. GIS modelling of the spatial organization of debitage provides a useful tool for comparing lithic reduction episodes from various hunter-gatherer site types. This poster presents an experimental analysis testing models of lithic-discard behaviors that occurred at hunting versus habitation sites. Stone cores were reduced at "sites” recreated to mock prehistoric arrangements of site furniture and settings. Morphology and provenience data was recorded for the lithic debris and spatially modeled using ArcGIS. Results were compared to previous models of artifact spatial distribution and reports documenting lithic spatial data recorded at a variety of sites to test the utility of these experimental models for interpreting site-specific past human lithic reduction behaviors.

Jewett, Roberta [231] see Grone, Michael

Ji, Youngbae (Harvard Yenching Institute)

[361] *The Study of Early Neolithic Tombs in Korea*

Analysis was conducted on 88 tombs on the southern coast of the Korean. Human remains in these tombs have traces of malnutrition and repetitive work. The burials have a small numbers of burial goods but show differences in the number of grave artifacts. I grouped the number of burial artifacts and tomb construction behavior into groups and examined their correlation. Based on this, tombs were grouped in order by giving scores based on the number of burial artifacts, the degree of burial behavior, the variety of burial goods. These groups examined the layout of tombs, age, sex, aspects of infant graves, and position of behave and position of birth. Burial goods were concentrated in tombs of adults in their 20s and 30s. Burial goods in infant graves were more than those in burials of old age individuals. Concerning gender, there was a clear tendency for men to be buried with higher numbers of different tools. I also explore the burial treatment of infants and burial ornaments, which have different characteristics depending on material type, damage status and burial methods. I argue that Neolithic society of the Korean is not simply egalitarian but complex society with an early phase of inequality.
Jiang, Zhilong

Recent Research on the Settlement Sites of the Dian Culture of Yunnan: Excavations at Xueshan and Shangxihe Sites

The Dian culture of Yunnan is known for production and use of bronze artifacts exhibiting remarkable artistic and technical features. However, for most of the 20th century our understanding of Dian culture was based mainly on materials from burials around Lake Dian. Meanwhile, little was known about the settlement areas relevant to these mortuary materials. The lack of Bronze Age settlement data in the Dian basin and in other areas in Yunnan have impeded progress of archeological research on this culture until recent decades. At the end of the 20th century, the Institute of Cultural Relics and Archaeology of Yunnan province began to investigate issues on the habitation sites of the culture; research projects have been established on topics regarding the origin of the culture. Following the discovery of settlement sites at Citongguan (Yuxi district) in 1990 and Tianzimiao (Xishan district, Kunming city) in 2005, recent excavation of the Xueshan site (Chengjiang county) and Shangxihe site (Jinning county) have now added a new chapter to Dian culture settlement studies. This work will present the results of recent research on these two new sites.

Jijon, Juan and Marcos Labrada

Arqueología y Comunidad en la provincia de Manabi, dos casos de estudio

Tabuga, pequeña comunidad agrícola del norte de Manabi corresponde a un importante sitio arqueológico de la cultura Jama-Coaque (500 ac - 1650 dc). Ante años de expolio por huaqueros, del bloqueo del acceso al mar por el narcotráfico y de la falta de interés por las autoridades locales, la comunidad de Tabuga ha decidido enfrentar estos obstáculos con la recuperación de su memoria ancestral. La activación turística basada en el atractivo arqueológico del sitio se muestra como una salida viable para su desarrollo sostenible. Liguiqui, comunidad ancestral de pescadores y campesinos, situada en el litoral central de la provincia de Manabi, próximo a la ciudad portuaria de Manta, enfrenta actualmente un abandono demográfico alarmante. El poblado actual se sitúa sobre un antiguo y complejo sitio arqueológico relativo principalmente a la cultura Manteña (700-1532 dc.) La comunidad de Liguiqui, ante los desafíos que presentan la modernización y el éxodo rural, se ha movilizado para recuperar su memoria ancestral y ser partícipe de un turismo arqueología y comunitario como vía durable para el desarrollo.

Jin, Yingxi [361] see Lyu, Peng

Jing, Yaqin [389] see Chen, Liang

Johal, Mannat (University of Chicago)

Timely Attributes: Rethinking Medieval Ceramics from South India

This paper offers a preliminary attribute analysis of archaeological ceramics excavated at Maski (northern Karnataka) to enable an understanding of the routine and embodied practices that were productive of temporal scale in medieval (ca. AD 500-1600) south India. Ceramics have often fallen through the cracks of a disciplinary division of labour between archaeologists and historians of the long medieval period in the region. Ubiquitous elements of the archaeological record, ceramics labelled ‘medieval’ are known for their plainness and mark a perceived continuity through time. These sherds have long functioned as indexical of a poorly understood chronological period, a heuristic device that obscures the temporalities that potentially coalesce in acts of making and using ceramics. At an empirical level, the findings presented here build from an analysis of the first excavated assemblage of medieval ceramics in south India. In calling attention to relations between ceramics and time beyond the diagnostic act of identification, this paper engages with a growing attention to questions of memory and historical consciousness in scholarship on precolonial India. It seeks to demonstrate how a critical analysis of archaeological materials productively problematizes narratives about periodization, temporality and historicity.
Johansson, Lindsay (University of Colorado Boulder)

[311]  *Horses and Hares: What Analysis of Museum Collections Can Tell Us About Life in the Protohistoric American Southwest*

Like many museum collections, the fauna recovered from LA38 was not systematically collected, yet it can still provide interesting and important information regarding life, diet, and practices of the individuals who occupied the area in the past. This paper focuses on both the expected and unexpected results of faunal analysis of the material recovered during previous excavations at LA38.

Johnsen, Racheal [32] see Smith, Eugene

Johnson, Adam (Southern Methodist University), Mark McCoy (Southern Methodist University), Jesse Casana (Dartmouth), Austin Hill (Dartmouth) and Thegn Ladefoged (University of Auckland)

[408]  *Expanding Our Remote Sensing Toolkit: The First Application of UAV Aerial Thermography in the Hawaiian Islands*

Geospatial technology has allowed for significant advances in archaeological practice in Hawaii and Oceania as the equipment, software, and datasets have become more affordable and widely available. Remotely sensed data, notably aerial LiDAR and terrestrial laser scanning, are used in research and applied archaeology for site prospection and mapping throughout the region. Recent research has focused on developing methods for the automated identification and extraction of archaeological objects from LiDAR data. Remote sensing techniques not yet widely used in Oceania include visible light photogrammetry and aerial thermography from unmanned aerial vehicle (UAV) platforms. The potential of these is discussed using the results of a visible light photogrammetry and aerial thermography survey of portions of Lapakahai State Historical Park on the island of Hawaii. In particular, we explore machine learned identification and extraction of features from these datasets.

Johnson, Amber (Truman State University), Tanigha McNellis (Truman State University) and Anthony Scimeca (Truman State University)

[26]  *Differentiating Ecological Contexts of Plant Cultivation and Animal Herding: Implications for Culture Process*

Over the last few decades archaeologists around the globe have documented a much more variable pattern of prehistoric foraging and food production than was previously imagined. We have also made great progress understanding the macroecology related to variation in hunting-gathering subsistence and social organization. Data recorded from archaeological literature on locations with evidence for the earliest emergence of plant cultivation, plant or animal domestication, or animal herding are used to identify ecological parameters of settings of earliest food production. These data are then used to test logical propositions deduced from patterns in data on ethnographically recorded hunter-gatherers. This allows us to make some broad generalizations about conditions under which foragers become food producers, anticipate locations which are more likely to have food production focused on plants versus animals, and raise questions for future research.

Johnson, Beverly [123] see Chalfin-Smith, Eliot

Johnson, Eileen [147] see Litwinionek, Luc

Johnson, Eileen (Museum of Texas Tech University)

[368]  *Prey and Predators on the Late Pleistocene Llano Estacado*

Humans are among the major predators on the Llano Estacado (Southern High Plains, USA) during the late Pleistocene in competition with a diverse carnivore guild that included the now-extinct giant short-faced bear, saber-tooth cat, American lion, and dire wolf. Direct evidence on bone in the form of cut marks and bone fracture patterns are used in identifying human prey animals and the procurement strategies. Among the now-extinct large game
animals utilized by people are the typical four – Columbian mammoth, western camel, horses, and ancient bison and the atypical short-faced bear. Bone data indicate fresh carcass processing (probably hunting) and stiffened carcass processing (found carcass; scavenging). The large carnivores are focused on specific taxa within the large herbivore guild that enabled them to minimize competition among themselves. The typical four animals for humans also are prey for the large carnivores, bringing humans into direct competition that most likely affected the procurement strategy employed at any one time, but also may have encouraged a diverse rather than a focused diet breath. Along with technological advantages (stone weapons, fire), food security and personal/group safety had to be contributing factors in addressing competition with the large carnivores and minimizing danger.

Johnson, Eric (Harvard University)

[204] Consumer Agency beyond Identity: Indigenous Demand and Euro-American Wampum Production between New Jersey and the Plains

The popular “object-biography” approach to commodities generally focuses on hegemonic material culture in the hands of unintended consumers, such as the analysis of “European” goods found in “Native” contexts. What this fails to capture, however, is a kind of consumer agency that extends beyond the politics of identity. In other words, what are the structural effects of colonial consumption on trajectories of capitalist production? This study compares assemblages from two Euro-American shell bead production sites in northern New Jersey: Stoltz Farm (1750-1830), a small-scale, Dutch household, and the Campbell Wampum Factory (1850-1900), famous for its mass production facilitated by “wampum drilling machines.” Shell bead styles produced at these sites—including wampum, hair pipes, and gorgets—were traded with indigenous consumers from the Great Lakes to the northern and southern Plains. Both sites were excavated in the early 20th century, but have not yet been analyzed archaeologically. This project reconstructs sequences of production, estimates efficiencies, tracks the number and quality of bead styles, and measures degrees of standardization between sites. Preliminary conclusions suggest that the demands of distant indigenous actors structured the local trajectory of capitalism in northern New Jersey in ways that complicate the traditional hallmarks of an “industrial heartland.”

Johnson, Erlend (Tulane)

[256] Ixtepeque Obsidian and the Polity: a Network and Boundary Approach in Southeastern Mesoamerica

Edward Schortman and Patricia Urban (2012) borrow theoretical approaches from Bruno Latour (1996), Giddens (1984), and Bourdieu (1977) to highlight networks of shared inter-elite interaction in southeastern Mesoamerica that interpenetrate ethnic and political boundaries. The following paper builds upon Schortman and Urban’s work by considering the role of boundaries in addition to networks (Campbell et al. 2009) for reconstructing interaction networks in Southeastern Mesoamerica. Specifically, the paper examines the results of pXRF sourcing studies of obsidian in the Cucuyagua and Sensenti valleys of southeastern Honduras consider what role, if any, the polity of Copan played in distributing Ixtepeque obsidian. Previous obsidian sourcing studies have claimed that the Copan polity directly controlled Ixtepeque distribution and limited its spread to regions under its suzerainty (Aoyama 1999). A critical analysis of past work combined with sourcing studies from the Cucuyagua and Sensenti valleys cast doubt on the idea that the Copan polity directly controlled the Ixtepeque source and failed to find significant drop-offs in Ixtepeque obsidian when crossing the Copan polity’s boundaries. Rather, Ixtepeque obsidian may have been transported along networks of individuals that existed parallel to and cross-cut political identities and boundaries.

Johnson, James (University of Wyoming)

[196] Assessing Connections between the Spoked Wheel and Bronze Age Elite Social Identities

The wheel may be the greatest, and most enduring, technological innovation in human history. Certainly, the wheel transformed the potential and efficacy of transportation technologies, trade and exchange systems, not to mention human mobility. The innovation of the wheel produced previously unknown socio-economic possibilities, including traveling more and farther, increased speed and cargo load weight, as well as additional opportunities for culture contact and cultural transmission. What is dramatically under-studied are the long-term representational, or symbolic, connections between innovations in wheeled technologies and those in social structure and organization. This paper assesses the improved technological performance with the introduction of the spoked wheel and its association with changes to elite social identities and their place in regional cosmological orders. I seek to improve current qualitative and quantitative knowledge of how, when, and where spoked-wheel technology and its representations were integrated into various regional complex elite social systems. To do this, I assess changes to the materiality of the chariot and spoked wheel as these technologies moved from the southern Urals regions of the
Eurasian steppe, c. 2100-1100 BC, to other regions such as the Mediterranean and the Near East.

[196] Chair

Johnson, John (Santa Barbara Museum of Natural History)

[358] "Shadow of the Whale:” West Coast Rituals Associated with Luring Whales

Native peoples along the Pacific Coast of North America exploited stranded whales that washed ashore, providing abundant meat and oil for consumption. Many rock art sites along the coast between Alaska and Acapulco contain images of whales and other cetaceans, and portable effigies also depict these marine mammals. According to ethnographic information from the Chumash and Northwest Coast tribes, the whale effigies were used by shamans in rituals designed to summon the whales to beach themselves in one’s territory. At least some whale depictions in rock art may have been created in similar rituals.

Johnson, Keith

[222] Sandals and the Basketmaker Occupation at Antelope Cave, Northwestern Arizona

Antelope Cave is a large limestone cavern sunk beneath the undulation hills of the Uinkaret Plateau in Northwestern Arizona. Native Americans lived in the cave intermittently for 4000 years during the Archaic and Puebloan periods. This paper focuses on the Basketmaker materials, particularly the sandals, recovered by UCLA archaeologists at Antelope Cave in the 1950s. The sandals will be described followed by a discussion of several related issues. These include radiocarbon dating, age demographics, storage facilities (or lack thereof), and the BMII-BMIII transition.

[222] Chair

Johnson, Kyra (University of Minnesota-Twin Cities), Emily Sponsel (University of Minnesota-Twin Cities) and Gilliane Monnier (University of Minnesota-Twin Cities)

[115] A Comparison of the Surface Variation of Burned and Weathered Bone

Burned and weathered bones play an important role in understanding the taphonomy and possible behavior of an archaeological site. The processes can sometimes be difficult to distinguish from one another due to the similarities in the overall degradation of the bone. This study attempts to further develop methods of quantifying surface texture variation in burned and weathered bones to understand how the processes compare to each other by using the average roughness parameter Ra. To do so, seven cow ribs were burned at 100°C increments from 100°C to 700°C for three hours and compared to 10 weathered bones selected from the University of Minnesota collections. Images of the bone surfaces were taken at 80x magnification using the Leica stereomicroscope at three points along the surface and 2.5mm long profiles were extracted from the images using the Mountains software. The resulting data were analyzed using univariate statistics such as ANOVA in order to assess differences in surface roughness across the specimens. These analyses reveal patterns of outer cortical surface degradation and overall depth averages. If expanded upon, this pilot study has the potential to be a useful supplementary tool in the identification of which process an archaeological skeletal element has undergone.

Johnson, Matthew

[180] Temporal Continuity in the Petrified Forest Expansion Lands

Petrified Forest National Park contains one of the most diverse assemblages of prehistoric pottery on the Southern Colorado Plateau. For decades archaeologists have relied on characteristics of ceramics in order to assist in dating many sites throughout the southwest where the availability of absolute dates for prehistoric sites is rare. Using data from the 2013-2015 Expansion Lands Survey this paper provides an overview of the kinds of wares and types of ceramics present at sites identified within the expansion lands. Using the temporal designations for each site, the ceramic assemblage from several sites is then compared in order to investigate the validity of ceramic cross-dating within Petrified Forest.
Johnson, Matthew (Northwestern University)

[310] Bodiam Castle: Lived Experience and Political Ecology

This paper discussed the results of buildings and landscape survey at Bodiam Castle, SE England, 2010-2015. Bodiam is a much discussed site, a classic case study in the ‘defense versus status’ debate in castle studies. Our project moved beyond this false and misleading binary framing of a tired ‘controversy’ to engage with more meaningful anthropological issues. It focused on understanding the lived experience and political ecology of Bodiam. We sought to place Bodiam in its landscape context, and understand its importance as a place over the very long term, from prehistory to the present. We worked at a series of scales, for example: building survey and digital reconstruction of the appearance, details and furnishings of the interior; tracing the landscape of work and daily routines that surrounded the castle through topographical and geophysical survey; to identifying flows of goods, animals and humans around the regional and maritime context of SE England and beyond. The theoretical framing of the project thus linked the immediacy of lived experience on the one hand to the long-term political ecology of the site in its landscape context on the other.

Johnson, Melyssa (Petrified Forest National Park)

[180] Dots on the Landscape: Analysis of Site Distribution at Petrified Forest National Park

Situated in a variety of environmental settings, over 1300 archaeological sites dot the Petrified Forest National Park Landscape. Though the position of many of the sites within the park appears to be almost random, human behavior dictates that there must be an advantageous reason for the placement of a particular site in one location or another. Using tools in ArcGIS, this paper analyzes the distribution of sites throughout Petrified Forest in order to determine if any patterns emerge. In particular, it will investigate how sites relate to one another, and how they relate to the landscape.

Johnson, Nadia (Penn State)

[373] Erosion and Agricultural Resilience in the Formative Teotihuacan Valley

During the Formative Period, the Teotihuacan Valley’s population was dispersed in small farming settlements in the piedmont slopes surrounding the valley bottom. The end of this period witnessed a dramatic population shift, with the Valley’s inhabitants clustering near perennial streams on the valley floor, along with thousands of new migrants. Erosion is suspected to have been a major pressure leading to the piedmont’s Classic Period abandonment, but little is known about the agricultural strategies employed by Formative farmers or their erosive potential. This study uses the EPIC model, a modern agronomic model developed by Texas A&M’s Agrilife Institute to simulate a variety of likely Formative Period cultivation strategies and model their ecological effects in terms of erosion and soil depletion. The intent is to determine the true erosive potential of Formative agriculture and to better understand the ecological constraints placed on early Central Mexican farmers.

Johnson, Phyllis (Vanderbilt University)

[392] Potential Applications for Agent-Based Models in Obsidian Studies

Archaeologists have been using agent-based modelling (ABM) to re-create prehistoric social, economic, and political processes, along with prehistoric environments since the first publication of the model commonly known as “Artificial Anasazi.” Very few archaeologists have attempted to model prehistoric lithic technology, however, and the handful of existing models have examined only raw material procurement and the formation of lithic assemblages. While not every aspect of lithic technology may be appropriate to model, the present paper describes the potential for ABM to further our understanding of many aspects of obsidian technology and the post-depositional movement of stone tools and debitage.

[392] Chair
Johnson, Precious (Bates College) and April Hill (Bates College)

[C123] Cultural Identity, Subsistence, and the Potential for Epigenetic Research in Togiak, Alaska

The contemporary village of Togiak, and the old village site, Temyiq Tuyuryaq (Old Togiak), together represent a multigenerational Yup'ik village in northern Bristol Bay, Alaska (K. Barnett 2018). Cultural identity has been, and continues to be, heavily influenced by subsistence. Throughout the past 1300 years the region has experienced ecological variation and the encroachment of colonial marketplace, along with other colonial impacts, that have impacted subsistence and dietary practice. The emerging field of epigenetics is providing new avenues for exploring the effects of generational effects of colonialism, environmental factors, and their resulting modification to DNA. Temyiq Tuyuryaq provides a unique opportunity to explore these question in an archaeological context. The outcomes of this research seeks to identify relevant intersects between Indigenous archaeology and epigenetics that can make considerable contributions to current village concerns and long term community goals that address issues of health and well-being, education, and subsistence practices.

Johnson, Rachel (Tulane University) and Jason Nesbitt (Tulane University)

[C288] An Analysis of Ceramic Compositions from Canchas Uckro, Ancash, Peru: Implications for Trade in the Formative Andes

Canchas Uckro (ca. 1100-850 BC) is a large monumental platform situated above the Puccha River approximately 25 km north of Chavin de Huántar. Recent excavations have revealed monumental features that suggest the Canchas Uckro played an important role within the political landscape. Ceramic analysis has likewise linked the site to broader economic spheres of interaction and the Amazonian ceramic styles known from other eastern highland sites, such as Kotosh. This study further assesses the potential economic relationships between Canchas Uckro and its eastern neighbors through the study of ceramic pastes and a consideration of those sherds with more Amazonian traits. 327 sherds were selected from the total assemblage for the descriptive paste analysis, which details the mineral non-plastic inclusions, clay characteristics, and superficial decorative elements. 83 sherds were further analyzed and photographed using a handheld Dino-Lite microscope. The majority of the sherds notably share a similar composition, with varying pastes comprised of principally of quartz, muscovite, feldspars and hornblende, while other ceramics feature non-local schist inclusions, indicative of distant economic ties. We tentatively argue that Canchas Uckro’s ceramic pastes further support initial hypotheses of eastern trade relationships during the Formative Period.

Johnson, Robyn

[C46] Landscape and Elements: A Comparison of Four Rock Art Sites in the Bennett Hills, Idaho

A number of sizable rock art sites occur along the ephemeral drainages of the Bennett Hills located in the Snake River Plain of south central Idaho. The Bennett Hills are a range of tangled ridges, canyons and drainages that trend east-west for over 60 miles. This poster session will highlight four of those rock art sites (Thorn Creek, Grasshopper Cave, Hidden Sheep Watering Hole, and the Bathtub Site) recorded as part of a Bureau of Land Management (BLM) Challenge Cost Share Program (CCS). I will focus on the similarities of both the physical aspects of the landscape and specific rock art imagery. Illustrative photographs will highlight these landscapes (i.e., ephemeral springs with watering holes lined by basalt outcroppings and large boulders) and some of the similar rock art elements that occur at all of the designated sites. In addition, an Optically Stimulated Luminescence (OSL) date was procured from a hunting blind feature at the Hidden Sheep Watering Hole site that provided a general age for the site’s occupancy.

Johnston, Susan [196] see Campana, Douglas

Johnston, Susan (George Washington University)

[C266] Dun Ailinne and Its Meaning in the Context of Irish Identities

The notion that, historically, Ireland was a homogenous society situated on the edge of Europe and passively receiving cultural influences has long been implicit in the larger context of European archaeology. And yet Irish society and culture were neither passive nor homogeneous at any point in the island’s history. This is evident through both material culture, which shows active choice in terms of incorporating foreign elements, and through documentary sources, which indicate some of the internal variation among contemporary communities in Ireland. In
this paper, these issues are explored in the context of recent research at the archaeological site of Dún Ailinne, a ceremonial site in Co. Kildare. In the Iron Age, Dún Ailinne was an important place in terms of both local identity and island-wide expressions of power, and this continued into the subsequent early medieval period but in significantly altered ways. Dún Ailinne thus provides an interesting case study to explore the interaction of similarity and difference in the context of island society and culture in the past.

Jojola, Deborah (Tijeras Pueblo Archaeological Site)


The Tijeras Pueblo Archaeological Site Mural/Map Project is intended to place Tijeras Pueblo in context with the many Tiwa-speaking Pueblos of the Rio Grande Valley in the fourteenth and early fifteenth centuries. It offers a broad perspective on the environment and interrelationships of the Tiwa world of the time. Collaboration with the Pueblo of Isleta Cultural Committee has been invaluable with the sharing of stories and archaeological records.

Jolivette, Stephanie [312] see Taylor, Amanda

Jones, Catherine (University of Wisconsin-Milwaukee)

[60] Moderator

Jones, Christine (Texas A&M University Central Texas) and Elizabeth Church (Boston University School of Medicine)

[112] Archaeology in 3D: Exploring Differences in Photogrammetric Models Created with Popular Structure-from-Motion (SfM) Archaeological Software from both Drone and Terrestrial Photography

In this study, Structure-from-Motion(SfM) photogrammetric 3D models were created of mid-19th century historic house ruins. Tyler house (Mound, TX) and Eyrie house (Holyoke, MA) have similar stone construction but dramatically different environmental contexts. The aim of this study was to compare point-cloud differences in, and the benefits and drawbacks of, popular SfM archaeological software. Specifically, comparisons were done through both metric and interpretive output, also addressing the difference in rendered models by acquisition method: drone and terrestrial photography. AgiSoft’s PhotoScan (v. 1.4) and Autodesk ReCap Photo (v. 19) were employed and CloudCompare (v. 2.9.1) was used to compare cloud-cloud distances. The average distance between points and standard deviation were calculated between model pairs, and a Gaussian distribution was fit to each comparison to examine the distribution of points. For the paired models, clouds were accurate to within 0.03 cm, but had varying degrees of standard deviation. This is likely due to differences in methodology, such as degree of overlap in photos between acquisition methods, and slight differences in the rendering parameters of each program. These results may help the archaeological community in selecting software, increasing awareness of point-cloud and user-induced variations, and acquisition method when recording archaeological sites.

Jones, Emily [260] see LaZar, Miranda

Jones, Emily Lena [25] see Kirk, Scott

Jones, Emily Lena (University of New Mexico), Jonathan Dombrosky (University of New Mexico) and Laura Steele (University of New Mexico)


The Spanish colonization of New Mexico unquestionably transformed indigenous populations, New Mexican environments, and the Spanish settlers themselves. The details of how and when these changes unfolded, however, have remained elusive, particularly in the Early Spanish Colonial Period (AD 1598 – 1680). Many of the challenges to identifying change in this time and place are rooted in problems related to units of analysis. In this paper, we use
the 17th century faunal assemblage from the Isleta Pueblo Mission Complex (Bernalillo County, New Mexico) to present a snapshot of foodways in a mission environment in the Early Spanish Colonial period. In doing so, we both illustrate and propose solutions to the challenges of identifying change associated with Spanish colonization.

[415] Discussant

Jones, Emma (Center for American Archeology), Zoe Doubles (Center for American Archeology), Esmeralda Ferrales (New Mexico State University), Kenzie May (Illinois State University) and Jason King (Center for American Archeology)

[176] Monumentality and Time at the Golden Eagle Site (11C120)

The Golden Eagle site (11C120), Calhoun County, IL, is located on the edge of the Deer Plain Terrace, 8 km upstream of the confluence of the Mississippi and Illinois Rivers. First documented by William McAdams in the late nineteenth century, Golden Eagle is the only Illinois River Valley mound site to include a ditch-and-embankment enclosure. The site is traditionally thought to date to the valley’s Middle Woodland (Hopewell) period based on its architectural features, particularly the enclosure and mounds; however, artifacts recovered from the site can be dated from the Archaic to Mississippian periods. Since 2013, archaeologists at the Center for American Archeology have conducted fieldwork at the Golden Eagle site in order to better understand construction sequences and to place the site within its proper temporal context. In 2018, students in CAA field schools excavated 16 1x2 m units to test for the presence of embankment fill north of Mound 1. Evidence from these units indicate that this portion of the enclosure was constructed during the Late Woodland period. In this paper, we present these results and those from previous seasons and discuss their implications for construction and use of Golden Eagle.

Jones, Eric (Wake Forest University) and Martin Welker (Penn State University)

[153] Spatiotemporal Analysis of Regional and Sub-regional Dog Size Data in Pre-Columbian North America

Recent genetic research (Lethlohair et al. 2018) showed that dogs were introduced into North America over as many as four migration events. The first two were by Native Americans and the third and fourth by Europeans. In light of these findings, our research seeks to describe and explain the regional and sub-regional patterning in the sizes of domesticated dogs in Pre-Columbian North America. To do this, we use a dataset of dog skeletal data from archaeological sites across the continent. Initial coarse-grained spatial analysis has shown significant variation in dog body size between regions where dogs were used as a source of labor (e.g., the Intermountain West and Plains) and those where they were not (the Great Basin and Southeast). Our work builds upon this research, and examines variation in dog size on multiple geographic scales and through time to describe trends in animal management. We offer explanations for these patterns using a combination of the recent genetic data, archaeological data, and ethnohistoric information.


Jones, George (Hamilton College)

[257] Discussant

Jones, Gwendolyn


Massachusetts has long been at the center of historic archaeology in the United States, but there is a clear focus on the land and lives of upper class families. Through my research at MacLeish Field Station, an over 200-acre plot of land in Whately, Massachusetts owned by Smith College, I seek to provide a look at the daily lives history has ignored. During the summer and fall of 2018, I am conducting an archaeological assessment of a modest homestead, dating to the late 18th – early 19th century, located within MacLeish. This homestead has been overgrown by new forests since abandonment in the early 20th century. By using archival material from the Whately Historical Society and the Hampshire County Archives as well as digital methods (such as LiDAR, GIS, photogrammetry, and potentially GPR), my research will shed light on this nearly forgotten homestead. This poster presents the results of this preliminary archaeological investigation - exploring archival materials, a timeline of land
ownership, and mapping of the site both manually and digitally.

Jones, Jeffrey [125] see Walker, Emiliano

Jones, John G. [254] see Loven, Jeremy

Jones, Megan (University of Wyoming)

[47] Climate and Migration: Using Radiocarbon Date Frequencies to Identify Population Movement in the Bighorn Basin of Wyoming

By analyzing radiocarbon date frequencies, it is possible to look at the prehistoric archaeological record on a wider plain, assessing how people dealt with large-scale changes in climate. While radiocarbon date frequencies have often been used to pinpoint time periods of population growth and decline, relatively little is known about how or why these changes occurred. Climate can affect population size, the collapse of civilizations, and/or site abandonment. Five significant population increases and subsequent declines spanning the Holocene have been identified within the Bighorn Basin of Wyoming through previous work by Kelly and associates in 2013. These periods of population change closely follow drought cycles; with the largest declines in population occurring during times of extreme aridity and increased temperatures. This research examines whether declines in population indicate migration events. This is achieved by looking at the frequency of radiocarbon dates through time in adjacent regions using non-parametric statistical analysis. These results are then compared to paleoclimate models for the region in order to determine at what point climatic extremes cause people to leave their familiar landscape.

Jones, Mica (Washington University in St. Louis) and Steven Brandt (University of Florida)

[82] Delayed-Return Hunter-Gatherers in the Horn of Africa? Faunal and Radiometric Data from the Guli Waabayo Rock Shelter in Southern Somalia

Environmental changes during the African Humid Period (~11,000-5,000 BP) are associated with the emergence of new social and economic strategies among some hunter-gatherers in northern and eastern Africa. In response to Early Holocene climatic amelioration, foragers in southwestern Libya and the Lake Victoria Basin decreased their mobility and adopted delayed-return subsistence practices focused on certain wild, local resources. The range and extent of this move toward sedentism and resource localization among African hunter-gatherers, however, is unclear. Preliminary faunal evidence from Guli Waabayo, a Terminal Pleistocene/Early Holocene rock shelter site in southern Somalia, suggests foragers increasingly focused on net hunting and trapping small, territorial mammals such as dik-dik and hyrax throughout the site’s occupation. This paper presents detailed faunal data, artifact densities and new radiocarbon dates to investigate whether a trend toward small game hunting corresponds with decreased mobility and elevated rainfall levels observed regionally in the Early Holocene. Findings from this study will contribute to broader discussions about the range and prevalence of increasingly delayed-return hunter-gatherer strategies in northern and eastern Africa and their relationship to environmental transformations during the African Humid Period.

Jones, Noel (California State University, Chico)

[323] Land Use in the High Desert of Northwestern Nevada: Analyzing Settlement Patterns of the Bare Allotment

Mobility has long been seen as a key strategy for foragers in marginal environments, where movement around the landscape sought to take advantage of natural resources that often have narrow windows of availability. While mobility has often focused solely on obsidian conveyance in the Great Basin, ethnographic accounts suggest that food resources were more scarce and more influential to migration routes and timing. This study explores the land use strategies employed by prehistoric populations within the Bare Allotment, a BLM managed land located between Surprise Valley and Black Rock Canyon in northwestern Nevada. Our dataset includes a combination of over 100 records of existing and newly documented sites with chronological diagnostic markers spanning from the Paleoarchaic to the Late Prehistoric Periods. We explore the relationship between site locations and natural resources to develop a fine-grained analysis of land use and how it changed over time. The results of this study have the potential to contribute to our understanding of land use mobility patterns within this area, but also to the region as a whole.
Jones, Terry [142] see Schwitalla, Al

Jones, Travis (University of Georgia, Center for Applied Isotope Studies)

[147] Huff Village Revisited: A New Radiocarbon Chronology for a Pivotal Time

The large, heavily-fortified Huff village site in North Dakota is a quintessential Late Prehistoric plains village within the Middle Missouri region of the Northern Plains. Since the 1940s, attempts to establish Huff's occupational history and absolute placement in time achieved only coarse-grained or inconclusive results, suggesting village occupations between AD 1300-1500. A new analysis including Bayesian modeling of 20 previous and 17 new radiocarbon assays established a high-resolution site chronology that constrains the occupation to only one or two generations during the mid-1400s. Based primarily on architectural and ceramic data, previous investigators suggest Huff marks the beginning of large-scale sociopolitical transitions in the region. These changes are characterized by regional population aggregations into heavily-fortified villages and intervillage competition underwritten by long-distance exchange and warfare. Some investigators also posit simultaneous shifts in social configurations eventually developed into the historic Mandan and Hidatsa clan structures observed by Catlin, Lowie, and Bowers in the 19th and 20th centuries. However, without an absolute site-level chronology, the exact tempo and timing of these society-wide transitions remained tentative. The new Huff village chronology suggests these processes began abruptly in the mid-1400s and evolved quickly.

Jordan, Jillian M. (University of New Mexico), Jaime Awe (Northern Arizona University) and Julie Hoggarth (Baylor University)

[152] Practice and Place: Ceramic Technology and Social Boundaries in the Late to Terminal Classic Belize River Valley

Ceramic provenance studies often focus on resource acquisition to address the question “what is local?”, overlooking the role that practice plays in vessel manufacture. Potters must learn to create viable ceramic vessels, engaging with learning networks that extend beyond conventionally cited political, social, and economic boundaries. This paper explores shared practice among potters using macroscopic analyses, thin section petrography, and Scanning Electron Microscopy (SEM) on unslipped jars recovered from house mounds at Baking Pot. The data indicate that potters living in the Belize River Valley (c. AD 700-900) were not part of individual communities that produced ceramic vessels that are distinguishable from another based on a set of discrete technological and morphological characteristics. Rather, shared practice existed at the level of the region and potters in different locations engaged in regular interaction and shared information on resource acquisition, raw materials processing, and vessel form. A narrowly defined approach to provenance does not adequately capture the importance of both place and practice in understanding locally pottery. Extending the concept of local to include practice acknowledges the importance of interaction in pottery production thereby more accurately representing what is means to be local to a specific place.

Jordan, Keith (California State University, Fresno)

[304] Pumas and Vultures and Wolves, Oh My! The Appropriation and Alteration of Teotihuacan Processing Predators at Tula

This paper examines the predatory animals on the relief friezes of Pyramid B at Tula, clearly based on Teotihuacan models originally expressed in different media and contexts--mural painting in interior spaces--and the possible reasons for both Tula’s borrowing of this imagery and its redeployment in sculpture in the public space of a monument dedicated to the legitimation of rulership. Recent evidence from Teotihuacan in the form of fragmentary reliefs of jaguars eating hearts on the adosada added to the Pyramid of the Sun around 300-400 CE, suggests that part of this shift may have already started at Teotihuacan, but the context of the animal iconography remains quite different from its use at Tula. I interpret the transfer of imagery formerly used mostly in domestic spaces at Teotihuacan to more public buildings at Tula as reflecting a strategy of equating the monumental spaces of Tula Grande with domestic spaces linked to ancestry. The Pyramid B carnivores probably represent lineages of claimed Teotihuacan descent as well as warrior sodalities of Teotihuacan origin, ruling in coalition with the figures depicted on the Pyramid B pillar reliefs.
Jordan, Kurt (Cornell University)

[19] Small Sites as Evidence for Seneca and Cayuga Settlement Expansion, circa 1640-1690

Sites in Haudenosaunee (Iroquois) territory that yield small numbers of artifacts diagnostic of Postcolumbian indigenous occupations typically are treated as ephemeral occurrences: travel stop-overs, resource-procurement stations, and the like. Concentration on obvious diagnostic artifacts such as glass beads or Christian-themed items neglects other less-flashy, temporally ambiguous materials (such as lithic debitage, faunal remains, or iron tools) that could demonstrate more substantial Postcolumbian occupation. Moreover, many of these small sites cluster in time to the mid-to-late 1600s. This paper uses examples from Seneca (Onôndowa'ga:) and Cayuga (Gayogohó:no’) territory to argue that seventeenth-century Haudenosaunee nations expanded occupation with small-scale settlements and agricultural endeavors in a way that archaeologists have not previously recognized. This expansion likely was related to a peak period in Haudenosaunee political-economic power and prosperity. Small-scale settlements appear largely to have been abandoned when a series of French invasions swept through Haudenosaunee territory in 1684-1696. Subsequent Haudenosaunee territorial expansion in the eighteenth century had a very different spatial footprint.

[73] Discussant

Jordan, Kurt [145] see Bridges, Dusti

Jordan, Regulo [253] see Fehren-Schmitz, Lars

Jorgensen, Katherine [116] see Bishop, Caitlin

Jorgeson, Ian (Southern Methodist University), Ryan Breslawski (Southern Methodist University) and Abigail Fisher (Southern Methodist University)

[127] Evaluating Chronological Hypotheses by Simulating Radiocarbon Datasets

Evaluating chronological hypotheses using complex radiocarbon datasets is challenging. Sources of variability, including measurement error, interlab variability, uncertainty associated with the radiocarbon calibration curve, the inherent randomness of the physical processes of radiocarbon formation and decay, and potential mismatches between the dated event and the desired event (old wood effects, redeposition, etc.), all can compound in ways that are difficult to predict or account for. To overcome this challenge, we generate expected calendar ages for a given hypothesis, simulate radiocarbon measurements of those expected ages, and then compare the distributions of the simulated datasets with the distributions of observed radiocarbon datasets. These simulated datasets incorporate the known sources of variability in the observed datasets, providing insight into the expected dispersion and structure of a radiocarbon dataset. We demonstrate simulations for three chronologies: (1) a synchronous event, the Laacher See volcanic eruption in Germany approximately 12.9ka; (2) a hypothesized synchronous event at 12.8ka, the Younger Dryas boundary; and (3) an “old wood” effect on Valdez Phase (A.D. 1050 to A.D. 1225) dates in Northern New Mexico. Results demonstrate that simulation is a valuable method to evaluate whether a given radiocarbon dataset was produced by a hypothesized chronology.

Jorgeson, Ian [127] see Aiuvalasit, Michael

Joseph, J. (New South Associates)

[22] Science, Circumstance, Dollars and Cents: Perspectives on the Public Benefit of Archaeology

Opening with an introduction to a fictional (as of this writing) federal agency seeking to mine the public value of our nation’s archaeological legacy, this presentation pivots to a consideration of the origins of precontact versus historical archaeology and our subfield’s interactions with the public. I then present three contexts for the public benefit of archaeology: 1) fostering identity and authority for disenfranchised communities; 2) serving as a vehicle and platform for STEM education, and 3) serving as mode for job training and societal reintegration. I suggest that an activist approach using archaeology as a mechanism for public benefit can enhance our public value and expand...
on the ways in which archaeology is in the public interest.

Joseph, Willky (Bates College) and Sofie Sogaard (Bates College)

E-Week: Youth Collaboration within an Indigenous Framework

Community driven approaches to archaeological research have provided the discipline with new and creative opportunities for engagement and dialogue. This poster explores the benefits of community engagement in the context of the k-12 classroom as part of a NSF funded research, Temyiq Tuyuryaq; a collaborative archaeology the Yup’ik way (Barnett 2018), a collaboration between the village of Togiak, AK and Bates College. This poster explores knowledge not only as co-produced, but also co-learned. Based on outcomes from experiential learning week (E-week) at the Togiak school in 2017 and 2018, we moved beyond a “flipped classroom” to “flipped archaeology”. This project prioritizes active participation in its design, empowering youth, elders, and community members to engage in a meaningful way that archaeology often struggles to facilitate, linking together community goals with project outcomes. This poster highlights the role of Togiak youth participation, addressing both its challenges and benefits.

Joy, Brandy

Where’s the Beef?” and Other Meat-Related Questions: Pre- and Post-Emancipation Foodways on James Island, South Carolina

Archaeological evidence, historical documentation, and oral histories are used to compare the diet of individuals enslaved on Stono Plantation with those of the tenant-era population of James Island. Pre-emancipation data indicate a high level of livestock consumption supplemented primarily by fishing, but also by some degree of trapping and/or hunting. Poultry consumption seems relatively low prior to emancipation, but may have increased through time. Preliminary evidence for the tenant-era suggest a diet based on produce along with home-raised poultry, locally caught seafood, and minimal livestock consumption.

Joy, Jody (University of Cambridge)

A Miniature Brooch and Gaming Pieces: The Story of the Smaller Objects from the Late Iron Age Elite Burials of Southern England

Two iron firedogs, a tripod for a cauldron, a small amphora of Graeco Italian type, a bronze jug, glass vessels and Samian dishes. These are the objects selected for a catalogue record and for inclusion in the historic museum display of the 30 or so objects discovered in a Late Iron Age burial at Stanfordbury, Bedfordshire in southern England. But what about the five stone gaming pieces or the miniature bronze annular brooch also from the grave? It is contended in this paper that the dominant narrative of this type of burial – that they are the graves of a local elite with elite status expressed in graves by presenting the deceased as the host of a feast – has acted to obscure the importance of smaller, more personal objects also included in these graves. I will explore these issues by examining the grave goods from Stanfordbury, and several other burials from southern England, as collections in order to give objects of all sizes equal status in mortuary analysis. The dead do not bury themselves and the objects selected for burials like Stanfordbury have their own individual biographies which will be pieced together through careful interrogation of the evidence.

Joy, Shawn [325] see Smith, Morgan

Joyce, Arthur [197] see Borejsza, Aleksander

Joyce, Arthur [394] see Meehan, Pascale

Joyce, Daniel [127] see Gonzalez, Carolina
Joyce, Rosemary (University California Berkeley)

[316] The Active Materiality of Obsidian

When Steve Shackley informed me that over 90% of obsidian samples from Puerto Escondido, Honduras, that he had analyzed came from an unidentified source, presumably nearby, he started a process of re-education that led me to a place where he may not be comfortable, but that I deeply appreciate. This involves a reconsideration of the way that obsidian manifests today to us, as archaeologists, and the degree to which it may have presented itself differently to the people in the past whose lives we study. Drawing on theoretical work broadly called “new materialism”, I examine how volcanic glass is distributed across the landscape of northern Honduras, what the way material use by people in Honduras before 900 BCE might suggest about how they perceived obsidian glass as bounded and located, as mobile and circulating. I argue that the combination of chemical compositional analyses valued for their accuracy and not organized in falsely precise ways with social theories that ask us not to take the essential nature of something like obsidian for granted is consequential in understanding political, economic, and social relations in Honduras, in ways faithful to the example Steve provided in his own work in the US Southwest.

[161] Discussant

Juarez, Santiago (Colgate University)

[146] The Late Preclassic Households of Noh K’uh, Chiapas Mexico

The Late Preclassic (400 B.C. – A.D. 200) site of Noh K’uh is located in the Mensäbäk basin, over 30 kilometers west of the Usumacinta. Within this understudied region, the site of Noh K’uh was an important ceremonial center during the Late Preclassic, and was composed of several hilltop aggregates that clustered around a moderate monumental core. The site’s location on the western edge of the Maya lowlands placed residents of Noh K’uh near contemporaneous civilizations in the Isthmian sphere. Preliminary data from archaeological excavations and survey demonstrate both a material culture heavily influenced by cosmological symbolism and ritual practices that may have been shaped by outside influences. Ongoing research reveals how the households of Noh K’uh integrated cosmological rituals into their daily practices.

Juárez, Ariana [375] see Rangel, David

Juengst, Sara L. [286] see Bythell, Abigail

Juengst, Sara L. (UNC Charlotte)

[353] Bodies of Power: The Bioarchaeology of Cooperation

Power differences and status are most commonly associated with hierarchy; however, heterarchy, or horizontal power differentiation, is another common way of organizing complex communities. Rather than the vertical ranking commonly associated with hierarchy, heterarchy may include differential or shared access to power at various times based on labor, gender, or age, among other possibilities and may contain hierarchies within these categories. Cooperation and consensus are often crucial to heterarchical systems, as people invest in cooperative (rather than competitive) relationships to achieve common goals. Political and social relationships are inscribed on our bodies through our daily activities, access to resources, and social interactions. In particular, risk and experience of stress and disease, access to food, and trauma experiences are closely linked with power relationships. Bioarchaeology is thus well situated as a discipline to investigate the diversity of cooperative and competitive relationships in the past, although researchers have often not recognized this interpretive potential. This paper provides a theoretical platform about how hierarchy and heterarchy affect human bodies and investigates how archaeology and bioarchaeology have engaged with this topic to date. Providing an introduction to the rest of the session, the paper will also suggest new avenues for exploration.

[353] Chair
Jurado, Alexander and Tatsuya Murakami (Tulane University)

[406] Social Status and Ritual Practice at a Middle Formative Residential Complex at Tlalancaleca, Puebla

Fieldwork recently undertaken at Tlalancaleca, Puebla, explored a residential complex dating to the Texoloc phase (650 – 500 BC) of the Middle Formative period. Horizontal excavations exposed a residential platform and several wattle and daub rooms flanking a central patio. This paper presents interpretations regarding: (1) the status of inhabitants; and (2) domestic rituals and quotidian practices carried out within the complex. Interpretations are based on multiple lines of evidence, which include analyses of construction debris, personal adornments, and figurines. The assemblage, practices, and occupational history of this residential complex are compared with those of a contemporaneous, higher status residence at Tlalancaleca to elucidate the nature of social differences at this early urban center.

Jurado, Erik [39] see Sanders, Mariana

Jurado, Erik, Mariana Sanders (University of New Mexico), Gerardo Gutiérrez (University of Colorado Boulder) and Israel Hinojosa-Balino (Durham University)

[39] Pigment Composition and Color Structure and Usage in the Lienzos De Chiepetlan, Guerrero, Mexico: A Non-destructive Analysis

The community of Chiepetlan, Guerrero possesses six colonial lienzos. One manufactured during the 16th century, and four manufactured during the 18th century and used as legal documents in colonial land disputes. The current study contains two primary objectives: (1) to identify specific pigments used in the manufacture of the Chiepetlan Lienzos; (2) to interpret the significance of color use in Chiepetlan’s broader cultural and historical context. Towards the first aim, this study makes use of three non-destructive techniques: portable X-ray fluorescence (pXRF), fiber-optic reflectance spectrometry (FORS), and multispectral imaging (MSI). Towards the second aim, this study draws on archaeological and ethno-historical evidence, as well as theories of materiality. In addressing the above objectives, this study furthers our understanding of pigment technology, as well as our methodologies for studying pre-Columbian and historical documents. It stands to elucidate social and political transformations following the Spanish conquest of Mesoamerica in which colonial documents and lienzos played a central role in indigenous identity and heraldry, and in negotiations between indigenous communities and European authorities.

Juska, Ieva [37] see Berman, Mary Jane

Kabata, Shigeru [406] see Murakami, Tatsuya

Kabiru, Angela [82] see Hu, Lorraine

Kaeding, Adam

[367] Colonial and Caste War Continuities in the Beneficios Altos Province of Yucatán

The Caste War of Yucatán has been referred to as “the most successful Indian revolt in New World history.” Scholars have attributed the origins of this important conflict to a variety of causes, including circumstances that arose as Mexico established its independence from Spain; late colonial period political reforms; policies in place throughout the colonial period; and even long-standing indigenous practices that predated the arrival of Europeans. Given their focus on potential causes of the conflict, these discussions naturally end in the late 1840s when the revolt begins. Drawing from archival and archaeological data, this paper focuses on the processes, structures, and events of the Caste War itself and its immediate aftermath. With this shift in perspective, this paper will further explore the relationship between the Caste War and the long history of the region characterized by resistance to and persistence of colonial period policies and practices.
Kahn, Jennifer (The College of William and Mary) and John Sinton (University of Hawai‘i, Manoa)

[316] **WDXRF Analyses and Understanding Variability in Time and Space: Trade in the Complex Society Island Chiefdoms**

Our WDXRF sourcing program of geological and archaeological specimens \(n=177\) from the Society Islands, outlines the dynamics of inter- and intra-archipelago exchange over an 800 year period. Adzes from 21 sources were identified. Those traded in from the Marquesas Islands, an over 1,400 km voyage, are found with low frequency (3%), augmenting known extra-archipelago imports by sixfold and illustrating inter-archipelago trade post-dating the 15th century. Four Moorean sources have “broad” island-wide reach; two represent quarries and two represent probable working floors. Nearly half of the analyzed artifacts are from non-local sources demonstrating widespread intra-island exchange in the pre-contact period and the development of a local prestige goods economy. Adzes from Tahiti Island quarries have the broadest reach, found on all three islands studied (Maupiti, Rai‘atea, and Mo‘orea), while adzes from Maupiti were also traded into Mo‘orea. Evidence suggests two main mechanisms for adze exchange from the mid-15th century onwards. Trade and exchange of raw material and adze preforms and blanks amongst high status tahua, or adze specialists, likely accounts for non-local imports recovered at adze quarries and working floors. Trade and exchange amongst high status priests and secondary elites likely accounts for non-local imports recovered at elite ceremonial sites.

[354] **Discussant**

Kaingang, Jozileia Daniza [2] see Machado, Juliana

Kakaliouras, Ann (Whittier College)

[317] **Theorizing an Anti-colonial Bioarchaeology**

Since the 1970’s bioarchaeology has become both a valid specialization within archaeology as well as a standalone discipline with its own analytical and institutional traditions. Archaeology, though, enjoys a much more robust mosaic of competing theoretical frameworks than does bioarchaeology. From the processual to the postprocessual—to the feminist, radical and postcolonial—contemporary archaeologists have plenty of theoretical locales to inhabit. In bioarchaeology we have certainly weathered the “bioarchaeology of behavior” vs. “contextualized bioarchaeology” divide, tried hard to both become biocultural and understand “the body as material culture,” and started to use social theory more frequently in our interpretations of past lives. Bioarchaeologists, though, typically need not articulate theoretical commitments in their work, although some certainly do. This paper contends that in order for bioarchaeology to innovate within archaeology in the next decades, our theory should be generative, not just interpretive; that is, we must ground ourselves in theory rather than simply use theory. I first explain why bioarchaeology, historically, has lagged behind archaeology theoretically. I then propose a decolonization of bioarchaeology, one situated within established anti-colonial theoretical traditions. Can bioarchaeology try to shed its settler-colonial past and perhaps even reach for a transformation of its intellectual project?

Kakos, Peter

[403] **Explaining the “Venus Figurines” of the Upper Paleolithic: Macronutrients and the Effects of Endocrine Responses**

For over a century the so-called “Venus Figurines” have inspired a plethora of scientific discourse and speculation regarding their meaning and function in the Upper-Paleolithic. This paper examines a more down-to-earth explanation regarding their forms and features that most likely reflects the food resources utilized by Upper Paleolithic cultures rather than the more popular assertion that they represent fertility figures and/or associated fertility cults per se. There seems to be a continuing and erroneous assumption about prehistoric diet, which is not supported by more recent physiological studies of nutrition, hormonal responses to specific macronutrients and female body fat. This paper proposes that the “Venus Figurines” represent a female body type caused by specific nutrient consumption and not merely an abstract concept of female fertility or art form. The climatic conditions of the Upper Paleolithic, site location, available resources, and the effects of macronutrients on the endocrine system on female body fat will be examined.
Kamp, Molly

[R122] Ralph S. and Rose L. Solecki Papers and Artifacts Project: A Case for Collaboration between Archival and Artifact Collections

In 2017, the Smithsonian Institution’s National Museum of Natural History’s Department of Anthropology began a two-year collaborative project through the Smithsonian’s Collections Care and Preservation Fund aiming to connect the archival and artifact collections of paleo-archaeologists Drs. Ralph S. and Rose L. Solecki, known for their work at Shanidar Cave in northern Iraq from 1951-1960 and other sites throughout the Near East. Through the integration of these collections, the project aims to set a precedent by assuring that the association between archaeological collections and metadata is preserved in a way that increases their value to future researchers and the public at repositories collecting and preserving the collections of archaeologists. The poster will highlight the Ralph S. and Rose L. Solecki Papers and Artifacts Project’s goals, methodologies, and challenges and encourage discussion about the preservation, physical and intellectual accessibility, and legacy of archaeological artifacts and records.

Kamp-Whittaker, April (Arizona State University)

[R83] Communal Spaces and Ideas of Belonging in a WWII Japanese Incarceration Center

The World War II incarceration of Japanese Americans was based on a questioning of national allegiance and the role of minority groups within this nation. This paper looks at the development of communal spaces at the Amache Incarceration Center in southeastern Colorado and explores the ways these areas express ideas of national and cultural identity. Communal facilities created by internees demonstrate the dual cultural heritage of the population at Amache by incorporating Japanese and western elements. Constructed at both a neighborhood and site-wide level these community spaces may have helped mitigate some of the negative impacts of detention by helping create new social ties and a sense of belonging. The communal experience of unjust incarceration has had a continuing impact on how these sites are interpreted and their role in our national narrative surrounding Japanese American Incarceration.

Kandler, Anne [175] see Crema, Enrico

Kaneko, Akira (INAH)

[R173] La excavación monumental en Yaxchilán e Iglesia Vieja, Chiapas, México

La liberación por el medio de excavación y consolidación de los monumentos prehispánicos tiene una larga historia en la arqueología mexicana. Los métodos de las excavaciones de los conjuntos arquitectónicos de los sitios arqueológicos a cual definimos como la excavación monumental. Presentamos los procesos de excavación monumental de la Acrópolis Oeste de Yaxchilán (1989-1991) y los grupos B y C de Iglesia Vieja (2003-2018) en el estado de Chiapas, México. La excavación monumental no solo significa la dimensión grande o espacio amplio del área de excavación que proporciona los datos e informaciones más completas para la interpretación arqueológica, sino también que los edificios restaurados se convierten a las zonas arqueológicas abiertas al público que sirviera al desarrollo socio-económico de la región, asimismo los monumentos prehispánicos se conservan eternamente hacia el futuro como los patrimonios culturales en la historia de la humanidad.

Kaner, Simon (Sainsbury Institute and University of East Anglia)

[R74] Stories from the Riverside: Metastability in the Shinano-Chikuma River System, Central Japan

This paper discusses the significance of the archaeology of the Shinano and Chikuma River system, the longest drainage in Japan, an area of very high environmental activity, situated on the Fossa Magna. The paper focuses on
the Jomon period, when the region had the highest density of early ceramic sites (Incipient Jomon, c 12,000 BP) and produced some of the most elaborate ceramics of the whole Jomon tradition (Flame pots c. 5000 BP). These are highlighted in the current Japan Heritage (Nihon Isan) initiative, designed to situate specific heritage assets in longer-term regional narratives appealing to the general public. Additionally, a number of Jomon objects from the region have in recent decades been designated as National Treasures, and Jomon obsidian mines are involved in the world’s first international ‘twinning’ of archaeological sites. Short-term and longer-term archaeological sequences are interpreted in terms of metastability, providing a framework for understanding the continuity of tradition in the context of ever-changing landscapes.

Kang, Bong (Gyeongju University)

[267] Reconsideration of the Relationship between Complex Societies and Dolmen in Northern Part of Korea and Manchuria

Dolmen is one of the principal mortuary programs in the Korean Bronze Age (ca. between 1000 and 300 B. C.). A number of dolmens have been discovered almost everywhere in the Korean peninsula as well as Manchuria, China. A great amount of research has been conducted by Korean and Japanese archaeologists concerning this style of burial. Some scholars became interested in a social reconstruction and they have asserted that Korean dolmen society reached chiefdom in association with both mortuary offerings like mandolin-shaped (also known as Liaoning type) bronze daggers and especially energy expenditure. This issue has been one of the hottest research topics in Korea for a long time. Many researchers have taken it for granted that Korean dolmen society witnessed a centralized political organization. This interpretation has been printed in Korean National History Textbook. Consequently, there is no way for the majority of Korean students to think otherwise. This paper, based on the analyses of spatial distribution of dolmen and artifacts recovered from the burials located in northern part of Korea and Manchuria, will argue that the dolmen society in the study region did not reach complex society (e. g., Old Joseon) but remained egalitarian.

Kang, Chang Hwa [156] see Park, Geun Tae

Kang, Jirye

[388] Understanding Stylistic and Technical Variation in Middle Chalcolithic Painted Pottery Decoration—A Test from Tel Tsaf

This research explores the social interaction between Tel Tsaf and northern Mesopotamia through pottery decoration similarities. This ongoing research questions another possible connection between northern Mesopotamia and Tel Tsaf in the central Jordan Valley, representing one of the most southern sites discovered. The Middle Chalcolithic (5600-4500 BC) site of Tel Tsaf is located in the central Jordan Valley near Beth Shean, Israel. The site is believed to have influences from the Ubaid in northern Mesopotamia during the Chalcolithic period. This assertion is fundamentally based on the recovery of distinctive pottery sherds, Tel Tsaf ware, after decades of excavations (Gophna 1970s; Garfinkel 2004-2007; Rosenberg 2013-Present). To reconstruct the context, analysis of the pottery decorations will be mainly used to broaden the interpretation of the site through a consideration of all relevant Tel Tsaf pottery. X-ray Fluorescence (XRF) studies will be conducted on the pottery colorant in order to provide a better understanding of provenance of colorant components. Through examining the stylistic and technical variations of the Tel Tsaf ware as well as XRF analysis of the Ubaid-like pottery decoration, this study compares to Tel Tsaf with the sites in northern Mesopotamia, Ubaid interaction zone.

Kangas, James [36] see Wohlgemuth, Eric

Kangas, Rachael (Florida Public Archaeology Network), Sara Ayers-Rigsby (Florida Public Archaeology Network), Jeffrey Moates (Florida Public Archaeology Network) and Brenda Altmeier (Florida Keys National Marine Sanctuary)

[251] Smoke on the Water: Addressing the Burning Issue of Threats Climate Change Poses for Submerged Historical Sites in Florida

Underwater archaeological sites are often omitted from sea level rise and resiliency discussions, but these resources, which attract tourists and provide critical information about the past, are at risk. Lack of personnel,
difficulty with routinely accessing sites coupled with the “out of sight, out of mind” mentality make submerged historical sites vulnerable. Increasing ocean temperatures result in increased storm activity, while ocean acidification impacts the delicate equilibrium of a submerged site. Documenting these changes and related impacts can help archaeologists understand how these factors impact site integrity over the long term. The Florida Public Archaeology Network (FPAN) partnered with the Florida Keys National Marine Sanctuary (FKNMS) to create a submerged historical resource monitoring program as part of the successful Heritage Monitoring Scouts (HMS) Florida initiative, launched by FPAN in 2016. Heritage Monitoring Scouts encourage the community, dive shops, and visitors to embrace submerged historical resources and learn how they can effectively identify changes and threats while routinely monitoring sites. Discussion includes the launch of the Submerged HMS Florida program, shipwreck trails, potential for HMS and similar programs addressing climate change and submerged resources to provide valuable data before it goes up in smoke.

Kansa, Eric [77] see DeMuth, Robert

Kansa, Eric (Open Context / UC Berkeley) and Sarah Whitcher Kansa (Open Context / UC Berkeley)

[87] Data Literacy and Public Engagement in Archaeology

This paper will explore the need to cultivate deeper and broader data literacy in archaeology. Data and algorithms shape the actions of virtually every institution in modern society. In archaeology, data involve significant conceptual, modeling, and ethical challenges (including cross-cultural intellectual property issues). For data to be meaningfully preserved and used in intellectually rigorous ways, they need to be integrated fully into all aspects of professional practice, including ethics, teaching, and publishing. To succeed over the long term, we need to strengthen the human and community capacity to use data effectively and appropriately. To broaden and deepen our capacity to make better use of data, we need to strengthen instructional and public outreach programs that merge humanistic traditions of critique and wider cultural and historical perspectives with technical competencies. To put these ideas in practice, we propose combining elements of reproducible research, that make data and analytic steps clear and open for review and reuse, with engaging narratives so that data and analyses become more broadly accessible and meaningful to broader audiences.

[177] Discussant

Kansa, Sarah Whitcher [87] see Kansa, Eric

Kansa, Sarah Whitcher [87] see Wells, Joshua J.

Kansa, Sarah Whitcher (AAI / Open Context)

[344] Moderator

Kantor, Loni (Arizona State University)

[81] Landscape Meaning and Materiality among the Indigenous Wixárika (Huichol) People of Jalisco, Mexico

Landscapes are more than just where people subsist: landscapes are inherently social entities. People create landscapes in their interactions with the environment and with each other; they conceptualize landscapes in various ways; they mediate their relationships with one another through the landscape. It is the social nature of landscapes that makes them an essential component of anthropological inquiry. Ethnographic study of landscapes reveals their role in subsistence, ritual, social organization, and identity, and may also provide insights for evaluating ancient landscapes. In this paper, I present results of an ethnographic study of landscape among the present-day Wixárika, carried out under the supervision of Ben Nelson. I describe the meanings and content of a Wixárika landscape and also suggest how they may aid our approach to the past. In short, the Wixárika landscape is imbued with a prevailing concept of dwelling which entails key practices and a materiality that is archaeologically informative.
Kappers, Michiel, (QLC Inc. - InTerris Registries), Christina Giovas (Department of Archaeology, Simon Fraser University) and Kelsey Lowe (School of Social Science, University of Queensland)

Preliminary Investigations on a Coastal Caribbean Island: A Multi-proxy Environmental Study at the Sabazan Amerindian Site, Carriacou, Grenada

The Amerindian, enslaved African, and European peoples who successively settled the Caribbean island of Carriacou beginning AD 400 encountered a distinctive environment marked by recurrent drought, few terrestrial fauna, and the largest reef system in the region. Evidence suggests Carriacou’s ecology was altered dramatically by humans, reflecting efforts to adapt to and transform the island’s environment. While not fully understood, deforestation, erosion, species introductions, and extinction are among the known legacy effects. To better understand human-environment interaction and landscape history through time, the Carriacou Ecodynamics Archaeology Project (CEAP) is pursuing long-term, high-resolution records for habitat modification and biotic change at the Sabazan archaeological site using zooarchaeology, geoarchaeology, and geophysical survey. Sabazan is the location of an Amerindian village (AD 400 – 1400) and historic sugar plantation (1772 – late 19th century) that retains well-preserved, artifact-rich pre-Columbian deposits, the remnants of stone plantation buildings, a 19th century cemetery, and historic well. Here we report on the results of the 2018 pilot field season, including mapping, ground penetrating radar, and magnetometry applications. These show numerous anomalies indicative of past human occupation, including pits and hearths, and depth of the shell midden deposits which assist in understanding Sabazan’s site formation history.

Kaplan, Emily [39] see Hornbeck, Stephanie

Kaplan, Emily (National Museum of the Americas)

The Technical Study of Two 16th Century Mexican Pictographic Documents in the NMAI Collection

Two mid-16th century Mexican pictographic documents in the collection of the National Museum of the American Indian, a codex on amate paper from the Valley of Mexico and a lienzo on a large cotton textile from Puebla, have been well studied by historians and archaeologists yet have never been the subjects of a technical study. This paper presents the preliminary analytical results of a study that aims to holistically understand the object’s biographies, from manufacture and use through accession and conservation. In addition to technical analysis, this project looks to re-contextualize the codex and lienzo by strengthening our understanding of their relationships to historic and contemporary indigenous documentary traditions in Mexico.

Kardulias, Paul Nick (College of Wooster)

The Ethnoarchaeology of Stone Craft Production in Athienou, Cyprus

The town of Athienou in Cyprus lies at the southern edge of the fertile Mesaoria Plain. In addition to its agricultural focus, the region has been home to many traditional crafts, such as the making of lace and cheese. In addition, artisans have fashioned a variety of objects from the local limestone called “the stone of Athienou”. Ancient sculptors made extensive use of this material to fashion statues, many of which formed the foundational assemblage of the fledgling Metropolitan Museum in New York. Excavation of a rural sanctuary at Malloura by the Athienou Archaeological Project (AAP) has recovered over a thousand sculptural pieces made of the local material. Use of these stone quarries has persisted to the present. This study focuses on the nature of work at the local quarries as documented through interviews with current stone workers. These individuals extract the stone and shape several types of vessels (bowls and basins), millstones, and construction materials. The AAP survey revealed the sources of bedded limestone and gypsum. The interviews provide details about quarrying procedures and the structure of the labor force. These investigations offer insights into an important local industry that thrived from antiquity to the recent past.

Kardulias, Paul Nick [118] see Kreuzwieser, Clare
Kariwiga, Jason [129] see Stephen, Jesse

Karlsson, Elinor [352] see Lord, Kathryn

Karsten, Jordan [47] see Henry, Lauren

Kashanipour, Ryan

[96] Discussant

Kassabaum, Megan (University of Pennsylvania), Anna Graham (University of North Carolina, Chapel Hill), Alexandria Mitchem (Columbia University), Arielle Pierson (University of Pennsylvania) and Rebecca Dolan (Drexel University)

[168] Exploring the Unexpected Early Woodland Occupation at Smith Creek, Wilkinson County, Mississippi

Smith Creek (22Wk526) is a multi-component Native American mound site in the Natchez Bluffs region of the Lower Mississippi Valley. Surface collections and excavations from 2013–2016 clearly demonstrated a dense Mississippian (AD 1200–1500) occupation at the site and suggested a Late Woodland (AD 750–1200) date for the construction of the mounds. However, excavations during Summer 2018 revealed an unexpected Early Woodland (500 BC–AD 1) component underlaying these later deposits. We examine the distribution of Early Woodland artifacts and features across the Smith Creek landscape before focusing our attention on a large circular structure in the northeast sector of the site. We compare this structure, and the artifacts recovered from it, to those from the small number of excavated Early Woodland sites in the Lower Mississippi Valley. In addition, we discuss the implications our excavations have for understanding the pace of soil development in the Natchez Bluffs and how this may affect the visibility of Early Woodland and Archaic components on later sites.

Kassianidou, Vasiliki [363] see Ting, Carmen

Kate, Emily (Pennsylvania State University), J. Heath Anderson (Minnesota State University, Mankato), Douglas J. Kennett (Pennsylvania State University) and John Krigbaum (University of Florida)

[111] A Preliminary Study of Epiclassic Human Mobility at La Mesa in Tula, Mexico Using Stable and Radiometric Isotope Analyses and Radiocarbon Dating

In this poster, we present preliminary mobility data for individuals recovered from La Mesa, an Epiclassic hilltop settlement in Tula, Mexico. For decades it has been hypothesized that the Tula area may have experienced an influx of immigrants from northwestern Mexico during the Epiclassic period, and that these newcomers played an important role in the rise Tula Grande. Results presented here provide an important step forward towards testing the long-held migration hypothesis. Analyses of modern and archaeological faunal remains were conducted to establish local baselines for oxygen ($\delta^{18}O$) and radiometric strontium ($87\text{Sr}/86\text{Sr}$) and lead ($20\text{nPb}/204\text{Pb}$) ratios for the Tula Grande region. These baseline values were then compared to human $\delta^{18}O$, $87\text{Sr}/86\text{Sr}$, and $20\text{nPb}/204\text{Pb}$ values, derived from the analysis of tooth enamel, to identify individuals who may have migrated to the Tula Valley during the Epiclassic. For all individuals included in this study, bioarchaeological, mortuary, AMS radiocarbon dating and stable carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) data are also assayed to contextualize the migration data. These new mobility data, in conjunction with other bioarchaeological results, will provide further insight into the population patterns of the pre-Toltec Tula Valley, especially when compared with data from other Epiclassic sites.

Katz, Jared (Denver Art Museum)

[270] The Sound of Music: Performing Archaeomusicological Research in Museums

This paper will discuss the methodology used to study archaeomusicology in a museum setting, which involves 3D scanning and modeling artifacts, playing and recording them (if permitted), and various other data collection techniques. To demonstrate the methodology used, I will discuss typologies of pre columbian ocarinas documented
at various institutions throughout Mesoamerica and the United States. The typologies created are based on technological, stylistic, and tonal attributes. I will also discuss how ancient music can be used as an effective topic for outreach classes in a museum setting, creating multisensory and engaging experiences for museum guests.

Katz, Monica (Hispanic Society of America)


The Hispanic Society has a small but very fine collection of colonial Spanish American lacquered objects, which are decorated with one of the more widely known indigenous lacquer techniques, barniz de Pasto. The Hispanic Society’s objects date from the 2nd quarter of the 17th century to 1800 and were made using native materials and techniques for a European aesthetic which mimicked Asian lacquer and demonstrate the extraordinary craftsmanship of these anonymous artisans whose techniques are still in use today in Colombia. Using only inexpensive and readily available lenses for a smart phone, this study of a mid-17th century barniz de Pasto gourd in the collection analyzes the decorative elements and hopes to identify their sources to show that artisans regularly substituted local flora and fauna in place of the stylized motifs in Asian lacquer as well as incorporating designs from European sources into these ornate objects. Relying on original sources as well as analyses conducted on similar pieces, the study will also identify pigments used to create the lustrous effects.

Katzenberg, M. Anne [258] see McConnan Borstad, Courtney

Kaufmann, Cristian A. [285] see Gutierrez, Maria

Kaviani, Kelsi (University of North Texas), Anna Prentiss (University of Montana), Emma Vance (University of Montana), Ethan Ryan (University of Montana) and Haley O’Brien (University of Montana)


Site 48PA551 is a widely recognized winter camp originally dated to Middle Archaic (McKean Complex) period. Original investigators described the McKean occupation as a singular unit within a 30-90 cm thick sedimentary stratum beginning at the ground surface. Original radiocarbon dating placed the occupation range at ca. 3800-4400 radiocarbon years B.P. In this poster, we discuss results of new research at the site designed to clarify our understanding of the McKean Complex occupations. We offer new data to suggest that there are actually two periods of occupation consistently represented across the site. We also provide preliminary consideration of spatial variability in occupation materials that includes evidence for two new pithouses, cooking and storage features, and possibly dump areas for faunal remains.

Kay, David (University of Cambridge)

[82] “The Land is now OK”: Three Centuries of Marakwet Settlement on the Elgeyo Escarpment, Northwest Kenya

Situated within the Great Rift Complex of northwest Kenya, the Elgeyo Escarpment and surrounding region has been home to Marakwet communities for the last three hundred years. Many of these communities inhabit settlements which span diverse ecosystems, from semi-arid bush to highland forests. In tandem with changes in local lifeways and social/ecological relationships, the location of these settlements has shifted across the landscape since their original foundation. Drawing on archaeological and ethnographic research conducted over the past three years, this paper will explore these changes in settlement form and location, alongside the cultural and environmental variations that are interwoven with such trajectories. Combining survey, geoarchaeological and interview data, it will argue that such settlements should not be interpreted as discrete ‘villages’, but rather as inhabited zones within broader parcels of landscape in which a variety of human activities and relationships have played out over time. These parcels roughly correspond to ‘clan territories’, but are cross-cut by inter-clan land-use agreements, marriages, trading relations, irrigation networks and modern infrastructure. Taken as a whole, these networks highlight the intrinsically historical-cum-ecological nature of Marakwet settlement, and serve as a potential guide for archaeological investigations of more ancient contexts throughout eastern Africa and beyond.
Kay, Evan and Alexander Kurota (Office of Contract Archeology, UNM)

[413] **Favorite Things: An Overview of Ornaments Used by the Jornada Mogollon in the Tularosa Basin, New Mexico**

Recent UNM Office of Contract Archeology evaluations and surveys at numerous sites on White Sands Missile Range (WSMR) and White Sands National Monument (WSNM) offer new insight into the use, manufacture and trading of diverse objects of adornment by the Jornada Mogollon during the Doña Ana and El Paso phases. A wide variety of artifacts made from turquoise, shell, travertine, serpentine and argillite is presented. This paper also discusses two rare ornaments: a tubular bead made from the shell of a *Vermetidae* species (a marine invertebrate commonly called a ‘worm snail’) and lacustrine shell beads made from locally available snails. A size-specific typology of disc beads is also presented.

Keach, Levi [366] see DiBenedetto, Katelyn

Keach, Levi (Bureau of Land Management)

[366] **Chair**

Kealhofer, Lisa, Kaseka Phon (Royal Academy of Cambodia), Peter Grave (University of New England), Miriam Stark (University of Hawaii) and Darith Ea (APSARA)

[27] **Centralized Power/Decentralized Production? Angkorian Stoneware and the Southern Production Complex of Cheung Ek, Cambodia**

Historically, international archaeological research in mainland Southeast Asia (MSEA) has been typically site-focused and ‘origins’ oriented (e.g., agriculture, metalworking). Theoretical framing has been inductive, frequently emphasizing the role of migration in culture change. More recently, interest in the dynamics of MSEA economies has introduced regional-scale investigations and different theoretical emphases. This paper highlights the potential of large-scale approaches for understanding regional economic development in the Angkorian Empire (c. 9th-15th CE). A central feature of the Angkorian economy was the relatively rapid development of sophisticated craft industries. Of the multiple crafts servicing this empire, stoneware production stands out for two reasons: distribution (consumption) of Angkorian stoneware appears to map directly onto the empire’s geopolitical extent; and transport networks closely articulate with the location of stoneware production complexes best known east of Angkor. New data from Cheung Ek, a southern kiln complex near Phnom Penh, expand the number and range of large-scale ceramic production complexes beyond the Angkorian core (and Buriram). In addition, the identification of Cheung Ek stoneware at consumption sites reveals extensive exchange networks (e.g., Thala Borivat). These preliminary results reveal a more integrated Angkorian network of production and exchange than previously supposed.

Kearney, Amanda [252] see Brady, Liam

Kearns, Timothy (Independent Scholar)

[66] **Basketmaker III on the Chuska Slope, Northwest New Mexico**

The centuries-long Ancestral Pueblo Basketmaker period occupation of the Chuska Slope in northwest New Mexico was marked by intervals of relative stability punctuated by long and short distance residential moves. Basketmaker settlement and material culture data are examined relative to key aspects of the occupation including 1) the origin of Basketmaker III communities along the Chuska Slope, 2) relationships with more distant Basketmaker III communities, and 3) changes that mark the end of the Basketmaker III interval in the study area. Although Basketmaker settlement of the entire Chuska Slope is addressed, the emphasis is on Tohatchi Flats and the southern portion of the Chuska Slope, areas where most of the research has been conducted.
Keegan, Deanna

[279]  Adaptive Pastoralism and Climate Change in the Irish Chalcolithic – Early Bronze Age: Adding Evidence from Termon, Co. Clare

The Burren, a karstic region located in Western Ireland, has seen intensive farming practices since the Neolithic. Local proxies throughout the west coast of Ireland have indicated periods where the environment shifted to colder and wetter conditions in two key phases during the late 3rd and early 2nd millennia BC. A comparison of the archaeological record at Burren site Roughan Hill to proxy signals has shown probable evidence that the prehistoric occupants of the Burren were impacted by climate change. This paper seeks to explore and compare evidence of climate change and adaptive pastoralism at the Chalcolithic – Bronze Age site of Termon, located at the center of the Burren. The archaeological record of Termon will be explored in relation to local proxy signals in effort to understand how its occupants were responding to the shifting environment. Further, a comparison to the archaeological evidence at Roughan Hill will be given in relation to Termon in effort to support the notion of social adaptation over collapse during the Bronze Age.

Keegan, William (Florida Museum of Natural History) and Michael Pateman (Turks & Caicos National Museum)

[37]  Archaic Age Bahamas? New perspectives from Long Island

It has long been assumed that the Bahamas were colonized by Ceramic Age peoples who began their expansion into the Caribbean islands from northeastern South America about 500 BC. The widespread occurrence of pottery in the Bahamas (Palmetto Ware), and the timing of initial “Lucayan” settlement in the Bahamas is dated to AD 700-800 (dates that coincide with the Ostionoid and Meillacoid population expansions) have been used to support this assumption. Yet archaeological research conducted since 2016 on Long Island in the central Bahamas is revealing a much different confluence of elements. Instead of large agricultural villages, the archaeological sites on Long Island are small and short-lived with multiple activity areas in the same general location. Lucayan sites are directly on the coast, buried beneath beach sand on the lee shore and backed by a mangrove swamp; or they are eroding from Atlantic coast dunes. Neither location is well suited for intensive agriculture. In addition, special purpose sites are common. Palmetto Ware occurs in low frequencies suggesting it was not the primary method of cooking; and at least three earth ovens, spanning 400 years, have been excavated. This presentation is an overview of recent investigations on Long Island.

Keegan, William [37] see Pateman, Michael

Keegan, William [37] see Snoeck, Christophe

Keegan, William [170] see Woodcock, Rachel

Keehner, Steven (University of Iowa)

[80]  Beyond the Borders of Archaeological Taxonomy: A Ceramic Case Study from the Central Plains

This paper presents a problematic ceramic taxonomy for the Late Woodland period (AD 500–1000) in the Central plains. The focus is on two archaeological taxonomic designation units: the Sterns Creek phase and the Grasshopper Falls phase. Through the lens of literature review, archival site records, and analysis of material collections curated at the Kansas State Historical Society (KSHS) and the University of Kansas (KU), I present documentation discrepancies, problematic taxonomic units, and identical ceramic assemblages designated as Sterns Creek Ware and Grasshopper Falls Ware. After presenting the evidence, I propose that the two ceramic wares should be consolidated under one name—Sterns Creek Ware—and further comparative analysis is necessary to identify other wares present in Grasshopper Falls phase assemblages. Archaeological taxonomic designation units and artifact typologies are important analytical tools. However, when archaeologists define taxonomic units confined within modern state borders, without adequate reference to existing data and literature, they construct flawed manifestations. In our attempts to make inferences about peoples past activities, especially complex social practices/interactions through material culture, we need to look beyond the borders of archaeological taxonomy and towards comparative syntheses.
Keene, Joshua (CSFA, Texas A&M University), Michael Waters (Center for the Study of the First Americans, Texas) and Thomas W. Stafford Jr. (Stafford Research Laboratories)

[48] Archaeological, Paleoenvironmental, and Geoarchaeological Investigations of Hall’s Cave, Texas

Hall’s Cave, located in central Texas, contains a 4 m thick geological record extending back to 20,000 cal yr B.P. Within these sediments is an archaeological record dating from the historic period to approximately 10,500 cal yr B.P. with living surfaces containing artifacts and animal bones associated with hearths. Over 60 hearth features, including over 40 from recent excavations in 2018, have been identified and 30 have been radiocarbon dated. Below the artifact-bearing layers is a paleontological record extending to 20,000 cal yr B.P. with bison, horse, dire wolf, and saber-toothed cat. In addition to these studies, our team is investigating the paleoenvironmental and paleoclimatic record preserved in the cave sediments through the analysis of preserved DNA with the sediments.

Kehoe, Alice

[163] Moderator

Keim Malott, Jillien (Fowler Museum at UCLA) and Stevy Hernandez (Fowler Museum at UCLA)

[89] Research Opportunities in Archaeology at the Fowler Museum at UCLA

The Fowler Museum Archaeology Collections is the largest repository of Los Angeles history. It has maintained the research materials and excavations of UCLA academics and local researchers since 1941. The collections consist of approximately 1.5 million artifacts ranging from prehistoric to historic with provenances that span the globe. The majority of these items have not been examined since their initial excavation, providing ample research opportunities that have proven fruitful for an array of researchers. A significant amount of this research has culminated in published articles, theses, dissertations, and manuscripts. These publications as well as primary documents are kept with corresponding accessions for future research reference. In addition, the Fowler Museum at UCLA has the original archives of numerous archaeologists including Clement Meighan, Henry B. Nicholson, and Charles Rozaire.

Keller, Angela (Statistical Research, Inc.)

[345] Directed Movement at Ancient Maya Centers

Is there a right way to enter a Maya center? A correct order to the viewing and experiencing of the place? How did the physical act of moving through a center inform the understanding of that place, its leaders, oneself? This paper presents the results of several seasons of fieldwork at the Belizean sites of Xunantunich and Actuncan, which was focused on the identification of site access, flow patterns, and plaza use as these illustrate site planning strategies to attract, entertain, and control a large populace. My work has combined extensive structural excavations with rapid systematic data collection, soil chemistry, macro- and micro-artifact analysis, remote sensing, and targeted excavations. One of the guiding themes for this work has been movement. People moving into, out of, and through site centers. By focusing on architecturally directed movement as a problem to be solved, fragmentary plaster floors, unimpressive alignments of stone, subtle soil chemistry variations, and artifact patterning combine to let us see movement as a significant activity in its own right.

Keller, Hannah [390] see Butts, Clancey

Keller, Hannah (University of Colorado, Denver) and Jamie Hodgkins (University of Colorado, Denver)

[402] A Tale of Three Substrates: Effects of Trampling on Ostrich Eggshell and Applicability to the Archaeological Record

Few taphonomic experiments have considered Ostrich eggshell, despite its ubiquity at archaeological sites in Africa and Asia. This experiment seeks to fill some of the gaps in taphonomic knowledge by determining the effect of trampling on ostrich eggshell. Ostrich eggshell fragments were photographed, distributed across the surface of sand, soil, or gravel, and trampled for a period of ten minutes or two hours. To create a significantly robust sample, each
experiment was replicated ten times. The more intense trampling and increasingly compact substrate yielded a higher number of fragments, and lower average length. An increased number of marks were noted after trampling, however, the appearance of these trampling marks were indistinguishable from marks observed on eggshells before trampling. Discoloration of fragments subjected to two hours of trampling was significantly higher, although this result varied between substrates. Comparison with ostrich eggshell recovered at a Middle Stone Age site in South Africa suggests that the surface modification observed was not caused by trampling, because no analogous marks were observed on the trampled assemblages. Further studies should consider additional taphonomic effects, including the effects of trampling on artifacts below the surface.

Kellett, Lucas (University of Maine at Farmington), Alcides Berrocal Gonzales, Patricia Alcaca Osorio, Jacob Legere and Jhoan Romero Escobar

[46] Long-Term Puna Landscape Use in the Chanka Heartland of Andahuaylas, Southern Peru

This poster examines the enduring role that puna landscapes played across time and space in the Andahuaylas region of southern highland Peru. Results from a recent archaeological landscape survey, entitled the Andahuaylas Punta Project, confirms that the expansive puna to the south of the main Chumbao Valley was intensively used and intermittently occupied for over two millennia from the late Formative period through modern times, with the most intensive occupation occurring during the Chanka phase (~AD 1000-1400). The survey of a 40 km² tract of puna (~3600-4400 m.a.s.l.) recorded a range of water sources (e.g., springs, cochas, and bofedales) and 158 archaeological sites, including single and multiple corral structures, residential pastoral sites, cist tombs, chullpas, small ritual enclosures, and paths/roads among others. Taken together, preliminary survey results indicate that the lower puna region in Andahuaylas played a number of important roles for local polities by serving as an economic region for intensive camelid pastoralism, but also as a ritually charged landscape (for the living and the dead) and a corridor/connector between lower valleys (e.g., suni, quechua) and higher puna regions.

Kelley, Alice R., Bonnie Newsom (Department of Anthropology, University of Maine), Arthur Spiess (Maine Historic Preservation Commission, Augusta), Anne Spezia (School of Earth and Climate Sciences) and Kate Pontbriand (Department of Anthropology, University of Maine)

[49] Maine Midden Minder Network: Collaborating to Save a Cultural Resource

Maine’s coastline hosts over 2,000 Native American shell middens. Composed of clam and/or oyster shells, faunal remains, and artifacts, these sites record over four thousand years of cultural and paleoenvironmental information. However, virtually all of these rich archives are eroding in the face of climate change-induced sea level rise and altered weather patterns. The Maine Midden Minder Network is being developed to bring archaeologists, geologists, tribal partners and citizen scientists together to create strategies to assess what remains of these threatened sites, and how to best use limited resources to the recover precious data. Our initial program involves working with conservation organizations to document shell middens on their properties and create volunteer monitoring programs. Additionally, we are creating a website that will allow individual citizen scientists to monitor shell middens near their homes. Information produced by these activities is archived in a dedicated database that is designed to protect site location and land-owner privacy, but allow regional and local analysis of midden destruction.

Kelley, Shawn

[62] Discussant
Kelsey, Brady [32] see Brandt, Steven

Kemp, Brian M. [416] see Bingham, Brittany

Kennedy, Cayla (Utah State University)

[209]  *Relative Dating of Classic Vernal Fremont Rock Art in Cub Creek, Dinosaur National Monument*

Located in Utah’s northern Uinta Basin, the Cub Creek area of Dinosaur National Monument contains examples of Fremont pithouses, upland roasting features, diverse artifact assemblages, and panels of Classic-Vernal-style Fremont rock art. The Classic Vernal rock art style is characterized by geometric patterns, animals, and heavily stylized anthropomorphic figures in both petroglyph and pictographic formats. Using a robust record of 41 radiocarbon ages, the Fremont pithouses in Cub Creek were built and occupied around 750-1050 CE. Understanding the correlation of the Cub Creek rock art to the dates of pithouse construction could contribute to the understanding of emergent leadership within Fremont society, especially if these results are replicable to other
regional pithouse and rock art sites. With the eventual goal of developing an absolute chronology, in this poster I use relative dating methods to create a timeline that compares the window of pithouse construction in the Cub Creek area of Dinosaur National Monument with the creation of local Classic Vernal rock art. These results have implications for the age and meaning of other rock art and pithouse sites found in the northern Uinta Basin, as well as for the emergence of leadership in transitional agricultural societies.

Kennedy, Jason (Central Michigan University)

[200] Come for the Harvest, Stay for the Beer: Alcohol Production in an Ubaid Household in Upper Mesopotamia

In New Perspectives on Household Archaeology, Bradley Parker and Catherine Foster urged archaeologists to approach households as a dynamic location of repetitive actions and gestures that shaped the formation of the personal, economic, social, political and ideological trajectories of the community. In his contribution to the volume, Bradley sought to marshal multiple lines of archaeological evidence to provide a comprehensive account of the activities that occurred within an Ubaid household at Kenan Tepe on the Upper Tigris River in southeastern Turkey and explored how these actions were connected to broad changes in social integration and political complexity throughout Greater Mesopotamia during the fifth millennium BCE. In this paper, I will reexamine Bradley’s conclusions using new data provided by a use-alteration analysis of the ceramics from the Ubaid household. This analysis has revealed evidence for the household production and consumption of alcohol, most likely beer, during the late 5th millennium BCE. This paper will explore the nature of alcohol production at the site and connect it to the activities identified in Parker’s analysis of the structure as well as the social and political relationships formed during the consumption of alcohol at Ubaid Kenan Tepe.

[200] Chair

Kennedy, Sarah (University of Pittsburgh) and Sarah Kelloway (University of New South Wales)

[285] The Utility of Portable XRF for Preliminary Site Prospection at Contaminated Colonial Period Mining Sites (Puno, Peru)

Field portable x-ray fluorescence spectrometry (pXRF) has seen an increase in use for testing potentially toxic levels of heavy metals in modern mining and industrial waste sites. Understanding the spatial variation of pollutants in soil is necessary for identifying proper prevention measures for soil contamination and long-term effects on human health. While this technique is popular in modern contexts, it has seen little applicability in archaeological contexts. In this poster, we present the results of a pXRF surface soil survey conducted at the site of Trapiche Itapalluni, a Spanish Colonial silver refining mill (AD 1650-1750) located 15 km southwest of Puno, Peru in the northwestern Lake Titicaca Basin. High levels of mercury (Hg), lead (Pb), and arsenic (As) were identified in surface soils, necessitating the relocation of planned excavation units. Soil contamination results were combined with systematic surface artifact collection to identify activity areas in locations where excavation would have been hazardous. This study highlights the applicability of rapid, in-situ pXRF analysis of surface soils in contaminated industrial archaeology sites to assess: 1) potential effects on human health; 2) relocation of excavation units; and 3) activity areas and site usage, using a combination of surface collection and soil chemistry analyses.

Kennedy Richardson, Karimah (Autry - Historic Southwest Museum - UCR)

[210] Examining Site Functions and Relationships: The Value of Small Ridgeline Sites on Pimu/Catalina Island

Several decades of field reconnaissance have identified nearly one thousand archaeological sites on Catalina Island. The relationship between these coastal bluff villages, interior occupations, and smaller ridgeline sites are recognized via pathways, but not fully explored. In our efforts to better understand settlement patterns on this island the Pimu Catalina Island Archaeology Project (PCIAP) has developed a geographic spatial study to test the relationship between ancient occupations and the pathways along ridges that attest to human relationships on the landscape. Here we present findings from our excavations and survey of the coastal bluff sites at CA-LAN-3593, 3594, 3596 and recent radiocarbon assays. This analysis is a benchmark in our efforts towards a new synthesis and analysis of settlement patterns and subsistence practices on Catalina Island.

[177] Discussant
Kennett, Douglas J. (Penn State)

[33] Discussant

Kennett, Douglas J. [111] see Kate, Emily

Kennett, Douglas J. [153] see George, Richard

Kent, Jon [147] see Farmer, Reid

Kepecs, Susan (University of Wisconsin-Madison)

[198] Lies the Spaniards Told

The Spaniards characterized the northeast corner of Yucatán state as being demographically depleted and possessed of unhealthy terrain and a lack of exploitable minerals. This picture has been perpetuated by historians, who lack independent lines of evidence against which to check it. Yet archaeological information from extensive regional and full-coverage surveys, combined with a close reading “against the grain” of relevant native and Spanish documents, reveals the Spaniards’ claims as fictions aimed at gaining additional lands, labor, and rights to resources as well as covering up Spanish cowardice. By examining multiple strands of evidence I am able to reveal a much different picture of this region in the colonial epoch, with higher population than the written record suggests, very fertile lands, rich mineral resources – and rebellious natives who fought the Spaniards and their scions tooth and nail, essentially driving them out of the area for over three centuries.

Kerchusky, Sarah (University of California, Santa Barbara) and Corina Kellner (Northern Arizona University)

[206] Understanding Nasca ‘Trophy Head’ Individuals from the Site of Zorropata in Peru Using Isotopic and Biochemical Methods

Myriad factors shaped cultural practices such as ‘trophy head’ taking in Andean prehistory. Zorropata, located in the Las Trancas Valley, Nasca, Peru, was a large domestic site with likely ceremonial function occupied relatively continuously from the Late Nasca period (c. AD 450-600) until the early Middle Horizon/Loro period (c. AD 600-1000). Archaeological survey conducted by Katharina Schreiber in the 1990s at Zorropata identified at least one and possibly two adobe compounds that were like structures described by Julio C. Tello at Huaca del Loro, the largest Las Trancas site and local hub dating to the Middle Horizon. At both Huaca del Loro and Zorropata these structures appear to be barbacoa style tombs. Excavations conducted at Zorropata in 2014 recovered eight ‘trophy head’ individuals from the largest cell (Structure 21) of the adobe compound. ‘Trophy head’ individuals were analyzed using isotopic and biochemical data to investigate this practice just prior to and concurrent with Wari influence in the Nasca Region. These individuals shared stylistic similarities with other Nasca samples but also differed in important ways (e.g., the majority were non-local). These results illustrate that the Nasca experience with environmental and sociopolitical challenges differed between valleys within the Southern Nasca Region.

Kerr, Stanley (NV5), Christina Chavez (Sandia Labs) and Toni Goar (NV5)

[259] Correlations between Structural Sites and Topographic Features Dating from the Late Developmental to Early Coalition

During the Developmental period into the Early Coalition, agricultural settlements formed along drainages, such as the Tijeras Arroyo in Coyote Canyon, Arroyo del Coyote, the Rio Grande, the Lower Jemez River, and the Rio Puerco. This change in settlement patterns, along topographic features, near water sources was evidence for the exploitation of different ecological zones, where a variety of resources could be exploited. The valley bottoms and alluvial fans made agriculture possible as water was available, in seeps, rain run-off, and springs. Pit structure occupation along or near water sources through the Late Developmental into the Early Coalition include Dinosaur Rock site, LA 138465, the Pithouse Site, Two Dead Junipers site, Cobble Pueblo, the Bravo Pueblo, the Airport Hamlet, the Sedillo site, Coors Road site, the Denison Site, the second pit structure near Zia Pueblo, Meade Avenue Site, LA 151618, and the Artificial Leg Site 111. Evidence of pithouses and pit structures suggest residential stability
at these locations, suggesting a year-round occupation, but also were located in areas where a variety of resources were available.

Kersel, Morag (DePaul University)

[77] Big Data and Diplomacy: Aerial Images and U.S. Department of State Cultural Property Bilateral Agreements

Big data in the form of aerial imagery gathered from drones, satellites, and archival spy images provide an historical time line of change over time of archaeological landscapes. The images of sites negatively affected by agriculture, development, looting, and urban growth are compelling and convincing in their documentation of destruction. Demonstrating the pillage of archaeological sites has never been easier. Any country that can establish that their cultural landscapes and objects are at risk as a result of demand in the United States can request a bilateral agreement under the 1983 Convention on Cultural Property Implementation Act (19 United States Code 2601 et seq). Big data generated from drones are used to offer proof of in-country looting, evidence fulfilling Determination # 1: that the cultural patrimony of the State Party is in jeopardy from the pillage (19 U.S.C. 2602 (A)(1)). This case study will illustrate the power of big data in diplomacy.

Keur, Mitchell

[341] Discussant

Keyes, Cassandra

Keyes, Cassandra

[272] A GIS Predictive Model of Early Archaic Site Locations on the Taos Plateau

The archaeological record within the recently designated Rio del Norte National Monument is the subject of on-going investigations. This presentation will discuss the use of Geographic information Systems (GIS) in predicting the locations of Early Archaic sites within the monument, which straddles the Rio Grande on the Taos Plateau in northern New Mexico. GIS is used to explore the relationship between site location and environmental, topographic, and physiographic variables. These data are combined with existing site location data to demonstrate where Early Archaic sites are likely to occur and to determine how the distribution of sites relates to lithic sources on the Plateau. The model addresses questions regarding the availability and distribution of lithic resources in the region, and how the distribution of these resources influences site location. The result is a raster surface that indicates high and low probability areas for Early Archaic site occurrence. The presentation will explore the utility of GIS in predicting site presence by comparing the model results with Early Archaic site locations that were recorded during the 2018 field season near the No Agua Peaks obsidian source within the western portion of the monument.

Keyser, James (Oregon Archaeological Society) and Linea Sundstrom (DayStar Research)

[369] Ambrose Bierce’s Indian Inscriptions: Biographic Art Along the Bozeman Trail

In 1866 Ambrose Bierce accompanied the Hazen expedition whose tour inspected military outposts in the Department of the Platte. During cartographic work, Bierce recorded two “Indian inscriptions,” one petroglyph on the Powder River near Ft. Reno, and an arborglyph on the Yellowstone River upstream from Pompey’s Pillar. His recordings are detailed enough that we can decipher these narrative drawings. The petroglyph shows the aftermath of an attack on a lumber wagon, while the arborglyph shows two war expeditions, one against a Mackinaw boat on the Yellowstone River and the other against a group of Metis and their Red River cart.

Keyte, Shawn

[9] Discovery of A Lost Seminole War Fort: Fort Shackelford

Fort Shackelford was built in February of 1855 on what is now the Big Cypress Seminole Reservation in South Florida. It was one of several forts built by the U.S. Army used to scout near the Big Cypress and Everglades regions during the U.S. Government’s efforts to pressure the Seminoles into leaving the area. In late 1855, the fort was found burned and since then, the location of the fort has been shrouded in mystery. In December of 2017, new evidence was uncovered during excavations that could potentially be remnants of the lost fort. By determining the precise location of Fort Shackelford, it will help the Seminoles tell their story about an important site within their
Khaksar, Somaye and Gilbert Tostevin (University of Minnesota, Twin Cities)

[115] *Is It Only the Blank Size That Matters? The Effect of Edge Segmentation on Lithic Blank Cutting-Edge Efficiency*

Lithic blank/tool efficiency has been the subject of some experimental research in the last two decades. However, most of the research has largely been focused on the general morphology of the edge (straight, convex, or concave), or on some specific characteristic such as angle or the length of the cutting portion. What has not received attention is the small-scale variation in the edge morphology that is created by sharp projections and concavities in the edge and that define what portion of the blank can be used for cutting at any given time. This “segmentation of edge” can turn an otherwise long straight edge into multiple shorter segments. This means blank size, which is usually measured as “the maximum span of the flake parallel to the cutting edge” (Key & Lycett 2014:141) is not sufficient to assess the efficiency of a blank’s cutting edge. Here, we report on an experiment to evaluate the overall effect of segmentation on cutting edge performance with the hypothesis that longer segments are more efficient, in terms of time, than shorter segments. We also attempt to show how the cuts created by flakes with unsegmented edges are different from those whose edges are segmented.

Khalsa, Sant Mukh (CUNY Graduate Center)

[91] *Everyday Objects and the Lived Experience: Inhabiting Gufuskálar, a Late Medieval Icelandic Fishing Station*

Early Icelandic fishing stations are understood primarily through the shifting role of fishing within the Icelandic economy and the importance of fish provisioning within the North Atlantic. Thus, less focus has been placed on studying the lived experiences and domestic lives of people who worked at and inhabited these sites. The 15th-17th century site of Gufuskálar has produced material culture that offers a rare glimpse at the durable everyday objects used by non-elite Icelanders before the Early Modern period. The extensive collection of everyday objects from Gufuskálar – such as hair pins, padlocks, candle holders, cutlery, cooking pots and gaming pieces – gives us insight into the personal and embodied daily lives of inhabitants. This poster will examine the material culture from Gufuskálar to explore tensions between narratives of the economic and the personal at Gufuskálar.

Khatchadourian, Lori (Cornell University)

[359] *Discussant*

Kiahtipes, Christopher [82] see Schmitt, Dave

Kieffer, C. L. (Museum of Indian Arts and Culture, University of New Mexico)

[89] *Museum Manners: Brushing Up on Research Etiquette by Learning from the Mistakes of Others*

Following rules and common courtesy go a long way in the realm of research, and museums research is no different. Yet, the museum world is so different from the field and most degree course work typically does not cover how to conduct museum based research. Therefore you either have to learn the ropes first hand or from a colleague. These learning methods have a heightened risk of being ill prepared and more likely to make an etiquette faux pas. This poster aims to inform archaeologists of museum etiquette for all stages of research including finding research collections, scheduling your visit, how to conduct your research while at the museum, and what is expected of you after you complete your research.

[89] *Chair*
Since the year 2003, programmed research is carried out on the old iron metallurgy in Ivory Coast. Documentary research, field surveys and archaeological excavations have discovered ancient sites of iron metallurgy from 2003 to 2016. In a large part of the regions of Côte d'Ivoire, sites were discovered, studied then dated. The northern zones (Korhogo, Mbengué, Kaniassa, etc.) and those of the South (the Eotilé Islands, Issia) of Côte d'Ivoire have yielded various remains (extraction wells, reduction furnaces, clinker habitat related to the ancient metallurgy of iron etc.). The dating obtained after excavations on the sites of forest and coastal zones (V-XIIIe centuries) and savannah (X-XXe centuries) are between the fifth and twentieth century. A variety of technical traditions characterize these ancient techniques and show the wealth of these skills. Our objective in this study is to present a summary of the results of this research from 2003 to 2016. The written documentary data, the results of the surveys and the archaeological documents are analysed and allow to have important data.
Killick, David (University of Arizona) and Edwin Wilmsen (University of Texas, Austin)

[298] Petrographic Perspectives on Ceramic Technology and Provenance in Northern Botswana

Over the last 45 years, Wilmsen, James Denbow, and others have recovered ceramics from nearly thirty excavated sites, in the northern half of Botswana. Together with Phenyo Thebe and Ann Griffiths, Wilmsen has also sampled clays and sands throughout the region, has obtained samples of raw materials, and prepared pastes and pots from multiple village potters. To date, Killick has made qualitative petrographic descriptions of more than 700 thin-sections samples from these materials. This brief presentation provides a selection of our findings. We document some unusual choices of temper (charcoal, bone) and of clay, including a distinct preference in parts of eastern Botswana for preparing pastes directly from weathered granites. Many prehistoric pots in northwestern Botswana were clearly made from clays obtained from the inland Okavango Delta, as they contain spicules from freshwater sponges and/or plant phytoliths. We can also show that some pots were transported for at least 600km. Some of these appear to relate to the southward migration of pastoralists into northwestern Botswana around 200 CE; there was a second migration into this region around 700 CE, this time of metal-using agropastoralists with very different ceramics.

[363] Discussant

Kim, Alexander (Harvard University Dept. of Anthropology), Tatyana Savenkova (Krasnoyarsk State Medical University), Svetlana Smushko (Stockholm University Dept. of Zoology, Sweden), Yevgenia Reis (Arkheologicheskoye Proyektirovaniye i Izyskaniya) and David Reich (Harvard Medical School Dept. of Genetics)

[253] Genome-wide Ancient DNA from Historical Siberia as a Lens on Yeniseian Population History

The relevance of ancient DNA to debates in language prehistory is a noteworthy strand in Eurasian archaeogenetic research, where much effort has gone towards relating these data to Indo-European. We relate new genome-wide ancient DNA data from a historical Siberian individual to Yeniseian, an enigmatic and isolated language “microfamily” at the center of numerous controversial proposals in historical linguistics and cultural interaction. Yeniseian’s sole surviving representative is Ket, a critically endangered language of Central Siberia’s Middle Yenisei region. In sharp contrast to the present-day situation, Russian imperial records, combined with hydronyms and other argued loans and substrate influences in non-Yeniseian languages, indicate that Yeniseian speakers formerly had a much broader presence in the Siberian taiga, further south in the Altai-Sayan region, and perhaps even further afield. The consilience of these proposals with genetics is problematic and faces a major obstacle in the lack of samples from known speakers of Yeniseian languages other than the Kets, who have had complex ongoing interactions with non-Yeniseians such as the Samoyedic Selkups. We underline the special value even of comparatively recent Siberian aDNA samples, orienting our analyses in a broader landscape of concordance, discordance, and uncertainty at the interface of diachronic linguistics and genetics.

Kim, Geon Young

[338] Latrine Use and Human Waste Management in East Asia: Configurational and Depositional Approach

Latrines have been excavated in East Asia dating back to the second century BCE. To tackle with the fact that the number of latrines that have been reported does not match with the one of settlement sites, this paper provides possible solutions of detecting a latrine with the configurational approach and the depositional approach. Excavated cesspits, cesspools and flushing type latrines made of bricks and wood, as well as the mortuary pigsties and latrines from Han Dynasties’ tombs, suggest possible architecture structures of latrines. Artifacts such as hygiene sticks and wood ash can be used to determine the presence of latrines. Also, the anaerobic condition makes sediment analysis be possible. Considering the geologic condition of this region, some insects, macrobotanical remains, parasites, phosphate, coprostanol, and vivianite can be used as indicators. Latrine structures, in relation with the context concerning the surrounding environment, provide information of latrine use, human excrement and waste management, and reveal people’s idea towards latrines and human waste in ancient East Asia.
Kim, Ha Beom (University of Oregon)

[156] Examining Recent Archaeological Findings at the Bronze Age Korean Settlement of Jungdo Using an Economic Perspective

Recent archaeological excavations at the Jungdo site, Chuncheon, Korea have revealed a rare ditch-enclosed Bronze Age settlement in which more than 1,000 pit houses and 100 dolmens were found. As a large-scale complex settlement with evidence of spatial demarcation that divides the site into residential, production, storage, and burial areas, the Jungdo site provides valuable information on the lifeways of inhabitants at Bronze Age settlements and their interactions. The site is therefore very important for the Bronze Age settlement studies in Korea. This study presents the general findings of the archaeological excavation and archaeobotanical analysis at the site since 2013. While preliminary, the study also examines potential economic interactions occurred between Jungdo and other Bronze Age settlements present in the North Han River basin through the use of GIS and other computational analysis.

[156] Chair

Kim, Lynn (University of Texas at San Antonio)

[46] The Materialization of an Inka Colonial Landscape: Exploring the Road Network in the Camata-Carijana Valley

Colonial encounters with the Inka Empire led to social changes reflected in the landscape. A hallmark of Inka landscapes were their roads. I explore if the road network in the Camata-Carijana Valley materialized broader forms of state or local control through its distribution and construction. In particular, I investigate how the design of road system influenced movement of people and goods through the Valley. The poster focuses on my use of costs path analysis and Tobler Hiking Function to explore the time of travel and the movement of llama caravans. Analysis suggests that the pre-Hispanic road in the Camata-Carijana Valley was designed to (1) connect people from the highlands to the lowlands and (2) move people to the major Inka settlements in the Valley. Indeed, small local settlements were bypassed by the roads; Thus, the road network supported imperial trade and exchange between groups and discouraged (limited) local trade and exchange.

Kim, Nam [300] see Allard, Francis

Kim, Sophorn [300] see Bhattacharyya, Tiyas

Kimball, Larry R. [120] see Bradley-Lewis, Neeshell

Kimbell, Caroline (University of London), Sara Lunt (The Cusichaca Trust) and David Drew (The Cusichaca Trust)


In 1977, Dr Ann Kendall established the Cusichaca Trust, registered in the UK, to oversee her archaeological project work. Today the Cusichaca Archive documents forty continuous years of one of the largest multi-disciplinary projects ever mounted in the Peruvian Andes. Beginning with archaeological excavation in the Cusichaca valley near Machu Picchu, the Trust’s involvement expanded to include ethnography, ethno-history, and environmental studies. The Trust pioneered ‘Applied Archaeology’—initial archaeological investigation leading to collaboration with local farming communities in the restoration and re-use of pre-Hispanic systems of irrigation canals and agricultural terraces. Success here led to similar commitments across a wider area. The paper will summarize Cusichaca’s history and the work of London University’s Senate House Library to accession, describe, digitize and secure the long-term legacy of the Trust’s work. Most of the manuscripts, typescripts, maps, thousands of photographs, and extensive primary field records remain unexplored and unpublished. The Library has pioneered an approach involving student archivists from Ann Kendall’s alma mater University College London, to process and accession the archive, using the records as teaching material and completing the structuring and cataloging using a dedicated Project Archivist before running a competition to provide the records in digital form.
King, Eleanor (Howard University), Neil Hansen (Brigham Young University), Richard E. Terry (Brigham Young University, Emeritus), Christine Taylor (Maax Na Archaeology Project) and Michael Brennan (SEARCH Inc.)

[30] Soil Differences and Their Implications for Plaza Function and Site Organization at Maax Na, Belize

In 2016 the Maax Na Archaeology Project systematically tested the soils of two major plazas at Maax Na, a large prehispanic site located in the Three Rivers Region of Belize. Tests in the West Plaza sought to determine whether phosphorus levels there supported its identification as a marketplace during the Late Classic (C.E. 600-850). Similar tests at other sites have suggested that regular, linear distribution of high soil phosphate levels could signal an ancient market area, in conjunction with other marketplace indicators. Sampling of the North Plaza, thought to be the main ceremonial plaza at the site, was aimed at testing this proposition by determining if phosphate levels were consistent or varied across the site. Also of interest were data on heavy metal concentrations, which can signal different activities. Recently completed geochemical analyses of the samples reveals the two plazas had strikingly different chemical signatures, giving new insights into plaza functions and site organization.

King, Jason [176] see Jones, Emma

King, Jason (Center for American Archaeology), Jane Buikstra (Arizona State University) and Robert Pickering (University of Tulsa)

[185] Ontology, Time Travel, and Transformation in the Lower Illinois Valley

In this paper, we explore the implications of time travel (Holtorf) and ontology (Viveiros de Castro, Latour, Pedersen) for bioarchaeological perspectives of Middle Woodland (Hopewellian) peoples of the lower Illinois River valley (LIV), who occupied this region two millennia ago. Following Pedersen’s advice concerning reflexivity, conceptualization and experimentation, we argue that these Hopewellians became primordial beings during both unique and repetitive events that ensured balance across their worlds. We argue that people of all genders assumed ancestral and animal forms in their temporal travels anchored calendric, repetitive and multi-community rituals draped across monumental landscapes. The varied, richly productive landscape offered many potential animal familiars to those who traveled far to acquire shiny obsidian, gleaming copper, or the transparent mica that invited those Hopewellians no longer living to pass into the world below, a parallel universe from which life itself would come again. No less significant were the seasonal gatherings where participants recreated the world, sharing abundance and wisdom as they crossed impermanent boundaries between the cultural and the natural.

King, Julia

[133] Sea Level Rise, the Chesapeake Bay Bolide, and Managing Threats to Archaeological Sites in Coastal Maryland

A study commissioned in 2015 by the St. Mary’s County, Maryland Historic Preservation Commission sought to measure the impacts of residential and commercial development on the county’s archaeological resources. The study’s findings revealed minimal impact by development but a stunning threat from sea level rise compounded by the land subsidence caused by a 35-million-year-old meteor event. Because these sites (identified and unidentifed) are not threatened by development, resources are limited for documenting and managing them. To address this deficit in the state’s low-lying coastal plain, archaeologists might consider two things: one, a return to wide-area surveys using sophisticated GIS-based modeling and two, linking these surveys not only to climate change but to addressing important historical, social, and cultural questions.

King, Stacie (Indiana University) and Shanti Morell-Hart (McMaster University)

[197] Preserving Oaxacan Foodways in the Face of Conquest: The Seed Bank at Cerro del Convento

The rich culinary traditions of Oaxaca were both enhanced through and catastrophically disrupted by Spanish incursions during the Colonial Period. However, in spite of many radical transformations in cooking techniques and ingredients, indigenous people of Oaxaca persisted in their use of certain foods and practices. This persistence sometimes required extraordinary effort, especially in times of physical and spiritual insecurity. A specialized storage feature excavated in a rockshelter at Cerro del Convento, in the Sierra Sur region of Oaxaca, represents just such efforts. Remarkably, this one small rock and daub bin contained over 120 different plant taxa in less than one liter of
sediment. We argue that Cerro del Convento was used as both a physical retreat and a location where seeds of treasured food plants, i.e. agricultural futures, were deliberately curated. While seed banking is well represented in the modern world (e.g. Svalbard Global Seed Vault), the Cerro del Convento collection is the first of its kind in Mesoamerica and the richest find to date in the pre-Hispanic and Colonial Americas. The deposit indexes the importance placed on preserving foodways in times of crisis and highlights ingredients and practices of Oaxacan cuisine that persist to this day.

[256] Discussant

Kingston, Lauren (National Park Service)

[16] Discussant

Kinear-Ferris, Sharyl

[237] Recovery of Inadvertent Discoveries along the Lost Coast of the King Range NCA

Recovery and reburial of inadvertent discoveries of exposed pre-Columbian human remains has repeatedly occurred at a remote archaeological site along the Lost Coast of the King Range National Conservation Area, managed by the Bureau of Land Management-Arcata Field Office. The site is located in a remote area, subject to ocean wave action and seismic activity. It is within a congressionally designated wilderness area, and is accessible only by backpacking. BLM has consulted with the Bear River Band of the Rohnerville Rancheria (BRBRR), the geographically proximal Federally-Recognized Tribe regarded as the Native American representative, and the California State Historic Preservation Office (CA SHPO). These consultations resulted in the completion of a Native American Graves Protection and Repatriation Act (NAGPRA) Plan of Action (POA) and a Treatment Plan. The Section 106 compliance process resulted in a Memorandum of Agreement (MOA) between BLM and CA SHPO (expires October 2019). The BLM CA State Director authorized reburial of recovered remains. An internal BLM funding request for FY19 proposes a data collection project to better understand the erosion rate of the Lost Coast marine terrace and assess the vulnerability of significant cultural resources. The data set will inform a mitigation plan.

Kinsner, John [237] see Hicks, Keri

Kintigh, Keith (Arizona State University)

[225] Moderator

[188] Discussant

Kinyanjui, Rahab [115] see Oppenheim, Georgia

Kirakosian, Katie (UMass Amherst)


While some work has been done over the past few decades to uncover the roles of female archaeologists who supported their husband’s careers with little acknowledgment, less work has been done to explore the diversity of forgotten women’s labor that helped support American archaeology since the late 19th century. Institutions such as Harvard’s Peabody Museum of Archaeology and Ethnology and the Robert S. Peabody Museum of Archaeology benefited from countless female clerks, stenographers, secretaries, librarians, and other staff. At Harvard University, many archaeology graduate students who had young children benefited from an informal economy of female caregivers that lived on campus as well. Although different in many ways, the 21st century has seen a stark increase in non-tenure track faculty, who account for over 70% of faculty in American universities, or 1.3 million out of 1.8 million professors. Of these 1.3 million professors, it is estimated that between 51% to 61% of contingent faculty are women, who feel the effects of uncertain futures in Higher Education all too well.
Tijeras Pueblo lies at a crossroads. It sits at the junction of two canyons, one north-south and one east-west, and occupies a boundary between two distinct culture areas—the Pueblos to the west and the Plains to the east. This position on the landscape may have created both challenges and opportunities for the residents of Tijeras Pueblo in terms of subsistence. Previous studies of the Tijeras Pueblo fauna have focused on the marginality of Tijeras Canyon for maize agriculture. However, the large number of environmental zones accessible from this spot, as well as the cultural connectivity suggested by the Pueblo’s location, would afford residents access to an abundance of wild resources. In this paper, we discuss preliminary results from our analysis of the fauna from Tijeras Pueblo, with a particular focus on what they suggest about cultural connectivity and resource richness.
Kissel, Marc (Appalachian State University) and Agustin Fuentes (University of Notre Dame)

[247] Extending Paleoanthropology with the Extended Evolutionary Synthesis

Discerning the patterns and processes of human origins has been mostly centered on a gene-eye’s view of fitness landscapes. This interpretive structure is partially undermined by modern biological thought that emphasizes a more holistic approach to evolution. We suggest that the broader framework of the Extended Evolutionary synthesis allows for a better interpretation of paleoanthropological data. Some scholars have suggested that Niche construction blurs the boundaries between ultimate and proximate drivers of evolution. However, while thinking in terms of proximate and ultimate causation is useful, the two cannot always be separated while discerning relevant processes in ecosystems. In this paper, we emphasize the role of niche construction and suggest its value can be strengthened by firm footing in semiotic theory and the Extended Evolutionary Synthesis. We argue that the niche (and the concept of Umwelt) is a useful way to understand the organism—environment interface and apply this theoretical framework to two specific examples: 1) hominin evolution and 2) the processes of modern human origin. Using new results from aDNA, fossils, and archaeology we show that models which incorporate the Extended Evolutionary Synthesis are better fits for the current data that emphasizes hybridization and the expansion of the human niche.

Kistler, Logan [153] see Przelomska, Natalia

Kistler, Logan (Smithsonian Institution)

[302] The Evolution of Domestication in Cassava Unraveled through Historical Genomics and Archaeobotany

Cassava (‘manioc’ or ‘yuca’ regionally) is a staple food for 800 million people worldwide. It was domesticated in the southwestern Amazon ~7,000 years ago, and archaeobotanical evidence suggests that it dispersed widely, including through Central America, shortly thereafter. In the present day, it is most widely grown in Brazil and throughout sub-Saharan Africa. However, we know surprisingly little about its fundamental biodiversity and the domestication process. Here, we present new genomic data from historical collections which, combined with archaeobotanical records, begin to elucidate the evolution of domestication in cassava.

[302] Chair

Kita, Yuko (Instituto de Arquitectura, Diseño y Arte, Universidad Autónoma de Ciudad Juárez), Miguel Domínguez Acosta (Instituto de Ingeniería y Tecnología, Universidad), Aldo Izaguirre Pompa (Instituto de Ingeniería y Tecnología, Universidad), Patricia Girón García (Instituto de Geología, Universidad Nacional Autónoma) and Alberto Peña Rodríguez (Instituto Nacional de Antropología e Historia)

[346] Identification of Earthen Construction Techniques in the Casas Grandes Region, Chihuahua, Mexico

This study compares pre-Columbian earthen construction techniques in three archaeological sites of the Casas Grandes region: Paquimé, Arroyo Seco, and Cueva de la Olla. These sites are found in different geological and geomorphological setting, although they present similar architectural typology. Their construction techniques were examined by archaeometric characterization, such as particle-size analysis, thin-section petrography, X-ray diffraction, and X-ray fluorescence analysis. These analyses were performed on samples from walls of archaeological constructions and samples from local material banks previously identified as potential original material source banks. The study demonstrates the local origin of earthen construction materials, and the techniques particularity for each site, which reflects their adaptation to the local geological and geomorphological context.

Kitagawa, Keiko (University of Tübingen, Germany), Dario Massafra (Museo della Pristoria di Nardò, Italy) and Filomena Ranaldo (Museo della Pristoria di Nardò, Italy)

[144] Neanderthals in Porto Selvaggio, Southern Italy

Porto Selvaggio of southern Italy is where the Uluzzian culture was first identified and documented, providing key insights into the transition of the Middle to the Upper Paleolithic. The area has also yielded evidence of continuous Neanderthal occupations spanning MIS 5-3. Situated in the Natural Park of Porto Selvaggio, several sites were excavated by Brozatti von Lowenstern in 1960’s and 70’s. As a part of research initiatives at the Museo della Preistoria di Nardo, we began to revisit the artifacts and fauna recovered from these sites. Based on the analysis of
the production sequences and techno-functional classification of the lithics, we document the development of Levallois technique prior to the end of MIS 4 when this lithic technology purportedly emerged in this region. In addition, the reanalysis and correlation of chronostratigraphic, paleoenvironmental, and zooarchaeological data provide us clues into the role that this region played as a possible refugium for Neanderthals during unfavorable climatic conditions.

Kitchel, Nathaniel (Dartmouth College)

Discussant

Kitchel, Nathaniel [324] see Rockwell, Heather

Kitterman, Anya

Discussant

Kiura, Purity [316] see Dillian, Carolyn

Klamm, David [112] see Perkins, Jeremiah

Klassen, Sarah [81] see Russell, Will

Klassen, Sarah (Arizona State University)

Emerging Epicenters and Complementary Centralized and Decentralized Water Management Strategies at Medieval Angkor, Cambodia

Recent research at Angkor has aggregated over 20 years of archaeological map data, which is providing important new perspectives on the agricultural production system of the polycentric low-density urban complex. Much scholarly attention has been directed towards the functional vs. ritual nature of the huge reservoirs and channels (Van Liere, 1980). However, smaller, community-based agricultural units were likely important components of the agricultural system. In this paper, I trace the chronological and spatial development of two types of settlement patterns: 1) formally-planned dense urban zones that are termed epicenters and 2) lower-density settlement units comprised of temples and associated reservoirs and occupation mounds that are termed temple communities. Building from the work of Evans et al. 2013, this paper argues that groups of non-producers that lived in the epicenters would have been highly dependent on agricultural surplus produced by temple communities utilizing local and state hydraulic features. To determine if new temple communities are built near state-sponsored hydraulic infrastructure, nearest neighbor analysis and point density analysis are conducted. Results suggest that temple communities cluster around state-sponsored hydraulic features.

Klaus, Haagen [258] see Ham, Allison

Klehm, Carla (University of Colorado Boulder), Mark Helper (University of Texas at Austin) and Elisabeth Hildebrand (Stony Brook University)

From Minerology to Monuments: Place-Making through Personal Ornamentation in Mid-Holocene Turkana, Kenya

Beads play a prominent role in personal ornamentation in life and death: desired, exploited, and widely traded throughout prehistory. Although manufacture and use provide important social context, evaluating the materials used and their source locations is a crucial component of understanding how these industries arise. This paper features an unusual stone bead industry from Lake Turkana, Kenya associated with the first pastoralists in East Africa 5,000
years ago that rivals the mineralogical complexity of its global counterparts. Excavations at the sites of Lothagam North and Manemanya suggest these were mortuary monuments built by mobile pastoralists people who exploited a number of geological sources extensively to adorn their dead without the direction of dictation of a ruler or state. Stone beads found at these sites, in tandem with previously curated collection from another nearby site, Jarigole, provide contrast to the bead industries that emerge in agricultural and state societies. Through an examination of the minerology and sourcing of the beads, we argue this bead making phenomenon represents a significant investment in material elaboration when social values were under renegotiation, with a time, location, and context not currently considered in archaeominerological literature.

[140] Moderator

[140] Discussant

Klein, Cecelia

[304] Eagles, Falcons, and Vultures: The Birds on the Platform of the Eagles and Jaguars at Chichen Itza

All sixteen birds carved on the sides of the Platform of the Eagles and Jaguars at Chichen Itza have been traditionally identified as eagles. Because each pair of birds flanks a large relief of a seated jaguar holding a heart, it has been assumed in the past that the platform celebrated military orders like those honored by the later Aztecs, whose most valiant warriors were associated with either the eagle or the jaguar. Arguing that not all of the sixteen birds are eagles, and exploring the implications thereof, this paper proposes a new interpretation of the platform's meaning and function.

Klein, Terry

[4] Discussant

Kleist, Mari [185] see Whitridge, Peter

Klembara, Nathan

[179] Queer Eye for the Cave Guy: Exploring Non-Normativity in Upper Paleolithic Burials

Studies of Upper Paleolithic burials in Europe have illuminated several aspects of Upper Paleolithic lifeways, from health and diet, to status and social organization. These studies, while recognizing the rarity of Upper Paleolithic burials, interpret the Upper Paleolithic burial record as inherently normative. However, the intentional burial of people within cave and rockshelters was a non-normative practice. To date, fewer than 100 burials are known from the Upper Paleolithic in Europe. This practice, and the individuals contained within these burials, were not only rare, they were non-normative – they were queer. These buried individuals lived outside what was likely considered “normative” in the Upper Paleolithic, and it is for this reason they were singled out for burial. In this paper, I argue that analyzing these Upper Paleolithic burials through an explicitly queer lens will enhance our understanding of these burials, the individuals contained within them, and issues of Upper Paleolithic identity and embodiment more broadly. These buried individuals were challenging the norms of the Upper Paleolithic, and by analyzing them as radically queer, rather than the more politically and analytically inert “rare”, we can begin to push against our normative understandings of the past.

Klemmer, Amy (University of Wisconsin-Milwaukee) and Valentina Martinez (Florida Atlantic University)

[285] Zooarchaeological Analysis of a Guangala Pit at Rio Chico, Ecuador (N4C3-170)

The Rio Chico site on the central coast of Ecuador was occupied almost continuously for 5000 years (ca. 3500 BCE to 1532 CE) in a region of coastal South America that is heavily influenced by climatic events such as El Niño Southern Oscillation (ENSO). Archaeological records and historical documents written by the Spanish provide evidence that by the Manteño phase (500 to 1532 CE) the coast of Ecuador was inhabited by a maritime culture of long-distance trade merchants who were highly skilled at boat building and ocean navigation. However, the preceding Guangala phase (100 BCE to 800 CE) is less understood. This poster presents the results of a zooarchaeological analysis of a sample of faunal remains from a large Guangala phase pit feature (Feature 733)
excavated by Florida Atlantic University (FAU) field school in 2003. All remains were identified to the class level and a subset of this sample was identified to the family level. These identifications serve as the basis of this analysis. This analysis contributes to an understanding of the subsistence strategies and environmental conditions on the coast of Ecuador during the Guangala phase from which the highly skilled Manteño culture developed.

Klesner, Catherine [211] see MacDonald, Brandi

Klesner, Catherine (University of Arizona), Brandi MacDonald (Archaeometry Laboratory, University of Missouri Re) and Pamela Vandiver (Department of Materials Science and Engineering, U)

[389] Regional Production and Trade of Glazed Ceramics in Medieval Central Asia along the Silk Road

Analyses by NAA and LA-ICP-MS of 106 ceramics excavated from archaeological sites in southern Kazakhstan has demonstrated local production of lead-glazed ceramics during the Early and Middle Islamic periods in Central Asia. The sherds, including both glazed (n=39) and unglazed ceramics (n=67), were excavated from seven medieval sites dated from the 9th to 15th c. CE and located north of the Tien Shan mountains. Compositional analysis of the ceramic pastes by NAA indicates that there are three distinct compositional groups for the lead-glazed ceramics. Comparison of the glazed ceramic NAA data to more than 1300 previously analyzed ceramics from Southwest Asia, Central Asia, and China indicates both an active local production of lead-glazed ceramics, and trade of specialty and glazed ceramics into the region from Southwest Asia. While the paste composition of the glazed groups is well defined, LA-ICP-MS data of the major, minor, or trace elements of the glazes does not distinguish the same compositional groups. Characterization by SEM-EDS and EMPA of examples of ceramics from the three lead-glazed compositional groups examines the technological variation within and between the locally produced Central Asian and imported Islamic lead-glazed wares.

Klimowicz, Janis [368] see Haynes, Gary

Klunk, Jennifer [131] see Dhody, Anna

Knell, Edward (California State University, Fullerton)

[249] Current Perspectives on the Western Stemmed Tradition and Clovis in the Mojave Desert

This paper summarizes the spatial and temporal distribution, technology, and subsistence patterns of Clovis/Illited and Western Stemmed tradition sites and isolates in the southern Great Basin, particularly the Mojave Desert. Fluted and Western Stemmed Tradition (WST) points/sites occur throughout the Mojave Desert, though WST points (primarily the Lake Mohave and Silver Lake varieties) are more widely distributed and occur in greater numbers than fluted points. Many, but not all, of these points were found near shorelines of now dry lakes. After summarizing the distribution, technology, and subsistence trends at the regional-scale, I consider these same trends at the local-scale using my ongoing research around pluvial Lake Mojave (today's Soda and Silver dry lakes) as a case study. Despite the limitations of a largely surface record, important insights are gained about the lifeways of Paleoindians in the Mojave Desert and, more generally, those in the Intermountain West.

Knight, Terry [244] see Shurack, Nichol

Knight, Terry (Ute Mountain Ute THPO), Jessica Yaquinto (Living Heritage Anthropology) and Nichol Shurack (Ute Mountain Ute THPO)

[313] Ute Ethnographic Cultural Landscapes in Southeast Utah

The Nuche, or Ute people, have been in their homelands across Colorado and Utah since time immemorial. Southeast Utah formed part of the larger movements of the Ute bands with connections to the area, which in turn formed part of the overall Ute movements across the entire Ute homeland. The cultural landscape of southeast Utah serves as a microcosm of Nuche lifeways as a whole. The Abajos of southeast Utah, for example, not only provide
nourishment of wild animals the Utes hunt, plants they gather, and crops they farm downstream, but also provide spiritual nourishment and cultural continuity. It proves vital then to not only consider specific archaeological sites, but how the entire cultural landscape formed a necessary part of Ute lifeways. A Utah BLM funded ethnographic study is showing the depth and variety of 32 tribes’ connections to southeast Utah, but this talk will specifically focus on Numic, both Ute and Southern Paiute, cultural landscapes in southeast Utah. Included in this discussion will be an overview of interdisciplinary ethnographic and archaeological documentation being conducted at a Numic petroglyph site, as well as how tribes and archaeologists can better collaborate to reach mutually beneficial outcomes.

Knipper, Corina [386] see Fisher, Lynn

Knobloch, Patricia (RA, Institute of Andean Studies)

[250] Discussant

Knudsen, Garrett (Institute for Northern World Science and Anthropology) and Joseph Pnewski (Institute for Northern World Science and Anthropology)

[269] Innovation, Intensification, and “Maritimeness” 4,500 Years Ago at Chignik, Alaska

On the south side of the central Alaska Peninsula, close to culture-history’s boundary between “Eskimo” and “Aleut,” lies Chignik. Most archaeological investigations and explanations in the broader region have emphasized the overwhelming importance of resources derived from the sea. But at Chignik, evidence of a divergent facet of maritime adaptation has been identified, one physically oriented away from the coast and focused on salmon. Recently, large, stratified cultural deposits were incidentally uncovered within the Village of Chignik Lake during infrastructure improvements. These deposits sat below well-known volcanic tephra, yielded diagnostic projectile points and tools, and produced charcoal samples for which AMS dates were generated. These data prove substantial human occupation at Chignik much earlier than previously-confirmed for the region, one that occurred nearly 5,000 years ago and shared some characteristics with the Arctic Small Tool Tradition. This paper explores culture-history, maritime adaptation, and salmon intensification to discuss human adaptation as technological innovation at Chignik, in the broader context of regional Holocene climate models.

Knudsen, Pauline [251] see Walls, Matthew

Knudson, Kelly [206] see Greenwald, Alexandra

Knudson, Kelly [111] see Scaffidi, Beth

Ko, Jae Won [156] see Park, Geun Tae

Kober, Brent, Suzanne Hayden and Martin McAllister


The question posed in the paper title will be addressed by presenting arguments for the development and adoption of an American Convention on the Protection of the Archaeological Heritage similar to the existing European convention on heritage protection. Using the European convention as a model, important components of an American convention will be considered, recognizing the unique heritage protection issues faced in the Americas, particularly the multi-cultural heritage of the western hemisphere. It will be argued that an important component of the convention should be positive actions to increase government, corporate and public support for protection of heritage resources by strengthening the concept of “ownership” of these resources by these groups beyond the acknowledged interests of concerned resource professionals including archaeologists, cultural resource managers and museum specialists. Recent considerations of this issue by European heritage professions will be reviewed to support the essential need for this non-professional involvement in heritage protection. Finally, this paper will recommend a potential strategy for developing a draft American Convention on the Protection of the Archaeological
Heritage and moving it toward adoption by governmental entities of the Americas.

Kocer, Jacqueline


The Gallina (AD 1100-1300) people of northwestern New Mexico produced both Black-on-Gray and utility ware ceramics. Gallina ceramics appear to be produced at the household level with no evidence for specialization. Little is known about Gallina ceramic production practices and few compositional analyses have been conducted. This pilot study examines ceramics in thin-section using Petrography and the Electron Microprobe Analyzer illustrating paste composition from three sites. Results from this analysis suggest the use of grog temper, a practice not yet documented in the Gallina area. Comparing Gallina paste composition across three sites lends insight to similarities and differences in communities of practice.

Koch, Allan [147] see Farmer, Reid

Koenig, Alex (New Mexico State University)

[208] Contextualizing Campsites: Survey Results and Comparisons from Two Parajes along El Camino Real de Tierra Adentro

As part of ongoing projects relating to El Camino Real de Tierra Adentro, NMSU students surveyed the North Fork Paraje, a campsite near a section of the Camino Real in southern New Mexico. These ephemeral sites are generally difficult to locate, with many sites attested to in archival documents still undiscovered, resulting in a general lack of scholarship relating to them. The recent survey supports a conclusion by an earlier study that placed the heaviest period of use for the paraje in the 18th century. Furthermore, during the colonial period, the paraje appears to have been used primarily by travelers moving north from Mexico. Artifact and spatial analyses reveal differences between the North Fork site and the nearby Paraje San Diego, demonstrating the non-uniformity of this site type. These differences reflect the various ways the trail was used and experienced over time.

Koenig, Charles [36] see Lawrence, Ken

Koenig, Charles (Texas State University, Shumla Archaeological Research and Education Center)

[36] Assessing Earth Oven Intensification in the Lower Pecos Canyonlands of Southwest Texas

Earth oven baking begins in the Lower Pecos Canyonlands of southwest Texas around 10,000 years ago and becomes a prominent component of hunter-gatherer life throughout the Holocene. We know plant baking played an important role within Lower Pecos lifeways because earth oven facilities (EOFs)—the locations where hundreds to thousands of earth ovens were constructed over millennia—are the most common archaeological features in the region. However, given the ubiquity and outwardly invariant nature of Lower Pecos EOFs, little research has been directed at assessing intensification and changes in long-term earth oven use, or evaluating the social impacts of earth oven construction and plant baking. Recent excavations at four rockshelters in Eagle Nest Canyon, a short box-canyon tributary to the Rio Grande, provide an opportunity to address these research issues. Focusing primarily on intensive radiocarbon dating, rigorous stratigraphic documentation, and estimates of the total number of constructed earth ovens, we assess earth oven intensification, long-term use, and the potential social dynamics of earth oven construction within the four rockshelters in Eagle Nest Canyon. These data can be used to address the potential implications for broader regional mobility and landuse studies.

[36] Chair
Koenig, Viola (Ethnologisches Museum)

From Narrative Picture Writing Bands to Pseudo Cartographies. How Native Scribes Invented Powerful New Media after the Conquest

Scholars have always believed that maps and cartographies did exist in preconquest Mesoamerica. The large amount of early colonial Native maps seems to be evidence for such geographic media. But as yet, no pre-Hispanic lienzos and maps have become known. However, the earliest lienzos do show pre-Hispanic elements in their structure, iconography, and content, albeit in varying degrees. There are many indications that the authors were familiar with prototypes. With the creation of the Lienzo as a modern-looking new medium they were able to integrate mythical and real history known from the pre-Hispanic codices as a process in the flow of time. Transferred to the new medium they do not express any rupture that occurred when the Spaniards arrived and seized power; they rather integrate that event. In the paper, typical cases will be exemplified by the examples of the Codex Vienna, Lienzos Seler II/Coixtlahuaca II and Tlapiltepec from Oaxaca, and other documents. Their central theme is the pre-Hispanic legitimization of power, changing concepts and claims to territory while the media, structure, and style of the documents are subject to change, and reflect the reception habits at the time.

Koeppel, Christopher (US Forest Service) and Doug Stephens (USDA Forest Service)

Creative Mitigation and Collaborative Outcomes in Section 106 Planning

Too often the Section 106 process for archaeological historic properties follows a formal checklist, and mitigation of archaeological sites through intensive Phase III excavation is the assumed outcome. However, Phase III excavation may not be the most desired outcome for the people that have deep emotional and spiritual connections to these archaeological resources. Alterations or impacts to sacred sites or cultural resources that represent community cohesion are not mitigatable in the traditional sense, and Phase III excavation would not be desirable. We will present several examples from Federal civil works, transportation, and USDA Forest Service projects of creative mitigation that benefitted both the agencies’ missions and the interests of consulting parties and Native American tribes. If we include consulting parties and tribes during scoping and project design, rather than wait until later Section 106 or NEPA stages, we can create a collaborative planning process that avoids adverse impacts to important archaeological resources. This enhances the meaning and relevancy of the NHPA-based planning decisions by identifying collaborative, value-added cultural resource stewardship outcomes, while allowing agencies to plan and engage with cultural resources in a less reactive manner.

Koerner, Shannon (Colorado State University, CEMML) and Bretton Giles (Colorado State University, CEMML)

An Assessment of Central Plains Tradition Ceramic Variation in the Flint Hills Region of the Eastern Plains, USA

The Central Plains tradition (CPT) encompasses a variety of Late Prehistoric adaptations in the eastern Plains between AD 1100 and 1400. Cultural taxa within the CPT often are defined by certain pottery types within defined areas along the Kansas and Missouri River valleys. The Smoky Hill phase is a CPT taxon for the Flint Hills region in the Kansas River valley. Recent studies of particular Smoky Hill phase sites by the authors in the vicinity of the Fort Riley Military Installation have prompted us to reassess their pottery assemblages and temporal placements. Our studies have uncovered a mix of traits in these CPT ceramic complexes that make it difficult to understand whether certain sites reflect an in-situ development, long-distance influence, population intrusion, or multiples of these factors. This paper assesses some of the variation within CPT pottery in the Flint Hills region with a focus on documenting the composition of these assemblages and how their variability relates to recent radiometric dates for the sites.

Kohanski, Neil (California State University, Los Angeles) and Jeffery Rosa Figueroa (California State University, Los Angeles)

The Ritual Requirements for Opening a Maya Cave

In 1966 a cave near Chichen Itza was reported to the Instituto Nacional de Antropología e Historia (INAH) by Maya living in the area. The cave was investigated by Victor Segovia Pinto, after which the sinkhole entrance was filled with rocks. When archaeologists from the Gran Acuífero Maya opened the cave 52 years later, workers on the project demanded that a ritual be performed that would protect the workers and the entire archaeological crew. A mesa or altar was constructed at the site and offerings of atole, liquor, cigarettes, and honey were made. The ritual
specialist purified the area by sprinkling liquor in the four cardinal directions surrounding the cave entrance. In the Maya lowlands, caves are ubiquitous features in the landscape. The ceremony described here reflects the fact that features like caves are deeply embedded in Maya cosmology and that the investigation of such features is considered to hold potential danger. Observations reported by the archaeologists were consistently seen as holding deep magico-religious significance by the Maya.

Kohler, Tim (WSU/SFI/CCAC)

[31] Discussant

Kohler, Tim [86] see Bocinsky, Kyle

Kohut, Betsy (Millsaps College)

[227] Discussant

Kohut, Betsy [372] see Brownstein, Nathan

Kohut, Lauren (Bowdoin College)

[18] Constructing Difference: Defense, Sensory Experience, and Social Difference at a Late Prehispanic Hillfort (Arequipa, Peru)

The fortified settlement of Auquimarka was one of many hilltop fortifications built during the Late Intermediate Period (1000 – 1450 CE) in the Colca Valley of the southern Peruvian highlands. While most fortifications fell into disuse following Inka expansion into the region, Auquimarka continued to grow and became a modest administrative center. The hilltop promontory location and numerous defensive walls are among the most striking features of the settlement. While crucial for defense, these features were also important in ordering the construction of homes and public spaces and in shaping the sensory experiences of residents as they moved through the settlement. Survey and excavations at the site indicate growing social differentiation between residents over time; differences that were often structured in relation to the settlement’s defensive features. Capitalizing on the excellent architectural preservation at the settlement and a high-resolution digital terrain model captured from UAV imagery, this paper examines how social differences were mediated through experiences of visibility and mobility. The long history of occupation at Auquimarka offers insights into how social and political changes brought about by Inka rule were enacted in relation to earlier Late Intermediate Period experiences of war and settlement nucleation.

Kolar, Miriam (Five College Associate)

[315] John Rick: Archaeoaoustics Maverick

The research and conservation program directed by Dr. John Rick at Chavin de Huántar, Perú was one of the earliest major archaeological projects to invite and support integrative archaeoaoustics. Since 2008, Chavin archaeoaoustics has been featured in venues and publications across disciplines including archaeology, anthropology, acoustics, audio engineering, ethnomusicology, music archaeology, and the international science community, while simultaneously garnering attention in popular press. Among the driving factors for a sustained and comprehensive archaeoaoustics presence in Chavin archaeology has been Rick’s collaborative commitment. Rick’s interest in physics-based archaeoaoustics conforms with his archaeometric approach and strategic adaptation of novel technologies, regardless of their field of origin or typical application. Rick is an advocate for customizing digital tools, essential to the archaeometric archaeoaoustics at Chavin, directed by Miriam Kolar. Bringing archaeoaoustics directly into an archaeological research project—and by conducting the first in-situ impulse response measurements of architectural acoustics himself, using a toolkit and procedure developed with colleagues at Stanford’s Center for Computer Research in Music and Acoustics (CCRMA)—Rick has demonstrated a commitment to innovative archaeology, and a willingness to work across disciplinary boundaries that typically preclude such collaborations. Archaeoaoustics is novel, and John Rick is one of its maverick early adopters.
Kolb, Benjamin (SUNY Binghamton)

[169] Learning to Knap: Apprenticeship Systems in the Early Woodland

Tools are frequently conceived of as finished products rather than processes in and of themselves. Studying stone tool production allows for greater insight into pre-historic social systems, particularly that of apprenticeship, due to the development of criteria for detecting skill through lithic analysis. This project looks at Herrick Hollow I, a lithic scatter site in Delaware County, New York, in the context of the Meadowood phase of the Early Woodland period of the Northeast. The project includes observations of formal stone tools and debitage analysis in order to determine the presence of skill differential at the site and the possibility of a community of practice surrounding flintknaping. This is put in the larger context of the political economy of the Meadowood and comparative work on apprenticeship and learning.

Kolb, Charles (National Endowment for the Humanities (Retired))

[38] In the Beginning: TVP and TMP -- Reflections on the Classic Teotihuacan Period Survey in the Teotihuacan Valley, 1962-1964

In June 1960, Eric Wolf organized an NSF-sponsored conference of 11 American and Mexican archaeologists held at the University of Chicago to evaluate the status of previous anthropological studies focusing on the Basin of Mexico and to coordinate future research. This led to two analogous long-range plans beginning in 1962. 1) René Millon’s Teotihuacan Mapping Project (TMP), based at the University of Rochester, centered on the Classic period ceremonial center at Teotihuacan (ca. 100-650/750 CE) and its surrounding urban area (ca. 20 km2). 2) William Sanders’ Teotihuacan Valley Project (TVP), based at The Pennsylvania State University, concentrating on identifying and mapping rural settlements (505 km2) from all time periods (Paleoindian-Colonial), which transformed into the larger Basin of Mexico Project (BMP) with five survey regions (totaling ca. 7,000 km2). The TMP and TVP focused initially on two issues: 1) precisely defining chronological periods and phases by ceramic analyses (pottery, figurines, candeleros, etc.) and 2) field-by-field ground survey using aerial photographs to plot the extent of urban and rural settlement areas. As a Penn State student, I worked on the TVP for my dissertation and was also hired by the TMP and will discuss the ensuing cooperation, competition, and problems.

Kolb, Michael [321] see Balco, William

Kolb, Michael (Metropolitan State University of Denver) and William Balco (University of North Georgia)

[321] Never Built in a Day: Contextualizing Urbanism in Iron Age Western Sicily

The Iron Age was a transformative period in western Sicily, introducing the indigenous Elymian populations to Aegean and Levantine colonists who brought their own languages, crops, technology, materials, social customs, and ritual systems. Concomitant to the arrival of these foreigners was a transformation of indigenous lifeways. We examine this transformation by comparing settlement layout, housing styles, fortification systems, population densities, and the production of pottery, textiles, and agricultural products between the Late Bronze Age and the Iron Age, couched within a theory of urbanization. This transformation is interpreted as the result of local responses to broader social, political, and economic developments coupled with contact and sustained interaction with the newly arrived foreign colonists. Consequently, the Iron Age Elymi represent one case study where local responses partially aligned Elymian populations with their new neighbors, yet maintained elements of their indigenous heritage.

Kolb, Michael [337] see Rosa, Alexander

Kolbenstetter, Marie

[412] Politics along the Rivers: An Example from the Gulf of Fonseca, Honduras

The relationship between environment, politics, and economies has often been observed in the archaeological record. In the Gulf of Fonseca, where archaeological sites concentrate around mangrove swamps, rivers and estuaries; politics were intricately tied to the affordances of riverine systems. Based on the ceramic record of different regional sites, we argue that the location of a site alongside a river offered the possibility to make foreign connections and integrate a site in different economic spheres. In the Gulf area, waterways would have been a
determining factor in establishing political relationships: it seems that sites along the same river often exhibit more similarities in their assemblages than sites located in close proximity from one another. Distance herewith becomes an irrelevant factor in the determination of political affinity; rather riverine systems would have bound or isolated sites to and from economic spheres and barter systems. In return, isolation from sites along the rivers reflects a local political choice to reject foreign influence.

Koldehoff, Brad H. [357] see Betzenhauser, Alleen

Koller, Jared (Boston University) and Stephen Acabado (University of California, Los Angeles (UCLA))

Expansion Modeling and Dating the Ifugao Agricultural Terrace Systems Through Volumetric Analysis and Energetic Modeling

Archaeological dating of agricultural terraces is complicated due to the nature of its technological foundation and use. Various methods have been proposed for dating agricultural features, but the issue of stratigraphic disturbance persists. In this paper, we highlight our work in the UNESCO-listed Ifugao Rice Terraces as a case study to address the limitations of model-free stratigraphy-based dating and also to serve as an example for future energetic studies that utilize 3D volumetric analysis. We present a methodology that incorporates multiple datasets, which include ethnohistorical, ethnographical, and spatial, to establish terrace construction sequence and development over time by assessing the amount of time, energy, and organization that would be required to create the modern landscape through remote sensing image classification and energetic reconstructions within 3D environments. Utilizing archaeological datasets acquired by the Ifugao Archaeological Project from four Ifugao sites and previous archaeological research in the region, we argue that wet-rice cultivation in the highlands of the Philippine Cordilleras is a recent phenomenon that coincided with contact with the Spanish, one that supports the argument that the emergence of wet-rice cultivation in the highland region was an indicator of influx of lowland populations avoiding the Spanish colonization.

Kollmann, Dana

Hot, Cold, Above and Below: Enhanced Survey Methods in the Detection of Clandestine Graves

Ground-based methods of searching for clandestine graves and surface remains have been utilized by law enforcement and search and rescue personnel for years. When ground conditions and the technique of search are appropriate for the circumstances of the case, results are often successful. However, weather, terrain, acreage, foliage and efforts to conceal remains are among the factors that can complicate or even hinder the efforts of search teams. This paper explores enhanced methods of searching for human remains, including the use of areal forward infrared looking radar, drone photography and ground penetrating radar.

Kollmann, Dana [160] see Grant, Evelyn

Kolvet, Renee (Independent)

Characteristics of an Upland Cypro-PPNB Ground Stone Assemblage

The diverse ground stone assemblage at Ais Giorkis in western Cyprus is comprised of tools typically associated with early Neolithic sites. Certain tool categories however, appear to be underrepresented. The dearth of grinding slabs, querns, large mortars, and handstones (typically associated with food processing) may, in part, be attributed to the site’s proximity to the Paphos Forest in the Troodos Mountains, and a possible preference for wooden tools. Other explanations may be gleaned from the archaeobotanical record which alludes to the transport of processed cereals to the site. Answers to these questions will be formulated in concert with other site data.

Komp, Rainer [155] see Ruby, Bret
Komulainen-Dillenburg, Nancy (USACE)

[241] USACE St. Paul District Regulatory (Corps) Commitment to Open and Transparent Communication and Consultation with Tribes

St. Paul District Regulatory (Corps) implemented measures to build upon and improve relationships with our Tribal Nations and ensure open and transparent communication. A multi-year effort occurred in stages to assess tribal concerns and needs, and develop and share tools and materials to address those concerns and needs. The result has been a more transparent, open relationship. Tools and materials shared with Tribes by the Corps Tribal Liaison in 2018 include an online WebMap Viewer and a Shared Communication Protocol. The Shared Communication Protocol contains a Shared Statement of Understanding that commits both the Corps and Tribe to early, open, and transparent communication in a joint effort to preserve and protect historic and cultural resources. The innovative online WebMap Viewer displays pending permit applications within the Corps. This pilot platform is protected by username and password, for use exclusively by Tribes, and does not replace formal consultation; however, the Viewer provides sufficient information about pending permit applications to allow the THPO to quickly identify concerns about potential impacts to significant historic or cultural resources unknown to Corps Cultural Resources Managers.

Konwest, Elizabeth (Indiana University, Bloomington)

[192] Rural Exchange Networks in Postclassic Oaxaca

In 1523, Spanish colonizers, alongside their native allies and African slaves, arrived in Nejapa to find people already relatively accustomed to the social upheaval brought about from foreign entries into their territories. During the Late Postclassic, Zapotec and Aztec armies had followed existing trading routes along the camino real through Nejapa, Oaxaca to reach the resource rich isthmus. This paper will focus on the various trade networks accessed by the residents of the Nejapa valley site of Greater La Amontonada (GLA) while also referencing other Postclassic period sites in the region. Residents of GLA participated in an informal and decentralized, but robust region-wide network to exchange locally produced ceramics. Though imported in extremely limited quantities, local potters also had knowledge of wider Oaxacan and Mesoamerican styles, and considered those “exotic” styles desirable for imitation. The exchange of obsidian and other imported goods contrasts sharply with the ceramics and was much more restricted. Residents of contemporaneous settlements in Nejapa engaged with different networks of traders. Although living in a rural area between larger, more powerful geographic regions, the ceramics and obsidian at GLA demonstrate a people enmeshed into the larger Mesoamerican world.

Kooiman, Susan (Michigan State University)

[291] Functioning at Full Capacity: The Role of Pottery in the Woodland Upper Great Lakes

James Skibo’s seminal works on pottery function created a valuable model for assessing the role of pottery in the lives of past peoples. While this approach has broad applicability for ceramic assemblages worldwide, its efficacy has been demonstrated through a series of studies on ancient pottery assemblages from coastal sites in Michigan’s Upper Peninsula. Both technical properties of ceramic cooking pots and their associated use-alteration traces, particularly interior carbonization, indicate differences in vessel construction and use by local Middle Woodland (200 BC – AD 500/600) and Late Woodland (AD 500/600 – AD 1600) cooks. Vessel shape, temper size, and patterning of interior carbonized food residues suggest a shift in preferred cooking techniques over time. These alterations may be responsive to environmental shifts, social change, or culinary trends spread from interaction with other groups. Overall increase in vessel size could reflect changes in settlement patterns and socio-ideological interactions but may have also provided a functional cooking advantage. The contributions of this work to Upper Great Lakes archaeology demonstrate the strength and utility of Skibo’s framework.

[291] Chair

Kooistra, Marty

[151] Utilizing Cumulative Viewshed Analysis to Explore Virgin Branch Ancestral Pueblo Settlement Choice

Prehistoric habitation structures located in the Mount Trumbull region of northwest Arizona are constructed across a diverse topographic landscape. Several archaeological site records for the Mt. Trumbull region allude to the exceptional views from habitation structures despite their often non-obtrusive locations. The following study utilizes Geographic Information Systems (GIS); Cumulative Viewshed Analysis (CVA); and site suitability analysis to
facilitate understanding of patterns and relationships among archaeological habitation sites located in this exceptionally diverse landscape. Using CVA, this study endeavors to characterize habitation sites as linked in two ways. The first is geographic. Are habitation sites intervisible? The second means of connection concerns material remains. Do habitation sites share material similarity based on temporal phases? This research seeks to improve current knowledge of Ancestral Pueblo settlement patterns and determine if the geographic location of habitation sites predicts the structure of their material remains; and if so, would this provide evidence for the existence of prehistoric communities? Based on the results from several viewshed analyses, data suggests that the placement of known habitation sites across the landscape significantly differs when compared to sample “non-site” locations suggesting that known habitation sites were constructed in areas of the landscape that favored intervisibility.

Kooistra, Marty [191] see Caro, Carlos

Koons, Michele (Denver Museum of Nature & Science) and Mark Mitchell (Paleocultural Research Group)

[17] Community Archaeology at Magic Mountain, Golden, Colorado

Nestled in the foothills along Apex Gulch in Golden, CO, Magic Mountain is proclaimed to be one of the most important archaeological sites on Colorado’s Front Range. The earliest artifacts date back to 5000 BCE, when the site would have served as camping grounds for mobile hunter-gatherer groups. Later remains, such as ceramics and stone structures, indicate that through time it became a semi-permanent residence that was inhabited until at least 1000 years ago. Although previously explored by archaeologists, in 2016 the Denver Museum of Nature & Science and Paleocultural Research Group initiated a new round of work through a community-based effort. Over the last two seasons (1.5 months total), 133 volunteers helped excavate and give public tours. We served 121 youth from Boys and Girls Clubs and other organizations with programming, and nearly 3,000 people experience hands-on archaeology through public tours. Additionally, we contacted all tribes with historical affiliation with the state and invited them for an organized intertribal day. We had representatives from five different tribes attend over the last two years and communication with many other tribes about the project. This paper will discuss the goals of the project and our work with the various stakeholders.

Koons, Michele [89] see Nash, Stephen

Koons, Sheila

[403] The Middle to Upper Paleolithic Site of Abri des Merveilles in Southwestern France: An Assessment of the Integrity and Research Potential of an Historically-Excavated Museum Collection

As museum shelves buckle under the weight of virtually forgotten boxes of artifacts, many institutions are questioning the future curation of these historically excavated materials. Much of this material is comprised of Paleolithic artifacts excavated during the infancy of American archaeology abroad. This project was undertaken to evaluate the integrity of a prehistoric lithic collection and to examine the efficacy of utilizing the resulting data for larger research questions. It begins with a detailed history of the site of Abri des Merveilles and the prehistoric environmental context within which the site was formed. Abri des Merveilles was one of the few sites in the Vézère Valley containing both Middle and Upper Paleolithic layers of deposition. Thus, a thorough description of this site contributes significantly to the understanding of the distinction between these two periods throughout the region. The most important aspect of this undertaking was the analysis of the Merveilles lithic collection currently in curation at three American museums. The lithic analysis tested the soundness of the site’s historically designated cultural layers and elucidated the positive and negative effects of past excavation and curatorial methods. The analysis also provides a comparative data set for future research in the region.

Kopperl, Robert (Willamette Cultural Resources Associates), Eleni Petrou (University of Washington), Lorenz Hauser (University of Washington), Dana Lepofsky (Simon Fraser University) and Dongya Yang (Simon Fraser University)

[312] Ancient Herring DNA from the Burton Acres Shell Midden (45KI437) and Pacific Herring Population Dynamics in the South Salish Sea

Pacific herring (Clupea harengus pallasi) is an important forage fish and staple food of many Northwest Coast indigenous peoples. Archaeological evidence throughout the south Salish Sea extends this ecological relationship
back at least several millennia, but the presence of herring in archaeological deposits is often considered a single-
dimensional seasonal indicator of past herring harvest. Modern fisheries studies define multiple herring stocks in the
south Salish Sea, and recent genetic analysis of these stocks shed light on important aspects of population diversity
and a much richer mosaic of different life histories between herring stocks. An on-going study of ancient DNA from
archaeological specimens provides the first direct link between ancient and modern herring populations, including
diachronic information over the past ca. 1,000 years at the Burton Acres shell midden on Vashon Island in the south
Salish Sea. Our results suggest that Native American fisheries here primarily targeted herring populations spawning
in late winter and early spring, although there also were a small number of samples originating from late-spawning
populations. The Burton Acres site occupants accessed herring from multiple stocks within the diverse ecological
portfolio of herring populations in the south Salish Sea.

Kornfeld, Marcel (PiRL - University of Wyoming)

[329] Structure and Formation of a Paleoindian Deposit: The Hell Gap Site, Wyoming

A key question for interpreting both human behavior and the Paleoindian cultural sequence, the two pillars of
significance attached to the Hell Gap site, concerns the nature of site formation. This term, however, is ambiguous.
Site formation begins when people carrying on daily activities discard and lose objects. Once lost, the objects are
subject to various surface geomorphic processes (wind, water, plant and animal behavior) and eventually under
conditions of aggradation become buried in the sediment. Objects buried in the sediment, whether originally left by
people or brought in by various geomorphic processes, form patterns that may be informative of cultural behaviors,
geomorphic processes, and in most if not all cases, both. In this presentation I examine the vertical and horizontal
structure of the Hell Gap site at several scales to begin the assessment of Hell Gap site formation.

[329] Chair

Kornfeld, Marcel [329] see Ward, Naomi

Koromo, Samson [2] see Lee, Patrick

Kosakowsky, Laura (University of Arizona)

[284] Discussant

Kosciuk, Jacek [233] see Ziolkowski, Mariusz

Kosiba, Steve (University of Minnesota) and Bruce Mannheim (University of Michigan)

[18] Ancient Andean Scalarity

Scholars of the Andes often assume that the social units they study—residence, community, and region—are
monotonically scaled, nested from smaller to larger. This suggests universal correspondences between the
analytical and observational objects through which social units are known; hence individual buildings may stand in
for households, intermediate social units, or broader publics. Yet this assumption does not hold in Southern
Quechua, the language of the Inkas, wherein relevant social units are often non-scalar, or inherently linked to other
units: for instance, wasi (sometimes translated as “house structure”) presupposes a larger social unit llaqta (a
cluster, a hamlet or even a country). Southern Quechua spatial orientation greatly differs from prevailing
archaeological models of domestic space and settlement, which suggest scalar gradations in size and function from
house, to hamlet, to center and hinterland. How can we analytically model scalarity in Inka social organization,
particularly with respect to such units as wasi, llaqta, and aytu? Archaeological data from settlements in Cusco,
Peru (e.g., Rumiqolqa, Ollantaytambo) reveal that Inka notions of domestic space were (as today) centered less on
scalable physical structures and more on the situated configurations of labor, people, plants, and soils that together
defined social units and scales.
Kosiba, Steve [114] see Rodriguez Osorio, Daniel

Koski-Karell, Daniel

[276] Tortuga - Haiti’s Ile de la Tortue - Prehistoric and Buccaneer Archaeology

The Ile de la Tortue, Haiti, is perhaps more famously known as Tortuga for its association with the seventeenth century’s Buccaneers. It was settled in prehistoric times by multiple cultural groups, given its Spanish name by Columbus, depopulated by enslavement of its indigenous population, settled by English Puritans, liberated by French Huguenots, became a port of ill-repute for Buccaneers, includes multiple shipwreck sites, was developed into French colonial plantations, became a place of relief or death for sickly French soldiers and Napoleon’s sister Pauline, liberated again by Haitian revolutionary forces through amphibious invasion, and on and on and on. All in all, it’s a pretty interesting place, but not easy to get to and life there is tough. This paper provides a summary of the author’s archaeological investigation of the island.

Koster, Anne (ERDC-CERL)

[241] Impacts to Archaeological Deposits by Heavy Equipment and Protective Site Hardening Techniques

Heavy equipment, whether from construction, agriculture, or other varied situations, can significantly and negatively affect surface and subsurface archaeological deposits, be it from direct or indirect contact with machinery. In-situ protective “site hardening” techniques have potential to mitigate some of these impacts, if designed appropriately in response to expected types of heavy equipment, and in context with site environmental properties. This paper and presentation will draw from various studies, conducted from experimental work performed by the author as well as examples found in literature, to provide parameters on potential damage from such site impacts. Site environmental parameters will be presented as modifying factors, and various types of equipment will be covered. This paper and presentation will also provide information and insight into in-situ protective “site hardening” strategies that take advantage of the existing environmental properties of each site to preserve and protect from damage in a variety of situations. A range of both bioengineering and land engineering techniques will be covered. Applications relative to heavy equipment impact scenarios will be discussed to provide assessments for potential success of site protection efforts.

Kosyk, Katrina (McGill University)

[374] Sonic Places: Preliminary Acoustic Analysis in Early Colonial Tepetitc pac, Tlaxcala

Everyday places that bodies inhabit are rarely without sound. Sound has a material impact in structuring the relations between people and their surroundings through the vibrations that occur as a response to an activity or event in a given space and time. The auditory system receives this structured sensory information and rhythmically encodes the body with sound that is specific to the place. The place develops a unique sonic fabric that has the potential to influence how people consciously and unconsciously dwell in a space. I demonstrate how sonic fabrics can be recovered from an archaeological site in the neighbourhood of Cerro Coyotepetl in Tepetitc pac, Tlaxcala, established in the 13th-14th centuries and existing at the time of the Spanish conquest. The site is composed of over 40 terraces and two possible centralized plaza areas that would have supported non-elite residences. A primary objective of my research in Tepetitc pac is to explore the ways in which the processes that produce sound converge with numerous temporalities and spaces to produce an experience of place. Specifically, I examine how everyday sound making practices contribute to a sonic character that is unique to the space.

Koszkul, Wieslaw [199] see Zralka, Jaroslaw

Kotegawa, Hirokazu (Universidad Nacional Autónoma de Honduras)

[405] Un centro secundario Olmeca: Estero Rabón

El sitio arqueológico de Estero Rabón fue uno de los centros secundarios de San Lorenzo y probablemente también de La Venta durante el Precífico Inferior y Medio. Según los estudios previos de la cultura olmeca, los centros secundarios de estas capitales tenían su propia finalidad para sostenerlas. Así, Estero Rabón también se ubicó en un punto estratégico geográficamente para el comercio, la comunicación y tal vez para el control político. En el
presente estudio, se mostrarán la función y la importancia que tenía el sitio arqueológico de Estero Rabón en la sociedad olmeca. Este sitio no ha mostrado alguna evidencia directa excavada con el contexto arqueológico sobre la ocupación preclásica aunque hay varios datos indirectos, como la ubicación geográfica, los recursos naturales rodeados al sitio y la presencia de varios monumentos escultóricos, que nos apoyarán comprender el papel que jugaba este sitio durante el Preclásico Inferior y Medio.

Koterová, Anežka (Department of Anthropology and Human Genetics, Charles University), Rebeka Rmoutilová (Department of Anthropology and Human Genetics, Charles University), Vlastimil Králík (Faculty of Mechanical Engineering, Czech Technical), Pavel Ružicka (Faculty of Mechanical Engineering, Czech Technical) and Jaroslav Bružek (Department of Anthropology and Human Genetics, Charles University)

[386] Evaluation of an Impact of Different 3D Surface Scanning Protocols on Sex and Age-at-Death Assessment from Os Coxae in Bioarchaeology

In the contemporary bioarchaeology and anthropology in general, 3D imaging technologies are being used more frequently. They offer many new possibilities, among which we can mention for instance a possibility of permanent documentation, an easier and faster sharing of data among institutions or new opportunities of data analysis. 3D surface data may be acquired with laser or structured light scanners. The present contribution investigates two important questions: (1) whether data acquired by different scanning devices are comparable and (2) whether potential differences may affect anthropological analyses, such as age-at-death and sex estimation. 3D models of pelvic bones (n=29) were acquired by laser (NextEngine) and structured light (HP 3D Structured Light Scanner PRO 2) scanners. Resulting 3D models from both scanners were subjected to age-at-death (Stoyanova et al., 2017 quantitative method) and sex (DSP 2) analyses. Furthermore, for a small sample (n=5) we created reference surfaces with RedLux Profiler device providing high-quality scans to which the outputs from both scanners were compared using surface deviation and color maps. Our preliminary results suggest that in spite of differences between the two scanners, this fact does not have a significant effect on biological profile estimation.

Koutlias, Lauren [371] see Riegert, Annie

Kovác, Milan [384] see Safronov, Alexander

Kovacevich, Brigitte [199] see Callaghan, Michael

Kovacevich, Brigitte (University of Central Florida) and Kazuo Aoyama (Ibaraki University)

[255] Middle Preclassic Chipped Stone Caches at Ceibal and Holtun, Guatemala

During the late Middle Preclassic period (700-350 B.C.) at Ceibal, common objects in ritual deposits in the public plaza shifted from greenstone celt caches to other artifacts, including obsidian prismatic-blade cores. Like greenstone objects, exhausted polyhedral obsidian cores deposited in cruciform arrangements along the east-west axis of the central E-Group plaza were used as symbols and markers of the center and four cardinal directions within the Maya cosmos. Nevertheless, eccentrics were not part of Preclassic behaviors at Ceibal. In comparison at Holtun Middle Preclassic period caches lack greenstone and focus primarily on obsidian cores, blades, and debitage with additional material including river cobbles and shell, sometimes in ritually charged numbers. Source analysis for the cached obsidian suggests possible restriction of El Chayal obsidian to elite and ritual sectors of the site. Like Ceibal, chipped stone caches at Holtun during the Middle Preclassic period were focused on the E-Group ceremonial plaza.

Kowalewski, Stephen (University of Georgia)

[307] Discussant
Kowalski, Jeff (School of Art, Northern Illinois University)

[28]  *Feathered Serpents at Uxmal: Creation, Cosmos, Cosmopolitanism, and Kingship*

At Uxmal, Yucatán, monumental plumed snakes appear in the sculptural program of the Main Ballcourt and Nunnery Quadrangle. These feathered serpents express complex concepts connected to their pan-Mesoamerican role as a demiurge associated with dawning light, life force, and cosmic order emerging from pre-creation watery darkness and chaos. The feathered serpents correlate with other aspects of these structures’ plan and iconographic programs that refer to aspects of creation mythology. The appearance of fully-feathered serpents at Uxmal reflects growing political contacts and trade between northern Yucatán and greater Mesoamerica during the Epiclassic/Terminal Classic periods, when regional rulers such as Chan Chaak K’ak’nal Ajaw of Uxmal sought to bolster claims to divinely mandated authority by combining Classic Maya religious imagery with that of the feathered serpents as “Toltec” symbols that emerged at Teotihuacan and were reformulated at Epiclassic/Terminal Classic centers, as well at Tula, Hidalgo and Chichén Itzá. Uxmal’s plumed snakes and other creation-related and “Toltec” symbolism represent a specific expression of a broader Mesoamerican ideological template that grounded sociopolitical order and historical events in a divine matrix, linking polity formation and royal dynasties to the creative energy and political authority represented by the feathered serpent.

Koyiyumptewa, Stewart [21] see Leap, Lisa

Koyiyumptewa, Stewart (Hopi Cultural Preservation Office)

[254]  *Exploring the Hopi Youth Component of the Navajo-Gallup Water Supply Project*

Since 1989, the Hopi Cultural Preservation Office (HCPO) has conducted numerous archaeological and ethnographic studies. All of the past projects involved the input of the Hopi Cultural Resource Advisor Task Team, representing twelve villages, clan groups and religious societies for which proposed projects may have impacts. In September 2017, the Bureau of Reclamation awarded the Hopi Tribe a FAA to conduct a TCP study. In the award, HCPO successfully incorporated a youth component to the NGWSP, which would allow the youth interns to work side by side with HCPO staff, Cultural Advisers, Archaeologists, Anthropologists and other professionals relevant to the NGWSP. This paper will describe the Hopi Cultural Preservation Office’s experience working with youth for the first time on a TCP study.

[93]  *Discussant*

Kracinski, Andrew [207] see Carlson, Kristen

Krášik, Vlastimil [386] see Koterová, Anežka

Krall, Angie (Rio Grande National Forest)

[62]  *Discussant*

Kranda, Forrest

[241]  *Cleaning up History: Historic preservation at Formally Used Defense Sites*

The U.S. Army Corps of Engineers (USACE), Alaska District’s Formally Used Defense Site (FUDS) program conducts environmental remediation of abandoned World War II and Cold War era military facilities owned by federal, state, and local parties. These FUDS properties, which are often in remote locations, are associated with the release of hazardous materials like petroleum and lead. This paper presents on the Alaska District’s efforts to identify and evaluate historic military sites in the Far North and minimize or mitigate any adverse effects to significant cultural resources, while addressing the need for a clean environment. Sites that have been the subject of FUDS remediation include NHLs at the Dutch Harbor Naval Operating Base, Adak Army Base and Naval Operating Base, Fort Glenn, Japanese’s Occupation Site, Kiska, and the Attu Battlefield, and NRHP-eligible properties at Chernofski.
Approximately 1000 years ago, the archaeological record of Southcentral and interior Alaska shows a shift toward the increased use of fish caches, semi-subterranean houses, permanent year-round villages, and the appearance of ranked societies. Ultimately, the highly mobile big game hunter-gatherer way of life was supplanted by more intensive resource procurement such as salmon processing. These innovations have caused many researchers to hypothesize a migration of Athabascan-speakers into Alaska, in part because this is when modern Athabascan cultures become archaeologically visible. Since traditional foodways tend to be conservative in cultures, material remains of past meals offer culturally specific information for identifying cultural identities in the archaeological record. A zooarchaeological analysis focused on reconstructing subsistence patterns was undertaken at the Swan Point site in the Shaw Creek Flats, Tanana Valley, to assess whether there were corresponding changes in food preparation which can be used to test whether cultural continuity is reflected in food preparation compared to a migration of new people to interior Alaska.

Chair

Krause, Johannes

Genome wide data from ancient microbes may help to understand mechanisms of pathogen evolution and adaptation for emerging and re-emerging infectious disease. Ancient pathogen genomes provide furthermore the possibility to identify causative agents of past pandemics and therefore elucidate mortality crisis such as the early contact period in the New World. In order to identify the presence of pathogens in past populations we used a novel high-throughput DNA sequence alignment and taxonomic assignment tool MALT (MEGAN ALignment Tool) and were able to identify traces of Salmonella enterica DNA in individuals buried in an early contact era epidemic cemetery at Teposcolula-Yucundaa, Oaxaca in Southern Mexico. This cemetery is linked to the 1545–1550 CE epidemic that affected large parts of Mexico, the pathogenic cause of which has been debated for more than a century. We generated genome-wide data from ten individuals for Salmonella enterica subsp. enterica serovar Paratyphi C, a bacterial cause of enteric fever. We propose S. Paratyphi C as a strong candidate for the epidemic population decline during the 1545 outbreak. We furthermore show that the Paratyphi C lineage has been common in the human population for thousands of years and shows strong signs of human adaptation through time.

Krause, Maya B. (Vanderbilt University), Tiffany A. Tung (Vanderbilt University) and Steve Kosiba (University of Minnesota)

This paper uses a bioarchaeological approach to examine the morbidity profiles of highland communities in the Cusco region of Peru during the centuries that witnessed the rise, fluorescence, and demise of the Inka Empire (ca. 1300-1550 CE). Through original analysis of human skeletons from the sites of Huanacauri and Matagua and a meta-analysis of skeletal data from other sites in the region, this study seeks to build a preliminary understanding of social and ecological distinctions in this mountain landscape, and how these distinctions engendered or coincided with discernible differences in disease, developmental health, and trauma. Bioarchaeological data are used to examine whether people living in different areas of Cusco experienced the formation and dissolution of the Inka polity in similar ways, or whether there is variation in skeletal markers of health according to ecological setting,
cultural background, social position, or gender. The contextualized bioarchaeological data are used to interrogate many current models of mountain landscapes, which too often generalize human populations by treating them as variables dependent on regional environmental or adaptive economic frameworks, rather than investigating the intertwined local social differences, ecological distinctions, and biocultural attributes that constitute such mountain landscapes and frameworks.

Krause, Samantha (University of Texas at Austin)

Reconstructing a Maya Agricultural Wetland on the Rio Bravo Floodplain, Northwestern Belize

The Birds of Paradise wetlands have been a subject of recent intensive study within Northwestern Belize. We now recognize this fluviokarst wetland has undergone extensive modification of field building and channelization during the Maya Classic (1650-1050 BP) with use possibly extending into the early Maya Postclassic (1050-700 BP). Through many field seasons of study, we have begun to develop a chronosequence for soils and management within this wetland environment as well as an understanding of the form and function of agricultural features in the wetland, including ditched and raised fields, reservoirs, and sacbeob. Geoarchaeological efforts on a sacbe/berm feature along the east side of the wetland suggest that human modification within the system began at least to some extent sometime in the early Classic time period. The eastern margins of the BOP wetland are slightly lower in elevation than the area in the system that has been channelized, and it is possible this berm either acts as feature that serves as a boundary, eastern edge of a catchment, or elevated causeway. This study helps us to refine our understanding of how Maya agriculture and resource extraction within wetland environments either persisted or changed through drought cycles and cultural transitions.

Discussant

Chair

Krause, Maya B. [286] see Whittemore, Anna

Kray, Christine (Rochester Institute of Technology), Minette Church (University of Colorado-Colorado Springs) and Jason Yaeger (University of Texas-San Antonio)

Crosses, Burned Churches, and Kidnapped Priests: Ambivalent Maya Catholics in 19th-Century British Honduras

Spanish colonization of New Spain rested upon a pragmatic, yet conflicted, alliance between Cross and Crown. Following independence, many republican and neocolonial governments also relied on the soft power of the Church. In the 19th century, Yucatec Maya religious sentiments appear to have been indelibly shaped by prevailing relations of power. The syncretic religion of the Talking Cross that developed among Santa Cruz Maya rebels during the Caste War of Yucatán (1847-1901) is well known for its militaristic character, and heavy religious fees contributed to the war’s outbreak. This presentation considers the less well-known religious practices of other Maya rebel groups of southern Yucatán and British Honduras, who did not revere the Talking Cross. In the 1850s-60s, both the British Honduran and Yucatecan governments used priests as emissaries to encourage political submission by rebels. In British Honduras, priests expressed personal regard, sympathy, and even affection in a way that other representatives of colonial power typically did not. The Janus face of the Catholic church generated extraordinary feelings of ambivalence among the Yucatec Maya, as can be seen in the archaeological and archival materials from San Pedro, wherein examples of devotional crosses contrast with accounts of anti-clerical violence.

Kreindler, Kate

Having It All in the Field: Families, Inclusivity, Career Development, and Archaeological Fieldwork

Participation in archaeological fieldwork poses numerous practical challenges. This paper will address some difficulties that arise from the decision to start a family. The choice to have children frequently affects archaeologists working to establish their careers, namely (female) graduate students, junior faculty, and field technicians. Young archaeologists may have small children who are not yet old enough to be separated from a parent or may not have the financial resources to pay for childcare while in the field. Furthermore, many projects do not have, or earmark, funding for childcare, nor do they have the facilities to accommodate participants’ families. As a result, many
archaeologists, especially women, who are trying to establish their careers are forced to choose: fieldwork or family. Those who opt to start families may be at a professional disadvantage when they return to the field, due to missed excavation and publication opportunities. This paper will examine how one field project, the Poggio Civitate Archaeological Project, has created an affiliated not-for-profit entity, in part to raise funds that offset the costs of childcare. As a result, the project supports young archaeologists with families, as part of a larger effort to promote inclusivity and early career development in archaeology.

Kretzler, Ian (University of Washington)

[19] “I Can Tell It Always”: Confronting Colonialist Presumptions and Disciplinary Blind Spots through Community-Based Research

The nineteenth and early twentieth century history of western Oregon is rife with Euro-American presumptions about the trajectory, pace, and nature of Native cultural change. Federal architects of the state’s reservation system and, later, reservation agents wrote extensively about Native peoples’ ability to throw off traditional lifeways in favor of “civilized” behaviors. Since 2014, two community-based research projects conducted alongside the Confederated Tribes of Grand Ronde Historic Preservation Office have exposed these observations as fragmentary and culturally and politically situated. Analysis of historic maps and recovery of household belongings have revealed the strategies employed by Native families to balance participation in Euro-American economies and continuation of pre-reservation practices and relationships. Furthermore, these projects have highlighted the inadequacy of conventional classification schemes predicted on cultural and temporal homogeneity. The complexity of the reservation material record challenges archaeologists to develop interpretive approaches grounded in Native knowledge systems and community experiences. This paper discusses the issues inherent to recognizing Native presence—in the colonial archive and in the field—and the value of community-based research in crafting nuanced accounts of Native history.

Kreuzwieser, Clare (College of Wooster) and Paul Nick Kardulias (College of Wooster)

[118] The Elephanta Caves: Avenues for Their Future Preservation in Digital Preservation and Public Outreach

In this study, I examine how the Elephanta Caves (500 C.E. - 900 C.E.), off the coast of Mumbai, in the Indian state of Maharashtra, can best be preserved in the future. These man-made caves were a place of Shiva and goddess-worship for local Hindus, up until Portuguese contact and occupation in AD 1534-35. Interest in this topic stems from the caves’ exposure to destructive forces in the past and present, which are directly and indirectly man-made. Some of these include its location along a fault, pollution from the Mumbai metropolis, tourist traffic, as well as past damage from colonial occupation. I focus specifically on how digital forms of preservation can aid in preserving the integrity of the cave’s structure and relief carvings, as well as how tapping into public interest as a resource can help to grow public knowledge as well as garner more extensive protection for this UNESCO World Heritage site. Furthermore the research is a demonstration of the potential of reconstrucive drawings in preserving a site as well as helping to create a visualization to place the viewer more perfectly within the time and place the caves occupied in history.

Krigbaum, John [111] see Kate, Emily

Kristan-Graham, Cynthia

[304] An Animal Kingdom at Chichen Itza, Yucatan, Mexico

At the Postclassic Maya city of Chichen Itza, buildings, planned spaces, and imagery blend with the landscape to form meta-narratives. One instance is the Sacred Cenote, a limestone sinkhole that was a major focus of rituals. The cenote rim features frogs/toads carved from the living rock, and at one time sculptures of jaguars and snakes were also there. These animals allude to fertility, rulership, and the night. Ceramics in the nearby temple and fauna that inhabit cenotes echo these concerns and also are associated with watery worlds and death.

[28] Discussant

[28] Chair
Kroonen, Guus (Leiden University) and Rune Iversen

[196] The Linguistic Legacy of the Pitted Ware Culture

The Scandinavian hunter-, fisher- and gatherer-based Pitted Ware culture is chronologically situated in the Neolithic. However, it challenges our traditional view on cultural and social evolution by representing a return to an otherwise abandoned hunter-gatherer lifestyle. In general, the Pitted Ware culture must be seen as an offshoot of the “Sub-Neolithic” societies inhabiting wide parts of northern and northeastern Europe in the fourth and third millennium B.C.E.

Isotopic and aDNA studies have shown that people of the east Swedish Pitted Ware culture, both dietarily and genetically were distinct from the early farmers in this region, the Funnel Beaker culture. Isotopic data shows a marked predominance of seal in the diet, which has given the Pitted Ware people the nickname “Inuit of the Baltic”.

As regards language, it is to be expected that people practicing a Pitted Ware lifestyle spoke a non-Indo-European language. In fact, there is some linguistic evidence that can support this claim. It is conceivable that both the Germanic and Finnish word for “seal” were ultimately borrowed from a language spoken in a Pitted Ware context. Once more, the linguistic evidence turns out to offer important information complementary to that of archaeology and archaeo-genetics.

Krotscheck, Ulrike [107] see Sonenshine, Krista

Krug, Andrew (University of Oklahoma)

[296] Reconstructing Shell Trade Corridors in Northwest Mexico

Questions over the nature of long-distance exchange are central to competing models of socio-political evolution in Northwest Mexico. At Paquimé, the preeminent site in northern Chihuahua, Mexico, from 1250 to 1450 AD, excavations recovered abundant non-local goods, including macaws, copper bells, and nearly four million marine shells. To evaluate the numerous hypotheses of procurement and trade, archaeologists need to understand the possible routes for the purveyors of shell and the eventual distribution of marine shell consumption throughout Northwest Mexico. By mapping the distribution of shell consumption and reconstructing trade corridors archaeologists can better contextualize the social relationships and motives that led to Paquimeños acquiring millions of shells from the Gulf of California. In this study, I perform a least-cost pathway analysis to evaluate possible trade corridors from various locations along the Sonoran coastline. Hot spot analyses are used to demonstrate the distribution of Olivella, Glycymeris, and Nassarius shell artifacts at archaeological sites in Northwest Mexico. Each of these analyses—least-cost and hot spot—are crucial for understanding the distribution and concentration of shell artifacts and defining possible trade corridors that delivered millions of marine shells into the North American Southwest.

Krug, Ronald [21] see Neff, Linda

Krupa, Krystiana [382] see Thomas, Jayne-Leigh

Krus, Anthony (University of South Dakota), Edward Herrmann (Indiana University Bloomington), Matthew Pike (Purdue University), William Monaghan (Indiana University–Purdue University Indianapolis) and Jeremy Wilson (Indiana University–Purdue University Indianapolis)

[205] Chronology of a Fortified Mississippian Village in the Central Illinois River Valley

Geophysical survey and excavations from 2010–2016 at Lawrenz Gun Club (11CS4), a late pre-Columbian village located in the central Illinois River valley in Illinois, identified 10 mounds, a central plaza, and dozens of structures enclosed within a stout 10 hectare bastioned palisade. Nineteen radiocarbon measurements were taken from single entities of wood charcoal, short-lived plants, and animal bones. A site chronology has been constructed using a Bayesian approach that considers the stratigraphic contexts and feature formation processes. The village was host to hundreds of years of continuous human activity during the Mississippian Period. Mississippian activity at the site is estimated to have begun in cal AD 1005–1160 (95% probability), ended in cal AD 1300–1405 (95% probability), and lasted 150–400 yr (95% probability) in the primary Bayesian model with similar results obtained in two alternative models. The palisade is estimated to have been constructed in cal AD 1150–1225 (95% probability) and was continuously repaired and rebuilt for 15–115 yr (95% probability), probably for 40–85 yr (68% probability). Comparison to other studies demonstrates that the bastioned palisade at Lawrenz was one of the earliest constructed in the midcontinental U.S.
Kruse, Andrea (University of Nebraska- Lincoln)

A Great Plains Early Archaic Site Understanding from Lithic Debitage Analysis

Early Archaic sites on the Great Plains are few in number and often little studied and poorly reported, as they are almost always found in salvage or recover archaeology. Of those early Archaic sites that have been studied rarely has debitage been analysed in detail or fully evaluated for usewear. This presentation describes the lithic assemblage from the Spring Creek (25FT31) site located in southwestern Nebraska. As one of two important early sites in the state, detailed lithic analysis will complement the thorough analysis of faunal remains conducted in the 2000s. This presentation will present the methods used to complete debitage and tool analysis along with low power use-wear technique to better understand the artifacts. GIS-ArcMap was used to better visualise patterns between the lithics and faunal. By using many different methods of analysis along with new digital techniques one can gain better perception of the relationship of the resources procured across the Plains landscape and the Early Archaic hunter-gatherers.

Chair

Kryder-Reid, Elizabeth

Moderator

Discussant

Kuglitsch, Linnea (University of Manchester)

"Flowers [and] Open-Air Exercises": An Archaeology of Patient, Cure, and the Natural World at the American Lunatic Asylum

As the nineteenth century dawned in the United States of America, a new approach to the treatment and care of the mentally ill took hold. This movement, known as moral management, championed the delivery of kind treatment to patients within the orderly environment of the asylum, and structured regime designed to draw the insane from unhealthy habits and reinvigorate their self-regulative abilities. This paper examines how patients at two nineteenth- and early-twentieth lunatic asylums—the Western Washington Hospital for the insane in Steilacoom, Washington, and at the Eastern Lunatic Asylum in Williamsburg, Virginia—engaged with elements of the natural world, drawing out a multitude of meanings converged over and diverged around these items. While items derived from the natural world could serve the curative goals and rules of the institution, this class of material culture also offers a key to identifying patients' action and reinforcing the patients voice.

Kuhn, Steven (University of Arizona)

Thinking about Spatial Scale and Diversity in Archaeology

Diversity is fundamentally a scalar phenomenon. Archaeologists have been very attentive to the relationship between sample size and various diversity measures. They have not paid as much attention to the spatial scale of diversity. Ecologists frequently consider diversity at three spatial scales. Alpha diversity refers to richness within patches or sample units. Gamma diversity refers to overall richness within an entire ecosystem or habitat. Beta diversity is a function of the differences among patches. Diversity at different spatial scales is influenced by different ranges of factors. Most of what has been said about diversity in archaeology refers effectively to alpha (within assemblage) diversity. Concepts analogous to beta and gamma diversity could be effectively applied in archaeology. To illustrate the relevance of thinking about diversity at different spatial scales, this paper considers some of the factors affecting alphas, beta, and gamma diversity in material culture, especially stone tools.

Kuijt, Ian [8] see Bursali, Ayse

Kuijt, Ian (University of Notre Dame)

Stop the Press!!!: Settlement Hierarchies in the Early Pre-Pottery Neolithic? Not...

Archaeologists, as with historians, search for patterning, commonalities and order as we seek to explain past human settlement systems. As landscape archaeologists our attempt to reconstruct settlement systems involves connecting the
remains of human behavior, consider regional patterns, and then interpreting these remains on the basis of ethnographically derived models. With varied preservation differences within and between settlements, and poor understanding of the linkages between past human action and the resulting contemporary material footprint, as researchers we are challenged in our attempts to understand the broader picture, and run the risk of imposing, rather than revealing, patterning of the past. In this presentation I return to early arguments (Kuijt 1994) for the existence of socio-political developments and differences in Levant Pre-Pottery Neolithic A period (PPNA) period. There is no doubt that the hamlets of the Southern Levant Pre-Pottery Neolithic A (PPNA) period serve as an evolutionary transitional moment between small forager camps of the Epipaleolithic and large villages of the later stages of the Pre-Pottery Neolithic. What is now clear is that variation in PPNA settlements, counter to Kuijt (1994), was not linked to socio-political developments and manifest within a regional settlement system.

[239] Discussant

Kulcsár, Gabriella [126] see Giblin, Julia

Kulick, Rachel (University of Toronto)

[338] Crisis in Geoarchaeological Context: Reassessing Bronze Age ‘Collapse’ at Palaikastro, Crete, Greece

Research on social change and ‘crisis’ demonstrates that both phenomena require analyses of longer-term processes and discrete local processes that need to be evaluated on site-by-site bases (Vigh, 2008; Visacovsky, 2017). The multi-scalar attention required to study crisis and change at individual Bronze Age settlement sites on Crete, Greece, has been recognized in studies of local and regional factors in collapse scenarios for the end of the Neopalatial period (end of LM IB, ca. 1470/1460 BC) (Driessen, 2018). Nevertheless, various narratives of collapse and crisis situations remain debated for Late Bronze Age Minoan, and broader Mediterranean, societies. This paper presents new geoarchaeological evidence from the archaeological settlement of Palaikastro, Crete, and reassesses the tsunami hypothesis proposed in relation to collapse at Palaikastro (cf. Bruins et al., 2008). Combined with evidence from recent tsunami and storm surge research and considerations of broader crisis situations, the results demonstrate the capability of a geoarchaeological approach to understanding the nuanced nature and chronology of change in this complex coastal environment.

[338] Chair

Kulisheck, Jeremy [25] see Benedict, Cynthia

Kulisheck, Jeremy (Cibola National Forest and Grasslands)

[257] Prosaic Biases: Independent Factors Contributing to the Definition of the Classic and Colonial Archaeological Record of New Mexico, USA

Archaeological records are knowledge palimpsests of the research agendas responsible for identifying and defining these records. When evaluating the representativeness of these records, biases inherent to the research agendas themselves, ranging from methodological approaches to political considerations, are typically implicated. However, factors independent from research agendas can exert strong forces on the composition of a record. In New Mexico, land ownership, land use, and access for researchers significantly has affected the composition of the record considered for the ancestral and early modern Pueblo Classic and Colonial periods (A.D. 1325-1825). This relatively prosaic source of bias may exert a stronger influence on the how this period is known than research biases, despite being largely unrecognized.

[257] Chair

Kurin, Danielle [185] see Lozada, Maria

Kurin, Danielle (University of California Santa Barbara)

[185] Discussant
Kurnick, Sarah (University of Colorado Boulder)

[401] Community Archaeology and the Production of Space at Punta Laguna, Yucatan, Mexico

Archaeologists have considered the relationships between the production of space and the production of social inequality in past societies. Those practicing community and other forms of engaged archaeology have also examined the relationships between the production of space and inequality in the present, including at archaeological sites developed for tourism. As others have noted, the creation of such attractions, and particularly eco-archaeological parks, often involves the processes of spatial colonization and spatial commodification, which justify and exacerbate inequality. This presentation suggests and presents a case study – the Punta Laguna archaeological site in the Otoch Ma’aax Yetel Kooh reserve in Yucatan, Mexico – in which the production of an eco-archaeological tourist attraction has empowered an indigenous group and helped ameliorate inequality. Specifically, this presentation argues that those seeking to decolonize archaeological practice can facilitate the indigenous production of archaeological tourist spaces in three ways. Through academic research, archaeologists can expose faulty narratives of spatial colonization and defy erroneous attempts at spatial commodification. Through collaborative, community-based field research, archaeologists can help local groups disseminate their own history and identity to others. And, through public outreach, archaeologists can generate awareness and encourage tourists to patronize spaces owned and operated by local groups.

Kurota, Alexander [413] see Rogers, Thatcher

Kurota, Alexander (Office of Contract Archeology, UNM)

[413] Recent Research at El Paso Phase Jornada Mogollon Pueblos in Southern Tularosa Basin, New Mexico

During the past four years, the Office of Contract Archeology, University of New Mexico conducted a series of archaeological test evaluations on White Sands Missile Range that uncovered evidence related to new trends in El Paso phase Jornada Mogollon residential patterns. The results of our fieldwork indicate the existence of large melted adobe room block complexes all clustering around playa basins that would have collected seasonal water supplies. The observed surface manifestations indicate some room block complexes were very large with some consisting possibly of several hundred rooms. Analysis of surface ceramics, turquoise, malachite and shell artifacts from the melted adobe room block areas revealed new information about the trading patterns between Casas Grandes, Salado, Rio Grande and the Northern Jornada groups. Recent testing of one of the rooms has revealed evidence for ritual termination of the structure and new information about Jornada Mogollon ceremonialism and interactions with their neighbors.

[413] Chair

Kurozumi, Taiji [33] see Takamiya, Hiroto

Kuruçayırı, Emre [321] see Martin, Samuel

Kuwansiwma, Leigh [122] see Ermigioti, Paul

Kuzminsky, Susan (University of Idaho, Department of Sociology & Anthropology)

[326] Investigating the Population History of Western North America: Implications for the Peopling of the New World

Western North America has emerged as a key region of focus in studies addressing the migration routes and demographic processes involved in the peopling of the Americas. Archaeological investigations in this region have resulted in the discovery of several of the earliest human skeletons and archaeological sites on the North American continent. Given that this region is critical to understanding early population dynamics, this study investigates 10,000 years of prehistory in western North America where genomic and skeletal research of human remains have been underutilized or attempts to extract ancient DNA were unsuccessful. Using 3D geometric morphometric analyses of ancient human crania from Alaska, British Columbia, California, Nevada and Washington, results demonstrate biological affinities among several ancient populations of western North America. These data support recent genomic research addressing ancient population history
in the region, placing it within the broader context of research focused on prehistoric population dynamics in the Americas.

Kvamme, Kenneth (University of Arkansas)

[128] Isolating the Principal Dimensions of Settlement

In regional investigations of settlement location the analyst typically assumes that appropriate variables have been identified—important variables have not been omitted and irrelevant ones have not been included—an assumption not always justified. The identification of a “minimum set” of location requirements is more appropriate for understanding or modeling settlement placements. This can be accomplished through a principal components analysis of a wide collection of variables measured at settlements, but with a twist. By selecting the lowest stable components principal dimensions relevant to settlement may be defined that point to constant relationships in their distributions, maintain consistent values where settlements occur, and which minimize variance by indicating where settlements vary the least in terms of location. High loadings on these components permit their interpretation and define the principal dimensions of settlement. Their mapping, via GIS, offers much insight. These components may also be used as inputs to archaeological location models. An example is offered from historic Northwest Arkansas based on hundreds of farmsteads and historic maps where landform, soils, the hydrologic network, and the cultural landscape define four principal dimensions of settlement.

Kvetina, Petr (Institute of Archaeology Prague, Czech Republic) and Vaclav Hrncir (Faculty of Arts at Charles University, Czech Republic)

[65] Identification of Post-marital Residence Patterns in Prehistory: A Case from the European Neolithic

The aim of this contribution is to test hypotheses about the correlation of post-marital residence with several material patterns observed in the archaeological record, namely household floor area, the spatial arrangements of households and type of subsistence. These associations, which were previously revealed in the anthropological literature, are surprisingly strong and have already been used for interpretation of archaeological data, for example, for the pre-Hispanic Maya or the prehistoric Hohokam. The dataset used for our case study dates back to the Neolithic period (5500 – 4900 BC) in the European Temperate Zone (LBK). The method will be based on cross-cultural analysis, controlled for phylogenetic non-independence, that arises through patterns of shared common ancestry. The results will be then confronted with outcomes of other methods, such as genetic, linguistic and strontium isotope analyses.

Kwak, Seungki (Korea National University of Cultural Heritage)


One of the main topics of Korean archaeology is understanding of prehistoric subsistence throughout the Neolithic. However, due to the high acidity of sediments that do not favor long-term preservation of organic remains, we still lack critical information related to the subsistence of the prehistoric population of the peninsula. Cooking pots contain well-preserved organic compounds originated from culinary practices. Reconstructing food processing episodes through CSIA (Compound-specific Stable Isotope Analysis) of fatty acid extracted from pottery/sediment matrix can contribute to understand the true nature of the subsistence of prehistoric Korean peninsula.

Kwoka, Joshua [30] see Guderjan, Thomas

Kwoka, Joshua (University at Buffalo)

[255] Late Classic Lithics Caches in Northwestern Belize: Technology and Symbolism

During the Late Classic, lithic artifacts, including eccentrics, served as the primary elements of many Lowland Maya caches. Despite this general pattern, technological and iconographic analyses illuminate the distinct character of individual caches, particularly in relation to artifact production, acquisition, and cache symbolism. This paper presents comparative data from two Late Classic caches recovered in northwestern Belize: one from an elite residential group at Blue Creek and, the other from an elite residential group at Blue Creek and, the other from a termination deposit located within the E-group at the site of Tz’unun. In terms of technology, the caches exhibit significant differences in raw material preferences, degree of artifact standardization, and artisan skill. Eccentric symbolism also varies, with references to celestial phenomena, deities, acts, and social roles.
La Roche, Christopher (University of Arizona) and Jeffery Clark (Archaeology Southwest)

Coalescence within the Gila River Farm Site and other Salado Settlements of the Upper Gila

Archaeology Southwest and the University of Arizona’s Upper Gila Preservation Archaeology Field School (UGPA) have conducted excavations for three field seasons (2016-2018) at the Gila River Farm Site. This poster evaluates the extent of coalescence between Kayenta immigrant and local Mogollon inhabitants within the two main room blocks of this Cliff Phase (A.D. 1300 - 1450) Salado settlement using distributions of ceramics, ground stone tool attributes, and domestic installations. Despite the high frequency of Salado polychromes in both room blocks, results indicate that coalescence was incomplete by the time of depopulation. Coalescence at the Gila River Farm Site is compared to that of three other Cliff Phase Salado settlements in the Upper Gila watershed to gain a regional perspective on this process.

LaBelle, Jason (Colorado State University)

Of Hearth and Home: Investigating Site Structure at the Fossil Creek Site, an Early Ceramic Camp in Larimer County, Colorado

Fossil Creek (5LR13041) is a significant Early Ceramic (Plains Woodland) campsite in northern Colorado. Since 2010, archaeologists from Colorado State University and the University of Northern Colorado periodically conducted controlled surface collection, shovel testing, ground-based remote sensing, and block excavation (70 m2) of this large site. Artifacts recovered span the Late Pleistocene to Late Holocene in age, but are dominated by Early Ceramic era (CE 150-1150) artifacts, including abundant corner-notched arrow points, cord-marked pottery, ground stone, faunal remains, and thermal features. The features consist of heavily oxidized basins and pits filled with ash/charcoal, and on occasion, large quantities of fire altered rock. Radiocarbon dating of macrobotanical remains recovered from feature fill suggests contemporaneity between the features. This presentation focuses on site structure through examination of the spatial distribution of thermal features, ground stone, fire altered rock, and animal remains. Analysis suggests the Fossil Creek site represents a locale of decreased residential mobility linked to intensified food production, perhaps during a period of food stress during the Early Ceramic era.

LaBerge, Michelle (University of Wisconsin-Milwaukee)

The Heart of the Madder: New Research on an Important Prehistoric Dye Plant

In recent years, an interest in natural botanical dye sources has prompted new research into the cultivation and processing of prehistoric dye plants in Europe and the Near East. Advances in chemical analyses of ancient European textiles have provided more detailed information about dye plants, which were important sources of color in early textile production. Evidence of dye from domesticated madder root (Rubia tinctorum) has been reported in the archaeological record of the European Bronze and Iron Ages in textiles preserved in salt mines, bog sites and elite European burials but the picture of madder usage from the Late Bronze Age into the medieval era is still unclear. The use of other indigenous plants related to madder also complicates this picture. A critical review of the history of research on madder and the evidence for its use in archaeological contexts in Europe, along with an experimental component of the thesis involved growing madder and using madder root as a dye has suggested new paths of research, and “ground-truthed” older data. The preliminary results may shed some light on the distribution of madder through the Iron Age, and may speak to the significance of the color red in European prehistory.
Lacan, Melanie (University at Buffalo)

[301] Maritime Mobility during the Western Mediterranean Iron Age

Research on the topic of seafaring in the western Mediterranean during the Iron Age has often focused on Greek, Etruscan, Roman, and Phoenician activity. By contrast, the maritime endeavors of other coastal populations have largely been ignored. Yet, historical accounts and archaeological evidence indicate that groups living along the French and Iberian coasts may have been more active on the Mediterranean Sea than has previously been reported in the archaeological literature. By exploring the participation of French and Iberian indigenous populations in trade, fishing, and piracy activities thanks to evidence found at coastal sites, this paper aims at rectifying a gap in the literature that has led us to depict these Iron Age communities as passive players within an otherwise dynamic network of social, economic and political exchanges.

Lack, Andrew (EcoPlan Associates, Inc.) and Mary Ownby (Desert Archaeology, Inc., University of Arizona)

[298] Memes of Hohokam Pottery: The Spread of Ceramic Traditions from the Middle Gila River, Arizona

The idea of memes, as coined by Dawkins, originally referred to an element of a culture or behavior that is passed from one individual to another by nongenetic means. It was used to examine how cultural phenomenon replicate, mutate, survive, or become extinct. This has clear applications to ceramic traditions where the cultural behavior is passed from one generation to the next with some changes but also the preservation of specific traits. Using this theoretical framework, without the biological aspects, research analyzes the conditions that allowed particular memes to continue, change, or be rejected.

To illustrate how the concept may be utilized, in combination with ceramic petrography, Hohokam pottery from the greater Phoenix area of Arizona is examined. From earliest times, ceramics made in the middle Gila River valley used readily available micaceous rock temper. Recent examination of pottery from several outlying sites to this core area, indicates a continuing preference for micaceous material over easily accessible volcanic sands for temper. Such a trend indicates, the meme of pottery making with micaceous raw materials continued long-term in the middle Gila area and was spread to other adjacent pottery making groups with ties to the Phoenix area Hohokam.

Lacombe, Laura (Harvard University), Amy Thompson (University of New Mexico), William Fash (Harvard University) and Loa Traxler (University of New Mexico)

[105] Digital Methods for Conservation in Underground Archaeological Contexts: A Case Study from the Copan Acropolis

As site documentation methods become more high-tech and data-heavy, it raises issues of repeatability, access, and expense. In the case of the 3 kilometers of circuitous archaeological tunnels at the Classic Maya site of Copan, Honduras, it was imperative to document them in a manner that would be accurate, efficient, and accessible not only to scholars with expensive resources, but also to technicians and engineers within Honduras. This multidisciplinary team developed a method of three dimensional documentation using a total station that was easily teachable and replicable, allowing for continuity between mapping teams, as this tunnel system was too massive for any one group to complete. The resulting models are less expensive and data-heavy than 3D scans or point clouds, and were adapted specifically for tunnel environments with the overarching goal of informing the creation of a conservation plan for the Copan tunnel network. The color-coding of various kinds of archaeological features visible in the maps, and different kinds of interventions effected on them, enables their utility for conservation to be enhanced. New data can be continuously added to enable conservators as well as site managers an easier means of ascertaining risk and stability in the tunnel system.

Lacome, Sébastien [186] see Sterling, Kathleen

Lacy, Kyle

[272] An Analysis of No Agua Obsidian

The No Agua Peaks are a relative understudied obsidian source. An easily accessed and relatively large deposit area, one would expect No Agua obsidian to be frequently used and widely distributed. However, because of the source’s high silica content, desirability for and practicality of use of this material is questionable. Using data from a recent survey surrounding portions of the No Agua Peaks and neighboring Cerro del Aire, a comparison of the use of various lithic materials for chipped stone tool production was conducted. Despite its ready availability, even at sites in and around the No Agua Peaks the obsidian appears to have been used only for expedient tools. Formal chipped stone tools were made instead from local dacite, imported Jemez and Los Rechuelos obsidians, and imported cherts regardless of a site’s temporal affiliation or
proximity to the Peaks.

Ladefoged, Thegn [316] see McCoy, Mark

Ladefoged, Thegn (University of Auckland)

[354] Discussant

Ladegaard-Pedersen, Pernille [386] see Walsh, Matthew

Laffey, Ann (University of Florida)

[250] The Role of the Toad in the Middle Horizon Andes: A Chemical and Iconographic Analysis

Here we present preliminary findings of chemical analyses performed on a Middle Horizon pottery sherd (c. 600-1100 AD). The sherd originates from the capital region of the Wari and has the striking iconographic representation of either a frog or a toad with visual indications of preserved residues. Compound groups will be isolated via esterification and gas chromatography mass spectrometry will identify lipid compounds such as cholesterol, FA16:0, and FA18:0. These compounds can indicate either plant and/or animal products. We will also be using metabolomic techniques to isolate alkaloid and biomarker compounds specific to bufotoxins. We intend to juxtapose the identification of the chemical remains with that of the exterior decoration of the vessel by contextualizing the toad within the corpus of Southern Andean Iconographic Series (SAIS) and Wari sensibility. If bufotoxins are discovered in the clay, it could witness a ritual practice that was integrated into Wari culture much like the iconographic representations of the SAIS. By tracing the two variables in tandem, the chemistry and the iconography, it is hoped that we can shed further light on the cultural processes that fostered one of the first expansive empires in the Andes.

Lafrenz Samuels, Kathryn (University of Maryland, College Park)

[283] Moderator

[283] Discussant

Lai, Warren [44] see Montoya, Joaquin

LaJeunesse, Roger [210] see Dodd, Walter

Lalueza-Fox, Carles [253] see Lipson, Mark

Laluk, Nicholas (White Mountain Apache Tribe-Brown University)

[96] We Know Who We Are and What Is Needed: Achieving Healing, Harmony and Balance in Ndee Institutions

Ndee perceptions of the past bear directly on the present. Our institutions—lifeways, worldviews and overall continued well-being—are contingent upon our relationship to the land in the form of access, prayer, offerings, power acquisition and overall reciprocity. Intergenerational, ecological and environmental commitment are essential components to maintain and ensure such relationships. In reference to how archaeology and the ethnohistorical narrative can inform the topic of ancient medicine and healing, our paper will explore the intricate braiding of intergenerational knowledge informing contemporary medicinal and healing practices in Ndee contexts. Such institutional practices are inseparable from management and preservation of Ndee cultural heritage resources. Although archaeological and ethnohistorical evidence can provide useful glimpses into the ancient medicinal and healing practices we feel that such longstanding knowledge systems and practices are innately and intricately engrained within Ndee communities. Although such knowledge is not always called upon, various forms are continually used to heal and provide balance and harmony.
Lamb, Céline (University of Kentucky) and Joana Cetina Batún (Universidad Autónoma de Yucatán, México)

Morir para renacer: Funerary Rituals of Pregnant Women in Chunhuayum, Yucatan

The lives of women have been a focus of recent research in Maya Archaeology, finding that they fulfilled important roles as mothers, wives, priestesses, members of the elite and even as rulers. Within each social stratum, women lived diverse identities, however they shared similar biological processes, such as pregnancy, which was ruled by diverse beliefs and natal care practices. This was especially true because of the Mesoamerican belief that the duality of life and death governed women during pregnancy, because at the moment of birth their status was equivalent to that of a warrior. In 2016 as part of the excavations of the Ucí Regional Integration Project (UCRIP) at the Chunhuayum site, we found three female funerary contexts deposited in cists built continuously in an apparently domestic structure. Two of the females contained the remains of an unborn child in the pelvis and all the contexts were revisited with evident manipulation of the left extremities and bony segments near the pelvis. Our presentation will interpret the symbolism expressed in the funerary ritual, investigating the status of women as possible dead warriors in childbirth as well as discussing the ritual nature of the domestic unit in which they were buried.

Lambert, Patricia (Utah State University)

Reinterpreting the Evidence for Violence in Cave 7, Grand Gulch, Utah

Wetherill’s Cave 7 in Grand Gulch, Utah, has long been considered a massacre site, notable in particular for the large number of individuals in the assemblage (~90) and for its temporal placement in the Basketmaker II period. Recent debate concerning these remains has centered around the chronology of burials in the cave, as establishing contemporaneity of the remains is recognized as crucial for interpreting the social context—and specific events—surrounding the formation of the assemblage. In this paper new osteological evidence pertaining to this debate is presented, based on a reexamination of the remains of 74 individuals from Cave 7. These data support the interpretation of high levels of violence at this time and place, but not of a single massacre event involving all or even most of the burial population. That said, 45% of these individuals (59% of men, 36% of women) have some evidence for violent injury, including 24% with perimortem cranial trauma, scalping cut marks, and/or projectile injuries. These data suggest that the Cave 7 population was heavily embattled, and raise important questions about the history of the Cave 7 population and of the social dynamics in the region some 2000 years ago.

Lambert, Spencer (Southern Methodist University)

Examining Large Game Animal Trade at Two Fremont Sites in Utah

Strontium isotope analysis has been used by archaeologists to track prehistoric human and animal migrations. Strontium isotope analysis can suggest which large game individuals were obtained locally by prehistoric hunters and which were brought to habitation sites through long-distance hunting or trade. This study explores the potential of using strontium isotope (87Sr/86Sr) analysis to determine whether the Fremont obtained some non-local large game at habitation sites. The transport of large game by Fremont hunters is examined at two sites: Five Finger Ridge in central Utah and Wolf Village in northern Utah. The results suggest that Fremont hunters obtained at least some large game individuals from areas away from their habitations, potentially through trade.
Lambrecht, Glenn (Archaeological Micromorphology and Biomarkers Lab, ULL, Tenerife, Spain), Inocencio Rafael Martín Benenzuela (Departamento de Física y IMN, ULL, Tenerife, Spain), Caterina R. de Vera (Archaeological Micromorphology and Biomarkers Lab) and Carolina Mallol (Archaeological Micromorphology and Biomarkers Lab)

Epifluorescence Microscopy of Experimentally Heated Animal Bones: Applications to Archaeological Micromorphology

Burned bones are an important constituent of the archaeological sedimentary record. Their presence is usually indicative of human activity and may provide information about past human behavior. In micromorphological thin sections, charred bone fragments may appear as opaque and amorphous, and extremely difficult to distinguish from other organics related to fire activities. As bones emit a green fluorescence upon irradiation with UV-blue light, epifluorescence microscopy can provide a solution to this problem. To our knowledge, no rigorous studies have ever been performed on fluorescence properties of heat-altered bones in thin sections.

We have experimentally heated animal bones in a muffle furnace under oxidizing conditions at different temperatures between 100 and 700 ºC; and subsequently prepared sets of polished samples. We investigated their fluorescence properties with a customized epifluorescence microscope: by attaching a spectrometer to one of the oculars, we could record emission spectra for specific regions in the microscope’s field of view, hence objectively describing color. Our preliminary results show that at each temperature, bone is characterized by a unique emission spectrum, indicative of the heat-induced chemical and structural changes within the bone. Understanding these changes may allow us to interpret archaeological bones in thin sections in new ways.

Lamoureux St-Hilaire, Maxime (Boundary End Center)

Lan, Wanli [416] see Li, Weiya

Lancaster, Don [346] see Neely, James

Landau, Kristin (Alma College), Christopher Hernandez (NSF Postdoctoral Fellow/University of Illinois Chi) and Nancy Gonlin (Bellevue College)

Lunar Power in Ancient Maya Cities

As the sun set on the horizon, ancient city dwellers would have felt the cooler air, heard cicadas’ songs, and perhaps tasted a late-night snack. Their vision, however, would have suffered the most as dusk turned to night and some form of illumination was necessary to see others, carry on activities, or get to bed. Once the sun fully set, nature provided another source of light: the moon. Although today most people barely check whether the moon’s still up there, ancient Maya closely counted its days, phases, and form. In this paper, we briefly review Maya conceptions of the moon as understood through Classic inscriptions, Postclassic codices, ethnohistoric documents, and ethnographic accounts. Specifically we find that rulers ascended to the throne and dedicated monuments under a growing gibbous moon. We argue that moonlight was linked to authority for Classic Maya kings, both for its illuminating quality and symbolic power. In an urban setting, important rituals would have been conducted during auspicious lunar moments, transforming large open plazas into special ceremonial spaces and fortifying the power of kings.

Landers, Jane (Vanderbilt University)

The Material Culture of Maroon Communities in the Early Circum-Caribbean

This paper examines early maroon settlements of the Circum-Caribbean and is based upon original research in a wide assortment of Spanish archives, as well as archaeological investigations of African sites in the Americas. As in Gracia Real
de Santa Teresa de Mose, in Spanish Florida, I find Africans readily adapted certain elements of European and indigenous cultures in their re-created communities, but they also retained at least some from their African homelands, despite the incalculable damage wrought by the slave trade. One maroon community in Colombia created a Christian church served by its own clergy who shared religious authority with an African religious specialist. Others had executioners and exorcised “witches.” Some were led by Kings and Queens, others by war captains, and some featured family dynasties. Spanish priests recorded their visits to maroon communities and at least some basic demographic information on their inhabitants. Spanish maps and military accounts also document some of their building and fortification patterns, while surface collections and excavations yield metal objects such as bracelets, arrow tips, and lance points, as well as slag deposits from their manufacture.

Landry-Montes, Khristin (InHerit Affiliated Researcher) and Daniela Angélica Garrido Durán (Secundaria Humberto Cantón Moller and Secundaria I)

Youthful Visions of Time and Place: Photovoice Methodology in Three Maya Communities

Archaeology, and to greater extent academe in the Western world, is evolving from a past couched in the comfort of objective truths and universal knowledge focused on static places and societies. However, now more than ever, there has been a push towards understanding the dynamism that is, and has always been, part of the greater human experience. In seeking new directions of collaboration with Native American groups throughout the Americas, academics are finding new ways of knowing and interpreting the pluralistic realities of lived time and place. Inspired by Sonya Atalya’s concept “Braiding Knowledge,” we as university researchers and grade-school educators of InHerit and the Cultural Heritage, Ecology, and Conservation of Yucatec Cenotes project present “photovoice”—a community-based photographic research initiative. We suggest that this methodological practice is an ideal way to interpret and articulate subjective and therefore truthful understandings of time and place. In this talk, we present those realities in relationship to the cultural patrimony of cenotes (underground water sources) as interpreted through the visions of middle school students from the Yucatec Maya communities of Yalcobá, Cuncunul, and Kaua.

Landt, Matthew [207] see Williams, Justin

Langan, John [357] see Lundin, Deil

Lange, Christine (Desert Archaeology, Inc.)

The Use of Shell Ornaments at Early Agricultural Period Sites in the Tucson Basin

Recent excavations of Early Agricultural Period (circa 1200BC-AD 50) sites in the Tucson Basin of southern Arizona have produced a number of ornaments of personal adornment manufactured from marine shells that are found in either the Gulf of California or the Pacific coastal region of southern California. Thriving shell ornament manufacturing industries in both California and northern Mexico at La Playa were the likely contributors for the finished items of jewelry that have been recovered. It has been suggested that the origin of some of these ornament forms may be found in the exchange of shell artifacts between the populations from the California coast and the Great Basin region. This suggests that the local inhabitants were active participants in one or more exchange networks, and were intent on maintaining these networks. The ornaments may represent symbols of a connection to a faraway place and people, knowledge and experience as a result of their journey to the Tucson Basin.

Lange, Frederick (Smithsonian Institution Department of Anthropology)

Discussant

Lange, Hans [251] see Darwent, Christyann
Born to Go Far: Tracing the Footsteps of Frederick W. Lange

Born in the midst of WWII (December 1944), Frederick William Lange emerged into this world in Madison WI. Soon thereafter, he was in New Mexico, then Texas, then Southern Illinois. His travels would take him to Germany and Russia. Summers he worked in the Southwest, at Nauvoo IL, and in the Michigan Upper Peninsula. College took him back to Wisconsin for undergraduate and graduate work, then to Central America, back to the Midwest (Beloit and ISU), back to Central America, then to CU (Boulder), then to Phoenix and then California... all the while bouncing back and forth to Central America—Costa Rica, Panama, Nicaragua, and El Salvador. In between all of this there were adventures in Canada and in the Caribbean as well. If travel broadens one’s horizons, it would be difficult to get much broader than what Fred has achieved. It wasn’t just travel, however—he was professionally involved in most all of these venues, learning from them, and creating and contributing to the vast bank of knowledge about the peoples and histories of each of these regions.

Mapping Terraces, Mapping Agricultural Practice in the Lake Titicaca Basin, Peru

In the Lake Titicaca basin of southern Peru, agronomic systems were finely tuned over millennia to the high-altitude environment, an ever-oscillating climate, and dynamic cultural regimes. To succeed in these conditions, prehistoric farmers transformed steep hillsides into viable agricultural land by modifying them into massive agricultural terrace complexes. The crops grown, and llamas grazed on these landscapes provided food security for ancient cities just as they continue to provide security for populations living in the region today. However, very little is known about the development of these agricultural terraces. The Altiplano Agriculture and Communities Project (AACP) conducted pedestrian survey during June and July of 2018 to begin to elucidate patterns throughout the region. A drone was used to make three-dimensional models of the terraces to better understand their dimensions and hydrology. Mapping styles of masonry on terrace walls shed light on regional and chronological variation in terraces. We also identified architecture that marked ownership of terrace plots and walls used to manage the vertical movement of livestock. The preliminary results of AACP’s 2018 survey provide evidence of the varied labor regimes that built and farmed terraces in the south-central Andes.

Environmental Change and Human Ecology in Central Alaska during the Early Holocene: Hollembaek’s Hill

Dramatic environmental changes occurred in central Alaska during the Early Holocene as mixed woodlands and grasslands transitioned to boreal forest ecosystems. Despite 80 years of research in this region, we are just beginning to understand how interior Alaskan populations coped with the extinction of the large grazers (bison and elk) that constituted their favored resources, and how caribou became the preferred large mammal resource in the Northern Archaic. Hollembaek’s Hill site contains an archaeological occupation dated to 8,000 cal B.P. that provides rare insights into this period of central Alaska’s history. The occupation contains numerous faunal remains dominated by elk, which are likely associated with microblades as part of a late Denali component. A large pit was excavated by the site’s occupants and may have functioned as a storage pit before being re-used for trash management. This evidence for investment in modification of domestic space suggests the adoption of novel forms of mobility that may have been designed to cope with changes in resource availability, and provides information on economic choices and how they influenced the evolution of material culture.
Lanza, Mariangela (University of Western Australia)

[305] Roots and Routes of Rock Art: A Kernel Density Analysis of Newly Recorded Rock Art Sites to Understand Human Mobility in the North East Kimberley, Australia

A large corpus of 1034 rock art sites in Australia’s NE Kimberley has recently been recorded within the Kimberley Visions Australian Research Council Linkage Project. Rock art analysis in the Kimberley has often focused on distinctive iconographic signatures to structure images in rigid sequences. This approach is inadequate for the understanding of the complex dynamics behind the diachronic development of different stylistic phases. This presentation follows a different approach by showing the results of a two-step geospatial analysis focused on mobility behaviour with topographic, archaeological and rock art data stored and manipulated as a GIS dataset (ArcMAP 10.5). The first step is identifying the density and directional distribution patterns of motifs. Second is modelling possible travel routes for the spread of figurative rock art conventions. Kernel Density (Spatial Analyst Toolbox) is used to quantify and display clustering/dispersal patterns in the distribution of motifs and figurative conventions, highlight spatial relationships between topographical features and rock art sites, and help re-assess the extent of rock art styles’ boundaries. The outcome can provide new insights into human mobility as one of the factors that contributed to the formation of distinctive rock art provinces in a constantly changing natural and cultural landscape.

Lapham, Heather [197] see Faulseit, Ronald

Lapp, Jennifer E.

[167] Moderator

Larios, Jennifer (University of Michigan), Jacob Bongers (UCLA Cotsen Institute of Archaeology), Jordan Dalton (University of Michigan), Jo Osborn (University of Michigan) and Camille Weinberg (University of Texas at Austin)

[182] Chincha Mercantilism: A Preliminary Investigation into Chincha Valley Economic Organization during the Late Intermediate Period and Late Horizon

The Chincha Kingdom is widely recognized as one of the few cases in which 10,000 merchants are said to have existed in the Late Horizon non-market Inca economy. This paper seeks to investigate Chincha economic organization by analyzing the distribution of pottery from various sites in the valley attributed to the Late Intermediate Period and Late Horizon. With our findings, we aim to compare Chincha distributional patterns with those of known market and non-market economies to attain a better understanding of mercantilism in the absence of a market economy.

Larkin, Karin (University of Colorado at Colorado Springs)

[184] Surveying the Utility of Field Schools in Preparing Students for Compliance Work

Cultural Resource Management (CRM) professionals lament that they felt unprepared upon graduation for entering the field of compliance archaeology and recent graduates often complain that they are not qualified for CRM jobs as posted. This anecdotal information raises the question of whether field schools and undergraduate programs adequately prepare students for the field of CRM or other compliance archaeology. While there is research that details the benefits of experiential learning in field school pedagogically, few studies are available that examine the utility of field schools for preparing students for compliance work. Here, we present our results from a recent survey that examined student preparation for CRM or compliance work. This survey queried both compliance professionals and academics about field schools and student preparation. Using our results, we also offer some possible suggestions for addressing observed gaps and other possibilities for curriculum reform.

[139] Moderator
Larmon, Jean (University of Illinois at Urbana-Champaign), Vilma Fialko (Department of Conservation and Rescue of Prehispanic) and Lisa Lucero (University of Illinois at Urbana-Champaign)

[199] Erasing Borders: Integrating the Settlement Hierarchies of Central Belize and the Petén, Guatemala

Over the last 18 years, the Department of Conservation and Rescue of Prehispanic Archaeological Sites (DECORSIAP) in Guatemala has carried out extensive systematic surveys of the northeast region of Petén, Guatemala in order to better understand the internal and external political dynamics of Naranjo Sa’aal and its hinterland. Transects between Naranjo, Tikal, Yaxhá, and Nakum have helped to elucidate settlement hierarchies of northeastern Petén, though Naranjo’s political influence likely extended much further. The northern Guatemalan/Belizean border is host to a swath of unexplored ancient Maya centers that likely fit into this political sphere. In 2005 and 2018, the Valley of Peace Archaeology project visited two large centers near the border that are tentatively classified as intermediate centers, each with ball courts and large temples around the acropolis. This paper integrates these recently identified centers in the social dynamics of the Rio Homul and Mopan Basin using the settlement hierarchies outlined in studies of Tikal, Naranjo, and Yaxhá. We will apply the same survey and mapping strategies already employed by DECORSIAP in order to produce a comprehensive, integrated hierarchy of these river basins that can be applied in future studies.

Larralde, Signa, Sarah Schlanger (Bureau of Land Management New Mexico State Office) and Martin Stein (Bureau of Land Management Carlsbad Field Office)

[75] Exporting Oil and Gas Landscape-Level Mitigation Programs

In the ten years since the Bureau of Land Management (BLM) launched its Permian Basin mitigation program in New Mexico, the agency has funded research initiatives worth upwards of $4.5 million and streamlined its approach to developing oil and gas production in the busiest “oilpatch” in the nation. Why haven’t we seen more programs like this one in other places across the country? In this paper, we seek to unpack the “well, but that wouldn’t work here” response the Permian Basin program has generated elsewhere in the BLM and among land-managing federal agencies in general. We explore the difficulties of exporting and adapting mitigation programs across agency and jurisdictional lines, we spend a modest amount of time identifying some common impediments to creativity in federal agencies, and we suggest some locations and circumstances where aligning creative mitigation and process simplification might yield some new approaches to cultural resource management.

Larreina-Garcia, David (UPV-EHU: University of the Basque Country) and Juan Antonio Quirós-Castillo (UPV-EHU: University of the Basque Country)

[363] The Medieval Basque Iron Industry, Cultural Traits in Technological Traditions

The Basquesmith project investigates ironworking production during Early Medieval times –mostly utilitarian iron implements such as ladles or keys– excavated in rural settlements in the Basque Country (northern Spain), focusing on the characterisation of the manufactured used, the quality of the utensils produced, and the debris generated. The material characterisation and reverse engineering of the technical materials is starting to reveal a complex network between smelters, smiths, consumers and agencies of a lively market in force at least during the 7th-12th centuries AD. While the metallographic study on ~100 items detects a technological tradition in the manufacture of iron implements inherited from the Roman times, the smelting technique seems to be well developed in the area before the arrival of the Roman people and apparently both technological procedures coexisted in time. The reconstruction of the various processes in a relatively small region illustrates a technological adaptation to natural resources and socio-technological contexts, seemingly permeable to external influence but also retaining its own traditions in technical activities.

Larrick, Dakota [322] see Bement, Leland

Larson, Bruce J. [168] see Bassett, Hayden

Larson, Bruce J. [391] see Bassett, Madeleine

[401] Native American Indian Women Working in California Archaeology
Women archaeologists approach their work from the influences of their gender and life experiences, using their skills and knowledge in archaeology. In 2018 seven women archaeologists were interviewed by the author and were asked five questions about the role of gender in their work. Only one of them was Native American Indian, and she discussed obstacles and barriers specific to Native women. The author (Navajo) will interview at least seven Native American Indian women archaeologists working in California archaeology, in both academia and the private sector. These women will be asked the same questions as their non-Native counterparts, as well as questions that focus on their Native backgrounds, to explore how their cultural background affects their work in archaeology. Information from these interviews will be summarized and compiled for this presentation.

Larson, Greger [20] see Ameen, Carly

Larson, Greger (University of Oxford), Julia Best (Bournemouth), Alison Foster (Leicester), Ophelie Lebrasseur (Oxford) and Naomi Sykes (Exeter)

[20] The Human-Chicken-Environment Nexus

The chicken is a relatively recent addition to global cuisine. Unlike cattle, sheep and pigs, which were domesticated 10,000-12,000 years ago, convincing evidence for the domestication of Red Junglefowl, native to Southeast Asia, does not emerge until at 5,000 years ago, at the earliest. Furthermore, multiple strands of evidence suggest that chickens were not domesticated primarily as a source of food but rather for sport and divination. So how did a bird with a restricted native range come to dominate food cultures worldwide, and with what consequences for human-chicken-environmental health?

Against a backdrop of archaeological data, this paper will consider the sustainability of modern day chicken production, providing examples generated through two AHRC-funded projects ‘Cultural and Scientific Perceptions of Human-Chicken Interactions’ and ‘Going Places: Empowering women, enhancing heritage and increasing chicken production in Ethiopia’.

[352] Chair

Larson, Griffin (Western State Colorado University), Zachary Stanyard (The University of Texas at Austin), David M. Hyde (Western State Colorado University) and Michael Stowe (Department of Defense)

[371] Excavations at Group I: A Small Residential Household in the Medicinal Trail Hinterlands Community, Northwest Belize

Group I of the Medicinal Trail Community is a small residential household in the Rio Bravo Conservation and Management Area of northwestern Belize and consists of an eastern shrine and two house mounds on the south and west sides of the courtyard, all situated on an artificial plaza platform. This group is located directly east of the larger and more formally constructed Group B, and is bounded by a steep escarpment to the east and north. Excavations during the 2014-2017 field seasons reveal an at times complicated construction and occupation sequence. Our investigations at the group explored all three structures, the courtyard, and an anomalous feature just below the surface of the courtyard directly in front of the eastern shrine. This poster will summarize and synthesize all of these data to provide an understanding of Group I’s function internally and how it articulates with the larger Medicinal Trail Community.

Larson, Mary Lou (University of Wyoming)

[329] Folsom and Goshen Technological Organization at Locality I of the Hell Gap Site

Chipped stone tools and debitage from the Hell Gap site offer evidence of a wide range of activities such as procurement, manufacture, and use of stone tools. Several features with multiple pieces of chipped stone (piles) excavated from the earliest Paleoindian components at Locality I appear to show different production trajectories, suggesting that a wide range of production stages were carried on. Analysis of the assemblages from these features provide insight into the nature of technological organization of the earliest peoples of North America. One feature, although not containing dense and concentrated debitage, includes eight Folsom channel flakes and two broken preforms, representing a fluting location. Additionally the presence of carnivore bone (a wolf vertebrae), turtle carapace, and ochre suggests ritual associated with Folsom fluting. The 1960s Hell Gap investigations delineated a number of stone tool production features (flake piles), but individual specimens could not be assigned to a specific feature for assemblage analysis. The advantage of our excavation protocols is that they allow for the selection of specimens contained in piles. In this presentation I compare several production events from early Paleoindian components.
Lash, Samantha

[278] From Soil to Society: Local Variability in Inferred Climatic and Environmental Change and Landuse in the Valencian Community, Spain

Climatic and environmental factors are ‘creeping’ phenomena with rapid thresholds, and there is a disjuncture between product and best-practice in terms of landuse. The ways in which people engage with their environment are necessarily influenced by the nature of the given region, but the form of that engagement is contingent on cultural and historical specificities. This paper targets these negotiations between small-scale land use practices, increasingly “state”-driven macro-economic systems, and changing environmental conditions within the wider historical narratives of colonial expansion in the ancient western Mediterranean (1st millennium BCE). I use novel environmental data and inferred climatic change to contextualize these “glocal” tensions. In short, this research includes the application of a proxy based on a certain class of lipid biomarkers (GDGTS) for relative changes in temperature and pH from excavated material (here faunal remains); thus providing comparable environmental and climatic datasets from sites themselves, avoiding the ambiguity of using indirect geological archives as indicators). The broader Valencian region boasts a relatively large body of work on Holocene climate as well as long-term archaeological research focused on the development of agriculture and diversified regional economies in South Eastern Spain, and thus serves as the primary case study.

Lassen, Robert (Gault Project at Texas State University) and Sergio Ayala (Gault Project at Texas State University)

[322] Is Fluting Exclusive to Paleoindians? A Comparison of Paleoindian and Archaic End-Thinning Techniques

The idea that fluting is a uniquely Paleoindian technological marker for projectile points in the Americas has been considered a given ever since the original Folsom discovery in 1927. While it is true that fluted lanceolate points are reliably diagnostic artifacts of the Paleoindian period, stemmed points from the Archaic period also occasionally exhibit end thinning flake scars that are reminiscent of flutes. In Central Texas, Middle Archaic point types such as Andice/Bell, Bulverde, and Pedernales regularly possess end thinning flake scars that facilitate hafting. This study compares the basal end thinning of Paleoindian points such as Clovis, Folsom, and South American Fluted Fishtail to that of the aforementioned Archaic points. The comparison involves a morphological study utilizing metric variables, as well as a technological study involving replicative flintknapping and an analysis of reduction sequences for the various point types. The results will determine the validity of fluting as a uniquely Paleoindian strategy.

Latorre, Claudio (IEB & Departamento de Ecología, Pontificia Universidad Católica de Chile), Calogero Santoro (Instituto de Alta Investigacion, Universidad de Ta), Ricardo De Pol-Holz (GAIA-Antartica, Universidad de Magallanes, Punta A), Eugenia Gayó (Center for Climate Change and Resilience Research) and Mariana Yilales (IEB & Departamento de Ecología, Pontificia Univers)

[248] PEOPLE3k: Demographic Boom and Bust Cycles of Coastal Hunter-gatherers Cycles Track Shifting Upwelling Conditions in Northern Chile

Extensive archaeological shell middens can be found throughout coastal northern Chile, where they span more than 9,000 years. They contain abundant terrestrial plants and shellfish remains and can often accumulate very quickly and/or episodically. We use multiple radiocarbon dates to measure local radiocarbon deviations (R) between marine and
atmospheric ages along a given stratigraphic horizon. Such estimates are then used to calculate regional marine reservoir departures from the global marine 14C calibration curve ($\Delta R$). Previous research has shown that $\Delta R$ estimates can be used to reconstruct local upwelling conditions. A steady increase in upwelling and colder coastal waters drove increased marine productivity along with an almost constant increase in coastal hunter-gatherer populations from 9,300 to 5,500 cal yr BP. Major shifts in upwelling associated with unstable coastal ecosystems drove demographic collapse of coastal hunter-gatherers from 5,500 to 4,700 years ago—with populations declining until c. 2,500 cal yr BP. Our upwelling records shed new light on how the coastal ecosystems of northern Chile have evolved and co-adapted with prehistoric human societies, and show how these changes relate to global climate change, such as the onset and intensification of ENSO over the last 9,000 years.

Lattanzi, Gregory [70] see Sanger, Matthew

Lattanzi, Gregory (New Jersey State Museum)

[133] Look What Just Washed Up on the Jersey Shore: Climate Change and Its Impacts on Submerged Sites in New Jersey

Beginning in 2013, the office of the New Jersey State Archaeologist began receiving requests to identify artifacts found along the Atlantic shoreline and the Delaware Bay. While finding artifacts along beaches is not new, the substantial increase both in number and locations of finds can only be attributed to the results of climate change. The frequency and intensity in which these storms occur has contributed to the disturbance and destruction of submerged archaeological sites along the continental shelf. Although without context, these finds provide significant data on potential site locations, site chronology, and potential site preservation. This presentation will document the locations of these finds, identify their chronology, and examine areas of archaeological concern regarding continued climate change and its impact on archaeological sites.

Lau, George (Sainsbury Research Unit, UNIV OF EAST ANGLIA)

[161] Making Kin out of Stone: Production of Landscape and Collectivity in Ancient Peru

This presentation details different strands of evidence we have on the organisation and kin-based significances of carved stone monoliths during the late prehispanic period of ancient northern Peru (ca. AD 500-1532). Ethnohistorical documents suggest that it was close kin who carved and erected stone images of esteemed forebears; the images themselves, meanwhile, were referred to as ‘brothers’ of the prototype. Stony things—craggs, boulders, mountains—were also described as tangible remnants of where past kin ‘lithified’. Archaeology, meanwhile, shows the close associations between the carved monoliths and funerary cult; they were images of the deceased generally adorning mausolea and necropoli. They are consistent with the idea that production of stone images were the purview of family/lineage groups and centred on important instantiations of esteemed forebears in the landscape. It is argued that late prehispanic groups of Peru’s north highlands sought to consolidate collectivity and multiply ancestral presences through their stonework, both within the village setting and through the visible landscape. Engagements with stone during this time of great social and demographic upheaval, was intimately related to the process of ‘make kin’.

Laudeman, Bobby [119] see Renteria, Bernardo

Laugier, Elise Jakoby [120] see Hill, Austin

Laumbach, Karl (Human Systems Research, Inc.)

[413] Discussant

Lau-Ozawa, Koji

[83] Materializing the Incarceration of Japanese Americans during WWII

The mass removal and imprisonment of over 110,000 people of Japanese descent during WWII relied upon an interconnected infrastructure of materials and technologies. These camps were not spontaneous creations, but the result of
numerous strategies of immigration control and confinement with their own histories of use within the United States. The deployment of these technologies was often governed by economic and political logics, not accounting for the experiential qualities of such decisions. Here I will discuss the various material qualities of the WWII Japanese American incarceration and the subsequent ways in which they were experienced. While archaeological studies have highlighted the physical manifestations of the Japanese American incarceration camps, they often focus on the strategies employed by incarcerees to build new environments and alleviate the traumas of incarceration. Here instead I will step back to examine some of the seemingly benign qualities of these camps which inflicted trauma in the first place. With a focus on these materials, archaeology can help to illuminate the deep and often unnoticed consequences of such decisions and their impacts on those subject to them. This topic is of growing concern as the technologies of removal, mass resettlement, and confinement become increasingly common.

Lauria, Kathryn

[273] Neanderthal Communities of Care: How & Why Did Non-modern Hominins Care for Victims of Interpersonal Violence?

Within the constantly evolving field of human origins, researchers are looking for new methods and theories to infer behavior from the paleoanthropological record. Here, Shanidar 3, a Neanderthal specimen with evidence of partially healed sharp force trauma, is examined using the Bioarchaeology of Care approach. Based on a comparison with paleopathological and forensic literature, Shanidar 3’s injuries are consistent with sharp force trauma caused by a penetrating object. The severity of Shanidar 3’s injuries suggest that healthcare provisioning was required for immediate survival. Furthermore, the relatively high number of extreme injuries which demonstrate healing in the Neanderthal record, referred to as the “rodeo traumatic lesion pattern” due to the high incidence of head and neck trauma, indicates a system of care that was in place for injured members of the species. This paper explores how bioarchaeological theories can be applied to non-modern hominins, such as Shanidar 3, to infer not only violent behaviors among individuals, but the systems of care that were enacted to assist such individuals and ensure their immediate survival.

Laurich, Megan (Northern Arizona University), Wyatt Benson (Northern Arizona University), Natalie Patton (Northern Arizona University) and Chrissina Burke (Northern Arizona University)

[117] Are You a Tool? A Zooarchaeological Analysis of Worked Bone from Wupatki National Monument

Zooarchaeological analysis provides details on the processes used to create and modify bone artifacts and the potential use of these materials by past peoples. This poster provides the results of faunal analysis, usewear analysis, scanning electron microscopy, and experimental archaeology to examine bone artifacts from Wupatki National Monument. The data collected includes skeletal elements from a range of taxa, assessment of bone working stages, and evidence for bone modification in the form of bone tools, ornaments, and instruments. We elucidate human behaviors tied to these implements to provide a better understanding of bone processing, manufacturing, use, and activities associated therein at Wupatki. This research further contributes to the conversation of bone working for the zooarchaeological community at large in the American Southwest and worldwide.

Laurila, Erick (Logan Simpson), Jewel Touchin (Logan Simpson), Saul Hedquist (Logan Simpson), Shawn Kelley (Parametrix) and Shere Churchill (Parametrix)


The Navajo-Gallup Water Supply Project (NGWSP) is a Bureau of Reclamation (Reclamation) sponsored project in northwest New Mexico that will convey water from the San Juan River to Navajo and Jicarilla Apache communities, as well as to the City of Gallup. Reclamation developed a Programmatic Agreement (PA) that prescribes how cultural resources, including numerous archaeological sites, will be considered during project construction. The PA stipulates that a lessons-learned case study or best management practices manual (manual) shall be produced following the completion of construction. Logan Simpson and Parametrix archaeologists and anthropologists have been working with Reclamation and the NGWSP PA consulting parties to develop the first draft of the manual. One of the themes of the manual is to provide guidance on how to meaningfully engage in consultation with Native American tribes so that the perspectives and knowledge of descendant communities are given equal footing to understanding and managing the archaeological resources, traditional cultural properties, and the cultural landscapes being investigated as part of the NGWSP. This paper presents both case studies and recommendations on how tribal participation is critical to archaeological work completed within a National Historic Preservation Act Section 106 context.
LaValley, S. Joey (Logan Simpson Design, Inc.)

[381] Movin’ on Up: Insights into Habitations on the Slopes of Cañon de San Diego, New Mexico

Archaeology in the Jemez Province of New Mexico has been explored and studied since the late 19th century. High site densities and pueblo complexes are common, but most of the areas suspected to contain pueblo settlements have been thoroughly reconnoitered. These resources are primarily identified within drainage bottoms and atop the numerous mesas between canyons. In 2017, Logan Simpson surveyed 662 acres of steep, heavily incised, and extremely rugged Santa Fe National Forest land on the western slopes of the Cañon de San Diego immediately north of Jemez Springs. The parcels, sandwiched between the Jemez River and the edge of Virgin Mesa, were anticipated by all involved to contain relatively few cultural resources. Instead, 48 new sites were identified, most of which contain standing architecture with intact mortar, including several on slopes greater than 30 percent. Diagnostic artifacts indicate that most sites date from the late Coalition and Classic periods (A.D. 1250–1650), a time that saw rapid population increase in the area and an intensification of villages on mesa tops. This paper discusses results of survey, assesses the spatial and temporal distribution of sites, and provides new insights into the habitation of “less-than-ideal” landforms.

[189] Chair

Law Pezzarossi, Heather (Syracuse University)


In her recent book, “The White Possessive,” Aileen Moreton-Robinson details the way in which Western Nationhood hinges upon the possession of property. Consequently, the mechanisms by which Indigenous people become “propertyless,” are crucial for the state’s denial of Indigenous sovereignty. For example, in 18th century Massachusetts, the Nipmuc people were identified, traced, archived and legitimized by their ownership of land. Colonial records plot Nipmuc land holdings with care, measuring and quantifying state approved land “grants,” reservations, and holdings in severality. Nipmuc land sale transactions were highly monitored and subject to state approval. As Nipmuc land holdings dwindle in the late 18th and 19th centuries, so do archival records of Nipmuc presence on the landscape, creating a lasting historical erasure and a discourse of Native “disappearance” despite the continued presence of Nipmuc people in New England. In this paper, I will share some methods I’ve adapted for tracing Nipmuc residence without the assumption of ownership and immediate proximity, revealing tangible locations and traceable routes of dynamic Indigenous communities that existed within, amongst, and in spite of Western landscapes of private property in 19th century New England.

Lawler, Andrew

[132] Discussant

Lawrence, John, Scott Fitzpatrick (University of Oregon) and Christina Giovas (Simon Fraser University)

[298] Petrographic Analysis of Pre-Columbian Pottery From Nevis, Eastern Caribbean

Prehistoric Amerindians in the Eastern Caribbean often used local materials in the manufacturing of ceramics, and in some cases, transported these as they migrated. Given the ubiquity of ceramics in the Caribbean, they are useful in discerning past movements, and spheres of interaction. However, studies of this nature are scarce in the region. In this paper, we have conducted an exploratory study of pottery from the island of Nevis (northern Lesser Antilles), in a continuation of efforts to understand and define ceramic production, distribution, and use. The Dickenson method of petrography, initially used in Oceania, was implemented on 20 non-diagnostic Late Ceramic Age potsherds from the site of Coconut Walk. These, along with 11 modern sands, were collected and petrographically described. Descriptions focused on sand and matrix characteristics such as composition, size, sorting, and angularity. From descriptions, sherds were categorized into compositional temper groups: group 1(Felsitic) and group 2(Volcanic). Sands were also described and organized into temper groups. Representatives of each temper group, both sherds and sands, were then selected for point-count analysis using the Gazzi-Dickinson method. Results indicate that temper groups match both local geologic description and local modern sands, suggesting a local provenience for pottery production.
Looking under the Rocks: Geoarchaeological Investigations of Earth Oven Facilities in Various Settings of the Lower Pecos, Texas

The multi-year Ancient Southwest Texas (ASWT) Project at Texas State University has investigated numerous earth oven facilities (more commonly known as burned rock middens or BRMs) in the Lower Pecos of southwest Texas. The investigated prehistoric sites ranged from large, cavernous rock shelters to subtle overhangs and open-air campsites. Among the many observations made during the excavations was the differing preservation and composition of the BRMs in each of these settings. This presentation discusses these features and summarizes the preliminary geoarchaeological investigations of the BRMs at Skiles Shelter (41VV165), Eagle Cave (41VV167), Horse Trail Shelter (41VV166), and Tractor Terrace (41VV2055).

Relatedness, Circularity, and Place-Centeredness in Belle Glade Artifacts: Reevaluating South Florida Collections from an Ontological Framework

Museum collections provide a quintessential database for archaeological studies, yet they are often overlooked in favor of new excavations that eventually add to museum collections. While new excavations provide us valuable insight into the communities of the past, reevaluating existing collections can provide us with entirely new interpretations of the past, especially in light of new methodological technologies and new theoretical frameworks. In this paper, I provide a case study on how reevaluating collections with new theories and methods can shed an entirely different light on the past. The Florida Museum of Natural History curates many collections associated with the Belle Glade culture of South Florida. Previous Belle Glade studies have been limited and focused primarily on economics and subsistence. Reevaluating these collections in terms of an ontological framework provides a whole new understanding of the peoples that once dwelled in the Kissimmee-Okeechobee-Everglades watershed.

The Investigation of a Sascabera Near the Las Monjas Complex in Chichen Itza

Some 75 m southwest of the Las Monjas complex at Chichen Itza and just west of Sacbe No. 7, lie a series of eleven sascaberas that are shown schematically on the Carnegie map. While ceiling collapse has undoubtedly occurred in the millennium since their creation, some, such as Sascabera #2, have an extensive enclosed dark zone space. In Sascabera #2, this can be attributed in part to the leaving of pillars to support the ceiling. A survey of Sascabera #2 recovered a fair number of ceramic sherds indicating post mining activities carried out within the dark zone. The feature was also noteworthy in being the only sascabera where stalactites had formed on the ceiling. Evidence suggests that the Maya may have deliberately excavated sascaberas at the site to function as caves.

Tracking Individual Raptors in the Archaeological Record Using Stable Isotope Analysis: Some Implications for the Study of Ritual Economies in New Mexico

In this poster, we explore a cost-effective method for tracking artifacts made from individual raptors (or birds of prey) through the use of intra-skeletal variation in δ13C, δ15N, δ2H in modern samples of Turkey Vultures (Cathartes aura) and Golden Eagles (Aquila chrysaetos). Current methods of quantification in zooarchaeology, such as the minimum number of individuals (MNI), work to identify individual animals within a site. However, they cannot be applied to quantifying skeletal material from the same individual at different sites. Ancient DNA is one method that allows archaeologists to track individual fauna, but it is expensive. Do individual raptors exhibit distinct stable isotopic signatures because of little to no intra-skeletal variation in δ13C, δ15N, δ2H? Identifying individual fauna in the archaeological record could aid in the reconstruction of regional trade networks and distinguishing potential distribution centers of flutes and whistles in prehispanic New Mexico. Flutes and whistles recovered from Ancestral Pueblo contexts were commonly manufactured from the bones of birds of prey. Tracking individual raptors can lead to better understanding the economic role that flutes and whistles had in the Ancestral Pueblo world.
Lazrus, Paula Kay (St. John’s University)

[387] Managing Forests in the 19th and Early 20th Century Bovese

The town of Bova, located in the foothills of the Aspromonte in the province of Reggio Calabria, Italy, once dominated a region rich in forests and woods. Travelers from the 15th – 19th centuries commented upon the rich vegetation. Archival records ranging from tax declarations to legal disputes refer to the presence of trees and forests in locations around the town of Bova. Many of these areas are no longer forested. In this exploration of the tax data and legal disputes over the use of these resources, references to forested areas and to the tending of trees such as oaks and chestnuts are mapped in order to begin analyzing the possible ways in which citizens interacted with these resources. Forests were often used to demarcate limits of neighborhoods as well as for their intrinsic resources, and some were owned or managed by the church or the municipality. Here, an attempt is made to use spatial analysis to better understand these relationships within the Bovan economy of the 19th and early 20th centuries.

Le Goffic, Michel [403] see Naudinot, Nicolas

Le Moine, Jean-Baptiste [199] see Mongelluzzo, Ryan

Leach, Peter (University of Connecticut: Geophysical Survey Systems, Inc.), David Givens (Jamestown Rediscovery) and Richard Boisvert (NH State Conservation and Rescue Archaeology Program)


Ground-penetrating radar (GPR) is an established prospection method in cultural resource management (CRM), yet despite its contributions its use is not universal. The goal of this presentation is to demonstrate the utility of GPR surveys before and during CRM excavations, and to underscore the need for maximizing the archaeological capabilities of GPR. This talk is organized into two parts. The first presents case studies of typical GPR surveys from CRM contexts, with the goal of exhibiting the various target types encountered with relatively low frequency (350-900MHz) antennas. A major part of this discussion will be the common pitfalls associated with different sites and types of data, and methods for overcoming these issues. Also discussed are best practices for GPR fieldwork and post-processing techniques for archaeological datasets. The latter half will highlight the authors’ experimental GPR techniques that employ high-frequency (1600-2700MHz) antennas inside excavation units. Case studies from pre-contact sites in New England and investigation of a historical burial at the Jamestown Colony will reveal the archaeological importance of higher frequency antennas. These high-frequency data are forwarded as a means of ‘digital bisection’, whereby GPR surveys during excavation provide a new level of real-time mission planning for archaeological efforts.

Leader, George [131] see Dhody, Anna

Leader, George (University of Pennsylvania)

[131] Funerary Hardware in 18th and 19th Century Philadelphia: What Can Be Used as an Indication of Wealth from the Arch Street Site?

The cemetery of the First Baptist Church of Philadelphia (ca. 1702-1859) was excavated in 2017. Almost 500 remains and associated material culture highlight the lives of Philadelphia’s early citizens during pre and post-colonial eras. Individual graves offer multiple lines of evidence from which to assign a wealth index within the sample. Variables used in the study include coffin hardware (furniture), lid plaques, lid tacks, escutcheons, and grave goods. The study created a rubric on which to grade each individual graves’ wealth based on the presence or absence of such funerary goods. Historical records were then compared to the results to blindly test how the cemetery’s sample may represent the congregations’ population at the time. This paper presents the results of the analysis and highlights the importance of additional research on coffin hardware and grave goods.

[131] Discussant

[131] Chair
Leap, Lisa, Gwen Gallenstein (National Park Service) and Stewart Koyiyumptewa (Hopi Tribe)

[21] **Please Put It Back: A Non-NAGPRA Case of Reburial**

Due to recent erosion from intensified downpours related to global warming, Wupatki National Monument archaeologists recovered artifacts from an exposed cyst that were about to fall into a newly formed wash. Working with traditionally associated tribes, the monument created an emergency excavation plan and a contingency for the reburial of cyst contents should human remains be encountered. When no human remains were found, the monument accessioned and cataloged the cyst contents, including seven intact pots. Because intact pottery is seldom found outside of a burial context, the monument and its Friend’s Group sought to place the items on display. When monument personnel consulted with Hopi elders about the cyst and contents for the exhibit, however, they learned that what they thought was a “pot cache” was something else entirely. This paper discusses the events that led to the eventual reburial of the cyst contents and the resulting lessons learned.

Leavesley, Matthew [129] see Stephen, Jesse

Lebenzon, Roxanne (University of Connecticut), Elic Weitzel (University of Connecticut), Isaac A. Hart (University of Utah) and Brian Codding (University of Utah)

[47] **Climatic Controls on Prehistoric Utah Populations**

Recognizing how climate variability altered the landscape in regards to nutrient availability is a key aspect in reconstructing how prehistoric peoples were able to thrive. Further, understanding how past climate and environmental change affected organisms is important for predicting the role of imminent future climate change on populations today. Previous research found mammal populations during the Holocene fluctuated directly with climate variability in accordance with the availability of edible resources. This study provides a record of climatic controls, particularly precipitation, on past human populations in the Bonneville Basin. Utilizing pollen data from Utah’s Blue Lake as a proxy of environment in the Bonneville Basin, and the “dates as data” approach to account for human population, we are able to explore the interplay between climate and human population growth for the past 12000 years. We predict during the Holocene, periods of increased moisture were more conducive to consistent sustainable food sources, and thus human populations would have been able to expand. As predicted, our results indicate a significant correlation between precipitation and population density: when more arid-adapted taxa dominate the pollen record, human population densities are low, and vice versa.

Lebrasseur, Ophelie [20] see Larson, Greger

LeBrell, Emilie (University of Calgary), Geoffrey McCafferty (University of Calgary) and Sharisse McCafferty (University of Calgary)

[349] **Female Figurines of the Greater Nicoya Region 500 BCE – 1250 CE**

Female figurines of the Greater Nicoya region feature a 2000-year history of thematic continuity. During the Formative and Classic periods (locally Tempisque and Bagaces periods), figurines were often red-slipped, nude females in a seated, kneeling or standing position with hands on hips; these were occasionally elaborated with black pigment depicting body paint or tattoos. About 800 CE, however, figurines became decorated with polychrome paint consistent with the ceramic tradition of the Postclassic. These polychrome designs often included textiles, which have traditionally been associated with female identity. Despite notable decorative changes, the postures of female figurines continued with only minor changes, suggesting that their primary meaning remained the same diachronically. This paper will discuss the implications of continuity in figurine form and will also explore functional and symbolic significance. Further, we will consider the popular hypothesis that figurines were used in shamanistic practice, and examine a larger implication concerning the prominence of women in indigenous homes and politico-religious roles.

Lebreton, Loic [415] see Morin, Eugene

Leckman, Phillip [84] see Lycett, Mark
Leckman, Phillip (Statistical Research, Inc.) and Karen Schollmeyer (Archaeology Southwest)

[315] From the Andes to the Gila: Space, Society and Zooarchaeology in the US Southwest

This paper is a story in two halves, each inspired by John and his academic legacy. Home to some of the earliest and most impressive ritual architecture in the hemisphere, the Andes has long fostered research into the interchange between social organization and the built environment. The first half of this paper demonstrates the long reach of this research, connecting threads between Andean architectural analyses and the built environment in the American Southwest at a variety of spatial scales. The second half of this paper focuses on the Mimbres-Mogollon region of the Southwestern uplands. A combination of legacy datasets and recently analyzed museum collections provides new insights into the long-term record of human-environment interactions in this region, including the resilience of different animal taxa to human hunting and anthropogenic landscape change at different spatial and temporal scales. Implications for understanding the recursive effects of hunting are linked to John Rick’s research on vicuña harvesting in the Andes.

LeCompte, Elise

[362] The Paper Chase: Legacy Collections’ Records

The analysis of legacy collections is often hampered by documentation that is fragmentary, preserved on obsolete media, or entirely absent. Like the physical material that makes up a legacy collection, the associated documents may be spread across institutions. This may include other museums, educational facilities, government agencies, and private firms. Some of these institutions may include those that do not actually curate the physical objects and specimens, like libraries. This presentation describes the processes used to locate legacy collections documents, as well as the legal and ethical issues related to collections and documents that are shared across institutions. Data management plans are now standard parts of research projects. Though just as necessary, codified plans for the long-term curation of associated documents are far less common. By focusing on the stability and tracking of these crucial collections components, institutions can facilitate better collaboration and research.

Ledogar, Sarah [47] see Henry, Lauren

Ledogar, Sarah [352] see Fillios, Melanie

Lee, Chengyi [389] see Lin, Kuei-chen

Lee, Christine (California State University, Los Angeles)

[353] Nomadic Identity: The Origins of a Multiethnic Empire in Mongolia.

Little is known about the ethnic composition of early nomadic populations in Mongolia. Archaeological and historical research have concentrated on the Xiongnu (209 BC-93 AD) and Mongol (1206-1368) time periods. The period in between is known as the period of disunion, characterized by fragmented states and foreign dynasties. This is a period of political unrest, but there is evidence that many different ethnicities were accepted and incorporated into these states. Five cemeteries from Bulgan, Arkhangai, and Orkhon Aimags were analyzed to determine how many different ethnicities were present. Twelve burials were recorded from the Xianbei (147-234), 15 from the Rouran (330-555), and 15 from the Turkic (555-840) periods. Based on grave architecture, burials artifacts, metric traits, nonmetric traits, developmental defects, and musculoskeletal markers, various ethnicities were assigned to the burials. During the Xianbei period, Xianbei, Ordos, Qidan, and Turkic individuals were identified. At the Rouran cemeteries, Xianbei, Ordos, Qidan, Turkic, Mongol, and Xiongnu individuals were present. The Turkic period cemetery had only Turkic burials. The variability in ethnicities is probably related to differences in political control and national identity. Further analyses incorporating the Xiongnu and Mongol periods may clarify the unusual level of inclusiveness which characterized the resulting Mongol Empire.

Lee, Craig (Metcalf Archaeological Consultants & INSTAAR)

[292] Discussant
Lee, Galen [8] see Pryor, John

Lee, Gaylen D. [400] see Gaskell, Sandra

Lee, Gyoung-Ah (University of Oregon)

[156] Sustained Farming in the Nam River Valley, South-central Korea, through the Mumun/Bronze to Early Historical Periods

This research examines agricultural management, particularly raised field farming from the Mumun/Bronze to early historical periods (3400–1600 cal. BP) along the Nam River in south-central Korea. The study of settlements on alluvial flatlands provides crucial information on early agricultural developments around the world. The Nam River basin is an exemplary case, revealing over 1600 features of dwelling structures, burials, altars, and sequences of agricultural fields across the area of 47 hectares. Research questions include how inhabitants constructed the farming fields and manipulated crops, and ways that this affected both environmental and cultural niches. Multiple lines of evidence for the transition to farming include macro- and micro-plant remains and settlement patterns, as well as a close examination of radiocarbon dates. The research evaluates the Neolithic management of economic plants and the transition to a more closely managed construction of farming landscape in a broad East Asian context.

Lee, Hyunsoo (University of Oregon)

[156] Early-Middle Holocene Resource Use and Niche Construction in Jeju Island, Korea

Study of various human adaptations and human-environmental dynamics amid Early-Middle Holocene (ca. 11,500-5,000 BP) climate changes has been a noteworthy theme in archaeological research. One of the main questions in this discourse is how occupants in various environments and landscapes have gone through diverse utilizations and interactions with the surrounding resources. Early-Middle Holocene societies in Korea have been often simply defined as hunter-gatherer economies with no existence of plant management, due to dichotomous views between plant gathering and cultivation/agriculture, and between wild versus domesticated plants. The main objective of this research is to develop a niche construction model in Early-Middle Holocene societies based on the case studies of Early-Middle Holocene sites in Jeju, including the Gosanri. Through mainly microbotanical evidence, this study identifies plant species utilized through time and characterizes an early management of anthropogenic species prior to or along with systemic agricultural practice. The study aims to contribute to mapping diverse economic niche constructions, human-environmental dynamics, and sociocultural transitions amid climate changes of the Early-Middle Holocene worldwide.

Lee, Lori (Flagler College)

[83] The Materiality of Migration

This paper considers what archaeologists can contribute to contemporary issues through doing what we do best—analyzing material culture to create narratives. I use this approach to personify a particular group of liminal, stereotyped people whose anonymity is critical for their survival—undocumented migrants. This paper is part of a broader collaborative project between me and Edgar Endress. The goal of the project was to produce a multilayered vision of Haitian migration and identity transformation to provoke critical thinking about Haitian migrants in the hope of promoting social change in terms of awareness and advocacy for changes in migration policies.

Lee, Patrick (University of Toronto), Jamie Inwood (University of Calgary), Samson Koromo (United Republic of Tanzania), Lucas Olesilau (United Republic of Tanzania) and Julio Mercader (University of Calgary)


Tanzania’s Olduvai Gorge is a flagship human origins research site, yet less recognised is that the lands surrounding Olduvai are home to the pastoralist Maasai society. Even though scientists have, for over a century, sought to illuminate the shared past of our species in what many regard to be a cradle of humankind, there has seldom been meaningful and lasting collaboration between palaeoanthropologists and the Maasai. We conducted three seasons of ethnographic research within Maasai and palaeoanthropological communities to gain a thorough understanding of the social dynamics of the Olduvai
area and thereafter develop a standardised survey that could substantially capture the experiences of all Maasai who sought to share their thoughts. Our results, which qualitatively and quantitatively delineate daily life within a renowned research site before and after the formation of the Stone Tools, Diet, and Sociality partnership, foreground the impacts that scientific projects have made – and can make – on Maasai communities. This paper emphasises that instead of lending strength to the myth that scientific work is absolutely disengaged from societal matters, palaeoanthropologists can explore the contexts surrounding their field projects to create new policies and practices that cultivate the myriad benefits of engaged archaeological fieldwork.

Lee, Rachel (University of Washington), Martin Bale (Yeungnam University) and Jade D’Alpoim Guedes (University of California San Diego)

[156] Assessing Agricultural Strategies in Prehistoric Korea through Climate and Landscape Models

Relict fields and archaeobotanical remains from village sites in South Korea indicate intensive agriculture was practiced during the Mumun Period (ca. 1500-200 B.C.). In this paper, we discuss the effects of climate and landscape in the decision-making of Mumun farmers, particularly which crops to plant, at what times, and which locations. Our results are based on complementary models that consider temperature and soils across the Korean peninsula for multiple sites and multiple crops (i.e. millet, barley, rice). More than identifying the presence or absence of domesticates, we argue that our models help explain Mumun Period agricultural strategies such as diversification, specialization, and intensification.

Lee, Rechanda

[150] ’ASHŁ’Ō YŌHOOL’AAH (Learning to Weave): The Cultural Transmission of Technological Style in Navajo Textiles

Learning is a process that all individuals experience either consciously or unconsciously in a social environment. The process of learning is important to understand because learning develops knowledge and skills that are the foundation of an emerging culture. The significance of understanding how humans learn may guide our understanding in how the learning process affects the patterning of material culture. Archaeologists understand relatively little about the process of learning, how skills are acquired, and how some skills remain unchanged over time. By examining the transmission of traditional knowledge and skill from Master Weaver to apprentice we develop an understanding of the process of learning. The simplistic explanation of understanding how one learns a skill is described as learning by means of participation, observation, and imitation. This research investigates the role of a community of practice and its importance to the passage of learned technological styles as reflected in Navajo textiles. The results of this study provide some insight into the learning and social networks that preserve and keep traditions alive, especially, during times of a changing weaving tradition.

Lee, Sungjoo

[156] Technological Transmission between Different Levels of Specialization in Proto-historic NE Asia

The Proto-historic period (300 B.C. - A.D. 300) in Northeast Asia was a critical time when technological innovations and the fundamental changes of craft-specialization in the ceramic production occurred. From the early 3rd century B.C., ancient Chinese states of Yan, Qin, and Han expanded their influence over Manchuria and the northwestern part of the Korean Peninsula and established sporadic outposts into indigenous territory. The interaction spaces between the Chinese outposts and the surrounding indigenous communities were very important in explaining the transmissions and innovation of ceramic producing technology. This study explores cultural transmission of a bundle of complex technological behaviors from pottery craftspeople who had embodied skills for forming techniques of various standardized ceramic vessels to native practitioners working within a less-specialized context.

Lees, William (University of West Florida), Tom Dawson (University of St. Andrews), Sally Foster (University of Stirling), Joanna Hambly (University of St. Andrews) and Marcy Rockman (US National Park Service)

[251] Learning from Loss 2018: Considering Responses to Accelerated Climate Change in Scotland

In June 2018 interdisciplinary scholars from Scotland and the US convened in Edinburgh to consider action in the face of inevitable loss of coastal and carved stone heritage from accelerated processes related to climate change. The project, “Learning from Loss,” was funded by the Scottish Universities Insight Institute with lead partners University of St. Andrews and University of Stirling. The project team included archaeologists, cultural anthropologists, geomorphologists, conservators, and climate scientists from Scotland and the United States. Over 13 days, the project team held pre- and post-visit meetings in Edinburgh and travelled north to 28 select carved stone and coastal sites to consider the question:
“How will Scotland respond to transformation in the historic environment in the face of accelerating impacts of climate change by 2030?” The team considered social and community values, prioritization (how to), responsibilities (decision makers and stakeholders), and actions. Key insights and recommendations are reviewed.

[251] Discussant

Lee-Thorp, Julia [102] see Santana Sagredo, Francisca

LeFebvre, Michelle (Florida Museum of Natural History), Lee Newsom (Flagler College), Rachel Woodcock (University of Florida), Andy Ciofalo (Leiden University) and Michael Pateman (Turks & Caicos National Museum Foundation)

[37] “Site” (LN-101), Long Island, Bahamas: Beads, Baking, and Burials, but Brief Occupations?

LN-101 is a multi-component Lucayan site located on the windward coast of Long Island in The Bahamas. The site is situated along sand dunes directly on the beach and is characterized by the presence of earth ovens, evidence of bead manufacture, and associated human burials, with a notable absence of dense midden deposits or features indicative of past structures. In comparison to some Lucayan villages or midden sites, which contain abundant clay artifacts and fauna-rich deposits associated with long-term or persistent site occupations elsewhere within the Bahama Archipelago, Rolling Heads presents a different combination, or “site”, of archaeological finds suggestive of possibly short-term or task-specific occupations focused on the exploitation and use of animal and plant resources. Here we present a synthesis of our ongoing archaeological research, detailing the presence of earth ovens and highlighting recent zooarchaeological, starch, macrobotanical, and seasonality studies. Taken together, our analyses provide perspectives on the Lucayan-environment interactions underlying subsistence practices and landscape use at the site and challenge us to more thoroughly consider the significance of short-term or ephemeral site occupations within greater Lucayan settlement patterns.

LeFebvre, Michelle [159] see Mistretta, Brittany

Legere, Jacob [46] see Kellett, Lucas

Lehman, Calvin [94] see Sisneros, Brianne

Lehner, Joseph [321] see Martin, Samuel

Lei, Xingshan [299] see Chastain, Matthew

Leierer, Lucia [417] see Jambrina-Enríquez, Margarita

Leierer, Lucia (Universidad de La Laguna), Antonio V. Herrera-Herrera (Archaeological Micromorphology and Biomarker Lab), Margarita Jambrina-Enríquez (Archaeological Micromorphology and Biomarker Lab), Tammy Buonasera (Department of Anthropology, University of California) and Carolina Mallol (Archaeological Micromorphology and Biomarker Lab)

[417] Searching for Clues of Neanderthal Occupation and Mobility in Combustion Structure Residues: A Micromorphological and Biomarker Study of El Salt Unit Xb, Alcoy, Spain

The Neanderthal lithic and faunal record shows a short-term occupation, high mobility trend throughout Eurasia. Although combustion structures, which are numerous and well preserved in most Middle Paleolithic sites, play a central role in short-term occupations, they have not been sufficiently investigated from a geoarchaeological perspective to explore settlement patterns. This paper examines eleven combustion structures of the Middle Paleolithic site of El Salt (Spain), Unit Xb, with a focus on Neanderthal settlement patterns. The study is conducted using micromorphology, lipid biomarker analysis and compound specific isotope analysis. Results show in situ hearths build on a vegetational surface previously occupied by herbivores, preserved as black layers. Likewise, the results indicate a presence of angiosperms surrounding the occupation
site. Regardless of a high density of overlapping combustion structures, each hearth was built on a surface previously uninhabited by humans, pointing to short stays and therefore a high mobility. Mobility was additionally noted for fuel acquisition through an absence of conifer biomarkers in the fires, despite conifers being identified as a major source of fuel. A microscopic and molecular approach in the study of combustion structures provides insight for our understanding of Neanderthal settlement patterns.

Leigh, David S. [274] see Purdy, Barbara

Leight, Megan (CUNY Graduate Center)

[339] Maya kosmopolitês (Citizens of the World): Using a Cosmopolitan Approach to Study Trade, Identity and Belonging at Salinas de los Nueve Cerros

The use of cosmopolitanism as a theoretical framework for conceptualizing belonging in archaeology is derived from the ancient Greek concept kosmopolitês – humans are citizens of the world. Inspired by Halperin, this paper takes up her challenge to consider how “worldly dispositions, values, and identities are held in tension with local and more personalized practices and experiences (2017:351).” Using the theoretical approach of rooted cosmopolitanism, whereby individuals can be situated in both local and worldly identities, this paper explores how aspects of trade interaction influence identity at the site of Salinas de los Nueve Cerros. As a locus for both highland and lowland Maya good transfers, the site is an important node for long-distance good procurement and direct and indirect spheres of influence at the local and interregional levels, which influences its citizens’ external connections, internal organization, and individual senses of belonging at the site.

[234] Moderator

[234] Discussant

Leister, Matthew [357] see Wells, Rebecca

Leitao De Almeida, Marcos (Northwestern University)

[347] Becoming Villagers, Becoming Enslavers: Social Change in Bantu-Speaking Early Villages during the Late Holocene Arid Phase (ca. 1200 BCE, – ca. 100 BCE)

Recent syntheses incorporating linguistic, archaeological, and paleoclimatic evidence have argued that villages inhabited by Bantu-speaking communities spread from Cameroon to the Lower Congo from about 1200 BCE to 100 BCE. This southward migration was facilitated by an abrupt climatic warming event that expanded savanna-like environments and destructed portions of the Central African rainforest. Particularly between 650 BCE and 70 BCE, these new environmental conditions offered new opportunities and challenges to the newly arrived Bantu-speaking inhabitants, such as the adoption of pearl millet agriculture, the rapid circulation of iron technology, and the growth of population. This presentation discusses how village leaders resorted to slaving and captive-taking strategies to expand their communities in this period of unsettling changes. Based on comparative ethnography and historical linguistics, a re-analysis of four previously proposed lexical reconstructions reveals emerging ideas around alienation, honor, social status, and inter-village conflicts that provide important insights into the ways in which early Bantu speakers created a new logic of dispensability and incorporation in their communities. Lastly, this presentation discusses the implication of this discovery vis-à-vis other streams of evidence and ends by showing how the concepts of slavery created in this period became a lasting tradition in Equatorial Africa.

LeJeune, Colin (University of Illinois at Chicago)

[300] Interaction, Change, and Ceramic Variation along Coastal Nakhon Si Thammarat, Thailand, AD 100-1500

Coastal Nakhon Si Thammarat Province, Thailand, situated along Peninsular Thailand's eastern facing South China Sea shore, was one of the many vibrant zones of interregional exchange and complexity growth in premodern maritime Southeast Asia. The region's culture-history, settlement pattern, material culture, and international connections between AD 100 and 1500 have become points of archaeological interest in recent years. Research on its Hindu and Buddhist shrines has identified four distinct periods of local development, and the presence of northern and southern site clusters possibly displaying some political or cultural differentiation between the 5th and 11th centuries and heavier southern occupation after AD 1100. This paper discusses the results of a program of survey and excavation conducted in 2017 at three northern cluster and three southern cluster sites to help advance understanding of premodern coastal Nakhon Si Thammarat's
organizational development and external engagements. Specifically, it details efforts made to locate, collect, and define variation exhibited within the region’s local earthenware assemblages over time. This paper also attempts to interrogate what identified local ceramic patterns suggest about the organization and relations of daily life in premodern coastal Nakhon Si Thammarat and its place in local mobilization of external connection toward local development.

Lekson, Stephen (University of Colorado)

[88] Archaeological Curation: Challenges and Opportunities

After almost three decades in museums and allied institutions, I have some ideas about the challenges and opportunities facing archaeological curation, especially in the western United States. This poster presents several of these themes – the permanent curation crisis, UFOs and CUIs, legacy collections, changing audiences, and of course Tribal collaborations – with ideas about how they might (or might not) be resolved. The poster format invites comment and conversation with other curators, historic preservation professionals, and any archaeologists concerned with collections and public interpretation – hopefully refining these ideas for an article or online content.

Lemminger, Jennifer (Department of Anthropology, University of Wyoming)

[89] Identification of Wood Used at Daugherty Cave, WY

From 1954 to 1957 Dr. Frison excavated Daugherty Cave (48-WA-302). Various perishable artifacts were recovered from the site including moccasins, basketry, cordage, wood, hide and sinew. It is a Late Archaic to Late Prehistoric site on the west side of the Bighorn Mountains in the Northwest Plains. Dr. Frison published on the site in 1968 detailing the artifacts found. Minimal work has been done with the artifacts since housed at the University of Wyoming Archaeological Repository. For this project, I used microscopic wood identification to answer: what types of wood were being used; were materials local or non-local; how this compares to other rock shelters and caves analyzed on the Northwest Plains; were different woodworking techniques used for different wood types; and were different techniques used for different artifacts? Additional information about the site, plants and plant use was obtained from the Rocky Mountain Herbarium Database (RMHS), the Native American Ethnobotany Database and discussions with Dr. George Frison. I was able to create comparisons with analyzed sites in Wyoming and the surrounding area, establish wood resource exploitation, local and/or non-local exploitation and what kind of woodworking techniques were being used at the site and on what object type.

LeMoine, Genevieve [10] see Ebel, Erika

LeMoine, Jean Baptiste [199] see Halperin, Christina

Lemoine, Ximena (Washington University in St. Louis)

[78] Pig Management in Neolithic North China: Foddering and Social Change in the Western Liao River Valley

Recent models for pig domestication in China have suggested that initial domestication was contingent upon millet cultivation, which allowed for foddering through agricultural surplus. For this study, a combination of bulk collagen carbon and nitrogen isotopic analysis and compound specific carbon isotopic analysis are used to infer the extent to which pigs consumed domestic food products in the form of millet and/or household refuse at two key Neolithic sites in Northern China: Xinglonggou and Xinglongwa. Additionally, by sampling pig remains based on both age and sex, food provisioning directed at certain cohorts within the herd can be identified and associated with ethnographically described management strategies. Ethnographic work on pig management--notably from New Guinea--has illustrated that identifying feeding regimes can be useful to distinguishing between intensive and extensive management strategies as well as community involvement in larger social networks and institutions at a regional level. In the context of the origins of agriculture in the Chinese Neolithic, this paper addresses two major lines of research: (1) when and in what context did foddering emerge; and (2) how changes in pig management practices reflect changes in social and economic organization seen during the transition to the Bronze Age.

Lennon, Mary [128] see Harris, Matthew
Leonard, Jessica (Brandeis University), Hannah Plumer-Moodie (University of Sheffield), Thomas Guderjan (University of Texas at Tyler) and Colleen Hanratty (University of Texas at Tyler)


The osteological analysis of skeletal remains provides a unique lens for viewing social behaviors within ancient complex societies at the level of the individual as well as the population. The dentition from skeletal remains can be especially useful for answering questions regarding dietary practices as the consumption of specific foods leave identifiable macroscopic markings on teeth, which preserve well in archaeological contexts. Presented in this paper are the results of an analysis of the observable macroscopic indicators of dental pathology from ancient Maya populations located at three sites in northwestern Belize. Given its prolonged occupation (AD 250 to 1000), this region is ideal for investigating evidence of changes and/or variations within Maya society over time and space. Thus, this research explores the consistencies and variations of food distributions and other patterns of dietary practices across different Maya social groups over a span of 700+ years. The results of this investigation reveal spatial and temporal stability in dental health and thereby diet throughout these ancient Maya populations, concurring with the archaeological and geoarchaeological evidence of dynamic and sustainable agricultural practices in this region.

Leonardt, Sabrina [364] see Scheinsohn, Vivian

Lepofsky, Dana [70] see Springer, Chris

Lercari, Nicola (University of California Merced)

[177] Discussant

Lercari, Nicola [221] see Duenas-Garcia, Manuel

Lerner, Shereen (Mesa College)

[229] Discussant

Lertchamrit, Thanik [317] see Halcrow, Sian

Lesage, Louis [308] see Micon, Jonathan

Lesh, Andrew (Stanford University)

[64] New Methods for Duct Exploration and Gallery Discovery at Chavín de Huántar

Originally the only known underground gallery between Building A and the Circular Plaza of Chavín de Huántar, the Caracoles gallery was long thought by Professor John Rick of Stanford University to be one of multiple chambers due to its three wall ducts, each exiting at an unknown location. This paper illustrates the methods developed for exploring these and
other such ducts, namely the usage of cameras, light arrays, and laser rangefinding equipment with modular poles. During the 2017 field excavation season led by Professor Rick, these techniques resulted in the discovery of a gallery thought sealed since Chavín times, temporarily designated as ‘Gallery X.’ Using images obtained in this manner, Gallery X was confirmed via comparative photography to be a chamber mirroring the architecture of Caracoles, with Building A’s north entrance serving as an axis of symmetry. Two galleries were subsequently discovered in line with this pair (galleries ‘three’ and ‘four’), and during the 2018 season, these techniques were used to gather evidence for the presence of an additional row of four galleries 3.2 meters to the north.

[64]  Chair

Leslie, David (University of Connecticut)

[72]  Discussant

[72]  Chair

Leslie, David [72] see Ranslow, Mandy

Leslie, Zubieta [369] see Diaz-Andreu, Margarita

Lesnik, Julie [397] see Beasley, Melanie

Levi, Laura (The University of Texas at San Antonio)


Ancient Maya places were dynamic assemblages of people, the things that they made and used, and myriad material and immaterial affordances. Unfortunately, a simple enumeration of their components cannot account for the historical valence carried by places. In northwestern Belize, the multi-scalar operation of ritual may help clarify the processes involved. Using the site of Wari Camp as a springboard for discussion, this paper will focus on ritual as “skilled practice” – technology enacted by ruler and ruled to continuously make and remake community and region.

[345]  Discussant

Levin, Anais [280] see Qiu, Yijia

Levin, Anais (Grinnell College), John Walden (University of Pittsburgh), Lauren Garcia (University of California, Berkeley), Julie Hoggarth (Baylor University) and Jaime Awe (Northern Arizona University)

[372]  The Impact of an Emergent Maya Polity on the Domestic Lithic Economy: A Perspective from the Hinterlands of Lower Dover, Belize

Lithic tool production and use offers a way to understand domestic activities and how they developed in relation to broader socio-political changes. The Late Classic (AD 600-900) Maya polity of Lower Dover, Belize emerged in the midst of a densely occupied landscape, and this transition saw the incorporation of three autonomous communities – Tutu Uitz Na, Floral Park and Barton Ramie – into the polity as urban neighborhoods. The appearance of Lower Dover on the political landscape impacted lithic tool production and exchange at the household and neighborhood levels. By comparing the patterns of tool production and use in these three communities as they transitioned into Late Classic neighborhoods, we examine the ways commoner activities changed at the household and neighborhood level following the emergence of the Lower Dover polity. Preliminary research at the Tutu Uitz Na neighborhood indicates the establishment of a specialized chert workshop following the rise of Lower Dover. This poster builds on this research by comparing established patterns of lithic production and consumption at Tutu Uitz Na with data from the Barton Ramie and Floral Park neighborhoods.
Levin, Martin [396] see Gonzalez, Kerry

Levin, Maureen (Stanford University), Katherine Seikel (The Australian National University) and Aimee Miles (Uppsala University)


Pacific atolls are generally regarded as challenging places to live. In addition to being far from other land masses, most have low biodiversity, limited access to freshwater, and are susceptible to extreme weather. However, settlers established residence on atolls in the Micronesian region as early as 2,000 years ago. This paper presents the first major archaeological investigation focused on the atoll of Pingelap and addresses the timing of settlement as well as the ways that people have subsisted over long periods of time in this atoll environment. Located about halfway between the high islands of Pohnpei and Kosrae, Pingelap consists of 1.8 km² of land spread across three islets, with only the largest island, Kahlap, being continually inhabited. Our results indicate that Pingelap has been settled since at least 1550-1700 cal BP, and has likely been continuously inhabited by humans until the present. Zooarchaeological and archaeobotanical work suggest a diet from early habitation heavily reliant on reef fish and shellfish, with plants such as coconut and pandanus also playing a key role. In ethnoarchaeological investigation, local consultants describe farming practices that complement our archaeological understanding on the persistence of atoll settlement.

Levin, Naomi [32] see Rogers, Michael

Levin, Samuel (The University of Texas at Dallas), May Yuan (The University of Texas at Dallas) and Michael Adler (Southern Methodist University)

[409] Archaeological Prospection Using Aerial Thermography and Quantitative Image Processing Methods

This paper explores new methods and developments in thermal remote sensing, aerial thermography, for archaeological research. These methods are applied in a pilot study at Picuris Pueblo, NM. Principles of thermal remote sensing that enable subsurface prospection are considered, along with previous investigations in this arena. Expanding upon existing approaches, new quantitative image processing methods for subsurface feature identification are proposed. These methods exploit the enhanced data potential of radiometric thermal data with multitemporal resolution, acquired from a SUAS platform. Using a novel image differencing algorithm, the ephemeral thermal signature of subsurface features is enhanced. Modern machine learning models are applied to the processed thermal imagery to extract the locations of probable subsurface features. Subsurface adobe structures documented during previous investigations are relocated, demonstrating the capability of the proposed methods. Moreover, known features are used as training data for classification of uninvestigated areas of the site, revealing multiple thermal anomalies that may be indicative of additional subsurface architectural features. The image processing methods presented in this study demonstrate the immense potential of thermal remote sensing in archaeology, providing non-destructive approaches for investigating archaeological landscapes.

Levine, Evan [35] see Plekhov, Daniel

Levine, Marc [155] see Hammerstedt, Scott

Levine, Marc (University of Oklahoma) and Kathryn Puseman (Paleoscapes Archaeobotanical Services Team)

[197] Foregrounding Food: Mixtec Cuisine, Identity, and Household Ritual at Late Postclassic Tututepec, Oaxaca

This paper highlights the results of a recent analysis of macrobotanical remains from commoner households at the Late Postclassic (AD 1100-1522) Mixtec capital of Tututepec. The paleoethnobotanical data is considered in light of archaeological evidence, as well as ethnographic and ethnohistoric data, to investigate the nature of household food production, consumption, and exchange. In addition to reconstructing the local cuisine, we consider the role of foods and plants in household ritual and healing. Furthermore, we examine how food preferences may have figured in the expression of Mixtec identity, and how these preferences impacted decisions concerning how to organize food production and exchange.
Levy, Janet (UNC Charlotte) and Patty Jo Watson (Washington University-St. Louis)

[312] Archaeology in the Big Bend of the Green River, KY

Julie Stein joined the Shell Mound Archaeological Project (SMAP) in western Kentucky in 1977 when Patty Jo Watson and William Marquardt, leaders of the project initiated in 1971, recognized the need to add geoarchaeology to the already interdisciplinary project. I started as a graduate student at Washington University–St. Louis in Fall 1971; and, while not a core member of the research team, I was there, on the ground and in the dirt, from the beginning. Julie and I both took full-time jobs in 1980, in Washington state and North Carolina respectively, and stayed put for the rest of our careers. We each experienced archaeology both in an academic department and in museums, although I was a graduate student working at the National Museum in Copenhagen, while Julie has directed the Burke Museum of Natural History and Culture with great success since 2005. SMAP was the place we became friends, colleagues, and, I think it is fair to say, professionals, mentored especially by Pat Watson. In this presentation, Pat and I would like to share some of the experiences from that project and what was learned from working with Julie.

Levy, Thomas E. (University of California, San Diego)

[278] Pastoral Societies, Holocene Climate and Technology: Perspectives from Iron Age Southern Jordan (Session 4400)

How did pastoral societies evolve into more complex social organizations in what is today a hyper-arid desert zone? This paper examines the Iron Age (ca 1200 - 500 BC) data from southern Jordan that indicates relatively little climate change from today, yet the rise of complex pastoral nomadic societies.

[177] Moderator

[148] Discussant

Lewandowska, Magdalena (University of Kansas) see Palonka, Radoslaw

Lewandowski, David (Logan Simpson)

[346] Persistent Places and Settlement Patterns in the Mogollon Highlands: A Case Study along Eagle Creek, Eastern Arizona

This paper examines settlement patterns and the concept of persistent places and its implications regarding population circulation, community, and identity during the Pithouse and Pueblo period occupations (A.D. 700–1450) within the Eagle Creek area of the Apache-Sitgreaves National Forests (ASNF) in eastern Arizona. Eagle Creek is a perennial stream which flows south from the Mogollon Rim to the Gila River along the border of the ASNF and San Carlos Reservation, immediately east of the Point of Pines cultural region. In this study I focus on survey data to examine site occupation spans and site function to reconstruct persistence, the reuse of sites, population movements, and changes in community location and structure in the Eagle Creek area over time. Changes in the presence and proportions of sourced obsidian and non-local decorated ceramics are also used to discuss the changing external relationships of the prehistoric Eagle Creek residents, which may tell us about changes in shifting identity formation within the area over time, with implications for the adjacent Point of Pines area and greater Mogollon Highlands region.

[346] Chair

Lewarch, Dennis (Suquamish Tribe)

[22] Using Archaeological Training to Help Tribal Communities

Indigenous communities often lack financial resources, technical skill sets, and expertise in regulatory processes to identify, document, protect, and enhance their cultural patrimony. Well-trained archaeologists are competent in a wide range of skills needed to collaborate and work with indigenous people, thereby allowing indigenous communities to express their own voices regarding their heritage. Archaeological training in areas such as critical thinking, historic research techniques, grant
writing, field procedures, laboratory analysis techniques, data analysis, statistics, GIS, and technical writing is in demand in many tribal communities. Archaeologists can make important contributions to tribal culture, have rewarding careers, and give back tangible benefits to indigenous communities whose heritage has been exploited for decades by anthropologists and archaeologists.

Lewis, Barnaby [246] see Morgan, Linda

Lewis, Devlin and Leslie Aragon (Archaeology Southwest)

[263] *Ongoing Investigations at the Gila River Farm Site*

The manifestation of the Salado Phenomenon in the Upper Gila is expressed as a combination of local Mogollon traits and traits associated with immigrants from northeastern Arizona. New communities that were formed in the generations after initial migration incorporated ceramic styles, architecture, and other attributes of both the local population and Kayenta descendants. Recent excavations at the Gila River Farm site (LA 39315), a Cliff phase Salado site near Cliff, New Mexico, suggest that the 14th- and 15th-century inhabitants may have had diverse backgrounds, but also maintained a broader identity that is recognized across the southern Southwest as Salado. This poster presents the results from Archaeology Southwest and the University of Arizona’s Upper Gila Preservation Archaeology field school 2016–2018 excavations and places the Gila River Farm site in the broader context of Salado sites in the Upper Gila.

Lewis, Jamie (Field Museum)

[293] *Discussant*

Lewis, Jason [47] see Quirin, Carley

Lewis, Jenifer and David Witt

[136] *Arthur C. Parker: Legacies of a Seneca Archaeologist*

Arthur Caswell Parker was one of the first of his kind as an indigenous archaeologist. As a Seneca scientist with roots on the Cattaraugus territory where his grandparents lived, he had a foot in two worlds that may have aided with collaboration and research. However, his career started at a time when the archaeological field was still in its infancy, and many Native American tribes considered archaeological research and collecting practices to be unethical. Although the installation of the NAGPRA legislation moves to improve the discourse between tribes and archaeologists, a strong dichotomy in the rhetoric concerning archaeology in Native American communities remains. Different people will have opposing views on archaeology and Parker himself. In this paper, we aim to bring to light the differing views held by individuals within the Seneca Nation by exploring traditional and modern beliefs. This study delves into contrasting perspectives in regards to Arthur C. Parker and archaeology within the Seneca Nation of Indians.

Lewis, Michael [313] see Burrillo, R. E.

Lewis, Michael D. (University of Utah) and Joan Coltrain (University of Utah)

[381] *Refining Stable-Isotope Diet Models at Cedar Mesa, Utah: A Graphical Approach to Handling Too Many Sources*

Our recent study of wild and cultivated food sources from Cedar Mesa in Bears Ear’s National Monument has provided a locally grounded isotope-ecology baseline for modeling human diet. However, initial unconstrained mixing models yielded non-informative results. This paper presents a graphical method for integrating isotope mixing modeling and hypotheses derived from other archaeological data sets. By examining correlations in model outputs across multiple dimensions, extrinsic constraints on one dietary element can be shown to limit other elements narrowing the range of possible diets and
revealing sex- and temporally-based dietary patterning.

Lewis-Sing, Emma (Memorial University of Newfoundland), Oscar Moro Abadia (Memorial University of Newfoundland) and Julia Brenan (Memorial University of Newfoundland)


In recent years, archaeologists have been increasingly interested in ‘places of shame’, i.e. places related to past traumatic, painful, or regrettable human actions. In this paper we argue this concept can be expanded to incorporate sites with negative ecological impact. In particular, the interpretation of places of single-use plastic waste accumulation as contemporary heritage landscapes, or ‘wastescapes’, of shame can import an ethical load and a responsibility to reflect on behavioural pasts, presents and futures. We suggest that the archaeological treatment and ‘heritagisation’ of such places has the potential to incite critical self-reflection on plastic consumption and hopefully encourage change in these behaviours. We examine the case of the Sugarloaf Path in Newfoundland (Canada), a hiking trail renowned for its breathtaking views of the North Atlantic coastal landscape. A portion of this path circumvents the landfill that serves the City of St. John’s. Windblown plastic waste from the landfill litters the path and surrounding area. This paper presents the preliminary digital mapping of this wastescape – a first step in making a heritage record of this contemporary archaeological place of ecological shame.

Li, Dongdong (Minzu University of China) and Camilla Sturm (New York University)

[361] Settlement Patterns in the Taojiahu-Xiaocheng Region of Jianghan Plain China

The especially early emergence of Neolithic walled towns in the Jianghan Plain is widely used as an indicator of social complexity. Several models have been suggested to explain the emergence of walled towns: inter-regional conflicts between the Central Plain and the Jianghan Plain, intra-regional conflicts among walled towns in the Jianghan Plain, and control of flooding in the Neolithic period. The trajectories of developing social complexity of these earliest walled towns and the relationships that existed among them have not previously been systematically investigated from the perspective of demographic distributions. The full-coverge systematic regional survey presented here included two of the earliest walled towns in the Jianghan Plain: Taojiahu and Xiaocheng. It was designed to illuminate their social trajectories and by extension those of their counterparts elsewhere in the Jianghan Plain and areas adjacent to it. The regional survey revealed spatial and temporal variations in the survey area from 3900 BCE to 600 CE. Population distribution patterns were documented for each period in this time span to investigate the dynamic forces behind social and settlement changes.

Li, Jiaxin [389] see Yang, Shiyu

Li, Weiya (Leiden University), Wanli Lan (Henan Provincial Institute of Cultural Heritage), Yuzhang Yang (Department for the History of Science), Christina Tsoraki (McDonald Institute for Archaeological Research) and Annelou Van Gijn (Material Culture Studies, Faculty of Archaeology)

[416] Dry-Grinding or Wet-Grinding? Use-Wear Reveals the Grinding Technique Used for Cereal Processing in Early Neolithic Central China

Different food processing techniques often shed light on the dietary habits and subsistence strategies adopted by prehistoric populations. Studies have shown that grinding cereals into flour took place since the Paleolithic age. Nevertheless, the grinding method employed in the prehistoric periods was often not investigated. This study discovered the different features of use-wear traces associated with dry-grinding and wet-grinding of cereals, which can be used to infer the ancient grinding techniques. By applying this reference baseline to Jiahu, an early Neolithic site which is known for the earliest finding of domesticated rice in the central plain of China, it reveals that dry-grinding rather than wet-grinding was adopted for cereal (including rice) processing 9000 years ago. This kind of grinding technique could have been inherited from the earlier hunter-gatherers, but also could be related to broad-spectrum subsistence strategy adopted at Jiahu. By comparing the properties and ethnographic uses of different plant species, it is also suggested that cereals such as rice was a more sensible choice for dry-grinding process.

Li, Xinwei [255] see Ramos, Jorge
Li, Xiuzhen (Emperor Qin Shihuang’s Mausoleum Site Museum), Andrew Bevan (UCL Institute of Archaeology), Marcos Martinón-Torres (McDonald Institute for Archaeological Research, CB), Yin Xia (Emperor Qin Shihuang’s Mausoleum Site Museum) and Kun Zhao (Emperor Qin Shihuang’s Mausoleum Site Museum)

[299] Inscriptions and Technology: Knowledge of the Artisans Who Created China’s Terracotta Army

This study offers a new perspective and combines multidisciplinary methods, with the aim of revealing knowledge and behaviour of the artisans in ancient China. It considers the inscriptions incised, painted, or stamped on the terracotta warriors and their accompanying weapons, and interprets the information they reveal about the artisans and artists who worked for the Qin Empire. In addition, the study investigates technological features associated with the production of both the terracotta warriors and the bronze weapons by comparing and contrasting these two very different kinds of artefacts. Close attention is given to implications about knowledge and behaviour of the artisans and artists who created such a magnificent Terracotta Army for China’s First Emperor. The study also plots wider spatial distribution of items across the pit as a whole, in order to understand the operational sequences and workshop organisation required to make the Terracotta Army. The project’s logistics during this crucial early phase of empire-building in China are also discussed.

Li, Yinghua (Harvard-Yenching Institute; School of History, Wuhan University), Yuduan Zhou (National Museum of Natural History, France), Side Hao (Museum of Hainan Province, China), Wanbo Huang (Institute of Vertebrate Paleontology and Paleoanth) and Hubert Forestier (National Museum of Natural History, France)

[361] Rethinking the Variability of Cobble-Tool Industry in South China and Southeast Asia during Late Pleistocene-Holocene Transition

The lithic industry of South China has been characterized as simple “cobble-tool” industry persisting from early Pleistocene to Holocene and the most representative industry of Southeast Asia was also marked by pebble-tool techno-complex termed Hoabinhian during late Pleistocene-early Holocene. The possible cultural link of the two regions was proposed by some scholars but the technological characteristics and variability within the two industries was elusive. In this paper we conducted technological analysis on a “cobble-tool” industry associated with a bone tool technology from the Luobi Cave, Hainan Island, dated to ca. 11-10 ka and compared it with a well-studied typical Hoabinhian site of Laang Spean in Cambodia. Except a minimum similarity in operational sequence (chaîne opératoire) the major difference has rejected the Luobi Cave as a potential Hoabinhian site, indicating a high originality and a new variability in the tool-kit of modern human groups during late Pleistocene-early Holocene transition in South China and Southeast Asia.

Li, Yue (School of Cultural Heritage, Northwest University), Yaopeng Qian (School of Cultural Heritage, Northwest University), Honghai Chen (School of Cultural Heritage, Northwest University), Zhen Wang (School of Cultural Heritage, Northwest University) and Haifeng Dou (School of Cultural Heritage, Northwest University)

[361] The Zooarchaeological Analysis of Pre-Zhou Animal Remains from the Zaoshugounao Site and the Zaolinhetan Site in Central Shaanxi, China

This research analyzed animal remains of the late Pre-Zhou culture from two sites of Zaoshugounao and Zaolinhetan in present-day central Shaanxi Province in China. The comparison of wild and domestic animal taxa, age profiles for main domestic animals, and sources and types of bone artifacts suggest distinct patterns of animal resource exploitation at the sites, showing different levels of complexity at Zaoshugounao and Zaolinhetan. This comparative zooarchaeological research provides new insights into the social and economic development in the historical ‘Bin’ area on the eve of the collapse of the Shang Dynasty.

Liao, Xuezhu [389] see Yang, Shiyu

Licheli, Vakhtang (Prof. of the Institute of Archaeology. Director)

[359] 10th Century BC Novelties in the Central Part of Southern Caucasus

The materials discovered at the Grakliani settlement and necropolis (Eastern Georgia) date from different periods and cover the stratigraphy presented below: 1. The Paleolithic Age with an upper Pleistocene paleontological site; 2. Neolithic; 3. Chalcolithic; 4. Early Bronze Age; 5. Late Bronze/ Early Iron Age; 6. The developed Iron Age (the 8th-6th centuries BC); 7. The 5th-4th centuries BC; 8. The 4th-3rd centuries BC; 9. The 3rd-2nd centuries BC; 10. The 2nd-1st centuries; 11. 3rd-4th centuries AD.
The most important items have been discovered in the layers and buildings of the 11th - 10th centuries BC (loom weights, weights). In the small sanctuary located on the 3rd terrace, two inscriptions from the 10th century BC have been unearthed ["A" - North - Western Semitic(?) and "B" - probably - Aramaic]. "B" inscription is the earliest inscription on the territory of Caucasus and is one of the earliest Aramaic inscriptions in the Near Eastern area, showing very intensive interrelations between Central Caucasus and Near Eastern area.

Lieb, Brad (Chickasaw Nation) and Adam Moody

[9] Chickasaw Pottery Vessel Form and Function in the Early Historic Period

This study of Chickasaw pottery vessel forms dating to ca.1700 C.E. explores 268 reconstructed analytical vessels from six okaakinâ's midden pits across two sites (22Le907 and 22Po755) located in and around Tupelo in Lee and Pontotoc counties, Mississippi. Ethnohistorical information, prior research, and oral traditions are gleaned for interpretive information on Chickasaw cuisine and domestic organization. This account of vessel form and function is compared with published studies on other groups and aids interpretation of innovations and traditions in Chickasaw domestic life and adaptation to a rapidly transforming colonial economy.

Lieb, Brad [414] see Boudreaux, Edmond

Liebmann, Matt (Harvard University)

[367] A Slow Burning Fuse: Spanish Colonialism, Franciscan Missions, and Pueblo Population Changes in Northern New Mexico

For nearly half a century, prevailing models of post-Contact Native American demography have held that the appearance of Europeans and Africans in the New World sparked a rapid and catastrophic population decline across North America in the sixteenth century. Recent archaeological investigations in the Pueblo Southwest and elsewhere have questioned this model, suggesting instead that Native American population decline followed a very different trajectory than previous models have suggested. This paper presents archaeological data from ancestral Jemez pueblo villages and Franciscan mission sites in the Jemez Valley of Northern New Mexico in support of a new model of post-Contact Pueblo population, which raises an entirely new set of questions revolving around contact, colonialism, and indigenous resilience.

Liendo, Rodrigo

[309] Discussant

Liendo, Rodrigo [410] see Campiani, Arianna

Lightfoot, Kent (University of California, Berkeley), Valentin Lopez (Amah Mutsun Tribal Band), Mark Hylkema (California State Parks), Roberta Jewett (University of California, Berkeley) and Peter Nelson (San Diego State University)


This paper synthesizes the results of our recent investigation of indigenous landscape and seascape management practices in Central California in ancient and historical times. The project involves a collaborative team of scholars from the Amah Mutsun Tribal Band, Amah Mutsun Land Trust, California State Parks, and the University of California campuses at Berkeley and Santa Cruz who are implementing an inter-disciplinary approach to the study of terrestrial (anthropogenic burning) and coastal management practices using multiple data sets drawn from tribal histories, archaeological and aDNA research, ecological studies, and ethnohistorical sources. The specific goals of the second phase of this project are to provide a better understanding of when people initiated sustained anthropogenic burning and seascape management practices, how they may have modified and developed these practices over time, and to address the scale at which people implemented these practices. These goals are being addressed through the investigation of sites in several study areas along the Santa Cruz Coast that date to Middle Holocene (7000-3000 BP), Late Holocene (3000-500 BP), and Historical times (500-200 BP).
Lightfoot, Kent [231] see Fine, Paul

Ligouis, Bertrand [417] see Mentzer, Susan

Limberg, Caitlin (Archaeological and Historical Services) and Christopher Noll (Archaeological and Historical Services)

[328] Lithic Technological Organization at Three Olcott Sites along the Elwha River, Clallam County, Washington

In western Washington, Olcott sites are generally understood to represent a period of cultural and technological stability that extended through the early Holocene into the middle Holocene. While some researchers have suggested subtle technological evolutionary developments occurred over time, Olcott sites have often been characterized as a consistent or uniform technological pattern. Recent archaeological investigations at three Olcott sites located along the Elwha River (sites 45CA727, 45CA774, and 45CA775) recovered a diverse assemblage of chipped stone tools and debitage that indicate Olcott technological organization was not homogenous between sites. The tool production strategies evidenced by the discarded tools and debitage suggest that individual sites were dominated by varying degrees of biface production and informal core/flake tool production. The implications of the Elwha lithic pattern for regional Olcott land-use are explored.

Lin, Kuei-chen (Institute of History and Philology, Academia Sinica) and Chengyi Lee (Institute of History and Philology, Academia Sinica)

[389] The External Connections of the Yingpanshan Site Cluster in Western Sichuan, China

Previous studies suggest that both painted pottery vessels and certain kinds of cereals, such as millets, were introduced to the Upper Min River from the north due to the expansion of the Neolithic cultures in the upper reaches of the Yellow River, during the fourth millennium BC. By investigating related ceramic samples and human and animal teeth and bones from the Yingpanshan site cluster in the drainage of the Upper Min River, near the border of Sichuan, Gansu, and Qinghai, we further discover that the direction and intensity of influences had changed through time and varied by river valleys. Interactions between the Upper Min River and the Chengdu Plain to the southeast also existed and later, the core-periphery relationship seemingly overturned.

Lin, Sam [247] see Iovita, Radu

Lin, Yi-Ling (Department of Anthropology, Washington University in St. Louis) and Yuling He (Institute of Archaeology, Chinese Academy)

[49] Paleopollution and Environmental Consequences of Bronze Craft Production during the Shang Periods in Anyang, China

The aim of this study is to understand the relationship between bronze production and paleopollution during the middle and late Shang periods (1450-1045 BCE) in Anyang. Archaeologists have discovered several bronze workshops operating during these periods. These workshops were located among residential areas, and the long-term bronze production activity at Anyang could have generated hazardous elements that polluted the environment. Since 2016, paleosols have been collected from a wide variety of archaeological contexts and time periods during excavations in Anyang. We apply trace metal analysis and particle size analysis to study the chemical composition and structure of these paleosols. The information recorded in paleosols indicates paleopollution related to bronze production and other human activities.

Lincoln, Hollie [30] see Hanratty, Colleen
Lincoln, Thomas

[246]  *The Central Arizona Project and Platform Mounds in Arizona*

This paper will chronicle some of the history of the Federal investment in Big Archaeology for the Central Arizona Project. Specifically, the decisions to support a philosophy of Cultural Research Management, which facilitated a huge contribution to the archaeology of Arizona, and more broadly to the Southwest United States. The CAP construction project snaked its way through homeland territory of the prehistoric Hohokam and Salado affecting many platform mound-centered communities in the Phoenix Basin, Gila Basin, Tucson Basin, and in the Tonto Basin and it is these sites and communities that provided the fruit for informed archaeological research and a significant intellectual contribution to American Archaeology in the late Twentieth Century. The massive CAP archaeological program, from the late 1960s to the 21st Century (50 years and counting), has its own historical roots and I will discuss the relevance of the Bureau of American Ethnology as the intellectual spark for Big Archaeological thinking at the Federal Level, notably late Twentieth Century mitigative archaeology, and the why the furtherance of Big Federally-sponsored Archaeology programs is a logical, necessary, and appropriate model.

Lindauer, Owen and Arley Simon (Arizona State University)

[194]  *White, Red, and Plain Wares in the Tonto Basin: Precursor Correlate of Culture Change*

We present a consideration of Roosevelt Black-on-white, recovered from archaeological sites in Arizona’s Tonto Basin, as a correlate for Tonto Basin populations’ changing exchange relations as well as emulation through production of locally-produced copies of non-local wares. Implications of broad-scale ceramic exchange, population migration, and emulation are considered for the period A.D. 1250 to 1350+ through Tonto Basin white ware, red ware, and plain ware ceramic analysis. We view a marked diversity in white ware technology while maintaining a desired design style as presaging similar trends in other red and plain Tonto Basin wares throughout the Salado temporal sequence. These trends provide evidence of the amalgamation and integration of traditions indigenous to the Tonto Basin, with population in-migration from surrounding areas, as well as influences from regional trade. The ceramic assemblages provide correlates of dynamic changes that led to the intermingling and integration of cultural influences during the development and fluorescence of the Salado Platform Mound communities.

[357]  *Discussant*

Linderholm, Anna (The BiG lab, Texas A&M)

[281]  *Discussant*

Lindo, John, Randall Hass (UC Davis), Christina Warinner (Max Planck Institute for the Science of Human Hist), Mark Aldenderfer (UC Merced) and Anna Di Rienzo (University of Chicago)

[253]  *The Genetic Prehistory of the Andean Highlands 7,000 Years BP through European Contact*

The peopling of the Andean highlands above 2500m in elevation was a complex process that included cultural, biological and genetic adaptations. Here we present a time series of ancient whole genomes from the Andes of Peru, dating back to 7,000 calendar years before present (BP), and compare them to 64 new genome-wide genetic variation datasets from both high and lowland populations. We infer three significant features: a split between low and high elevation populations 30 that occurred between 9200-8200 BP; a population collapse after European contact that is significantly more severe in South American lowlanders than in highland populations; and evidence for positive selection at genetic loci related to starch digestion and plausibly pathogen resistance after European contact. Importantly, we do not find selective sweep signals related to known components of the human hypoxia response, which may suggest more complex modes of 35 genetic adaptation to high altitude.

Lindquist, Shayna (University of Kentucky)

[158]  *Obsidian Production and Consumption Practices at Matacanela*

Matacanela’s chipped stone assemblage overwhelmingly is dominated by nonlocal obsidian, including both products and by-products of multiple reductive technologies. Overarching temporal trends and classification of Matacanela’s obsidian
assemblage have previously been discussed within the context of the site’s general settlement; however, this data has yet to be thoroughly recontextualized within the socio-economic milieu of the site. This paper focuses particularly on the dawn of the Late Classic period at Matacanela. The obsidian data from this period suggests that the people of Matacanela became more engaged in prismatic blade production, though to varying degrees across the site. I make the argument for localized obsidian craft specialization during the Late Classic period and situate this data within concurrent shifts in subsistence strategies and political alignment.

Lindsay, Audrey (Center for Environmental Management of Military Lands [CEMML])

[122] Fire Effects at the Honda Ridge Rock Art Site, Vandenberg Air Force Base, California

As California wildfires increase in intensity and frequency across the state, archaeologists and land managers work to update fire management strategies and reassess fire risks to sensitive cultural resources. Existing literature indicates that while some buried archaeological resources are fairly protected, rock art sites are particularly susceptible to wildfire effects. Vandenberg AFB has collaborative pre- and post-fire management plans specific to each rock art site. In September 2016, the Canyon Fire burned approximately 12,742 acres within Vandenberg AFB. High winds and dry conditions swept the fire over the Honda Ridge rock art site, burning the interpretive infrastructure and visibly impacting the northeastern pictograph panel. This poster presents the collaborative observations of fire impacts to the rock art, shares the refined pre- and post-fire management strategies, and demonstrates the resilience of the pictographs and overall rock art site.

Lindsay, David (Society for American Archaeology)

[4] Discussant

Lindsay, Ian (Purdue University) and Alan F. Greene (NYU/Institute for the Study of the Ancient World)

[359] New Solutions to Old Challenges: Methods and Results from Project ArAGATS’ Kasakh Valley Archaeological Survey (KVAS) Project, Northwestern Armenia (2015-17)

The South Caucasus witnessed multiple long-term shifts in settlement systems, social organization, and sociopolitics from the Paleolithic and the close of the Bronze Age. Throughout this long history, local environments and human landscapes served as important material and social contexts through which processes of community (re)production unfolded. However, local topographies and historic modifications to the landscape present unique challenges to systematic settlement survey in the South Caucasus. In this paper, we discuss results of the last three seasons of pedestrian survey and test excavations in the upper Kasakh River Valley in northwestern Armenia, which have broadened our understanding of changing land-use and settlement patterns. We also highlight some of our methodological approaches to site documentation such as a mobile GIS system and airborne photogrammetric mapping workflows that were developed to help mitigate survey challenges in the region’s heterogeneous landscapes.

Linduff, Katheryn (University of Pittsburgh) and Karen Rubinson

[196] Horses in Iron Age Steppe Burials: Their Enduring Socio-political Role

Horses have been a large part of the David Anthony’s research interests. Horses also played a significant role in the Pazyryk Culture (4th-3rd centuries BCE), a group of peoples buried in the Altai Mountains, in the region where modern Russia, Mongolia, China and Kazakhstan meet. Horses are regularly deposited in burials associated with the Pazyryk Culture; this practice and its socio-political function is the topic of this paper. Not only are horses the backbone of the mobile and military functioning of these communities, they probably also played a central role in displaying the centralizing power and authority of trade and emerging societal complexity across a vast area in Eastern Eurasia.

Ling, Xue, Zhouyong Sun and Liang Chen

[78] Strontium Isotopes in Human Teeth as Indicators of Migration in the Warring States Period Sites of Zhaitouhe and Shijiahe

The sites of ZhaiTouHe and ShiJiaHe are two neatly arranged cemeteries with complicated features. The cemeteries were both discovered in Huangling county, Shaanxi Province, are the first complete Rong people’s tombs found in northern Shaanxi, and are closely related to the Wei’s culture. In order to reveal migration patterns, strontium isotope analysis was
conducted on human teeth. With the help of some archaeological data and historical literature, the Rong’s way of life and the changes in the immigration policy of Qin are also studied, with focus on the process of national fusion during the Warring States Period in northern Shaanxi. The results of the study indicate that both graveyards have some migrants, and the mobility of the population was high. The Rong people’s way of living changed after arrival in the Huangling area. At the same time, one sample also indicates how immigration policies changed in the subsequent Qin Dynasty.

Lipe, William [313] see Matson, R.G.

Lipe, William (Washington State University), Shannon Tushingham (Washington State University), Eric Blinman (Office of Archaeological Studies, Museum of New Me), Chuck LaRue (Independent) and Laurie Webster (University of Arizona)

[419] How Many Turkeys Did It Take to Make a Blanket?

For a thousand years, turkey feather blankets were a standard part of Ancestral Pueblo material culture in the Central Mesa Verde (CMV) area. Investigating the “supply side” of blanket-making includes comparing the number of feathers needed for a blanket with the number of suitable feathers obtainable from an adult turkey. We estimate a one meter square blanket curated at the Edge of the Cedars Museum in Blanding required 12,000 to 14,000 body feathers measuring 5 to 17 cm long. Examination of several wild turkey pelts indicates an adult male has up to 2000 such feathers. If each household made only one new blanket annually, feathers from six or seven turkeys would be required each time. However, the archaeofaunal record doesn’t reflect this level of harvesting live birds. We discuss use-lives of the blankets; whether turkeys’ regular molts could have been a practical feather source; and if mature feathers could have been selectively picked from live birds. Also discussed are supply side effects when turkeys became a major meat source in the CMV after about CE 1150.

Lipo, Carl [325] see Davis, Dylan

Lipo, Carl [325] see Raymond, Tiffany

Lipo, Carl (Binghamton University), Mark Madsen (University of Washington), Robert J. DiNapoli (University of Oregon) and Terry Hunt (University of Arizona)

[365] Solutions to Drift on Small and Isolated Populations

Due to the effects of drift on small and isolated populations, island environments pose particular evolutionary challenges in the retention of richness and diversity of cultural information. Such variation, however, can have significant fitness consequences particularly when environmental conditions change in an unpredictable fashion: knowledge about past environments may be the key to long-term persistence. Evolutionarily, one would expect successful adaptations to include social mechanisms for maintaining diversity and richness within interacting populations. Factors that can shape the rate of drift across a population include the semantics of the traits as well as spatially structured social networks. Here, we explore how community patterning and interaction impacts the rate of trait retention and extinction. We use our findings to explore how this process might explain aspects of the archaeological record for the prehistoric populations of Rapa Nui (Easter Island, Chile).

Lippert, Dorothy (National Museum of Natural History)

[317] The Articulation of the Dead; Understanding Expatriation, Materiality and Voice in the Process of Repatriation

Bioarchaeologists assert the responsibility to give voice to the dead, but the dead exist in many different definitions. As ancestors, they are part of an existing human community, as objects, they are part of a created community of collections. They can also be sources of data for researchers seeking to expand knowledge about human existence. Far from being inert and silent, their nature both constructs and is informed by the emotional landscape of repatriation work. This presentation will consider the materiality of the individuals who are the focus of repatriation and the role of emotion in constructing their identity.

[177] Discussant
Lippi, Ronald (University of Wisconsin)


Many years of archaeological research under my direction coupled with ethnohistoric, linguistic and genetic studies by other scholars have allowed for the compilation of a fairly detailed history of the Yumbos, a cloud forest people of the western flank of the Andes in Pichincha province, Ecuador and members of the Barbacoan language family. I will review various hypotheses regarding their origin, highlight the most likely one, and then present a model of Barbacoan migrations over recent millennia. Then I will discuss what happened to the Yumbos following the Spanish conquest and to what extent they have survived into modern times.

Lippi, Ronald [350] see Gudino, Alejandra

Lipson, Mark (Harvard Medical School), Mary Prendergast (Harvard University), Isabelle Ribot ( Université de Montréal), Carles Lalueza-Fox ( Institute of Evolutionary Biology CSIC-UPF ) and David Reich (Harvard Medical School)

[253] Ancient Human DNA from Shum Laka (Cameroon) in the Context of African Population History

We generated genome-wide DNA data from four people buried at the site of Shum Laka in Cameroon between 8000–3000 years ago. One individual carried the deeply divergent Y chromosome haplogroup A00 found at low frequencies among some present-day Niger-Congo speakers, but the genome-wide ancestry profiles for all four individuals are very different from the majority of West Africans today and instead are more similar to West-Central African hunter-gatherers. Thus, despite the geographic proximity of Shum Laka to the hypothesized birthplace of Bantu languages and the temporal range of our samples bookending the initial Bantu expansion, these individuals are not representative of a Bantu source population. We present a phylogenetic model including Shum Laka that features three major radiations within Africa: one phase early in the history of modern humans, one close to the time of the migration giving rise to non-Africans, and one in the past several thousand years. Present-day West Africans and some East Africans, in addition to Central and Southern African hunter-gatherers, retain ancestry from the first phase, which is therefore still represented throughout the majority of human diversity in Africa today.

Lis, Bartlomiej (British School at Athens), Evangelia Kriiatzi (British School at Athens) and Noémi Müller (British School at Athens)

[363] From Local to Regional Technological Landscapes – The Mobility of Aeginetan Potters

This paper stems from a project entitled TRACT (TRAvelling Ceramic Technologies as markers of human mobility in the Aegean), funded through Marie Skłodowska-Curie Actions, which aims to demonstrate that the informed and interdisciplinary study of ancient pottery can shed new light on past human mobility. Our focus is on potters from the island of Aegina, located close to Athens, in the Saronic Gulf, and their mobility along the Euboean Gulf, a convenient water passage to the north, at the end of the Late Bronze Age (ca. 1200 BC).

The macroscopic examination of pottery, focusing on morphological/stylistic and technological features, has been the starting point of our study and the basis for the identification of craftspeople mobility. The subsequent incorporation of ceramic petrology and elemental analysis of a selection of ancient pottery samples, in combination with geological prospection in the studied landscapes and replication experiments, and ethnographic work on modern potters’ mobility has contributed to the understanding of the entire technological phenomenon at various spatial scales and with a time perspective. In particular, in this paper we will explore the issue of adaptation of Aeginetan potting tradition to several ‘new’ landscapes along the coast of the Euboean Gulf.

Liss, Brady (University of California, San Diego), Thomas E. Levy (University of California, San Diego) and James Day (University of California, San Diego)

[363] Accidental Innovation? Using Isotopic Analysis to Test Possible Iron Production as a By-Product of Advanced Copper Smelting

The Faynan region of Southern Jordan is one of the largest copper ore deposits in the Levant. These ores were exploited throughout history, and during the Iron Age (ca. 1200-800 BCE), copper production in Faynan reached an industrial scale. However, excavations at Khirbat en-Nahas (an Iron Age smelting center in the region) also discovered iron metal dating to
the 10th-9th centuries BCE in the form of mixed copper-iron chunks and a few iron objects. These iron artifacts were initially interpreted in two ways: 1) as possible evidence for innovative iron production stemming from advanced copper smelting technologies or 2) as waste materials from failed smelts resulting in unworkable copper (and the iron objects as imported). If correct, the former interpretation would have significant implications for understanding the currently enigmatic origins of iron production in the Levant. To address this dichotomy, these iron materials were recently analyzed with mass spectrometry to look for isotopic connections between the raw metal and select artifacts (to determine if the iron objects were produced from the copper-iron chunks). This paper will present preliminary results/interpretations from this analysis and their contributions to understanding the iron in Faynan and iron production in the Levant more generally.

Litschi, Melissa (Southern Illinois University, Carbondale)

[285] Applicability of Maxent Predictive Modeling in Locating Pre-Hispanic Quarries in the Callejón de Huaylas, Peru

Stone in the Andes is an integral component of both the natural landscape and of the material expressions of cultural beliefs and practices. Growing evidence from multiple cultures indicates preferences for stone materials from certain sources, which held political, symbolic, and ideological importance. Determining quarry locations is a vital step in analyses of the socio-political implications of material choice and relationships between people and landscape. However, in pre-Inka periods, locating material sources has often relied on pedestrian surveys and interviews with local inhabitants. Using the Recuay as a case study, this project tests the efficacy of Maximum Entropy (Maxent) predictive modeling methods to improve our ability to locate probable source locations prior to in-field surveys. Maxent modeling, commonly applied in ecological models, uses input constraints to identify the distribution of a selected feature with the maximum uncertainty (least amount of bias). Regional geologic, hydraulic, topographic, archaeological, and ethnographic data constrain the model identifying potential sources of analyzed Recuay stone sculptures. This approach will be field-tested in my upcoming dissertation research. This project contributes to the understanding of regional stone sourcing practices and its ties to socio-political negotiations between Recuay communities and to improving methodologies for archaeological survey and sourcing studies.

Littell, Jeremy [12] see Clark, Jorie

Litwinionek, Luc, Stance Hurst (Museum of Texas Tech University) and Eileen Johnson (Museum of Texas Tech University)

[147] Islands on the Plains Revisited: GIS-Based Predictive Models of Playa Use on the Southern High Plains

Landscape Archaeology is useful in providing a framework for understanding human movements across various environments. Such an approach relates landscapes as they evolved through time to settlement patterns of human groups occupying the area. Cultural behaviors can then be linked to physiographic and topographic features using such an approach. On the Southern High Plains of northwestern Texas and eastern New Mexico on an otherwise seamless terrain, playas are the dominant features on the landscape. These disparate islands were attractive to groups occupying the region as they provided seasonal water and a variety of resources. The relationship throughout the late Quaternary between hunter-gatherer mobility and these basins is explored through GIS predictive modeling. GIS-based data on such features provides a valuable tool to assist in the reconstruction of these landscapes not only spatially but within a temporal scale. More specifically, the goal is to understand the relationship between the development of playa basins and the movement of groups occupying the Southern High Plains during the late Quaternary, particularly during the late Pleistocene and the early Holocene.

Liu, Chin-hsin (California State University Northridge)

[27] A Bioarchaeological View on Long-Term Development in Prehistoric Central Thailand

Archaeologically, Metal Age sites in northeast and central Thailand exhibit different patterns in site formation, size, and mortuary practice. With geophysical characteristics of each region in mind, these differences have led to an on-going discussion on, for example, the origin of metallurgy and cultigens, and subsequently, their influence on population interaction and organization. The discussion centers primarily on the internal development vs. external transmission of technology and cultural practices. Over past decades, morphological and chemical analyses of human skeletal remains from prehistoric Thailand have provided significant insight into people’s lifeways and by proxy, population histories, land-use variation, and sociocultural development in the region. This paper reviews the bioarchaeological evidence fundamental to the discussion. It utilizes data from a program of isotopic analyses of skeletal remains from multiple, small-scale sites in central Thailand, including a Thailand Archaeometallurgy Project (TAP) site, to evaluate the two perspectives and to provide
Liu, Chun Fu [361] see Xie, Liye

Liu, Chung Yu (Department of Anthropology, National Taiwan University)

Settlement Configuration and Social Structural Change: An Example of Graphic-Based Spatial Analysis from Kucapungane of Southern Taiwan

This presentation examines the social structure change revealed by the interpretations of the abandoned settlement layouts through graphic-based spatial analysis for Kucapungane area of southern Taiwan. Kucapungane Rukai, an Austronesian indigenous tribe in Taiwan, has several abandoned settlements. The Kucapungane people lived in the Old-Kucapungane for the past 600-700 years. However, they were forced to move several places 50 years ago due to government policies and landslides triggered by typhoons. Previous studies of structural change of Kucapungane society was interpreted from ethnographic data majorly. The result of the changes in traditional lifestyle and culture value was forced by government’s capitalistic policy. This interpretation becomes a normal perspective for the Kucapungane social structural change. However, applications of spatial technologies in archaeology began in the early 1980s. The graphic-based technologies brought about new research perspectives for social structural change. This study tries to use graphic-based spatial analysis to examine social structure at two Kucapungane settlement configurations (Old-Kucapungane and Tulalekele), and reconstruct the social structural change process. The results of this research not only highlight the different interpretations between archaeological and ethnographic data but also demonstrates the potential of comparing these interpretations to better understand social structural change variability of Kucapungane.

Liu, Li (Stanford University)

Discussant

Liu, Siran (USTB)

Bronze Age Crucibles in China: A Unique Technological Tradition and Its Cultural Implications

Most studies of early metallurgy in China have focused on style, manufacturing techniques and alloy compositions of bronze artefacts. In rare circumstances, other sections of the bronze production Chaîne opératoire such mining, smelting and metal processing are considered. This research concentrates on early bronze processing crucibles found in a number of Bronze Age workshops in China and showcases the great potential for studying production through these remains. In contrast to other parts of Eurasia, Chinese Bronze Age crucibles were multi-layered and do not show much vitrification on interior surfaces. A few well-preserved examples ones are much taller and bigger than West Asian and European counterparts. The microscopic analyses and experimental reconstruction reveal they were made with specialized silt-rich material. A comparative investigation of crucibles in China, Near East and Europe shed new light on the early spread and localization of metallurgical technology in Eurasia.

Liu, Xinyi [78] see Reid, Rachel

Liu, Xinyi (Department of Anthropology, Washington University in St. Louis)

From Tangible Things to Intangible Ideas: The Context of Trans-Regional Movements of Artifacts, Cereal Crops and Animals

Scholarly interest has been growing in an episode of trans-Eurasian exchange of agricultural systems and tangible material goods in late prehistory. The trans-regional movement of a number of artifacts, cereal crops and animals occurred within a series of transformative process that brought together previously isolated communities across Eurasia, to constitute a new kind of network. This process was at its height during the second/first millennium BC. Much has been discussed relating to the timing and routes of those movements. In this presentation, we focus on the context. In particular, what were the
intangible ideas that might be associated with the movement of tangible things in archaeological evidence. Why was a certain type of technology or idea welcomed in one part of the world but rejected from another?

Chair

Liu, Yan (School of History, Beijing Normal University) and Xingcan Chen (Institute of Archaeology, Chinese Academy of Socia)

The Sense of Order: Contextual Analysis of the Habitus and Social Spaces in Baiyinchanghan Neolithic Site, Northeast China

The Baiyinchanghan site is one of the most important sites of the Xinglongwa Culture (7,500-6,500 B.P.) in NE China. By employing Pierre Bourdieus habitus theory, this research explores social relations and cultural ideas by studying occupants' habitus and social spaces. The habitus and social spaces in this site are demonstrated clearly through its well-organized houses, floors and artifacts with different functions placed at specific places. Contextually, habitus in this site forming in daily practice unconsciously is a kind of social norm, which could be called 'a sense of order', in a social context that people encountered with social risks during the hunt-gathering to agriculture transition. The sense of order was strengthened by the importance of digit “three”, which was demonstrated by the tripartite classification of many cultural phenomena. The social spaces and habitus may also be related to gender-based labor division. In addition, the differences of social spaces and habitus between Zones A and B, not only could be resulted from distinct economic backgrounds, but also be divided to form two people groups. These differences could be interpreted as their strategy to strengthen the sense of identity in confronting with resource competition.

Liu, Yu

Discussant

Livesay, Alison (Los Alamos National Laboratory)

No Photos Allowed: Photogrammetry at Los Alamos National Laboratory

The Cultural Resources program at Los Alamos National Laboratory (LANL) manages nearly 2000 archaeological and historic properties, spanning thousands of years of human history. Due to its remoteness on the Pajarito Plateau, LANL boasts exceptional preservation of many sites. However, archaeologists must contend with an equally singular set of compliance-driven issues, such as back-logged legacy projects, difficulty in accessing sites on an operational national laboratory, and little time to conduct and disseminate research. As using photogrammetry programs to create 3D digital imaging has become an increasingly utilized tool in archaeology, I plan to ascertain if photogrammetry can be more widely used here at LANL to help mitigate some of the above circumstances. Can photogrammetry be implemented into routine site recording and updating in lieu of or to augment the complex sketch mapping process? Would employing photogrammetry techniques support current erosional and long-term monitoring of significant cultural properties? Would having 3D models assist in increasing access and experience of these unique ancestral and historic places for a wider public?

Livingood, Patrick (University of Oklahoma) and Christina Friberg (University of California, Santa Barbara)

Have Chert Will Travel: Anisotropic Transportation Cost Models of the Valuable Mill Creek Chert Hoe

The Mill Creek hoe industry was integral to the political consolidation of Greater Cahokia. Manufactured at the chert quarries in southern Illinois and distributed throughout the Mississippi valley, previous research examined the relationship between Mill Creek hoe abundance and straight-line distance between source and site to produce characteristic fall-off curves. This paper reexamines these distribution patterns in terms of cost-distance, utilizing an anisotropic transportation model which permits both pedestrian and canoe travel and considers costs of moving heavy loads. This paper will expand on earlier work and also present efforts to make the code for this available to other researchers.
Liwosz, Chester (University of Barcelona)

Percussive Petroglyphs in the Digital Age: A Mojave Desert Case Study of Virtual Heritage Management for Rock Art Iconography and Phenomenology

A recent study conducted at select petroglyph landscapes in the Mojave Desert integrated non-invasive multidisciplinary methods with advanced theories, and ethnographically informed understandings of the iconography and experiences of rock art locations. This approach sought to bridge scientific and indigenous ontologies through measuring phenomenological properties of rock art engagements. Research locations and actualistic experiments were documented for visual, spatial, and acoustic properties. Quantifiable data was contextualized in detailed virtual environments. These reconstructed environments aid the application of iconography and neuropsychology theory to inform understandings of oral traditions, in order to elucidate significant and novel new insights regarding Numic social structure, interaction, and religious cosmology. These findings’ implications connect the vast Precontact Uto-Aztecan world, from California through Northern Mexico to Mesoamerica, emphasizing elements of religious experience, practice, and symbolism. Zero-impact methods designed to democratize archaeological practice through cost control nonetheless demonstrate the efficacy of digital approaches to heritage management. This paper utilizes aforementioned virtualized spaces to explore voices and songs that emerge from the attribution of other-than-human agency during production of, and subsequent engagement with, rock art contexts. Although oriented towards a humanistic, phenomenological understanding, quantitative measures of this study’s approach operate as a framework for undertaking comparable scientific investigations elsewhere.

Lizama Aranda, Lilia [71] see Alvarez Estrada, José

Lizama Aranda, Lilia

El esfuerzo multidisciplinario de Arqueólogos Sin Fronteras del Mundo Maya Propuesta de un Plan para el Desarrollo de la Arqueología

En esta presentación se plantean tres cosas: (1) las problemáticas que se relacionan con la disciplina arqueológica en la península de Yucatán; (2) los grupos y sectores que participan en la búsqueda de su solución; (3) las alternativas y soluciones así como el trabajo que en colaboración se viene coordinando. La propuesta es realizada por un grupo multidisciplinario y relacionado a la disciplina arqueológica denominado Arqueólogos Sin Fronteras del Mundo Maya. En el 2016, este grupo conformado por profesionales asociados a la disciplina, se reunieron por primera vez para evidenciar problemáticas que desde su percepción obstaculizaban la arqueología. En el 2017 se reunieron de nuevo en un taller por tres días, para discutir y buscar solución a las problemáticas que afectaban una región en específico en el Norte de Quintana Roo en el municipio del actual Puerto Morelos. Actualmente el grupo se está organizando para la realización de un siguiente taller conformado por sectores y actores relacionados, cuyo esfuerzo coordinado representa desde esta perspectiva la primera piedra que guiará al campo de la disciplina arqueológica, en el desarrollo para el bienestar a través de un plan nacional disciplinario y del mundo Maya.

[71] Chair

Lizarraga Rojas, Beatriz (Universidad de Granada España) and Danielle Kurin (University of California, Santa Barbara USA)

Salud y condiciones de vida de los pobladores prehispánicos de Sondor en los Andes sur centrales de Perú

El trabajo de investigación tiene como objetivo el estado de salud y condiciones de vida de los habitantes de Sondor, durante el periodo de transición (Intermedio Tardío). El material de estudio procede de contextos funerarios hallados en los trabajos de excavación realizada el 2017, como parte del Proyecto de Investigación Arqueológica Sondor Pacucha, desarrollado en la provincia de Andahuaylas, departamento de Apurímac Perú. El estudio se centra a partir de dos unidades ubicadas en el sector de Muyu Muyu (área de enterramiento) y en el sector de Suyturumi (área doméstica), la unidad N° 02 contempla un espacio funerario que alberga un entierro múltiple, mientras que la unidad N° 05 registra un área de vivienda donde se han registrado cinco contextos funerarios que albergan individuos infantiles y adultos. El estudio bioarqueológico parte por determinar el sexo, edad aparente de muerte, estatura, indicadores paleo patológicos y entesopatías mediante el estudio de restos óseos, así mismo se ha registrado indicadores que han dejado huella en huesos y dientes, como lesiones traumáticas y enfermedades. Este conjunto de datos en relación a la edad de muerte y presencia de individuos infantiles nos permite indicar las condiciones precarias de salud de los habitantes de Sondor.
Lloyd, Lara (Chandler-Gilbert Community College)

[119] How Adequate Is the Etiquette? An Example from Mesa Verde National Park

After the closure of Spruce Tree House at Mesa Verde National Park in 2015, instances of vandalism and similar problems increased. The correlation between observed site etiquette violations and the closure of the most-visited site cannot be ignored, and suggests the need for improved site etiquette education. Methods for mitigating damage to archaeological sites include an increase in archaeology education, more consistent rules for visiting sites across the U.S., and an increase in demonstrated site etiquette, much in the way that Spruce Tree House served prior to its closure.

[229] Moderator

Locker, Angelina (The University of Texas at Austin)

[63] Papa Was a Rolling Stone: Migration Stories from the Three Rivers Region, NW Belize

A robust body of literature on ancient Maya migration exists, showcasing their intrinsically mobile nature. Interestingly, while migration inquiries have been conducted in urban centers throughout the ancient Maya world, it is less well understood how people moved around more rural landscapes. For the ancient Maya inhabiting communities in the Three Rivers Region in northwest Belize, population ebbs and flows spanning the Late Preclassic (400 BCE – CE 250) to the Terminal Classic (CE 810 - 900) have been attributed to human migration. This research tests hypotheses related to regional population undulations; establishes a regional strontium isoscape based on local limestone bedrock, soils, and waters; presents data from strontium and oxygen isotopic analyses of human dental enamel from 49 individuals; and investigates migration across multi-scalar communities, highlighting the intersection of regional migration through time and the prevalence of rural migrations.

[63] Chair

Lockhart, Anna (Vassar College)

[112] Comparability of Photogrammetry and Laser Scanners for Generating 3D Surfaces for Archaeological Questions

Three-dimensional modeling has become an invaluable tool in many areas of archaeology, including bioarchaeological contexts. 3D modeling can increase the scope and scale of many research questions by, for example, allowing for the use of geometric morphometrics to provide high-resolution anatomical information. Unfortunately, rendering 3D surface data has traditionally required expensive equipment, limiting access to many researchers, especially students. Photogrammetry, which converts a series of 2D images into a 3D object, may provide a less expensive alternative for creating 3D models. This study compares the accuracy of 3D cranial models generated using photogrammetry to the physical crania and models derived from a laser scanner. Photogrammetry models were generated from photos taken with Canon Rebel T4i and Agisoft Photoscan software, while the laser scans were produced with NextEngine scanner. Results show high fidelity between the real crania and virtual models. Based on standard craniometric measurements, photogrammetry produced models of similar accuracy to that of the scanner and the crania, with the resulting models deviating < 5% from true cranial measurements. Therefore, in addition to reducing processing time, improving texture resolution, and being easier and less expensive to use, photogrammetry appears to be a reliable alternative for analyzing and disseminating archeological data.

Lockhart, Jami (Arkansas Archeological Survey) and Timothy Mulvihill (Arkansas Archeological Survey)

[367] Crossing the Mississippi: A Landscape of First Encounters

This research comprises a geospatial analysis of Late Mississippian/Protohistoric cultural landscapes in the Aquixo, Casqui, and Pacaha provinces of present-day Arkansas. A GIS-enabled methodology is used to examine the earliest documentary descriptions of the de Soto entrada via reconstructions and interpretations of contemporaneous physical geography, site distributions, and cultural areas informed by an integrated archeological database.
Lodge, Spencer (Desert National Wildlife Refuge)

[36]  Fire on the Mountain: The Use of Earth Ovens for Agave and Pinyon Processing in the Sheep Range, NV

Hot-rock technology was an integral aspect of prehistoric life in modern day southern Nevada. The utility of earth oven use is exemplified in the Sheep Range, located 20 miles north of Las Vegas, where more than 200 earth oven facilities have been documented across six vegetative communities. A variety of plant foods were baked throughout the year across this significant landscape, such as agave in the winter-spring, as well as yuccas and green pinyon cones in the late summer to early fall. This paper presents ongoing research of roasting pits (earth ovens) within the Sheep Range, including measurement data indicating more frequent re-use of cooking sites at higher elevations, in addition to new survey data detailing the importance of hot-rock cooking for green-cone pinyon processing.

Loehman, Rachel (US Geological Survey)

[257]  Ecologies of Space and Time: The Shared History of Humans and Fire in the Jemez Mountains, NM

In the southwestern US humans and ecosystems share a history of fire. An integrated archaeo-ecological framework offers an important interpretive lens for both archaeologists and ecologists. Contemporary ecological patterns and processes that are thought to be 'native' or 'natural' may in fact be highly influenced by past human land use legacies, and profound and persistent, human-driven landscape transformations may affect subsequent land use and settlement practices (i.e., the archaeological record of human-landscape interactions). The Jemez Mountains of central New Mexico provide a landscape laboratory rich in archaeological, ethnographic, and ecological data sets, within which to study the reciprocal, long-term interactions of humans and fire. Evidence from tree-rings, fire scars, and charcoal sediments suggests that prior to the 20th century, southwestern pine forests sustained frequent, low-severity surface fires. During a period of dense occupation in the 13th and 14th centuries, prehistoric land use may have significantly influenced forest structure, fuel properties, ignitions, and thus landscape fire dynamics. Coupled natural-human systems process modeling, used to simulate ecological responses to prehistoric land and resource use, highlights the complexity and extent of prehistoric landscape modifications, and the degree to which contemporary landscapes are shaped by legacies of the past.

Loendorf, Chris [194] see Medchill, Brian

Loendorf, Chris (Gila River Indian Community)

[369]  One Tough Act to Follow: A Retrospective of the Archaeological Career of Lawrence L. Loendorf

This presentation summarizes the remarkable career of Lawrence L. Loendorf, who has conducted cutting edge archaeological research for nearly six decades. As his son, my life follows the arc of Larry’s research as an archaeologist from when it formally began in early 1960s through today. Consequently, I am uniquely positioned to comment on his work, which is far too vast to fully encapsulate here, and instead I am only able to present a few highlights. Larry’s passion for archaeology has inspired an entire generation of researchers, including myself. He is an award winning educator, and he has been a mentor to many aspiring archaeologists. He has personally helped many people develop successful careers of their own, including a number who were otherwise disadvantaged. His work has contributed greatly to our understanding of Northern Plains prehistory in particular, and to rock art research throughout North America in general. His incredible enthusiasm for understanding and preserving the past continues unabated to this day, and he remains highly engaged as a field and laboratory investigator with his on-going work at Sacred Sites Research, Inc., a non-profit corporation he established.

Loendorf, Lawrence (Retired Albuquerque NM)

[190]  Rock Art Sites in the Permian Basin, New Mexico

Sacred Sites Research, Inc. and Versar Inc., working in cooperation with the Mescalero Apache Tribe and the Hopi Tribe, recorded and evaluated 17 rock art sites in New Mexico’s Permian Basin, a project supported through the Bureau of Land Management programmatic agreement. Sixteen of the sites contain paintings, mostly in shades of red, but some with yellow, black and white figures. One petroglyph site is unusual because it is away from mountains on a flat surface where the figures face up toward the sky. The sites contain images that range from the Archaic through the Historic periods. An especially important site has 30 panels with a range of ages, including several horses and riders. One horse with a conquistador-like rider is accompanied by dogs attacking a pedestrian Indian camp. Overall the sites add considerably to
the knowledge about rock art in the Guadalupe Mountain-Permian Basin region.

[369] Discussant

Loendorf, Lawrence [369] see McClellan, Carolyn

Loewy, Staci L. [63] see Locker, Angelina

Lofaro, Ellen [362] see Van Voorhis, Laura

Lofaro, Ellen (University of Tennessee), Jorge Luis Soto Maguino (Dirección Desconcentrada de Cultura de Ayacucho), Jason Curtis (University of Florida) and John Krigbaum (University of Florida)

[398] Diet, Identity and Status in Colonial Huamanga (Ayacucho), Peru

This paper explores ideas of identity and status at the earliest Jesuit church in Ayacucho, Peru (ca. 1605-1767 CE), La Iglesia de la Compañía de Jesús de Huamanga (ICJH). Starting with an exploration of indigenous resistance to Spanish colonialism, this case study uses stable isotopes of carbon and nitrogen as proxies for diet and burial location as a proxy for potential status, to provide further analyses of the daily lives and deaths of the indigenous individuals buried underneath the church floors. Results are complicated. Isotopic values and burial position do not correlate as expected, suggesting that initial hypotheses may be too simple, and that broader discussions of diet and status within the urban context of 17th and 18th century Huamanga are needed to clarify ideas of identity within this community.

Logan, Amanda [110] see Harris, Samuel

Logan, Amanda (Northwestern University)

[347] Assessing the Impacts of the Atlantic Slave Trade and American Crops on African Agriculture

Although the Columbian Exchange had a significant impact on local agroecologies, we still know very little about the African side of the exchange. This is particularly complex knot to unravel given that the Atlantic slave trade peaked during those same centuries. Both processes were to have major impacts on human-environment relations and food security in the centuries to follow, though archaeological data on these processes is still extremely limited. In this paper, I consider the relationship between slavery and American crops using archaeological and archaeobotanical data from Banda, Ghana that spans the last six centuries. I evaluate a hypothesis that has been remains remarkably tenacious in the historical literature: that there was a tradeoff between the introduction of American crops and the siphoning off of human lives and labor from the continent. I argue that this hypothesis is wrong, by outlining the conditions under which maize was adopted and its relationship to food security. Areas depopulated by slave raiding did not turn to maize as a solution. Maize did increase in some areas along the coast, because it was ideally suited to feeding captives, who had little choice over what they ate.

[137] Discussant

Lohse, Jonathan [197] see Borejsza, Aleksander

Loiselle, Hope

[57] Hunted or Scauponged?: Investigating Acquisition of Dolphins and Porpoises at the Par-Tee Site Using Zooarchaeology and Ancient DNA Identifications

The large quantity of archaeological cetacean remains recovered from the Par-Tee site allows insight into the potential hunting of smaller cetaceans. Using the Smithsonian’s Department of Vertebrate Zoology Marine Mammal Collection as a comparative, I identified four small cetacean species in the midden: harbor porpoise, Dall’s porpoise, bottlenose dolphin, and Pacific white-sided dolphin. To determine whether these small cetaceans were from hunted or stranded individuals, I
compared the archaeological data to modern stranding data and was unable to reject stranding as a possibility for their occurrence in the midden. Analysis of the bones revealed no direct evidence of hunting or other modifications, even though ethnohistoric evidence suggests that hunting of small cetaceans is practiced globally, including on the Northwest Coast. Small cetaceans are oftentimes difficult to identify to species without a large, comprehensive comparative collection due to intraspecies variation and limited interspecies variation, so many zooarchaeological analyses lack a taxonomic identification beyond family. Due to different ecological roles and behaviors, species identification is important for understanding how humans may have potentially obtained this rich food and material resource. Toward this end, I confirm my species designations with ancient DNA and discuss the morphological characters which led to my initial identification.

Lomatewama, Ramson [44] see Natker, Leon

Long, Madison (East Carolina University) and Megan Perry (East Carolina University)

[9] Bioarchaeological Analysis of a Historic North Carolina Family Cemetery

The Gause Cemetery at Seaside, located in Sunset Beach, North Carolina, purportedly contains members of a wealthy and influential planter family, the Gause’s, who died during the late 18th and early 19th centuries. In 2017, a Gause descendant requested excavation of the cemetery by East Carolina University as part of an extensive genealogical project that will culminate in restoration of the cemetery. During the first season of excavation, three adult individuals were recovered from the cemetery, and excavation in 2018 uncovered five additional graves containing seven individuals. Six out of the seven individuals recovered in 2018 are subadults, one 6-8 years of age, one 7-8 years of age, another 1.5 years old, and three term infants. All individuals at the site display skeletal evidence of childhood non-specific stress indicators, such as linear enamel hypoplasias in the adults and children, and/or periostitis or porotic hyperostosis in the children. This evidence, along with the simultaneous burial of two of the newborns and the 6-8 year old child in the same grave possibly due to a disease epidemic based on historical evidence, suggests that even “elite” 18th and 19th century landowning families experienced childhood frailty in North Carolina.

Longman, Darren (University of Texas at Austin) and John Pohl (UCLA)


Feathered Serpent iconography among Mixtec, Zapotec, Chontal, and Huave ethnic groups of Oaxaca, Mexico indicates that its sociopolitical and religious roles are concomitant with an investment in mythological landscapes and spiritually active ritual environments. Our approach to hybrid serpents draws from multifaceted investigations into images, textiles, manuscripts, rituals, and festivals to determine their impact on territorial-narratives and, more specifically, the social dynamics within and between these ecologically and culturally diverse regions. Further, this paper highlights the cultural variability of Oaxaca’s Feathered Serpents both past and present to reshape our perception of composite creatures within terrestrial, celestial, and supernatural realms.

Loomis, Sarah (Harvard University)

[221] Gendered Figurine Iconography at Los Guachimontones, Jalisco, Mexico

Gender is one of the primary identity categories that provides structure to the social organization of societies. It sets expectations for the activities, status, presentation, and spatial organization of individuals within a community. This study aims to interrogate the social role of gender in the Teuchitlán tradition of Jalisco, Mexico, through a survey of figurines from the large ceremonial site of Los Guachimontones. For each figurine, the survey will identify material objects and adornments depicted or implied by the representation. These would include vessels, jewelry, clothing, tools, and weapons. After using primary and secondary sexual characteristics to assign a gender to each figure, a statistical analysis will correlate different types of items and activities with gender. This provides a starting point in understanding gender specificity for material objects in the Teuchitlán tradition, which could then be compared in a future study against the material record of a household area at Los Guachimontones. Within this study, the traits used consistently to signal figurine gender can be used to interpret conceptions of masculinity, femininity, and/or androgyny that were prevalent at Los Guachimontones.
**Lopez, Escee (Department of Anthropology, California State University, Los Angeles), Jessica Morales (Department of Anthropology, California State University, Los Angeles) and Rene Vellanoweth (Department of Anthropology, California State University, Los Angeles)**

[323] **Zooarchaeological Analysis of Fish Remains from the Thousand Spring Site (CA-SNI-11), San Nicolas Island, California**

Archaeological evidence from the California Channel Islands has provided insight on the important role fish played in daily human subsistence practices. San Nicolas Island is home to a rich and diverse marine environment containing the largest kelp forest along the Southern California Bight. This study focuses on fish data from a middle to late Holocene village site. The site is situated on the northwest coast of San Nicolas Island and contains a dense assemblage of ichthyofaunal remains. In this study, we present a fish dataset from the excavated units using standard archaeozoological methods to quantify NISP and MNI. A detailed examination of the ecology of fishes will allow for a comprehensive understanding of human harvesting at this site encompassing discussions of fishing technology and human procurement strategies. Through various statistical calculations, we compare and contrast our results in intra-local and extra-local context. We provide a baseline of human-fish relationships from archaeological data collected from San Nicolas Island and link this data to the functionality and advances in regional fishing technology. By understanding human-fish relationships in a spatial and chronological context, we may begin to explore large-scale patterns of fish harvesting practices along the Southern California Bight.

**Lopez, Fermin (From Collaboration to Partnership in Pojoaque-Protecting Ancestral Places) and Bruce Bernstein (Tribal Historic Preservation Officer for Pueblo of)**

[311] **Protecting Ancestral Pojoaque Places**

Protecting Pueblo of Pojoaque ancestral sites is a challenge. Inside our exterior boundaries are non-native encroachments. Cultural properties are often located within these checker board properties and more often than not have significant cultural meaning to the Pueblo’s culture and history. Tangible and intangible cultural resources are everywhere on our lands and do not stop at today’s boundaries. Retaining the history and protecting sites for which we have no access can negatively reflect on the Pueblo’s culture and history and can be demeaning to relationships with our non-native neighbors. And sharing our land base with non-native neighbors is increasingly challenging—Off road and recreational vehicles, horses, hikers, and domesticated grazing animals in the past and present have had significant negative impacts on cultural properties. How do we conserve and protect cultural properties within the exterior boundaries of the Pueblo of Pojoaque while maintaining a good neighbor policy?

Lopez, Julieta [406] see Murakami, Tatsuya

**Lopez, Kirsten (Oregon State University)**

[274] **Theoretical Reflections on Textiles and Environment in the Northern Great Basin**

Textiles are often given short thrift in archaeological research and reporting, due in large part to their rarity and thus limited depth of analysis. Recent studies have demonstrated a variety of new analytical techniques, revealing new potential in archaeological and anthropological textile studies. Unfortunately, over ten years into these developments, few studies have utilized these techniques. Considering theory frames research questions, a shortage of theory directly handling textile materials resource acquisition or manufacture affects the quality and quantity of research into this area. In a recent study using 87/86Sr ratio sourcing techniques, various theoretical concepts around other types of resource acquisition, manufacture, learning and artifact life-history from the likes of Schiffer, Ingold, Hurcombe, and Jolie were used in developing research questions and trajectory. The purpose of this paper is to explore the implications of the study results through these theoretical lenses. The result is creating a middle-range theoretical platform for advanced textile study.

**Lopez, Val (Amah Mustun Tribal Band)**

[231] **The Importance of Restoring Indigenous Knowledge**

The Creation Story of the Amah Mutsun clearly delineates our traditional territory and asserts our responsibility to take care of Mother Earth and all living things. For thousands of years and many hundreds of generations the Amah Mutsun accumulated knowledge of how to ensure balance in their world. We recognize the importance of prayer and ceremony, that
all living things are our relatives, including the tangible and the intangible, that all plants have a responsibility to provide for a community, and that fire was both a gift and a tool given to us by Creator. Starting in the late 1700s the Amah Mutsun experienced three periods of brutal colonization. All three periods attempted to destroy traditional culture, spirituality, and environments. Today, the Amah Mutsun is working to restore the indigenous knowledge of our ancestors so we can fulfill our sacred obligation to Creator. At first, we resisted working with anthropologists, as we believed they would perpetuate a history of destruction and domination. After many conversations and careful steps forward, we recognize the value of archaeological research in restoring the knowledge of our ancestors. Trust and respect are at the center of our collaboration.

Lopez, Valentin [231] see Lightfoot, Kent

López, Alejandro

[193] Strains of Different Cultures Embedded in the 400 Year Old Spanish Language of Northern New Mexico

As the oldest center of Hispano/Mexicano culture in the United States, northern New Mexico offers a unique view into this culture’s presence in what is now the continental United States. Due to the centuries-long isolation of the region and the relatively dense population of Spanish speakers, northern New Mexico’s four hundred year-old Hispano/Mexicano culture continues to live and adapt to new conditions of life. It also maintains many of its core elements including a strong attachment to land, family, religion, music, traditional foods and language. An examination of some of the linguistic peculiarities of the Spanish spoken by this community will reveal its amalgamation of diverse cultural influences ranging from Nahuatl to English.

López, Eos (ENAH), Mauricio Obregón (Facultad de Ciencias Políticas y Sociales, UNAM), Flavio Silva (University of California, Berkeley) and Luís Barba (Instituto de Investigaciones Antropológicas, UNAM)

[407] Residuos químicos en el patio de una unidad habitacional del Clásico Tardío en Chinikihá, Chiapas

Las prácticas que tienen lugar en las unidades habitacionales se relacionan profundamente con procesos que ocurren a escala local y regional (Liendo et al., 2015: 12). El Proyecto Regional Palenque, incluyó el estudio de unidades habitacionales, tomando a los residuos químicos como estrategia para acercarse a las prácticas cotidianas que transforman los lugares donde se realizaron (Manzanilla y Barba 2003: 33). En 2013, se tomaron muestras de pisos de tierra en el patio de la Estructura G13 del Clásico Tardío en Chinikihá, Chiapas. En la ponencia se presentan los resultados, analizados en el Laboratorio de Prospección Arqueológica, IIA-UNAM, usando su metodología (Barba et al., 1991). La información obtenida a partir de spot test, permitieron elaborar mapas de distribución donde es posible identificar zonas de concentración y asociaciones con estructuras domésticas.

Lopez Aldave, Natali [286] see Wolin, Daniela

López Cabral, Rocío [393] see López Mazz, José

López Camacho, Javier [409] see Tsukamoto, Kenichiro

López Corral, Aurelio [68] see Costa, Angelica

López Corral, Aurelio [68] see Ibarra, Thania

López Corral, Aurelio [68] see Rodas, Diana
López Corral, Aurelio (Instituto Nacional de Antropología e Historia)

[238] De Tepetitlán, a Tlaxcalla: la forja del estado tlaxcalteca del Posclásico tardío (1250-1519 d.C.) a la Colonia temprana (1519-1600 d.C.)

El contacto entre tlaxcaltecas y españoles en 1519 inició un período de cambios fundamentales en las relaciones de poder entre los altepemeh del altiplano central mesoamericano. Para Tlaxcallan, la alianza representó una oportunidad para sortear los problemas políticos, bélicos y económicos en las cuales se encontraba inmersa la entidad estatal desde el siglo 15, hecho que a la postre les generó el mote de "traidores a la patria" entre los formadores de la nueva República Mexicana del siglo 19. Pero esta no fue la única ocasión que los tlaxcaltecas condujeran una alianza político-militar clave y reestructuraran su forma de gobierno. La historia revela episodios fluctuantes de coaliciones y conflictos entre Tlaxcallan y otras entidades estatales durante sus 250 años de existencia en el Posclásico tardío (1250-1519 d.C.). Este trabajo explora los cambios en las estructuras de poder tlaxcaltecas derivados de alianzas y antagonismos históricos, y sus implicaciones sociopolíticas y teóricas. Se analizan datos históricos y arqueológicos sobre la transición de un gobierno basado en un líder único, a un gobierno colectivo multiétnico formado por varios líderes con intereses contrastantes, hasta su transformación en un gobierno colectivo sincretizado con el sistema de dominio español en la colonia temprana (1519-1600 d.C.).

[238] Chair

López Luján, Leonardo (Museo del Templo Mayor, INAH), Alejandra Aguirre Molina (Proyecto Templo Mayor, INAH) and Israel Eizalde Mendez (Proyecto Templo Mayor, INAH)

[304] Dressed to Kill: Richly Adorned Animals in the Offerings of the Great Temple of Tenochtitlan

Over the course of four decades, the Templo Mayor Project (1978–2018) of Mexico’s National Institute of Anthropology and History (INAH) has excavated more than two hundred offerings in the area corresponding to Tenochtitlán’s sacred precinct. These rich Mexico deposits from the fourteenth, fifteenth, and sixteenth centuries contained an unusual diversity of mineral, floral, faunal, and human remains in addition to large quantities of cultural objects. Prominent among the offerings are the vestiges of tens of thousands of animals representing more than five hundred species, including a particularly interesting set of carnivorous mammals and birds of prey that were sacrificed in ritual ceremonies and buried inside temples and under plaza floors. The corpses of these animals were adorned with all sorts of insignia and ornaments (e.g., earpieces, nosepieces, necklaces, pectorals, anklets) made of gold, copper, wood, turquoise, greenstone, shell, and other precious materials. This presentation will analyze the archaeological contexts of such offerings and will study the symbolism of the animals in light of native pictography and sixteenth-century descriptions.

López Mazz, José (Universidad de la República, Uruguay) and Rocío López Cabral (Department of Anthropology, University of Florida)

[393] The Presence of Groups of Amazonian Cultural Matrix in the La Plata River

The Amazon has traditionally been seen as the scenery for different original human experiences. In recent years, research has allowed us to improve our knowledge of the territorial and cultural dynamics of Amazonian groups in South America. In this context, the spatial analysis of ceramic traditions allows us to know and recognize the dispersion of groups of Arawak and Guaraní matrix towards places as distant as the La Plata river. These episodes of human migration seem to have begun about 2000 years ago BP, and they allow us to recognize precise cultural matrices, diverse archaeological contexts and reliable chronologies. This work presents information on the Guaraní cultural tradition, based on the survey of presence of ceramic material attributed to this group. The diverse contexts in which this material has been recorded are analyzed, as well as the cultural dynamics in which it could be involved. The relevance that the La Plata river has within a wide sphere of cultural interaction that links the Southern Cone of South America with Amazonia is also discussed.

López Mestas Camberos, Martha Lorenza [173] see González López, Martha Cecilia
Las Figurillas “Cerro de García”: Usos y Significación

Las figurillas conocidas originalmente con el término genérico de “Cerro de García”, se ubican cronológicamente entre los años 600 a 900 d.C. y son consideradas como una evidencia de interacción intra e interregional por su amplia distribución en el Occidente de México. Sin embargo, a pesar de la importancia que se les ha otorgado, son pocas las excavaciones controladas que refieran su presencia y permitan realizar un análisis antropológico de las mismas, a partir de sus contextos de producción, distribución, uso y deposición, especialmente porque dichas figurillas se convirtieron en imágenes performativas que proyectaron los valores sociales y los sistemas simbólicos en la subjetividad de los individuos mediante los diferentes códigos que las conforman. El objetivo de esta ponencia no sólo se centrará en su producción y distribución, sino en la forma en que se usaron como parte de distintos procesos rituales que estructuraron a los sujetos sociales vía la internalización de esquemas y valores básicos, a partir de las excavaciones realizadas en el valle de Colima, el centro y los Altos de Jalisco.

Lopez Varela, Sandra (UNAM)

Alternative Mexico: A Mobile Application for the Preservation of Mexico’s Heritage

“México Alternativo” es una aplicación móvil para iOS y Android, que surge del necesidad de preservar y promover los recursos de la contemporaneidad que tienen gran valor para los ciudadanos de México. La modernización e innovación urbana para fortalecer y modernizar la economía de México, ha generado una apropiación de espacios modernos por parte de sus ciudadanos, lo que inevitablemente ha dado lugar a nuevas formas de patrimonio. “México Alternativo” busca registrar los valores de patrimonio contemporáneo de los ciudadanos, con el objetivo de articular el papel de preservación que son necesarios para el futuro de México, creando un más acorde acuerdo entre los ciudadanos y las instituciones.

Lopinot, Neal [176] see Ray, Jack

Lord, Kathryn (The Broad Institute & UMass Medical School), Greger Larson (University of Oxford), Raymond Coppinger (Hampshire College) and Elinor Karlsson (The Broad Institute of MIT and Harvard)

The History of the Fox Farm Experiment and Its Ramifications for Understanding the Origins of Domesticated Animals

Domestic and wild animals are distinguished primarily by behavioral changes difficult to discern in archaeological remains. Domestication syndrome describes the suite of behavioral and morphological changes proposed to consistently accompany domestication, including skeletal changes. It is largely based on an experiment in directed evolution in farmed foxes, which showed that selection for tameness resulted in other traits such as spotted coats, floppy ears, curly tails, loss of seasonality, and shorter muzzles. Here, we describe why the findings of the farm fox experiment are more complicated than widely assumed. While it achieved changes in fox behavior, these changes are not sufficient to clearly classify the foxes as domesticated. Furthermore, many of the traits classically cited as appearing in the foxes differ in significant ways from traits identified in domestic animals, while others appeared generations before the experiment began, when the foxes were bred for farming. The theory of a domestication syndrome in mammals is based primarily on dogs, with the fox-farm experiment providing crucial empirical evidence. With the fox data offering little support for the existence of such a syndrome, its use in archaeological studies should be re-examined.

Loren, Diana (Peabody Museum, Harvard University)

Body Histories, Historical Bodies: Adornment, Culture and Identity through Time

The body is so many things simultaneously. It is an historical object, a site of experience and violence, a set of behaviors, and is both material and metaphysical. We cannot conceive of history without bodies. Bodily adornments add further nuances that are personal, symbolic, political, situational, and multifaceted; tied to taste, emulation, production, and consumption. Current research on bodies and their adornments draw out details of how sexuality, health, status, gender, desire, and identity were situated on and in the body, even in deep history. Recognizing that the body is constituted through history, in this paper I draw out broad themes of clothing, personal adornment, and embodiment over time, especially
regarding relationships among bodies, experiences, representation and history.

Lorenz, Carol (San Juan College) and David Preston (San Juan College)

[203] Anomalous Floor 2 Features in the Point Pueblo Great Kiva

During the 2016 and 2018 seasons, excavators found more than 150 features in Floor 2 of the eastern half of the Great Kiva at Point Pueblo. Of these, 99 were east of the eastern vault complex. Features were lined with clay or adobe, demonstrated eight different shapes, and many contained artifacts. One large horseshoe-shaped (90+ cm) feature was due east; 20 features were connected to it directly or indirectly via 17 underground tunnels. This presentation provides a plan view of the eastern half of the Great Kiva with a detailed view of the horseshoe-shaped feature and its associated features, a basic analysis of artifact types found in the different feature shapes, and some possible explanations for this unusual find.

Lorenz, Samantha, Toni Gonzalez, Alanna Abel and Jessica Strayer

[383] Interpreting Identities: An Ahegemonic Archaeological Approach

Mulch'en Witz (glossed ‘Hill of Many Caves’) is located in northwestern Belize within the periphery of the ancient Maya site of La Milpa. Preliminary investigations have recorded a high concentration of chultuns associated to architectural features and groups and, thus far, all cultural material dates to the Late Classic period (CE 600-800). Human skeletal material was encountered in Chultun 3, a small boot-shaped chultun located northwest of a Plaza Plan 2 group. An individual appears to have been placed on the stairs that lead into the main chamber, although s/he was later disturbed when the capstone was dislodged prior to excavation. The burial within a chultun along with the artifacts associated with this individual present challenges for conventional interpretation. This paper discusses how an ahegemonic archaeological approach might be useful to better contextualize the study and present a more accurate representation of this ancient Maya individual.

Lorenz, Wayne [337] see Trusler, Kate

Lorenzi, Varenka [348] see Schroeder, Sissel

Losey, Robert (University of Alberta)

[138] Discussant

Loubser, Johannes (Stratum Unlimited, LLC)

[252] High Elevation Petroglyphs along the South Carolina/North Carolina State Line

Long Ridge Road is the most complicated of 20 high elevation sites with similar-looking circular and meandering petroglyphs along the South Carolina/North Carolina state line. With the aid of drone photography a minimum number of 1,043 petroglyph motifs were recorded. Based on motif style and stratigraphy the site most likely dates to the Middle to Late Woodland periods. Like other petroglyph sites in the region it is located beside an old trail that connects the valley bottoms with prominent mountain tops. Also, petroglyphs are concentrated on the steepest portion of the exposed bedrock pavement.

Loucks, Jordon (University at Albany)

[88] Archaeology and the Green Power Initiative: Reconciling Large Renewable Energy Development Projects and the Protection of Cultural Resources

The development of utility scale renewable energy projects is a necessity to curtail our environmental footprint. The utilization of solar and wind power sources to provide stable, affordable, and ethically sound alternatives to the resource extraction-based energy production practices of yesterday is quickly sweeping the American landscape. However, with these developments, large undeveloped areas in rural settings are subject to substantial soil impacts, as well as viewshed impacts, and characteristic change of the landscape. The approach by many state historic preservation offices has been
similar in some respects, but not standardized to include an accepted set of best practices. To better evaluate cultural resources caught in the wake of energy development for each development type, the discussion of current approaches should be undertaken. This study evaluates direct and indirect impacts of both solar and wind facilities in mountainous terrain and explores a set of best practices to evaluate those impacts to provide developers with the best possible data to avoid impacts to cultural resources.

Lovata, Troy (University of New Mexico)

[193] Chicanx in the Wilderness: Tree Graffiti and Perceptions of People and Place

This paper examines how historic and modern tree graffiti left by Chicanx and Latinx in Wyoming, Colorado, and New Mexico impact understanding both these peoples and the wild lands they inhabit/ed. Archaeologists have been at the forefront of countering ideas that graffiti is primarily a modern phenomenon of urban decay with studies that bring forth concepts of resistance and empowerment pushed back into prehistory and across wild places worldwide. Graffiti carved into trees by different modern and historic peoples is prevalent in North America. Graffiti on aspen trees is especially common in the Western United States and is often linked to Chicanx and Latinx sheepherders, laborers, and recreationalists. That such graffiti is often found in wild lands and legally defined wilderness areas has long put it under the purview of, and generated interest among, archaeologists. But the presence of Chicanx in these wild places also challenges long held assumptions about what wilderness means and who Chicanx are. Artifacts of Chicanx in the wilderness both expand what it means to be Chicanx and problematize the idea that wilderness is, to quote the American Wilderness Act of 1964, "...where man himself is a visitor who does not remain."

Loven, Jeremy [254] see Yost, Scott

Loven, Jeremy (PaleoWest Archaeology), Kathryn Puseman (Paleoscapes Archaeobotanical Services Team, LLC), Kye Miller (PaleoWest Archaeology), Christy Briles (Paleoecology, Palynology, and Climate Change Labor) and John G. Jones (Archaeological Consulting Services, Ltd., Tempe)

[254] Middle Archaic Period Subsistence and Resource Use Practices in the Chuska Valley, New Mexico

The recent discovery and investigation of a Middle Archaic period campsite in the southern Chuska Valley has provided substantial insight into the relative importance of various plant and animal resources to the mobile inhabitants of the San Juan Basin region. Data generated from the analysis of macro- and micro-botanical remains recovered from structural and thermal features and ground stone surfaces suggests the site’s inhabitants were processing a diverse assortment of local and non-local plants for consumption, while procuring numerous other species for use as structural posts or fuel sources. Pollen, phytolith, and macrofloral analyses all point to use of pine nuts, while macrofloral analysis lends insight into use of various other native plant resources. The faunal assemblage is dominated by small mammals, suggesting a focus on acquiring locally available animals for use as a protein source; however, at least a limited commitment to obtaining large mammals and possibly long-distance hunting is exhibited by the presence of medium-sized artiodactyl remains at the site. Results from botanical and faunal analyses, along with additional observations concerning lithic raw material procurement and tool-making strategies, architecture, and overall site formation processes, provide valuable information about a poorly understood time period in the San Juan Basin.

Low, Marika [277] see Watson, Sara

Lowe, Kelsey [170] see Kappers, Michiel

Lowe, Lynneth (Centro de Estudios Mayas, UNAM)

[330] Hermann Berendt and Charles Rau: Notes on the Origin of Maya Archaeological Collections during the 19th Century

The study of correspondence, field notes, catalogs and other archival documents has contributed important information to understand the history of some of the first Maya archaeological collections in the United States and Europe. The field and lab work developed by pioneering explorers and researchers, such as Hermann Berendt (1817-1878) and Charles Rau (1826-1887), among others, contributed to the establishment of the methodological foundations of the archaeological
discipline with the application of a systematic methodology of classification and study of diverse materials coming from the Maya region. The collaboration established with prominent local figures, such as the Yucatecan bishop Crescencio Carrillo y Ancona or the collector Florentino Jimeno, allowed them to be part of the circle of intellectuals who promoted the study of languages, antiquities and the formation of collections dedicated to archaeological research. This is the case of the first collections of Maya artifacts acquired by the Peabody Museum of Archaeology and Ethnology and the Smithsonian Institution of Washington, whose study will allow us to rescue unpublished information about the sites explored during the second half of the 19th century and their material legacy.

Lowry, Justin (SUNY Plattsburgh), Skelly Skolnick (SUNY Plattsburgh, Department of Anthropology) and Adam Benfer (University of Calgary)

[412] Mapping of Ancient Managua, Nicaragua using GIS

Settlement patterns within Central America can lead to a better understanding of the political and social complexity of the region. Although this method has been extensively used across archaeological regions, Nicaraguan archaeology can benefit from this settlement analysis because of the inclusion of a GIS-based systematic approach. This paper will outline some of the broader context of the Nicaraguan state of Managua surrounding the 5th century site of Chiquilistagua, and relies on an archaeological database of site locations compiled from public reports, publications, and surface surveys. By looking at the intra-regional dynamics of site location and political organization, we can make a first attempt at reconstructing of the political and social context of the region of Managua surrounding the site of Chiquilistagua.

Lozada, Maria (University of Chicago), Danielle Kurin and Emmanuel Gómez

[185] Andean Indigenous Bodies: Methodological Approaches to Past Perceptions of the Body

Any attempt to understand indigenous anatomy and perceptions of the body from an emic perspective in the Andes is a challenging endeavor, beginning with basic definitions that differ substantially from Western traditions. Furthermore, definitions changed across space and time throughout Andean prehistory, making it difficult to discuss the topic in a unified, monolithic manner. In the Andes, there are a variety of ontological data on this subject. These are based on ethnohistorical, linguistic, ethnographic, materiality and phenomenological studies that provide insights into an emic view of the Andean worldview, including perceptions of the body. In this paper, we present bioarchaeological case studies from different parts of the Andes as well as a study of Quechua terminology that illustrate the unique view and treatment of the “body” in this part of the world. In addition, we provide methodological recommendations in osteological research that need to be followed in an effort to provide a more nuanced interpretation of past worldviews anchored in the body.

[185] Chair

Lozada, Maria [286] see Cheever, Sylvia

Lozada Toledo, Josuhé [280] see Hernandez, Christopher

Lozano, Enadina [151] see Rinkle, Chad

Lozano, Stephanie (University of California, Riverside)

[406] New Insights into Teotihuacan’s Year Sign Headdress and Its Olmec Origins

This study will explore the origin and meaning of the Teotihuacan’s year sign headdress and its connection to the Storm God (Tlaloc). Several scholars have noted the first appearance of the year sign worn by the Storm God starting from the Early Classic period at Teotihuacan. Evidence suggests a fair amount of interaction between Teotihuacan and other parts of Mesoamerica, which can be noted especially with the presence of the Teotihuacan year sign found at several different locations. The presence of the Teotihuacan year sign appears at several Maya sites, within the Mixtec region, and has also been noted in the Borgia codex. The year sign has its roots in Teotihuacan and is often worn as a headdress by Tlaloc which notes its agricultural significance with maize. I argue that the origin of the Teotihuacan year sign headdress can be traced back to the Olmec of the Formative Period. This is clearly seen through a study of the iconography of the Teotihuacan Storm God vessels from the Preclassic period found at Teotihuacan. I argue that the year sign headdress worn
by the Storm God is a Teotihuacan impersonation of the Olmec maize deity.

Lozny, Ludomir (Hunter College, CUNY)

[166] Discussant

Luan, Fengshi [361] see Wang, Yifan

Lubinski, Patrick (Central Washington University), Virginia L. Butler (Portland State University), Deanna Grimstead (Ohio State University), Dennis Jenkins (University of Oregon) and Dongya Yang (Simon Fraser University)

[47] Using Fish Remains from Paisley Caves, Oregon to Explore Hunter-Gatherer Lifeways and Lake Level History in the Chewaucan Basin over the Past 14,000+ Calendar Years

Paisley Caves holds some of the earliest evidence for human occupation in North America. The site’s fish remains have received only limited attention before now. Our pilot study sought to assess the potential for using a sample of the fish remains to help reconstruct lake level history, better understand regional paleoenvironments, and gain insights on forager adaptations over the ~14,000 years of human occupation. Besides morphological analysis (and body size estimates), aDNA and C/O isotopes were studied. Recent reconstruction of Pleistocene lake history provided a framework for developing expectations of fish response. An age-depth model was created from 109 radiocarbon dates. A total of 3,342 fish remains from 6 test units were identified. Tui chub (Siphateles bicolor) dominates with small frequencies of rainbow/redband trout (Oncorhynchus mykiss) present. When grouped by climate interval, measures of overall fish abundance, salmonid abundance, and tui chub body size are largely consistent with expectations of lake levels for the Bølling/Allerød, Early, Mid, and Late Holocene, but not for the Younger Dryas. A sample of 32 tui chub bones revealed a similar correspondence for expected water conditions from δ13Calpha and δ18Oalpha isotope values.

Lucas, Cristin [125] see Prasciunas, Mary

Lucas, Leilani [151] see Flynn, Alexandria

Lucas, Leilani (College of Southern Nevada)


Since the first experiments with the method of flotation in 1962, the sub-discipline of archaeobotany (paleoethnobotany) has developed and revolutionized our understanding of the origins and spread of agricultural systems worldwide. The history of modern archaeobotanical methods on the island of Cyprus has its roots in the 1970s with evidence from Neolithic Dhali-Agridhi, followed not long after by Khirboutta-Vounoi and Cape Andreas-Kastros. These early publications are testament to the role the island’s archaeological community has played in the early development of the sub-discipline. The expanding dataset of Cypriot charred macro-botanical remains has not only transformed our understanding of the origins and spread of Near Eastern crop agriculture but has led to new research questions on early Cypriot subsistence strategies. Summarizing nearly 50 years of archaeobotany on the island highlights the key players and how they have questioned our understanding of the past, focusing on the key role the sub-discipline will have in Cypriot archaeological studies going forward.

Lucas, Virginia (University of Nevada, Las Vegas)

[168] Faunal Exploitation Practices at Three Malabar Period Sites in the Fox Lake Sanctuary in Brevard County, Florida

Three Malabar Period Sites, Hunter’s Camp (8BR2508), Palm Hammock (8BR2509), and Xavier’s Knoll (8BR2510), were excavated in the Fox Lake Sanctuary in Brevard County, Florida. Faunal assemblages recovered from general excavation units and features were examined to learn more about Malabar faunal exploitation strategies and subsistence patterns. Sampling methods utilized at the site allowed for a more complete perspective on subsistence strategies. The main objectives of this study were to determine the seasonality of the sites and to compare the subsistence strategies between the three sites by determining species diversity, and the relative abundance of marine vs. freshwater species and aquatic vs. terrestrial species. In addition, this poster aims to determine if these sites were habitation sites or satellite-processing
sites, and this is accomplished by comparing the faunal assemblages of these sites to contemporaneous sites located to the north and south. The data collected suggests that the people of these sites incorporated turtle and both marine and freshwater species of fish and shellfish, almost to the exclusion of all other species, into the subsistence economy.

Lucas, Virginia [260] see Benedict, Laura

Lucero, Lisa (University of Illinois at Urbana-Champaign)

[28] Discussant

Lucero, Lisa [199] see Larmon, Jean

Lucido, Jennifer and Scott Lydon (UC Los Angeles)

[193] Where No Mestiza Has Gone Before: Brokering Colonialism, Ethnogenesis, and Gendered Landscapes in Alta California, 1775-1845

The triple consciousness that is the Afro-Mestiza or Mestizo experience conjures nationalism, racialization, and ethnicity and thereby, the ongoing negotiation of identity on the Spanish and Mexican borderlands frontier. Where archaeology and historical studies are concerned, the effort to interrogate the lives of mestiza women within such contested landscapes is necessarily fraught. The entanglements of such liminal frontiers necessarily impact identity, material cultures, and their corollary forms of social expression. This paper therefore explores theoretical models of colonialism, historic and gendered landscapes, and processes of ethnogenesis and identity formations whose enduring character underpin the archaeology of Chicanismo in California and the West. We present a microscale genealogical analysis of successive generations of the Arballo lineage spanning 18th and 19th century Spanish and Mexican social formations and material cultures. The women under scrutiny constitute Alta California's earliest Spanish colonial families, including Feliciana Arballo, María Ignacia López, and sisters Josefina and Ramona Carrillo. In the final analysis, this paper explores the lives of mestiza women on the Spanish frontier, particularly insofar as how such women served as both domestic partners and colonial cultural agents in the negotiation of indigenous alliances.

Lucius, William [420] see Di Naso, Steven

Lueth, Friedrich

[155] Changing the Picture – 1000 Hectare High Resolution Magnetometry on the Protected Zone of a World Heritage Site at Avebury, UK

Avebury and Stonehenge, two iconic prehistoric sites in the heart of England, both listed on UNESCO's list of world heritage have undergone intensive research during the past century. Nevertheless, evolving technologies open access to new data on a landscape scale, thus adding more and surprising information helping to reach out beyond the state of the art. A joint international team has investigated the area between Windmill hill and Silbury hill around the henge monument at Avebury. More than 1000 hectares have been covered so far and a resolution of 12.5 cm. These big data have already helped to change the overall picture of the use of the landscape from early Neolithic times until the medieval period. The process of inclusion of already existing monuments into the landscape pattern, respect for existing monuments of religious character by later occupation will be explained during this presentation.

[155] Chair

Lueth, Friedrich [155] see Ruby, Bret

Lueth, Virgil [413] see Sternberg, Evan
Lulewicz, Isabelle (University of Georgia)

[34] A Combined Bayesian and Zooarchaeological Approach to Understanding Local Histories of Socio-ecological Adaptation in Southwestern Florida, USA

We present current research at the Pineland Site Complex (8LL33, etc.), a large shell midden-mound site in southwestern Florida occupied by the Calusa from around AD 50 up to historic contact. This well-preserved and well-studied archaeological site provides new insights into the relationship between subsistence practices of populations living along the Gulf Coast and the onset of the Little Ice Age (AD 1250-1850). In this paper we combine Bayesian statistical analyses of radiocarbon dates with zooarchaeological analyses of a recently excavated water-logged midden to provide a high-resolution view of what changes occurred during the Little Ice Age. Our research illustrates the potential of Bayesian analysis of multiple radiocarbon dates in combination with zooarchaeological analysis to provide insight into the relationship between the analyzed contexts and the larger site and environmental histories. Such micro-scale temporal perspectives are necessary in order to provide more detailed understanding of variations that occur within complex socio-ecological systems such as these.

[34] Chair

Lulewicz, Isabelle [70] see Pluckhahn, Thomas

Lulewicz, Jacob (Washington University in St. Louis)

[308] Women’s Networks and the Foundations of Mississippian Politics

Mississippian societies were undoubtedly underwritten by networks of kin, clan, and other social relationships that are difficult to discern in the archaeological record. Structures of social networks provide contexts for social, political, and economic institutions and serve as conduits through which these institutions are generated, transformed, and maintained. We argue that a social network approach is uniquely appropriate to address themes of social relatedness in the archaeological record. We draw on continental, regional, local, and intra-community datasets to explore the social networks through which Mississippian peoples of Southern Appalachia forged identities, fostered communities, and mediated uncertainty. We focus in particular on a ceramic dataset from eastern Tennessee derived from whole vessels found in 79 burial contexts across 18 communities. We apply formal network analyses to dimensions of ceramic production and style to highlight both inter- and intra-community relationships indicated by distinct communities of practice and social signals. In doing so, we explore the social diversity among Mississippian communities and patterns of kinship that would have underwritten political institutions. These realms of social relatedness likely were solidified through women’s networks and political participation, yet served as durable foundations of Mississippian sociopolitics more broadly.

[308] Chair

Lulewicz, Jacob [348] see Meeks, Scott

Lun, Casey [361] see Xie, Liye

Lunagómez Reyes, Roberto (Museo de Antropología de Xalapa-UV)

[411] Jomon y Olmeca: Colaboración museográfica entre Japón y México

Después de una exposición museográfica binacional entre Japón y México en los años 2010 y 2011, se ha podido consolidar una colaboración académica entre instituciones y universidades japonesas con el Museo de Antropología de Xalapa-MAX. Esta ponencia expondrá los logros académicos que han permitido tener una continuidad entre las instituciones mencionadas y las perspectivas, tanto de investigación de campo, así como de futuras exposiciones museográficas encaminadas a difundir y divulgar la importancia de las culturas tempranas de Jomon de Japón y Olmeca de México.
Lundin, Deil [208] see Diehl, Michael

Lundin, Deil and John Langan (AZTEC Engineering Group, Inc.)

[357] Digging the Tucson–Ajo Highway: Eight Years of Transportation-Funded Archaeology along Arizona State Route 86 and New Perspectives on Eastern Papaguerían Prehistory

The eastern Papaguería, a region of south-central Arizona, has historically not been the subject of intensive archaeological study due to its agricultural marginality, sparsity of large village sites, and lack of development that would prompt compliance-driven archaeology. Excavations sponsored by the Arizona Department of Transportation and Federal Highway Administration along Arizona State Route 86 between 2010 and 2018 have yielded some of the only available subsurface data pertaining to small sites in the area between the Tucson Basin and Western Papaguería. Portions of twenty-five sites were investigated; this paper presents a summary of the results. Late Archaic components were identified at some sites. The sites yielded evidence important to understanding mortuary practice in the period between A.D. 150 and 1450, including the first definitive evidence for cremation in the region and the existence of a cairn-burial complex that may have roots in the Archaic period. Previous interpretations of the region’s prehistoric occupation have suggested temporary or transient use for seasonal resource procurement by the Hohokam occupants of adjacent riverine valleys. This concept is reassessed using the new data to suggest long term and/or more permanent occupation is likely to have characterized human settlement of the region during prehistory.

Lundquist, Lance [241] see Van Hoose, Jonathan

Lunniss, Richard [286] see Bythell, Abigail

Lunniss, Richard [314] see McEwan, Colin

Lunt, Sara [306] see Kimbell, Caroline

Luokkala, Brooke [82] see Coutros, Peter

Lupo, Karen [82] see Schmitt, Dave

Lupo, Karen (Southern Methodist University) and Dave Schmitt (Southern Methodist University)

[415] The Edible and Incredible Hare

Zooarchaeological applications of the Prey Choice Model (PCM) are often based on the assumption that prey body-size is a robust proxy for prey rank and post-encounter return rate. In zooarchaeological assemblages, co-variation in the abundances of large and small-sized prey are often viewed as reflecting changes in foraging efficiency and are usually attributed to depressed encounter rates with large-sized and high ranked prey. But ethnographic and experimental studies show that hunting technology and techniques can greatly alter the efficiency and failure rates of hunting different prey. Using empirical data from several different ethnographic and ethnohistoric sources we show different hunting techniques used to procure leporids can be more reliable and productive than hunting certain large game. In the case of hares, noncaloric currencies such as sociopolitical gains and the thermal properties of hides may have also incentivized hunting these prey. We present archeological data from sites in the Bonneville Basin of western North America spanning the Holocene that show that leporids were more frequently targeted than larger-sized and presumably high ranked game, even when the latter were abundant on the landscape.

Luscier, Adam [11] see Murphy, Shayna
Luthman, Sarah (University of Oklahoma) and Meghan Dudley (University of Oklahoma)

[297] Investigating a Shelter in Oklahoma Schools: Bringing Museum Artifacts into the Classroom

In Oklahoma, giving K-12 students hands-on experiences with real artifacts can be challenging when collections are inaccessible in museum repositories. To make archaeology accessible to all students at the national level, Project Archaeology’s Investigating Shelter (2009) for grades 3-5 supplements social studies and science curricula, using archaeological methods and anthropological themes to teach children about the past. The culminating activity of this unit is a hands-on module in which students place replica artifacts or pictures of artifacts onto a map of a real archaeological shelter and make inferences on the kinds of activities that occurred there. The Oklahoma Public Archaeology Network (OKPAN) has partnered with Oklahoma school teachers, descendant communities, the BLM, and Plains archaeologists to create a Project Archaeology module based on data and artifacts from a real archaeological site in Oklahoma. This work brings us one step closer to our goal of making local archaeology accessible to all students in their own classrooms.

Luze, Meredith [53] see Billeck, William

Luzzadder-Beach, Sheryl [63] see Krause, Samantha

Luzzadder-Beach, Sheryl (Department of Geography and the Environment, University of Texas At Austin), Timothy Beach (Department of Geography and the Environment, University of Texas At Austin), Colin Doyle (Department of Geography and the Environment, University of Texas At Austin) and Greta Wells (Department of Geography and the Environment, University of Texas At Austin)

[63] Three Rivers Watersheds: Regional Water Resources of Northwestern Belize and Beyond

This research seeks to understand the interconnections and interactions of the water resources of Northwestern Belize, via its contributing Three Rivers Watersheds. The Three Rivers Watersheds drain Guatemala, Mexico, and Belize via the Rio Azul/Blue Creek, Rio Bravo, and Booths River systems. These Three Rivers merge to form the Rio Hondo, the present-day Mexico-Belize Border. Beyond the Three Rivers, nearby watersheds include the New River and Freshwater Creek systems draining the coastal Plain of northern Belize. This portion of the karstic Yucatan platform belies a remarkably diverse and complex hydrologic and geochemical system that served the Ancient Maya in the past, and modern communities today. Our goal is to examine the connections between surface and groundwater resources in the central and southeastern portions of the Yucatan Platform in the Maya Lowlands, to better understand the regional hydrology serving Ancient Maya communities, and to understand the broader geologic contributions and influences to water chemistry, wetland formation, and water and land use.

Lv, Shaowu [389] see Wang, Jiaqi

Lycett, Mark (University of Pennsylvania) and Phillip Leckman (Statistical Research, Inc.)

[84] ‘The Shape which all that which is Settled has is that of a Cross’: Negotiating Inscription and Experience in the Sacred Landscapes of 17th Century New Mexico

In the emergent social geography of empire, Franciscan missions were agents of spatial production as well as colonial establishment. Their foundation, form, and operation instantiated claims to and about society, dominion, and the culmination of history. These claims were forged within an already extant, meaningful, and ritually significant landscape defined by the dynamic experience of the region’s Pueblo inhabitants and marked by a nested complex of ceremonially resonant features. Missionaries inscribed their own image of sacrality upon Puebloan ceremonial geographies, as embodied in distinct physical markers radiating out from the mission and its associated architectural complex. This paper explores these contingent and contested sacral landscapes through an examination of recent archaeological research in the Middle Rio Grande valley, with a focus on the Galisteo and Albuquerque-Belen basins.

Lydon, Scott [193] see Lucido, Jennifer
Lyle, Nichelle (Department of Anthropology, University of Cincinnati) and Kenneth Tankersley (Dept. of Anthropology, University of Cincinnati)

Vertebrate Response to Little Ice Age Climate Change in the Ohio River Valley

This paper examines vertebrate species from Fort Ancient archaeological sites in the Ohio River Valley, which date to the Little Ice Age. They are compared to vertebrate species from archaeological sites, which predate the Little Ice Age and from modern contexts. The results of this comparison suggest that vertebrate species exhibited individual responses to climate change. The distribution of some species remained unchanged while others, such as bison exhibited dramatic changes in their bio-geographic ranges.

Lynch, Elizabeth [329] see Piven, Alix

Lynch, Joshua [249] see Goebel, Ted

Lynch, Joshua (Center for the Study of the First Americans)

Exploring the Function and Adaptive Context of Paleo-Arctic Projectile Points

This paper presents the results of a large-scale experimental archaeology project investigating variability in the projectile point technologies of Upper Paleolithic Siberia and late Pleistocene/early Holocene eastern Beringia. A series of 36 projectile points (12 lanceolate bifaces; 12 composite slotted caribou antler points inset with chert microblades; 12 unslotted caribou bone points) reflective of the morphological variability observed in the Beringian archaeological record were created and tested as components of three weapon systems (atlatl and dart; hand-thrusted spear; bow and arrow) using an actualistic target. The use wear patterns generated by these controlled launches were documented macro- and microscopically, then compared to use wear observed on projectile technologies from archaeological assemblages across Beringia. Examining the range of morphological, technological, and functional variation observed in these projectile technologies tests hypotheses proposed to explain why radically different projectile technologies co-occur in the late Pleistocene/early Holocene Siberian and Alaskan archaeological records. Understanding the functions of these important artifacts can inform on the significance of assemblage variability in Siberia and Alaska, adaptive response to resource fluctuations, and landscape use across the region and through time. Ultimately, these experiments have significant implications regarding the coloniztion of Beringia and the Americas.

Lyons, Diane (University of Calgary)

Discussant

Lyons, Keith [85] see Ramsey, Joshua

Lyons, Patrick (Arizona State Museum)

To Curate or Not to Curate: Legal, Ethical, and Practical Considerations at the Arizona State Museum

The Arizona State Museum (ASM), at the University of Arizona, is the oldest and largest museum of anthropology in the southwestern United States and the largest and busiest non-federal archaeological repository in the country. ASM, as the state’s official archaeological repository, is required to accept collections recovered from state, county, and municipal lands in Arizona. In deciding whether to accept other collections, ASM personnel must consider each offer in the context of the institution’s legal mandates, the ethical principles that guide the fields of archaeology and museology, and the practical realities of space and funding. In this paper, the decision-making process at ASM is described and illustrated using examples of collections accepted and collections declined. ASM personnel strive for clarity and consistency in such processes by prioritizing optional acquisitions based on the institution’s mission, its collecting focus, a collection’s (or an object’s) research potential, and ASM’s ability to provide appropriate care and access in perpetuity.

Moderator
Lyons, Scott (University of California, Berkeley)

[74] Historical Ecology and Archaeometallurgy on the 5th and 6th century Osaka Plain

Extensive excavation records and legacy materials provide ample opportunities for novel research in Japan. This project seeks to open and demonstrate new avenues of inquiry using legacy data and previously excavated materials related to well-studied topics by linking environmental change to the production of iron implements, a major topic in Kofun Period research. While paleoenvironmental data are regularly collected from Japanese excavations, environmental perspectives are rarely explicitly foregrounded in narratives of the Kofun Period, which usually focus on issues of political economy. Specifically, this project uses paleoenvironmental data published from the 1980s onward in conjunction with archaeometallurgical analyses of previously excavated objects to examine human impacts and management of the forest landscape during the middle and late Kofun Period Osaka Plain. This presentation focuses on analyses of forging slags excavated from the Ogata site in Kashiwara City and the Mori site in Katano City to clarify changes in forging practices over this time period, and ties them to landscape management practices and human impacts through a chaîne opératoire approach. These analyses indicate changes in fuel use as widespread changes in local vegetation occurred.

Lytle, Whitney (University of Texas at San Antonio)

[217] Ritual Deposits within the Eastern Pyramidal Structure at Group D, Xunantunich – Belize

Between the 2012-2016 field seasons, the Mopan Valley Preclassic Project conducted investigations of an eastern pyramidal structure (Str D-6) at Group D, Xunantunich. Group D is a sacbe terminus architectural group which is connected to Xunantunich’s main plaza. The location of the sacbe suggests that Group D was part of an important ritual circuit. Over 5 field seasons, we have refined our understanding of the group's chronology and role within Xunantunich. During the course of excavations, several burials, ceramic deposits, and eccentric caches were discovered. Within this paper, we will discuss the architecture of structure D-6 as well as the analyses of materials within deposits and preliminary analyses of skeletal remains. Finally, we discuss how these deposits can help identify the group's overall function.

Lyu, Peng (Institute of Archaeology, Chinese Academy of Social Sciences), Xiaobing Jia (Institute of Archaeology, Chinese Academy) and Yingxi Jin (Institute of Archaeology, Chinese Academy)

[361] Human Behavior or Environmental Change: Zooarchaeological Research on Shell Midden Sites at Guanglu Island, China

The zooarchaeological research on Xiaozhushan, Menhou and Wujiacun shell midden sites, which are located in Guanglu island, provides empirical materials to understand the transformation of animal resources acquisition patterns from fishing-hunting economy to livestock way. This paper analyses the reasons for the appearance of wild and domestic animals in Guanglu island and the internal relation between animal resources acquisition patterns and animal population structure. We consider that human behavior caused profound influences on the animal population as prehistoric people landed on this island about 7000 years ago.

Ma, Jian [78] see Tian, Duo

Ma, Kara (University of Toronto), Yongshan He (University of Toronto) and Chen Shen (Royal Ontario Museum)


This study aims to investigate the different ways artisans in early China (up to the 3rd century) learned their crafts, in order to better understand how certain types of artifacts such as pottery and bronze were made, and how new styles and designs emerged. In early China, craftsmanship was usually inherited through familial traditions or learned inside state workshops,