assessing hominin subsistence behaviors during the ESA/MSA transition in southern Africa. Here I present an analysis of the faunal assemblages from Bundu Farm and Pniel 6, two transitional ESA/MSA open-air sites located in the Northern Cape, South Africa. This analysis is supported by a neotaphonomic study of modern bone accumulations surrounding a complex of seasonal waterholes at Ngamo Pan, Hwange National Park, Zimbabwe. Comparisons between the fossil and modern assemblages suggest primary access to animal carcasses at Bundu Farm fauna, but only secondary access at Pniel 6. Overall, there exists a variable signature of hominin subsistence during the ESA/MSA transition in southern Africa.

Hutson, Scott (University of Kentucky)
[142] Inter-site Causeways as Political Infrastructure in the Northern Maya Lowlands
In the Maya lowlands, several polities oversaw the construction of long causeways that connected regional centers with smaller settlements. As infrastructure, such causeways have been shown to facilitate exchange of basic goods between people at different sites. Archaeologists also view these causeways as political statements that materialize the extent of a polity and emphasize hierarchical relations between settlements on the causeway. Recent research along the 18km long causeway between Uci and Cansahcab, Yucatan, Mexico, suggests that Uci’s leaders attempted to use the causeway as part of strategies for administering rural villages. This research also shows that the causeway did not, however, have much of an effect on regional settlement patterns. The causeway certainly outlasted the Uci polity, and it was re-used in a variety of ways, none of which evince a particular reverence for its original purpose.

[183] Discussant

Hutson, Scott [24] see Kidder, Barry

Hwang, Jae Hoon [80] see Seong, Chuntaek

Hyde, David M. (Western State Colorado University)
[248] A Problematic Deposit from a Maya Hinterland Household: Chert, Sherds and Obsidian
A significant amount of recent study has been directed to what have been termed “problematical deposits.” Although superficially similar to middens, they tend to have a ritual component that makes them distinct from simple trash pits, and as Houk (2000) indicates, they are often located at the centerline of monumental, ceremonial architecture (Clayton et al. 2005; Houk 2000). The Tapir Group of the Medicinal Trail Community has an Early Classic “problematic deposit” that is located in the base of the steps on a modest residential structure in a hinterland household. This paper will address the meaning of this deposit in regards to interpreting what it represents in terms of ancient Maya behavior.

Hylkema, Linda [175] see Panich, Lee

Hylkema, Mark (California State Parks)
[293] Tule Balsa Boats and the San Francisco Bay Economy.
Early historic accounts describe the use of tule balsa boats throughout the San Francisco Bay region. The advantages attendant to this technology, ranging from increased access to estuarine food resources and the transportation of materials and people over a large geographic area is as monumental as the many mounded sites that once surrounded the Bay Shoreline. This presentation will review descriptions of these boats and propose a possible connection between maritime travel, mounded sites and the economic opportunities that must inevitably have developed among the many Bay Shore Ohlone and Miwok polities that used them.

[293] Chair

Iannone, Gyles [48] see Cheong, Kong
Iannone, Gyles (Trent University) [115]  
Towards a Socio-Ecological Understanding of Agrarian-Based, Low-Density Urbanism in Early Tropical State Formations  
Archaeological examination of the remains of the early tropical states in Central America and Asia have demonstrated that, although they exhibit a unique type of settlement pattern, they do represent large, sophisticated, and undoubtedly “urban” state formations. The unique urban footprint of these tropical states—in which settlement units of varying size and complexity are scattered across the landscape, and agricultural lands and green zones extend up to, and even into epicenters—has come to be referred to as “agrarian-based, low-density urbanism.” We are just now beginning to explore, in detail, the nature and significance of this variety of urbanism, with particular emphasis on understanding: 1) Why it seems to characterize many of the earliest state formations to appear in the world’s tropical zones? 2) What it tells us about the nature of socio-economic and socio-political organization in these regions? 3) What specific resiliencies and vulnerabilities are associated with this urban footprint? and, 4) Whether we can use our archaeological knowledge of low-density urbanism in the past to inform some of the contemporary urban re-visioning projects that are currently being initiated in the tropics.

Ibarra, Georgina (Instituto de Geologia UNAM), Felipe Ramírez (INAH - DEA), Elizabeth Solleiro (Instituto de Geología, UNAM) and Sergey Sedov (Instituto de Geología, UNAM) [141]  
Soil, Landsurfaces, and Settlements under Lava: The Case of Cuicuilco, Mexico  
First societies based on agriculture settled the Mexico Basin around 3000 years ago (from B.C. 1500 to A.D. 100), during the Formative period, according to Mesoamerican chronology. Cuicuilco is one and probably the first of these Formative sites in the Mexico Basin and is located in the southern part of Mexico City, in an area covered by lava flows from the Xitle volcano, named El Pedregal. The age of the eruption has been established around 1,670+/- 35 years B.P. It is considered that Cuicuilco was probably abandoned as a direct consequence of this eruption. We have started a survey looking for sites where the paleosurface, inhabited by Cuicuilcos, is still preserved. This landsurface has been found in several places, just below a thin dark grey ash and the thick Xitle lava flow. The buried paleosol has abundant artifacts. We study this paleosol in order to reconstruct environmental conditions in the area during the settlement, as well as the impact of human activities in the area. The paleosol has a very hard and dark organic horizon and does not rest directly under the lava. However the lava has caused an extraordinary effect of compaction that it is necessary to discriminate.

Ibarra-Morales, Emilio [141] see Martinez-Yrizar, Diana

Iceland, Harry [357] see Widmayer, Elise

Iizuka, Fumie (University of Arizona), Masami Izuho (Tokyo Metropolitan University) and Pamela Vandiver (University of Arizona) [115]  
Adoption of Ceramic Technology: Case Study from Incipient Jomon of Southern Kyushu (ca. 13,500/14,000 – 12,000 cal yr BP)  
Hunter-gatherers of late Pleistocene Japan were among the first in the world to adopt ceramic technology. Archaeologists have suggested that in southern Kyushu, these people of the Incipient Jomon period (13500/14000-12000 cal yr BP) also used large grinding stones, stored food, occupied pit houses, and made boats for navigation; they had signatures of reduced residential mobility. Nevertheless, there have not been systematic tests to assess the hypothesized decreased residential mobility. Identification of pottery production zones and circulation helps us to infer degrees of sedentism. Detailed analyses of production processes allow us to assess prioritized performance characteristics and functions intended by producers. Inferred functions would help contextualize pottery production, consumption, and transportation patterns. The objective of our study is to better understand economy and degrees of sedentism, and intended pottery function, when ceramic technology emerged in southern Kyushu. We examined pottery from three Incipient
Jomon sites in Kagoshima Prefecture; two from the northeastern Satsuma Peninsula surrounding Kagoshima Bay, and one from Tanegashima Island. Ceramics were analyzed visually, mineralogically, with xeroradiography, and with porosity tests. We present our results on ceramic sourcing and technology to provide inferences on production zones, circulation, and the producers’ intended functions.

Chair

Ilani, Shimon [64] see Ekshtain, Ravid

Iles, Louise (University of York)

Iron Producers, Iron Users

Participation in technological activity in sub-Saharan Africa is often discussed in terms of identity, whether that is framed by gender, kinship, status or ethnicity. In particular, social distinctions between iron producers and iron users are well known from the ethnohistorical and ethnographic records of numerous African regions, providing important information as to the social organization and values of a particular society. However, recognizing these identities in the archaeological remains of metal objects, metal working and/or metal production presents a significant challenge, not least because of the fluid nature of identity itself and the changing parameters of inclusivity or exclusivity in economic activities.

Drawing together evidence from Ethiopia, Uganda, Kenya and Tanzania, this paper will discuss different ways in which the identities of past iron producers can be explored through archaeological data, before considering the impact of interactions between different groups – whether iron producers or iron users – on iron production technologies and artifact style. Through a careful combination of archaeological, analytical and ethnoarchaeological research, it is possible to identify groups and interactions in past metal-working technologies, with a view to gaining a broader appreciation of past social relationships.

Iliev, Ilia [40] see Connor, Simon

Iliff, Jeremy [358] see Hronec, Laura

Iliopoulos, Ioannis (Department of Geology, University of Patras) and Albert J. Ammerman (Department of Classics, Colgate University, U.S.A.)

A Characterization Study of Some of the Earliest Ceramic Building Materials from Sites in Rome and Its Surrounding Area

Roman roof tiles and architectural terracottas constitute an important resource for the study of the architectural development of early Rome, through the detection of different sources and perhaps workshops in the region of the Roman capital. Unfortunately, the location of possible clay sources available to the Roman tile-makers has been obscured due to the city’s extensive urbanization. However, a drilling project in the area of the Roman Forum and other sites offers important evidence of clayey levels in an ancient valley close to the River Tiber and access to these has permitted their integrated study by means of petrography and chemistry. So far 132 tiles and architectural terracottas dated between 7th - 6th centuries B.C. have been studied by means of petrographic and chemical analysis (INAA). More than half of them come from 11 sites in Rome and the rest are from the broader region. The integration of the petrographic and chemical approach has allowed the identification of four main ceramic fabric groups and some smaller subfabrics. Their comparison with the raw materials, as well as to tile wasters recovered from the area of Tarquinia, shed light on ancient tile production and distribution.

Illingworth, J. S. [114] see Adovasio, J. M.

Imfeld, Sarah [194] see Hirth, Kenneth
Ingalls, Victoria (The University of Texas at San Antonio)

[338] The Power and Narrative of Liminality: The Quadripartite Badge in Maya Iconography

Ancient Maya iconography primarily depicted elite individuals in idealized states of being and rationalized their power and authority through ideological concepts. This study reexamines previous assumptions made concerning the Quadripartite Badge. This motif is examined based on iconographic associations and contexts, as well as temporal and spatial distributions. The spread of this motif is demonstrated through time and its spatial distribution is noted for its political consequences. It is established that elite women from Tikal and Calakmul disseminated this iconography. This was done most frequently by marriage alliances, as seen in the number of newly ‘arrived’ women carrying the Badge. Other iconographic associations of the Badge revealed a strong association with the Maize God and the cyclical nature of agriculture. For the continuation of the maize cycle and renewal of universal forces, sacrifice was required; the completion of ritual sacrifice was demonstrated through the depiction of the Quadripartite Badge. Indicating the liminal status of its user, it is frequently placed in scenes of transformation and rites of passage. This one expression of power simultaneously validated earthly and otherworldly power, ensuring the continuation of the cosmos, the perpetuation of the sun and maize cycles, and favorable dispensation from the gods.

Ingram, Scott [304] see Hunt, Robert

Ingram, Scott (University of Texas at Arlington)

[333] How Archaeologists Can Identify Human Resilience and Vulnerability to Climatic Conditions

If interdisciplinary concepts such as resilience and vulnerability are to be useful to archaeologists, then understandable methods of identifying these complex social phenomena are needed. Archaeological approaches that use familiar methods and material indicators can be used to explore these topics. This presentation will demonstrate how both human resilience and vulnerability to climatic conditions can be identified using changes in residential abandonment rates and food storage behavior. When regional-scale and long-term data on these behaviors are compared to paleoclimatic records of changes in climatic conditions, resilience and vulnerability to these conditions can be identified, compared, and quantified. Examples and results of the application of the method in the North American Southwest will be presented.

[333] Chair

Inomata, Takeshi (University of Arizona)

[196] A Revised Kaminaljuyu Chronology and Its Implications for Social Processes

An evaluation of new and existing data indicates that the Middle and Late Preclassic portions of the Kaminaljuyu chronology need to be shifted 300 or 400 years later. This paper primarily examines relevant radiocarbon dates and then discusses the implications of this revision for our understanding of how centralized polities with rulership developed in the southern Maya area and in the Maya lowlands.

[285] Discussant

Inoue, Hiroko (University of California-Riverside), Christopher Chase-Dunn (University of California-Riverside), Eugene Anderson (University of California-Riverside), Alexis Álvarez (University of California-Riverside) and Christian Jaworski (University of California-Riverside)

[291] Comparing World-Systems: Empire Upsweeps and Non-core Marcher States Since the Bronze Age

This is an examination of one of the implications of the hypothesis of semiperipheral development: that major increases in the sizes of polities have been attained by the conquests of semiperipheral marcher states. We use the comparative evolutionary world-systems perspective to frame our study of upsweeps of the largest polities in four regional world-systems and in the Central system since the
Bronze Age. Each of the twenty-two identified upsweeps is examined whether it is an instance of a semiperipheral marcher state formation. The hypothesis of semiperipheral development holds that polities in between the core and periphery have been fertile locations for the implementation of organizational and technological innovations that transform the scale and the developmental logic of world-systems. This is because semiperipheral polities have less investment in older institutional structures than do core polities and greater incentives to take risks on innovations. In the marcher state formation, a recently founded sedentary polity on the edge of an older core region conquers the core and builds a core-wide empire that is significantly larger than earlier polities have been. We find that over half of the twenty-two empire upsweeps were likely to have been produced by the semiperiphery or periphery marcher states.

Intoh, Michiko (Michiko INTOH (Professor))

Clay and Technology: Micronesian Ceramic Tradition

Pottery tradition in Micronesia was diverse in terms of technology, due to various factors, such as historical and/or cultural reasons and the natural environmental conditions. Above all, the nature of clay resource available to the potters has significant effect upon forming techniques and products. Thanks to William Dickinson’s wide-ranging geological knowledge and active involvement in mineralogical studies of excavated pottery from Oceania, our understanding on prehistoric pottery technology has significantly been developed. This paper examines the technological variation of prehistoric pottery makings described in Micronesia, focusing on the tempering technique in particular. All the early pottery traditions identified in high islands of Micronesia have fine beach sand (most are calcareous) mixed in the clay as a temper. This tradition was comparable to the early Lapita pottery traditions in Melanesia and western Polynesia. The subsequent changes observed in Micronesian pottery were diverse. It is most probable that the technological alterations to avoid using calcareous sand temper had caused the variations in technology and in the products.

Iriarte, José [157] see Cárdenas, Macarena L.

Iriarte, Jose

A Multi-Proxy Approach to Investigate Human-Plant Interactions in Amazonia: A Case Study from the Llanos de Moxos

This paper summarizes the results of a multiproxy study on the past human impact of Late Holocene peoples across different regions of the Llanos de Moxos. In the Monumental Mound Region, paleoecological data show that the savanna soils were sufficiently fertile to support crops; maize being a predominant one. Macrobotanical remains from mound habitation sites in this region documented the presence of maize (Zea mays), squash (Cucurbita sp.), peanut (Arachis hypogaea), cotton (Gossypium sp.), and palm fruits (Arecaceae). Microbotanical results confirm the widespread use of maize, along with manioc (Manihot esculenta), squash, and yam (Dioscoreaa sp.). These results represent the first comprehensive archaeobotanical evidence of the diversity of plants cultivated, processed, and consumed by the prehispanic inhabitants of the Amazonian lowlands of Bolivia. Investigations in the geometric earthworks that occur in the Bella Vista region show that in what is today land covered by terra firme forest, the inhabitants exploited a naturally open savanna landscape that they maintained around their settlement despite the climatically driven rainforest expansion that began—2,000 yr ago across the region. The benefits of these multiproxy approaches are discussed.

Irish, Mark (University of California, San Diego)

Unit-Stamped Red Jars in the Southern Lowlands: New Insights into Ceramic Production and Exchange

Monochrome red jars and bowls featuring unique unit-stamped designs have been excavated from
Late Classic contexts throughout the southern Petén and the areas surrounding the Maya Mountains. Adorning apparently utilitarian vessels, these unit-stamps show both a consistency in size and application across their spatial range, as well as a great diversity in the preferred motifs depicted. Combining a new ceramic chronology developed at Lubaantun and data from across southern Belize and the southern Petén, this paper seeks to understand how the unit-stamp designs and the vessels they adorned varied spatially and temporally. An attempt is also made to establish if one area in particular was the progenitor of the monochrome red unit-stamped system, or if it developed in situ across multiple sites in the Southern Lowlands. Additionally, the new data are compared to the dominant polychrome types from the same area to determine the variation between elite and non-elite exchange networks. From both the new and reinterpreted data, new explanations of the relationships between elite and non-elite pottery production and exchange from the Late Classic Maya Lowlands are explored.

Isensee, Theron, Christopher Webster and Roger Werner

The Benefits of Virtual Offices for a 21st Century Cultural Resource Management Consulting Firm

In today's day and age, we have created technology to help benefit our interaction, our communication, streamline our workload and increase our work output. The need to be in person or in house all the time as a business has changed. A company is able to save resources by allowing employees to work on their own schedule, but yet still accomplish all of the tasks and workload, and exceed deadlines, by being virtual. This form of business leads to a more relaxed and happier lifestyle for those employees involved. Having a virtual business and/or virtual office gives you the ability to be flexible, on the go, more energized, and more relaxed. This way of business allows you to accomplish more without having the huge overhead of those "in house" companies. It allows a company to invest in more travel, marketing, promotions, and equipment which allows the business to succeed even better. There are multiple companies and business owners that live by the virtual office and their companies are thriving like crazy!!

Isla, Johny (ANDES - Centro de Investigación para la Arqueología y el Desarrollo) and Markus Reindel

Un nuevo patrón arquitectónico de la cultura Paracas en la sierra sur del Perú

En nuestras recientes investigaciones de la cultura Paracas en la vertiente occidental de los Andes del sur del Perú hemos encontrado un nuevo patrón arquitectónico, cuyo elemento básico lo constituye una estructura en forma de D, que se encuentra combinada en número de dos, tres y más elementos. En el caso ideal se forma un círculo perfecto, generalmente sobre una colina artificialmente modificada, y alrededor de un patio hundido. En el sitio de Cutamalla se han identificado doce complejos circulares, de unos 40 m de diámetro cada uno. Durante las prospecciones en la sierra de Lucanas se han identificado por lo menos ocho sitios más con complejos similares, formándose así un patrón arquitectónico recurrente y bien establecido. Por el tamaño de sus componentes y su ordenamiento formal y repetitivo, este nuevo patrón arquitectónico de la cultura Paracas se podría denominar como monumental. Todavía se desconoce la función de las estructuras circulares. Por el momento parecen ser exclusivas de la región de Lucanas. Existe un vínculo con tradiciones arquitectónicas de la sierra sur del Perú y del norte de Bolivia, de las cuales, sin embargo, nos faltan todavía datos concretos para establecer comparaciones de mayor envergadura.

Islas Orozco, Mirsa Alejandra [298] see Mancilla Medina, Margarita

Ivanova, Maria (University of Heidelberg) and Elena Marinova (Royal Belgian Institute for Natural Sciences)

Heading North: Landscape Use and Food Technology at the Initial Stage of Farming Expansion in the Balkans

During the spread of farming from the Near East to Europe, farmers and their domestic plants and animals gradually penetrated into new environments. Reaching the northern periphery of the Balkans (present day Serbia, northern Bulgaria, Romania and Hungary), early farmers encountered for the
first time an ecological zone that significantly differed from the natural habitats of their domesticates. The continental environmental conditions, i.e., frosty winters with snow cover, stronger expressed seasonality, diverging precipitation regimes, for example, must have put considerable pressure on their traditional farming system, calling for biological adaptations in the plant and animal populations. Instead of biological adjustments, however, a rapid cultural adaptation ensued. In comparison to the areas of origin in Anatolia and the southern Balkans, diversity of crops was radically reduced, the composition of herds changed, and the use of wild resources became increasingly important in the northern Balkan peninsula. The modifications in the food economy were accompanied by a transformation in the traditional ways of storing, processing, and consuming food. In this paper, we explore the emergence of distinct strategies of landscape management, food acquisition, and food processing with the initial adaptation of farming to European continental conditions.

Ives, John (University of Alberta) and Gabriel Yanicki (University of Alberta)


We are currently undertaking new investigations of the Promontory Cave 1 and 2 (Great Salt Lake, Utah) collections Julian Steward excavated in the 1930s along with renewed excavations in both caves to explore Steward’s suspicion that these A.D. 13th century assemblages were created by migrating ancestral Apacheans. Artifacts for gaming are richly represented, including a ball, hoops, feathered darts, cane, wooden, and beaver tooth dice, and markers or counting sticks; a guessing game using buried moccasins may also have been played. Rather than simple recreation, such games often figure in ceremonial contexts, while the geographic scope for commonalities in the gaming pieces is vast, suggesting another aspect of their play. In Native North America, the gambling that frequently accompanied these games often took place between members of different communities with ambiguous relationship prospects, becoming more acceptable with increased social and kinship distance. The ubiquity of the Promontory gaming materials may reflect an “enemy-friend” relationship with neighboring groups such as those found at the nearby terminal Fremont site of Chournos Springs. Gambling can only provide such a medium when the games played are mutually intelligible. Thus, gaming materials can serve as an archaeological proxy for sociodemographic interaction, particularly in migratory contexts.

Ivic de Monterroso, Matilde [242] see Popenoe Hatch, Marion

Izeta, Andres Dario [35] see Cattaneo, Roxana

Izquierdo Egea, Pascual [86] see Anaya Hernandez, Armando

Izuho, Masami [53] see Terry, Karisa

Izuho, Masami (Tokyo Metropolitan University), Ian Buvit (Central Washington University), Takeyuki Ueki (Chiba Institute of Science), Gunchinsuren Byambaa (Institute of Archaeology, Mongolian Academy of Science) and Tsogtbaatar Batmunkh (Institute of Archaeology, Mongolian Academy of Science)

[53] In Search of Upper Paleolithic Sites in Alluvial Contexts in the Tsukh (Chikoi) Valley, Northern Mongolia

Mongolia, located at a key crossroads for human migration between central, eastern, and northern Asia, is important for understanding a number of current hotly debated archaeological topics, including the possible human exodus out of northern Eurasia at the Last Glacial Maximum (24,000-18,000 cal yr BP), the emergence of microblade technology as an adaptation to extremely cold and harsh environmental conditions, and the route and process of an initial modern human migration into high latitudes (and ultimately into the Americas). Notwithstanding the significance of Upper Paleolithic research in Mongolia, the ages of many sites are not supported by reliable geochronological evidence due to their poor preservation in colluvial contexts. In 2013 a team of Mongolian, Japanese and American researchers began survey and initial testing of sites along the
Tsukh, or Chikoi in Russian, River where a number of high, stable alluvial terraces have been identified. Here we present the initial results of subsurface testing at the Bayantsagaan’uul-1 site (49°45'29"N, 107°31'51"E) and pedestrian survey along the river.

Jabbour, Rebecca [132] see Cirillo, Laura

Jackson, Sarah [142] Human-Object Relationships in Classic Maya Contexts: Object Technologies, Political Participants, and Cultural Infrastructures
This paper examines the foundational cultural infrastructure provided by seemingly quotidian objects in Classic Maya (ca. A.D. 250-900) contexts. These materials (things like ceramic vessels, stone benches, and mirrors) carry out prosaic tasks (e.g., containing, supporting, reflecting), but also higher-order relational work, taking on roles as non-human “persons,” and as partners in social relationships. In this paper, I focus on these human-object relationships in order to recast our view of objects and their technological significance, and to frame Maya political systems as structured around both human and non-human participants. To do this, I look at representations of human-object relationships on Classic-era painted ceramic vessels and carved stone monuments. In particular, I examine moments of interaction and intersection, including bodily engagement and communication between people and objects, in order to address several related questions: What kinds of work are these objects carrying out? How are humans and objects involved in mutually constitutive ways? What do we learn about the technology of objects and their role in providing underlying cultural infrastructure in ancient polities through examining the dynamics of their efficacy on short and long time scales (including the contexts necessary for their successful functioning, and moments of apparent material failure)?

Jackson, Brittany (Department of Anthropology, UCLA), Jacob Bongers (Cotsen Institute of Archaeology, UCLA), Susanna Seidensticker (Department of Anthropology, UCLA), Terrah Jones (Cotsen Institute of Archaeology, UCLA) and Gail Kennedy (Department of Anthropology, UCLA)

Bioarchaeology of the Chincha Kingdom: Life History Patterns in a Chullpa Population from the Late Intermediate Period and Late Horizon mid-Chincha Valley, Peru
This paper considers evidence for population health and lifestyle in the Chincha polity during the Late Intermediate Period (LIP) (ca. 1000-1400 A.D.) and Late Horizon (LH) (ca. 1400-1532 A.D.). Beginning with the Chroniclers, scholars have described the Chincha as a large complex society with population organized into distinct economic sectors (e.g., coastal fishermen, merchant core, and inland agriculturalists). Previous archaeological studies have demonstrated evidence for fishermen and artisans in the lower valley, but no evidence for life outside of the lower valley has been considered. Following an upper valley archaeological survey and previous demographic study on human remains, a bioarchaeological survey of a looted communal tomb in the mid-Chincha Valley provides a first glimpse into health status among populations outside previously studied areas. We identified over 115 individuals of all age and sex groups and collected data on health status and trauma in that population. Here, we compare our evidence to regional trends and consider evidence for workload within the context of horizontal social organization among the Chincha. Future work will further explore lifestyle dynamics in the mid- and upper-valley and seek to interpret the role of these populations in the larger social and economic structure of the Chincha Kingdom.

Jackson, Marie (University of California, Berkeley) and Gabriele Vola (Cimprogetti S.p.A., Via Pasubio 5, 24044, Dalmine)

Lime Preparation in Ancient Roman Architectural and Marine Mortars
Romans prepared lime for the volcanic ash mortars of conglomeratic concretes using methods (Vitruvius, de Architectura 5.1.2-3) that are reflected in modern Italian lime industry terminology. In mortars of architectural concretes in Rome (1st century B.C.E.–3rd century CE) builders mixed
quicklime with freshwater to form stiff putty (grasello di calce) and then incorporated moistened scoriaceous ash, shown by an experimental reproduction. Pure calcite in unburnt particles (incotti) suggests pre-orogenic Jurassic-Cretaceous limestone of the Monti Sabini 30km northeast of Rome, rather than syn- and post-orogenic Cenozoic carbonate deposits with detrital silicate minerals. High calcium lime (94 wt% CaO) was likely calcined at the quarry; no marine limestone aggregate occurs in the concretes. In mortars of maritime harbor concretes (1st century B.C.E.–2nd century CE) drilled by ROMACONS, builders used fine sand- to gravel-sized lime (zolle or greggio di calce) mainly calcined from local limestone, with high calcium compositions (Portus, Pozzuoli Bay), mixed calcic and dolomitic compositions (Cosa, Anzio, Egnazia, Caesarea, Alexandria) and, rarely, argillaceous compositions (Chersonessos). The lime was likely aged in freshwater (calce spenta e maturata), mixed in a trough with pumiceous ash, and submerged in submarine forms. Carbonate rock is the predominant aggregate of eastern Mediterranean harbor concretes.

Jacob, Robert [8] see Urban, Thomas

Jacobs, David (Arizona State Historic Preservation Office), Arleyn Simon (Arizona State University), Owen Lindauer (Federal Highway Administration) and Glen Rice (Arizona State University [Retired])

[278] A Local Expression of “Salado” in Tonto Basin

"Salado" refers to a series of local expressions developed when populations were faced with the challenges of increased population sizes, migrants, and complexity. Local populations incorporated ceramic styles, iconography, architecture, and community organization from new arrivals and surrounding populations in ways that were adaptive and fostered integration. This brought migrants into the fold, albeit keeping them at a safe distance with limited participation and membership. To have excluded migrants would have led to attacks and raiding. Ceramic data, architecture, community rooms used for ritual observances, and burial data are used to examine one such local development in the Tonto Basin, Arizona.

Jacobs, Zenobia [294] see Cawthra, Hayley

Jacobsen, Geraldine [77] see Allen, Melinda

Jacobson, Nicole [207] see Knaub, Colene

Jacobson-Tepfer, Esther (University of Oregon, Mongolian Altai Inventory Project)

[353] Documentation of Rock Art Complexes in the Mongolian Altai: From the Unknown to World
Heritage Status

This paper describes the complex process of documenting two huge rock art complexes and a third very old complex, in the Altai Mountains of Mongolia. Previous to our work in this region at the Mongolian border with Russia and China, all three complexes were virtually unknown except to local herding populations. Our project began with a survey of a broad region in Bayan Ölgii aimag and the identification of the complexes on which we wished to concentrate our efforts. This initial phase was followed by the multi-year process of their documentation. Our project began before there were any detailed maps available for this border region. Our gradual development of appropriate mapping, using a variety of sources, coincided with building an analytical system that allowed us to divide each complex into manageable sectors and to link specific images and panels to GIS data points. Our system also allowed us to map specific motifs (e.g., vehicles, riders, wild bulls) and probable cultural periods across the complexes. This paper will conclude by briefly describing the analytical process we used to support the nomination (successful) of these sites for World Heritage status.

Jacoby, Lindsay [27] see Villarreal, Margarita

Jadot, Elsa [253] see Cohen, Anna

Jaffe, Yitzchak (Harvard University) [67] Colonial Developments in a Global Context- Complex Connectivity in the Western Zhou World

The period of Western Zhou (1046-771 B.C.E.) is often identified with the genesis of Chinese civilization. As the Zhou expanded their borders and influence they developed a Chinese political tradition that would eventually formalize and consolidate the elite culture and practices of this emerging world. While postcolonialism theory has been successful in highlighting the multidirectionality of regional interactions in the ancient world, globalization offers a wider approach, geographically and temporally, that is most beneficial for cases of colonial contact among larger scale processes of supra-regional developments. The state of Yan 燕 - an important polity established by the Zhou - provides a case study for this new perspective on Western Zhou expansion: the bronzes found in the realm of the Yan polity are shown to have been locally used in a variety of ways that reflect a continued incorporation of Zhou material culture into indigenous communities, rather than the expansion of the Zhou power and the subsequent assimilation of local peoples. More than just a unique period of colonization, this paper finds the Western Zhou influence to represent an increased stage of interaction and connectivity within the larger process of globalization that preceded it.

Jaffee, Yitzchak [37] see Flad, Rowan

Jaimes, Gustavo [129] see Sugiura, Yoko

Jakobsen, Nicholas [80] see Martindale, Andrew

James, Emma (The University of Queensland), Erik Otárola-Castillo (Harvard University), Jessica Thompson (Emory University) and Shannon McPherron (Max Planck Institute for Evolutionary Anthropology) [139] Human Volunteers and Mechanical Arms: Quantitative and Comparative Analysis of Bone Surface Modifications Created by Humans and Machines

Zooarchaeologists use traces on bones to understand something about the ecology and subsistence behavior of our ancestors. Although we may not be equipped with the proper interpretive analogues to understand the possible range of roles hominins had in past ecosystems, numerous taphonomic studies have investigated the quantitative and qualitative characteristics of natural and cultural bone surface modifications (BSM). Most experimental taphonomic research relies on 'naturalistic' simulated situations in which bones have been trampled, gnawed, fed to various carnivores,
butchered, and shot at with projectiles. However, the physics behind the creation of a mark are poorly understood and difficult to control under these circumstances. This study holds constant the physical variables that affect actualistic assemblages, such as force of the strike, angle of the strike, or velocity of the strike, and measures how they translate to characteristics of BSM, such as their shapes and sizes. This is done for human experiments with volunteer butchers given specific instructions and in experiments using a mechanical arm where each individual variable can be held constant. Comparison of the two experimental datasets shows that mark attributes are governed by basic physics and that these laws can be applied to interpreting ambiguous marks in zooarchaeological assemblages.

James, Steven [282] see Bostwick, Todd

James, Steven (California State University at Fullerton) [282]  New Deal Archaeology at Buena Vista Lake in the San Joaquin Valley and the Sierra Madre Mountains: The 1933-34 CWA-Smithsonian Institution Project in Southern California

Perhaps the earliest Federal Civil Works Administration (CWA) archaeological project in California was conducted during the winter of 1933-34 at five sites along Buena Vista Lake in Kern County by the Bureau of American Ethnology (BAE), Smithsonian Institution. The project location was chosen for several reasons: mild winter climate, high number of unemployed men from nearby oil towns, and large, deep prehistoric sites. At the height of the excavations, the labor force amounted to 187 men. BAE archaeologists William D. Strong and William M. Walker directed the work, with field supervision by Edwin F. Walker (Southwest Museum), and UC Berkeley graduate student Waldo R. Wedel, who later wrote the final report. As an outgrowth of the project and in order to determine the boundary between the Yokuts and eastern Chumash, Strong conducted a two-week archaeological reconnaissance in nearby Cuyama Valley and the Sierra Madre Mountains with local cattle rancher James G. James, who had explored archaeological sites in the region containing well-preserved perishable artifacts and was a distant relative of the author (my grandfather’s first cousin). The significant results of the CWA-Smithsonian Buena Vista Lake project and subsequent survey by Strong and James are discussed in this presentation.

James, Vivian (University at Albany) [397]  “Of What Use Is a Bear?”: Examining Black Bears (Ursus americanus) as a Capitalized Resource in Northeastern North America during the Woodland and Colonial Periods (A.D. 1300-1800)

One of the largest terrestrial mammals in Northeastern North America, black bears (Ursus americanus) were an important dietary component throughout the Woodland and Colonial Periods (A.D. 1300-1800). Previous research has demonstrated an increase in the frequency of black bear remains recovered from archaeological sites in New York State that have been dated to this five hundred year period. Primarily interpreted as a subsistence resource, the use of black bear secondary products has been acknowledged, but not fully discussed in the literature. Black bears and ursine secondary products were valued as a commodified resource in both Iroquoian and European capitalized economies. Trade networks are not limited solely to economic capital, but also rely on social, cultural, and other forms of capital to develop and maintain economic structures. This study, which focuses on black bears as both an Iroquoian and European resource in what is now New York State, reviews literature related to archaeological black bear remains and secondary black bear products as well as relevant historical documents within a framework of anthropological economic theory to demonstrate that black bears were increasingly capitalized in Northeastern North America during the Woodland and Colonial Periods within both social and trade networks.

James Tait, Elder [358] see Sparks, Shane

Jameson, John H (ICOMOS ICIP) [405]  The New Public Archaeology: Evolving Concepts in International Public Archaeology and Interpretation
In this presentation I discuss evolving concepts in public archaeology and interpretation. I give two examples, one from South Carolina, USA, and the other, as of early 2014, in Crimea, Ukraine, on how these concepts have been proposed and applied at sites and parks. In many parts of the West, the overarching trend is an increasing involvement of non-professionals in planning and carrying out archaeological and cultural heritage studies and public interpretation. We look at three evolving concepts in public archaeology: Activist Archaeology; Inclusive Public Interpretation and Presentation; and Sustainable Cultural/Archaeological/Heritage Tourism. Outside the West, when these principles are introduced, for cultural and political reasons, many sites and parks are challenged to adapt and may even reject them. In these arenas, our continuing exchanges of experience and concepts, our collegial collaborations, can build trust as lessons are learned on both sides about the international applicability and feasibility of these principles.

Janaway, Rob [19] see Groen, Mike

Janetski, Joel [85] see Coltrain, Joan

Janetski, Joel (Brigham Young University)

Antelope Cave and Far Western Anasazi Lifeways of the Virgin River Region

The dry deposits of Antelope Cave on the Uinkaret Plateau in northwestern Arizona have yielded a rich artifact assemblage and abundant faunal and botanical remains dating to the late Archaic, Basketmaker II, and especially late Pueblo I/early Pueblo II times. The collections recovered through archaeological work provide especially useful insights into Ancestral Puebloan life in this region. These activities include rabbit drives for food and the production of rabbit skin textiles, sandal repair and perhaps construction, and evidence of wide ranging forays for food and raw material for various material goods. The subsistence-related data sets demonstrate the importance of hunted prey, farming, and gathered foods. These data provide critical and rare perspectives on resource use that contrasts starkly with many Virgin Anasazi sites to the north. These contrasts are particularly visible in the archaeofauna recovered from the cave when compared to assemblages along the Virgin River. Taken together the recovered record provides substantive evidence that Puebloan people practiced seasonal movements and the use of both wild and cultivated resources. This flexible subsistence strategy crosscut a diverse landscape and illustrates how Ancestral Puebloan people exercised their intimate knowledge of the land.

Jankauskas, Rimantas [207] see Page, Katherine

Janssen, Marco [221] see Barton, C. Michael

Janusek, John (Vanderbilt University)

The Earthly Production of Fleshy Subjects in the South-Central Andes

A specific range of human subjects, or fully socialized, moral persons- rigorously categorized according to age, sex, kinship, and so forth -are, of course, the most critical 'things' that any society seeks to produce. I investigate the production of prehispanic human subjects in the Lake Titicaca Basin of the South American Andes. To understand the emergence of the Middle Horizon center of Tiwanaku at around A.D. 500, I investigate the deployment of innovative spatial, material, and iconographic technologies that sought to create entirely new sorts of moral persons at the beginning of the Andean Middle Horizon. Indeed, those subjects produced the Middle Horizon that we archaeologically apprehend. I argue that Tiwanaku’s emergence correlated with the production of emergent moral subjects who subscribed to a novel, redemptive set of relational but also consumptive and even predatory practices. Becoming and remaining a fully moral Tiwanaku person was supremely contextual and fraught: it required continual return to a monumental landscape that emphasized both 1) the consumptive practices required to be a fully Tiwanaku subject and 2) the ritual violence required for that existential transformation.

Discussant
Janzen, Anneke (UC Santa Cruz) and Marie Balasse (Archéozoologie, Archéobotanique: Sociétés, Pratiqu)

Migrations and Exchange: Early Pastoral Mobility in Kenya Assessed Through Stable Isotope Analysis

Specialized pastoralism emerged in Kenya around 3000 years ago and has adapted with changes in the social and ecological landscape to this day. Ethnographic research has documented significant changes in herding strategies among pastoral groups throughout colonial and post-colonial periods. Stable isotope analysis sheds light on how crucial mobility was in maintaining herds before the appearance of iron-using and –producing peoples in the region. Intra-tooth sequential sampling of livestock tooth enamel presents an isotopic record of diet during tooth formation, and can thus track movements across the landscape. These analyses were conducted on enamel of livestock teeth from several Savanna Pastoral Neolithic sites in the Central Rift Valley and neighboring plains of Kenya. Some sites are clearly the result of specialized pastoralist pursuits, and other sites indicate a mixed economy of pastoralism and foraging. While carbon stable isotope ratios do not indicate seasonal altitudinal mobility up to higher elevations, this does not preclude herding of livestock long distances at low elevations. 87Sr/86Sr ratios can reflect movement across geologically distinct soil complexes. Recent analysis of the strontium isotope composition of livestock tooth enamel provides another line of evidence for pastoral mobility.

Janzen, Anneke [414] see Hildebrand, Elisabeth

Jarman, Catrine (University of Bristol)

Female Mobility in the Viking Worlds

Recent reassessments of the gender balance among Viking Age Scandinavian populations in the British Isles have suggested a greater presence of immigrant women than previously thought. At the same time, increasing support for a view of the Viking world as a diaspora, with a sustained network between the original and the acquired homelands, has necessitated a better understanding of the mechanics of the migration process. This paper evaluates interdisciplinary evidence for the level of mobility among women in the Viking world, through an evaluation of archaeological, historical, and scientific data from Northern Europe. 87Sr and 18O isotope data from burials from central Norway suggest that the level of mobility among women may have been higher than suggested historically. 13C and 15N dietary analysis demonstrates diverse, non-gender specific diets from the same region. This questions the traditional interpretation of strict gender roles during the Viking Age, in which women were largely excluded from the outward expansion from Scandinavia. The paper argues that women were active participants in the migration process, both through the creation of alliances forged to strengthen ties between homelands old and new, and as communicators of culture and social identities within the Viking diaspora.

Jarman, Jarman [191] see Popp, Brian

Jarry, Marc (INRAP University of Toulouse France), François Bon (University of Toulouse France TRACES UMR5608), Laurent Bruxelles (INRAP University of Toulouse France), Céline Pallier (INRAP University of Toulouse France) and Lars Anderson (University of Toulouse France TRACES UMR5608)

Aurignacian(s) in the Mas d’Azil Cave (Ariège, Pyrénées, France)

Mas d’Azil cave is one of the most important karstic landmarks in southwestern France. This prehistoric research hotspot is mainly famous for evidence of Magdalenian and Epipaleolithic cultures, but recent researches were confirmed the existence of traces of the oldest occupations of the Upper Paleolithic, poorly documented so far. In this case, the discovery of an in situ cultural sequence containing older and recent Aurignacian opens up largely new possibilities. First, because the cave contains a chronological sequence never recognized in earlier work; this sequence revealed by recent surveys confirms the presence of an older Aurignacian (cf. Péquart's excavations
in the “Silex Gallery”), while providing the first evidence of recent occupation phases, which has no known regional equivalent. Second, these observations cast new light on a context that, for the Aurignacian, is greatly lacking in the French central Pyrénées; that of a vast cavity at the bottom of a deep valley that possibly corresponds to another settlement type in the territory; significantly different from (and complementary to) the "small" caves often "perched" in the landscape, which is by far most of the information we currently have to describe this culture in this region.

Jarvi, Forrest [276] see Roth, Barbara

Jaworski, Christian [291] see Inoue, Hiroko

Jazwa, Christopher (Pennsylvania State University), Lorne Leonard (Pennsylvania State University), Chris Duffy (Pennsylvania State University) and Douglas Kennett (Pennsylvania State University)

[32] Freshwater Availability and Prehistoric Settlement Patterns on California’s Northern Channel Islands

An important variable that influenced prehistoric human settlement patterns on California’s northern Channel Islands was the availability of freshwater. Existing models of settlement use watershed size as a proxy for water availability. However, in semi-arid regions, this approach has limitations because ephemeral streams common in these environments may lose much or all of their flow to groundwater. We have developed a hydrological model that incorporates measured and modeled geospatial/temporal data for climate (precipitation, solar radiation, wind speed, relative humidity, temperature), soils, vegetation, and topography to simulate the complex land-surface-groundwater behavior of island hydrology. We also discuss the role of fog and fog-drip as a freshwater input into this system. We discuss the implications of this model for the location of permanent settlements on the northern Channel Islands during the past 5,000 years. Climate projections are constructed as input to the model for hypothetical 100-year intervals that represent wet, dry, and average conditions.

Jeanety, Naphtalie (University of California, Berkeley)


The historic archaeology of US cavalry forts in the 19th century allows for exploration of a wide range of social issues and historical questions. Using examples from Fort Davis, Texas, this study analyzes Buffalo Soldier troops stationed there from 1867-1891. It presents results of an investigation of male identified homosociality within black communities by tracing male relationships within 19th century gendered labor spaces. A queer perspective allows this research to focus on the bonds and relationships amongst African American soldiers that did not subscribe to traditional heteronormative practice. Because so often these relationships are obscured within documentary and material record, this paper engages with queer politics that aim to address queer identities within African American communities- both historic and modern.

Jelinek, Lauren (Bureau of Reclamation), Jon Czaplicki (Bureau of Reclamation) and M. Scott Thompson (Arizona State University)

[123] The Digital Legacy of Public Archaeology in the Phoenix Basin, Arizona

Federal undertakings, particularly flood control and water transmission projects, have served as the impetus for some of the largest public archaeology projects in Arizona since the 1950s. The Central Arizona Project, a 336 mile diversion canal that distributes water from the Colorado River into central and southern Arizona, was the largest and most costly transmission system constructed in the United States. It took nearly 25 years to identify and mitigate the cultural resources within the project area, which in turn generated an enormous amount of archaeological and ethnographic data, only a fraction of which was readily accessible to scholars in regional libraries. Since 2009, the Bureau of Reclamation has been working with the Digital Archaeological Record (tDAR) to create an online digital library of Central Arizona Project (CAP) archaeological reports. Currently, Reclamation has made 130 records available through tDAR. The CAP records have received 27,000 views and 1,200 downloads, numbers which attest to the continued importance of this project within the
archaeological community. By partnering with tDAR, Reclamation continues to ensure this project’s legacy and facilitate use of project data for current and future research projects.

[161] Discussant

Jenkins, Emma (Bournemouth University), Carol Palmer (Council for British Research in the Levant), John Grattan (University of Aberystwyth), Samantha Allcock (Bournemouth University) and Sarah Elliott (Bournemouth University)

[210] An Integrated Phytolith and Geochemical Approach to Understanding Activity Areas and the Choice of Building Materials in Neolithic Sites Using Ethnographic Analysis

The Neolithic in southwest Asia is an important period in human history which saw the advent of sedentism, agriculture, and ultimately the rise of complex societies. It is also, however, one of the most poorly understood. This is partly due to problems associated with site recognition and partly because of the lack of preservation of many forms of evidence, particularly biological. As a result, many Neolithic sites are comprised of a series of structures, the construction and function of which is difficult, if not impossible, to unravel. With this in mind we have been developing an integrated method to increase our understanding of such sites based on more durable forms of evidence, i.e. phytoliths and geochemical elements. Using an ethnographic approach we sampled a number of buildings from a recently abandoned mud and stone constructed village in Jordan, to help us understand building construction and to establish if different activity areas have specific phytolith and geochemical signals. We then used the results of this analysis to help us interpret the Neolithic sites of WF16, Beidha and Ain Ghazal.

Jenks, Kelly (Fort Lewis College)

[99] Simulating Engagement: Teaching Students about Stakeholders

In my introduction to archaeology class, one of the most difficult topics to make my students understand and care about is the role of stakeholders in shaping archaeological research. This subject is simply not engaging in a lecture format. So, instead of lecturing about diverse perspectives, I ask students to participate in a simulated stakeholder meeting. The recent controversy over the development of fracking at Chaco Canyon provided the inspiration for my hypothetical scenario, in which multiple stakeholders are asked to weigh in on a proposal to allow hydraulic fracturing in an area rich with cultural resources. Students are assigned the role of a stakeholder, provided with basic background information, and given one week to research their role before the simulation. Afterwards, they are asked to reflect on their experiences in a response paper. In this poster, I describe the activity in greater detail, offer my own reflections on its successes and failures, and make suggestions about how it might be adapted to suit other audiences.

Jennings, Richard [33] see Shipton, Ceri

Jennings, Thomas (University of West Georgia)

[148] Exploring the Relationship between Folsom and Midland Points in the Southern Plains

The relationship between Folsom points and Midland points in the Southern Plains remains an unresolved topic of debate. At the scale of individuals, it has been suggested that the fluted Folsom point was a symbolic object made by a person(s) of power to alleviate risk in hunts. Along similar lines, differences between Folsom and Midland points have been attributed to the relative skill differences between knappers. At a broader scale, some have questioned the association of Folsom and Midland, suggesting that the two might represent separate population groups or that Midland was a later development. Finally, some suggest that Folsom and Midland points were made by populations who switched from Folsom to Midland point production during periods of raw material scarcity. This paper uses current evidence to explore these hypotheses, focusing primarily on the latter two which are, in my view, the most likely explanations.

Jensen, Jacob [4] see Becker, Rory
Jensen, Anne (Bryn Mawr College) [302]  

Nuvuk, Birnirk, Utkiagvik, Walakpa and Beyond: All Those Sites Will Soon Be Gone 
These are all classic sites, but many of them were last excavated a half century or more ago. New questions and new methods require types of data that was not collected back then; additional excavation with finer provenience control is also needed. Such work has been undertaken at sites like Cape Espenberg, but only at the Nuvuk cemetery in North Alaska. The apparent assumption by those not working in the area has been that the sites were stable, and that there was no hurry. That is no longer the case. Erosion rates have increased tremendously, due to warming permafrost, sea ice retreat and longer ice-free seasons. Nuvuk is averaging a loss of 10 m a year. Coastal erosion exposed a house at Walakpa in 2013. Small scale salvage was done, and additional funding was sought to excavate the structure and associated area, but a single fall storm in 2014 destroyed the structure before funds were secured. This paper highlights a problem with current funding mechanisms. The review process is such that funds cannot be available to deal with an important endangered site during the next field season, even if a competitive proposal is prepared on very short notice.

Jeremiah, Kristen (Public Archaeology Laboratory, Inc. (PAL)) [281]  

Lithic Variation and Tool Technology at the East Pasture Site, Martha’s Vineyard, Massachusetts 
In 2003 the Public Archaeology Laboratory, Inc. (PAL) completed survey and data recovery excavations at the East Pasture Site, located immediately east of Menemsha Pond on Martha’s Vineyard, Massachusetts. The investigations revealed a multi-component site dating from the Early Archaic to Late Woodland/Contact Period, and recovered a total of 19,679 artifacts and 24 cultural features. The artifact assemblage was dominated (99%) by lithics, including debitage, projectile points, groundstone tools, raw materials, utilized flakes, cores, performs, unifaces, scrapers, choppers, blades, drills, and others. Of the total diagnostic projectile points, 71% were which William Ritchie defined as Late Archaic Squibnocket Stemmed in 1969. The contexts in which the points were recovered at East Pasture suggest a temporal association to the Late Archaic through Woodland Periods, which challenges the traditional association between Small-Squibnocket Stemmed projectiles and the Woodland Period on the Vineyard. This paper details the results of the investigations with emphasis on the recovered lithics and Archaic Period occupation.

Jerrems, William [150]  

The Rise and Fall of Lake Lahontan and the Climactic Implications for Paleoindian Inhabitants of the Great Basin 
The Lahontan Basin, a huge Pleistocene lake, located in the western Great Basin, northwestern Nevada, has had a long history of rising and falling water levels dependent on heavy precipitation and decreased evapotranspiration of the Pleistocene Ice Age climatic regime. Three subbasins occupy the western side of the Lahontan Basin and include Pyramid Lake, Winnemucca Lake and the Black Rock Desert-Smoke Creek subbasins; the focus of this presentation. The climatic implications of a filling and waning lake of such magnitude would have had a substantial impact on early inhabitants of the northern Great Basin. Recent evidence, a petroglyph panel on a tufa dome at the west shoreline of Winnemucca Lake, possibly the oldest artwork known in the Americas, has revealed a date of between 14,800-10,300 cal. yr. BP. This implies that the ancient lake had maintained a substantial high water level, filling all three subbasins for a much longer period of time than had been previously thought. These results have questioned the effect and duration of the Younger Dryas Chronozone particularly on Paleoindian habitation of the Lake Lahontan lakeshore and thus seriously questioned the archaeological interpretation of several early lakeshore sites.

Jeske, Robert [139] see Sterner-Miller, Katherine

Jessmore, Laura [54] see Motta, Laura
Jew, Nicholas [32] see Erlandson, Jon

Jewett, Maximilian (Burns & McDonnell)

[106] Using Unmanned Aerial Vehicles for Aerial Photogrammetry on the San Diego Coastline

Developments in Unmanned Aerial Vehicles (UAVs) over the past five years have allowed for their use among non-experts and the rapid development, at relatively low cost, of Unmanned Aerial Systems (UASs) or drones. UASs use the UAV platform to carry a variety of sensors. One of the most important developments coming from this technology is the ability to collect aerial photos for photogrammetry at relatively low cost. In an effort to better understand the uses, practical issues of operation, and future potential of UASs in archaeology this study will examine the process of acquiring and operating a large octocopter, data acquisition and data processing. The survey area is on the San Diego coast and is part of a larger effort by the Society of California Archaeologists (SCA) in conjunction with the San Diego Archaeology Society (SDAS) to map cultural resources at risk of damage by climate change.

Jiang, Leping [179] see Xie, Liye

Jigetts-O’Neill, Alexandra [21] see Turkon, Paula

Jimenez, Lissette (University of California, Berkeley)

[240] Variations on an Osirian Theme: Gendered Expressions of Identity in Osiris Funerary Shrouds from Roman Egypt

Throughout the Roman Period in Egypt, decorated shrouds with images of the god Osiris were used in mortuary rituals and wrapped around the mummified body of the deceased. Full-length painted images of the dead in the guise of Osiris, flanked by Egyptian funerary scenes, were effective modes of representation that reveal how gender was used to facilitate the transfiguration of the deceased and aid his or her journey in the afterlife. This paper examines gendered expressions of self-presentation and specifically investigates the iconography and composition of the Osiris funerary shrouds. An analysis of the inscriptions and representations of both males and females on the shrouds adds a new comparative dimension arguing that gender relations were fluid and dynamic—being made and negotiated through new and innovative magical and material resources. I explore the problematic relationships between death, Osiris, and the potency of masculine regeneration over feminine reproductive powers, and how these concerns were iconographically and textually addressed to preserve and commemorate the age and gender of the deceased. I conclude by revealing how the individualizing portraiture and the adaptable iconographic repertoire of the shrouds indicate a growing interest in the posthumous expression of gender and identity in Roman Egypt.

Jimenez, Diego (INAH: National Institute of Anthropology and History Mexico) and Salvador Ruiz-Correa (Centro de Investigaciones en Matemáticas)

[346] A New Classification of Masks from Guerrero Discovered in the Great Temple of Tenochtitlan

This paper focuses on a new kind of typological analysis based on a quantitative procedure called Spectral Clustering. This technique uses Graph Theory to analyze the eigenstructure of an affinity matrix in order to partition data points into disjoint clusters. The original algorithms were developed a decade ago by mathematicians and machine learning professionals. To the best of our knowledge, this technique has not been applied before in archaeology despite its proven performance in partitioning a collection of artifacts into meaningful groups. As a study case we choose a collection of stone masks from Guerrero but found in the remains of the Sacred Precinct of Tenochtitlan, the main ceremonial Aztec center. The schematic features of these objects set them apart from other artifacts with more naturalistic style. This has attracted the attention of many specialists and during the last three decades the style of these items has been the subject of intense debate. Through the
application of Spectral Clustering we were able to segment this collection into well-defined groups. In the future, this could lead to a better typology of this collection.

Jiménez, Socorro [86] see Bishop, Ronald

Jimenez Alvarez, Socorro [24] see Fernandez Souza, Lilia

Jiménez Fenández-Palacios, Belen [100] see Remondino, Fabio

Jimenez Roman, Karina (Centro I.N.A.H. Oaxaca) and Jorge Luis Ríos Allier (Centro I.N.A.H. Oaxaca) [111]  
Un acercamiento al estudio de las pinturas rupestres en el Cerro Danush, Oaxaca.

La presente investigación tiene como objetivo mostrar el trabajo realizado en el cerro Danush localizado en la comunidad de San Mateo Macuilxóchitl de Artigas Carranza, Oaxaca; el cual tuvo como eje principal conocer las características que comparten los paneles de pintura rupestre de acuerdo a su ubicación en el cerro Danush, tomando en consideración las singularidades del paisaje.

La importancia del estudio de las pinturas rupestres radica en que estas son una de las primeras manifestaciones que el ser humano dejó para la posteridad, que se plasmaron en abrigos rocosos y cuevas en los que se observan diferentes motivos pictográficos. También se describen los elementos paisajísticos ya que se consideran sus características importantes para los asentamientos prehispánicos, siendo el mismo hombre el que ha proporcionado una carga simbólica al espacio.

Jiménez-Cano, Nayeli (Universidad Autónoma de Madrid) [130]  
A Zooarchaeological Record of Ancient Fishes from the Maya: Evidence from Fish Bones in the Study of Ancient Fisheries

Large bodies of water surround the Maya Area, and its ancient inhabitants had close subsistence relations with the aquatic world by exploiting the resources that this scenario provided them. In this sense, fishes were one of the animals widely exploited by the ancient Maya and whose zooarchaeological study helps to uncover questions and pose new queries about their social and environmental uses. This paper gathers information about the archaeological presence of such resources from various settlements in the Maya Area. The occurrence of such animals is documented in at least 56 Mayan settlements from the Preclassic Period to Colonial times. Fish remains belonged to at least 78 species that were used for ritual, food and ornamental purposes. Also it evidenced the presence of a trade network between remote inland sites and coastal settlements. This corpus of information offers to explore a holistic zooarchaeological perspective of the ancient use of fishes and to lay the foundations of ichthyoarchaeological studies in the Maya Area.

Jin, Guiyun and Fuqiang Wang [283]  
Early Neolithic Plant Exploitation in East China

Early Neolithic plant exploitation is a key subject for understanding the subsistence strategies of late hunter-gatherers and early farmers. As archaeobotany has developed in China, plant remains, together with other ecofacts, have been recovered from several early Neolithic sites around Shandong Highlands, East China. Preliminary results show changes in the role of plant resources. At about 10000 year BP, the inhabitants of Bianbiandong Cave relied mainly on animal food with very small amount of plants. At about 9000 year BP, the Zhangmatun people exploited at least 38 species of plant resources on the floodplain near the mountains in the south. There have been very few animal remains recovered from this open-air site. At about 8000 year BP, the diversity of plant remains from Xihe and Yuezhuang site decreased to 19 wild species of plants but with 3 species of cultivated or domesticated cereals (rice, foxtail and broomcorn millet) and more than 20 species of animals which were dominated by fresh water creatures.
Jin, Hetian, Xu Liu (Culture Heritage and Archaeology Institute of Yunn), Rui Min (Culture Heritage and Archaeology Institute of Yunn), Xiaorui Li (Culture Heritage and Archaeology Institute of Yunn) and Xiaohong Wu (School of Archaeology and Museology, Peking University)


In 2010, flotation work was carried out at the site of Dadunzi in the Chuxiong Yi Autonomous Zone. A number of crops were recovered from this work including: foxtail millet, broomcorn millet and rice, as well as weeds originating from both fields and the natural environment. The results of the flotation show that at 4000 BP, that the Yuanmou site had already entered a phase of agricultural production and the majority of the diet of the inhabitants of this site came from these three crops. Agriculture at Dadunzi appears to have been of a mixed strategy of both upland dry field and wetland agriculture. Upland agriculture originated from Northwest China, while rice agriculture on the other hand is hypothesized to have entered this region from areas to the east and slightly north.

Jobbova, Eva (UCL)

[130] New Research into the Dynamics of Human-Environment Relationships in the Maya Region

Despite recent debates and new analytical opportunities in Maya archaeology provided by developments such as increased amounts of paleoclimatic data, the growing field of settlement archaeology and advances in Maya epigraphy, we still know very little about either short or long-term dynamics of human-environment relationships in the Maya region: for example, the choices humans make in response to extreme variability in rainfall patterns or changes in soil conditions. Does society become increasingly complex? Is collapse inevitable? Do people simply move, and if so, do their ideological and religious beliefs change, or do they remain the same? This paper responds to some of above-mentioned debates and attempts to address a continuing void in our knowledge of how the Maya responded to environmental variability. I examine changing Maya settlement through time, cultural and political trajectories through epigraphy, short-term ethnographic evidence for Maya community responses to recent environmental stress and long-term climate proxies. My presentation focuses on relationship between Maya society and the local environment over the long-term, from the Classic (c. 250 to 900 A.D.) to the Early Colonial (1500/1600 A.D.) period, while also taking into account socio-cultural agencies via information from the written record.

Jochim, Michael (Univ of Cal - Santa Barbara)

[40] A Lacustrine Revolution: Adaptive Shifts in the Late- and Postglacial of South Central Europe

The environmental changes in Europe at the end of the last ice age had profound effects on human populations. One of these changes, the development of numerous lakes in the region north of the Alps, created new habitats and niches that were rapidly exploited, with significant effects on many aspects of behavior. The record of environmental and archaeological changes in Switzerland and southern Germany are examined with an emphasis on subsistence, technology, and land use.

Johannesson, Erik (Pacific Lutheran University)


This paper examines the intersection of mortuary ritual and beliefs, at the edge between funerary ideology and religion. The formation of the Xiongnu polity in the 3rd century B.C.E. in what today is Mongolia included the introduction of new funerary regimes that conspicuously upended previous mortuary traditions. Xiongnu mortuary practice breaks a millennium-long convention of east-west orientation of funerary monuments and accompanying inhumations, the creation of visibly prominent and highly variable stone monuments, and a general low investment in grave-goods in the funerary assemblage. Instead, Xiongnu mortuary monuments are oriented north-south, are placed in areas with low visibility, shift the locus of material and labor investment, both quantitatively and qualitatively, to the funerary assemblage, and introduce marked standardization throughout the
funerary repertoire, from monument form to the inclusion and placement of grave-goods. Here I question if Xiongnu mortuary practices represent the introduction of new religious ideas, and argue that they imply the strategic implementation of new ideational constellations that subvert the instantiation of commemorative narratives celebrating local lineages of leadership. While Xiongnu funerary repertoires may have referenced new cosmological beliefs, they above all stressed the adoption of, and inclusion in, a distinctively “Xiongnu” political economy.

Chair

Johansen, Peter (University of British Columbia) and Andrew Bauer (University of Illinois)

The Techno-politics of Water and Iron: Resource Materialities in South Indian (Pre)History

Water management and iron production were two socio-material practices deeply entangled with the politics of emerging social distinctions during the South Indian Iron Age. Beginning with small well-distributed modified rock pools and systematically dispersed iron-smithing facilities, Iron Age social actors laid specific claims to the materials, places and technologies of water management and iron production. This created and maintained a constellation of social differences and affiliations. Stepping back from a political economy of resource production, however, our interest here is with the dynamics of relational resource assemblages (e.g., materials, practices, infrastructures, knowledge) and their historical and ecological constitution. Here we investigate how the ‘distributedness’ of these assemblages both enables and constrains social and ecological conditions. In doing so we interrogate the interwoven relationship between the politics of resource production and the materiality of process, exposing a techno-politics that is uniquely disposed to this region’s ecology and history. We begin with the earliest archaeological evidence of water management and iron production during the South Indian Iron Age and end in the ethnographic present exploring how shifting orientations of assemblage components affect the value, meaning and experience of water and iron production, technology and consumption.

Johansson, Lindsay (University of Colorado, Boulder), Sara Cullen (University of Colorado, Boulder), Kaitlyn Davis (University of Colorado, Boulder), Rachel Egan (University of Colorado, Boulder) and Scott Ortman (University of Colorado, Boulder)

Engaged Anthropology at Cuyamunge, New Mexico

In 2014 the Pueblo of Pojoaque and University of Colorado-Boulder began a collaborative project at Cuyamungue (K’uuyemughe ‘stones falling down place’), an ancestral Tewa village. The goals of the project are to increase awareness of local ancestral sites in contemporary Pueblo communities; to strengthen local community identities; and to integrate archaeological, historical and traditional knowledge in telling the story of Cuyamungue. The first season of work involved surface survey, low-altitude aerial survey, assessment of museum collections and site visits with Tewa scholars and leaders. Initial results suggest the pueblo was founded in the late 13th century and was home to more than 1,000 people by 1400 CE. Cuyamungue continued as a smaller community through the first century of Spanish colonization, and its inhabitants participated in the Pueblo Revolt. In 1696, the remaining inhabitants moved to Tesuque and Pojoaque pueblos but returned periodically over the years to maintain their connection to their ancestral home. Cuyamungue also remains an important place in the consciousness of present-day Tewa people. Another important finding is that, under certain conditions, it is possible to trace adobe wall-lines from vegetation patterns in low-altitude aerial photos.

Johansson, Lindsay [182] see Cameron, Catherine

Johnen, Connor [362] see Stirn, Matthew

Johnson, Jennifer [28] see Kukekova, Anna

Johnson, Lisa (University of California, Berkeley), Arlen Chase (University of Central Florida) and Diane Chase (University of Central Florida)
[108] ‘Limestone Bars’ as Power Objects among the Ancient Maya: a Consideration of Objects as Active Participants in Ritual Practice

This paper considers how people and things come together in a ritual setting and attempts to break down the division between the human participants and the materials engaged. Using contemporary perspectives surrounding post-Marxian materialism, it is argued that archaeology has the means to explore the ways in which materials exhibit their active nature in particular contexts. With this in mind, this study will reassess small bar-shaped limestone artifacts that have been recovered from numerous archaeological contexts throughout the Lowland Maya area of Belize, Guatemala, and Mexico. A consideration of general size, shape and treatment suggests that these objects may have been tools and that their role in ritual practice transformed them into an active participant. Understanding that things can be active when articulated in an assemblage of social relations, enables scholars to disentangle subjective assumptions of value and meaning. In this case, it enables one to argue that a seemingly “ordinary” bar of limestone, an abundant resource in the Maya area, was seen as an object of power through its participation in ritual.

Johnson, Keith

[127] The Setting: Location, Environment and Excavation History

Antelope Cave is a large limestone cavern sunk beneath the rolling hills of the Uinkaret Plateau in northwestern Arizona. Native Americans lived in the cave intermittently for 4000 years during the Archaic and Puebloan periods. Environmental conditions over those thousands of years appear to have changed little. This paper addresses the variety and abundance of local resources available to the cave’s inhabitants who lived in this semi-arid region north of the Grand Canyon. Flora in the vicinity of the site is scanty and characterized by xerophytic plants, grasses, and very few trees. Available fauna includes antelope, deer, rabbits, small rodents, snakes and birds. Just like in the area today, sufficient water for drinking, cooking and farming was a constant challenge for the cave’s inhabitants and may have been a major factor contributing to the seasonal occupation of the cave. Archaeologists from three institutions excavated Antelope Cave in the 1950s and 1980s.

Johnson, John (Santa Barbara Museum of Natural History)

[175] The Formation of Mission Indian Communities in South Central California: An Ethnohistorical Case Study

The Mission Period in Spanish-Mexican California resulted in the breakdown of original independent native polities. Depopulation from introduced European diseases coupled with intermarriage between people from different tribal groups at the missions led to the disappearance of linguistic differences and the formation of new community identities named after the different missions. Alongside these processes of coalescence and ethnogenesis, political and traditional ceremonial activities continued that allowed social memory to be preserved of ancestral ethnic identities. Ethnohistorical study of records kept by Franciscan missionaries, as well as the rich ethnographic and oral historical information collected by anthropologist J. P. Harrington, permit a detailed examination of the incorporation of Chumashan peoples into the mission communities, processes of social change, and persistence of cultural identities in South Central California.

Johnson, Adam

[159] Discussant

Johnson, Natasha (Phoebe Hearst Museum of Anthropology, UC Berkeley)

[160] Discussant

Johnson, Lauren

[162] A Seedy Affair: An Archaeobotanical Study of the Johnston Site (36In2)
Archaeobotanical research can provide archaeologists with insights into what plant resources past peoples were consuming and utilizing as well as the spatial organization of resource use and other activities within a site. Investigations at the Johnston Site, a large ring village located in Western Pennsylvania date back to the 1950s, yet until recently, relatively little research has been completed with archaeobotanical samples. This Late Prehistoric site is categorized in literature as representing the Johnston Phase of the Monongahela culture, but many questions still remain about village structure and its residents. Analysis of the carbonized wood and seeds retrieved through flotation not only provides a more detailed picture of the resources used by the Monongahela people but information on how those resources were distributed across features may clarify the use of space in this village. Applying archaeobotanical research to this site contributes to the understanding of Monongahela culture and provides a framework for future study.

Johnston, Janene (University of West Florida), Lara Homsey-Messer (Indiana University of Pennsylvania) and Karla Johnston (Hancock Biological Station, Murray State University)


Calcitic plant ashes are a ubiquitous indicator of anthropogenic activity at archaeological sites. In conducive preservation environments, ashes may form undisturbed deposits in which individual ash crystals remain intact and identifiable. Under these conditions, ashes afford a unique opportunity to better understand both the human selection of fuel as well as to investigate changes in vegetation communities in response to climate change. This study seeks to characterize ash crystal morphologies for various hardwood and softwood species in the American Midsouth using Scanning Electron Microscopy (SEM). Preliminary data support previous research, which identified a morphological difference between deciduous and coniferous species. However, our results demonstrate that this pattern is less discrete than previously recorded, and indicate that the size and volume of crystals must be quantified in addition to simply qualitatively characterizing crystal shape. Moreover, ashes combusted from different anatomical parts of the same species (e.g., pine wood versus pine needle), show considerable differences in both size and shape and therefore require more robust indicators to differentiate. The ultimate goal of this research is to develop a comparative collection of ash crystal morphologies using experimentally combusted materials for comparison to archaeological samples from across the Midsouth.

Johnston, Karla [162] see Johnston, Janene

Johnston, Susan (George Washington University)

[289] Space as Place: Understanding Emptiness in Archaeological Landscapes

One of the basic tenets of the landscape approach in archaeology is that we need to think beyond the idea of discrete sites and consider instead the use of an entire landscape (or landscapes). From this perspective, places in a landscape that do not contain “sites” as understood in the conventional sense were nevertheless woven into the lives of ancient people. This means that, in order to understand the past, we need to understand both the places where people left things behind and the places where they left no obvious trace, as well as the relationships between them. This not only affects the interpretation of the past but also how archaeological data is collected. These ideas are explored in this paper with examples from public archaeology in Rhode Island and from research in Iron Age Ireland, to begin to develop ways to think about the “empty spaces” of the past.

Johnston, Christine (Cotsen Institute of Archaeology, UCLA)

[368] Market Exchange Seen Through the Mist: Network Visualization for Variable Data

In analyzing micro and mesoscale distribution systems, it is necessary to identify the economic structures and elucidate the socio-economic conditions governing the interaction of agents. Of particular interest in assessing economies of the Late Bronze Age Mediterranean is the potential incorporation of extra-palatial actors in privatized production and non-centralized exchange. Central to this issue is the question of whether marketing activity was extant outside royal jurisdiction, providing independent access to imports and luxury goods. In recent scholarship, materially based frameworks including the Distributional Approach have supplemented traditional studies on the
location, and spatial configuration of the physical marketplace by examining the distribution of objects throughout consumption units. This paper will explore these methods while assessing the utility of certain approaches when applied to variable datasets. Using the Late Bronze Age Mediterranean port kingdom of Ugarit as a test case, the economic structure of the site will be profiled through an examination of small finds. With a lengthy excavation history, Ugarit offers an apposite example of the opportunities and limitations provided by large and variable datasets. The illustrative capabilities of Network Visualization will then be explored for contexts in which quantitative analysis is constrained by issues of data robustness.

Johnston, Kevin (FARES), Richard Hansen, Beatriz Balcarcel (Foundation for Anthropological Research and Ecology) and Carlos Morales-Aguilar (Paris Sorbonne University)

Non-mounded Architecture, Invisible Housemounds, and the Problem of Settlement Identification and Demographics in the Mirador Basin

In a landscape distinguished archaeologically by elite-dominated, often massive architecture, the small and unobtrusive is easily overlooked. Since its inception as a discipline, Maya archaeology’s principal focus has been cities and the buildings that comprise them. These buildings, often of extraordinary scale, are typically represented in the archaeological record by mounds. This phenomenon of architectural “moundedness” has conditioned Mayanists’ perception of settlement as a whole. Indeed, their search for settlement and demographic estimates has consisted almost entirely of the identification of mounded structures. Yet discoveries at numerous sites indicate that many Maya buildings and cultural activities are not represented by mounded remains. As illustrated by research undertaken in the Mirador Basin, a more productive approach re-conceptualizes the problem of Maya settlement and demographic identification in terms of prepared “surfaces,” or sub-surface architecture whose discovery requires new and varied sampling techniques. The evidence of ancient behaviors, activities, and forms of organization that archaeologists seek are present primarily on these surfaces. Some such surfaces are mounded, but many of them are not. To obtain representative samples of Maya settlement, surveys must include intensive subsurface sampling—a practice too infrequently undertaken in the Maya Lowlands.

Johnstone, Dave

Round Structures: Their function(s)

Round foundation braces for perishable walls are seldom the focus of excavation owing to their relatively unimpressive physical characteristics. However, these structures become common throughout the Northern Lowlands at the end of the Terminal Classic period, appearing in 50 percent of the surveyed sites. This paper will examine their possible function, and explain why they became so widespread.

Jolie, Edward (Mercyhurst University)

Preliminary Insights from the Cache Cave Textile Assemblage

Much of what is known about the pre-contact textile industries of interior Chumash peoples derives from early archaeological investigations and nonprofessional collections acquired from caves and rockshelters during the late nineteenth and early twentieth centuries. The vast majority of this material is undated, poorly provenanced, and underreported, which makes interpreting such artifacts’ technological stylistic variability and significance difficult. Recent recovery of more than 500 fragments of cordage, baskets, basket impressions in asphaltum, mats, and nets from secure archaeological contexts at the Cache Cave site thus stands to enhance considerably our understanding of interior Chumash woven technologies. This paper presents the results of preliminary technological stylistic analyses of the assemblage, considers insights from this material into the use of the site, and places the Cache Cave textile assemblage within the context of previous research on Chumash woven articles.

Jolivette, Stephanie (Statistical Research, Inc.), Amanda Taylor (SWCA Environmental Consultants) and Sarah Van Galder (Statistical Research, Inc.)
Accessing and Assessing Coastal Shell Middens on Private Property in the Pacific Northwest

The majority of coastal property in the Pacific Northwest is in private hands. Although laws in Washington State protect archaeological sites on private property, such sites are traditionally only assessed on a case by case basis when the landowner seeks a permit. Landscape scale assessments of coastal resources in the Puget Sound region are rare. Here we compare the results of two such projects along Puget Sound; an academic project in the San Juan Islands conducted by researchers at the University of Washington and a cultural resource management project conducted by archaeologists from Statistical Research, Inc. for Pierce County Planning and Land Services. Cooperation from landowners varied between projects, but in both cases concerns about changing property values and land use restrictions were paramount. Both projects utilized public outreach to increase the participation pool with some success, suggesting that utilizing social networks to reach private property owners may be a viable solution for access issues. Evidence of extensive coastal shell midden disturbance due to both natural and anthropogenic causes suggests an urgent need to engage landowners as stewardship partners.

Jolly, Sarah [203] see Kellett, Lucas

Surviving Trepanation: Approaching the Relationship of Violence and the Care of “War Wounds” through a Case Study from Prehistoric Peru

The political instability that characterizes the early Late Intermediate Period (ca. A.D. 1000-1250) in Andean prehistory had widespread impacts on how people lived, ranging from changes in settlement patterns to an increase in skeletal trauma and infectious disease. This paper explores the social experiences of violence and its implications for healthcare, primarily through the analysis of a notable case study: a young male from Andahuaylas, Peru, whose skeleton evinces multiple lesions and fractures, post-traumatic impaired mobility, and healed trepanations. Trepanation, in particular, is a clear indicator of medical intervention, but is still just one step in the larger process of care and recovery. Using modern clinical literature, it is possible to approximate the physical impacts of trauma, surgery, and rehabilitation, and address the logic of treatment during this time. More generally, we address the accommodations afflicted individuals would need to convalesce and survive in a high-altitude fortified settlement. Results demonstrate the underlying role violence played in generating novel healthcare practices and reifying new social categories in the ancient Andes. Ultimately, such data can inform on the nuances of social organization required for such intensive care and the respective social experiences of disease and violent injury in the past.

Jones, Terry (Cal Poly San Luis Obispo)

Fish, Fishing, and Fish Bones on the Central California Coast

In much of Native western North America fish and the aquatic technologies used to exploit them were associated with intensive hunter-gatherer economies and heightened levels of socio-political complexity. Central California, however, is more commonly associated with exploitation of acorns, a resource that also encouraged dense, sedentary, storage-dependent populations. The relative significance of fish to these less populous foraging groups has only recently become a focus of systematic study. Here we review salient diachronic patterns from over 200,000 fish bones from 99 sites investigated over the last 40 years with an eye toward variation related to technological change and/or economic intensification.

Discussant

Chair

Jones, Hillary, Judson Finley (Utah State University), Tammy Rittenour (Utah State University) and Kenneth Cannon (Utah State University)

Depositional Circumstances of Three Paleoindian Sites along Lima Reservoir, Montana

Wave action along the Lima Reservoir in Centennial Valley, Montana has exposed three adjacent...
Paleoindian sites along the north shore cutbank. While these sites date to the same period and are near each other (within 1.5 miles), they possess markedly different geologic contexts. The westernmost site, 24BE43, is a surface scatter resting on an old soil with a very well-developed Btk horizon. The eastern site, 24BE52, is also a surface manifestation but it sits on a very thin soil capping what appear to be eroded lacustrine sediments. The center site, 24BE46, contains a likely Paleoindian subsurface component and younger surface cultural material. Using optically stimulated luminescence (OSL) dating, stratigraphic mapping, and sediment analysis, we determine the likely geomorphic sequence of events for these three sites and attempt to explain why they differ. Identifying which landforms and sediment types contain intact buried cultural material among these sites may help determine what other areas in Centennial Valley have good potential to contain subsurface archaeological deposits.

Jones, Mica [7] see Klehm, Carla

Jones, James (MN Indian Affairs Council)  
Indigenous Cultural Resource Ceremonies looks at the relationship that Indigenous people have with archaeological sites and with sacred places. Spiritual connections that Indigenous people have with the land, waters and even with the stars and with the cycles of the moon. How is this relationship defined within modern archaeology and cultural resource management today? The relationship and the connections to places that we originate from. The villages, communities, towns, and the cities. Places are a way in which we identify ourselves, in Ojibwe culture that is the traditional way to introduce oneself. Your dodem and where you’re from. Just like these artifacts that lay beneath the ground. What is it that lays there? What is the type of artifact or place? What is the age of the artifact or site? Where you’re from, your community? This is one of the many ways that indigenous cultural resource ceremony is defined within everyday lives of Indigenous people. People have been interpreting our past and our cultures without having a clear understanding of who we really are as a people and have little or no understanding of our cultures and our spiritual beliefs.

Jones, Sharyn (Northern Kentucky University), Justin Cramb (University of Georgia) and Alison Weisskopf (University College London)  
[77] Mid-sequence Colonization and Occupation at Nukubalavu, Vanua Levu, Fiji
Inspired by Bill Dickinson’s broad and multifaceted perspective on the archaeological record of human colonization in the Pacific Islands, we present both new data from Vanua Levu, Fiji—informed in part by Bill’s ceramic petrography from the site of Nukubalavu and reflections on the thalassic pattern of colonization in the central Pacific Islands. While a sea focus in the Pacific Islands is unremarkable, some Lapita, Late Lapita, and Mid-sequence occupations of Fiji reveal an intriguing pattern of colonization focused on somewhat marginal areas including small islands, tombolo, and seemingly isolated or separate sea bound land formations such as that found at Bourewa, Vorovoro, and Nukubalavu. We also describe recent archaeological work on Nukubalavu on Vanua Levu where a house foundation yielded organic material suitable for radiocarbon dating, zooarchaeological remains, Late Lapita and Mid-Sequence ceramics, coral files, charred and waterlogged archaeobotanical remains, and subsurface features.

Jones, Janet  
[101] Glass at the Crossroads: Production and Emulation at Phrygian Gordion
Glass vessels recovered from over sixty years of archaeological investigation at Gordion (central Turkey), the capital of ancient Phrygia, range in date from the eighth century B.C.E. through the Roman period and represent nearly all techniques of glassworking. Several groups of luxury glass from Gordion illuminate key moments in the transmission of cultural influence and of glassmaking technology, production, and utilization from the Near East into the Mediterranean basin in the first millennium B.C.E. Molded glass objects from late ninth century through seventh century levels demonstrate that the Phrygians were either receiving glass objects from northern Mesopotamia, possibly in diplomatic exchange, or were themselves working glass by applying their expertise in
bronze casting to imported glass ingots. Molded vessels in the Achaemenid style from the later fourth century into the under third century B.C.E. suggest that the production of molded vessels was revived in this region under Persian influence. Categories of core-formed vessels at Gordion suggest that Phrygia may also have been a site of production during the late Classical and Hellenistic periods. This paper discusses how the important corpus of glass from Gordion informs our understanding of cultural exchange between east and west based on typological and chemical analysis.

Jones, Carleton (National University of Ireland, Galway)

[155]  Dating Ancient Field Walls in Karst Landscapes Using Differential Bedrock Erosion

While karst environments present methodological and interpretive challenges to archaeologists, they also provide some unique opportunities. One of these opportunities is the ability to date field walls by measuring divergent rates of bedrock erosion underneath and adjacent to ancient walls. Field walls are traditionally difficult to date, either by using morphological typologies or through the association of diagnostic or chronometric materials. The method presented here, therefore, represents a valuable tool for archaeologists working in karst landscapes. The methodology is described along with a discussion of potential problems, drawing in particular upon evidence from the karstic terrain of the Burren in western Ireland. The methodology is then applied to a group of field walls on the Burren where independent archaeological and geomorphological evidence confirms the usefulness of the method.

Jones, Emily Lena (University of New Mexico), Cyler Conrad (University of New Mexico), Hannah Van Vlack and Seth Newsome (University of New Mexico)

[163]  Ritual or Dietary Use? Wild and Domestic Turkeys at Tijeras Pueblo (LA 581)

Recent work on turkeys (Meleagris gallopavo) in the prehispanic Southwest (e.g., Speller et al. 2010, McCaffery et al. 2014) has highlighted both the long history of domestic turkey use in the Southwest and the concurrent exploitation of the local wild Merriam’s turkeys (Meleagris gallopavo merriami). This new information has added to the ongoing debate over whether turkeys were domesticated for ritual or for dietary purposes. At Tijeras Pueblo (LA 581), turkeys eating a maize-heavy diet (presumably domesticates) and turkeys with an isotopic signature more similar to modern wild specimens (presumably Merriam’s turkeys) have been identified in 14th century contexts. In this poster, we examine the contexts in which these turkeys were found to test the hypothesis that wild and domestic turkeys were treated differently by prehistoric Puebloans.

Jones, Terrah (UCLA Cotsen Institute of Archaeology), Jacob Bongers (Cotsen Institute of Archaeology at UCLA), Brittany Jackson (Department of Anthropology at UCLA), Susanna Seidensticker (Department of Anthropology at UCLA) and Charles Stanish (Cotsen Institute of Archaeology and the Department)

[169]  Fine China, Flatware, and Crockery: An Archaeological Reexamination of Chincha Domestic Contexts

This paper considers how material culture reflects the manipulation and creation of identity through a reexamination of the Chincha ceramic typology using ceramic vessels recovered from two mid-Chincha Valley domestic contexts dating to the Late Intermediate Period (LIP) (1000-1400 A.D.) and the Late Horizon (LH) (1400-1532 A.D.). The Chincha Kingdom was an extensive and powerful trading polity that emerged during the LIP and continued into the LH. Previous studies identify three distinct zones within the lower-Chincha Valley (administration sector, coastal fishing district, and agricultural area), however not much is known about peoples living outside the central hubs of the Chincha Kingdom. The materials presented here derive from a series of systematic site surveys or two mid-valley domestic contexts conducted in 2014. The current analysis revealed a wide variety of vessel forms and a collection of stylistic motifs that provide insights into the construction of the social and political identities of these communities. This paper explores these different ceramic motifs and vessel forms to ascertain how the groups inhabiting these domestic sites identified themselves.

Jones, Jason (Hybrid Manufacturing Technologies) and V. Garth Norman (ARCON Inc.)
[249] **RTI (Reflectance Transformation Imaging) Examination of Weathered Sculpture for Accurate Delineation of Weathered Detail**

A test case applying advanced digital imaging to decipher weathered sculpture detail at Izapa, Mexico, was successfully initiated in 2012 by Dr. Jason Jones (University of Warwick) and completed in 2014 with support from CIR (Center for Izapan Research, ARCON Inc.) under INAH permit. A series of digital camera photos taken with lighting from different directions (highlight method) on each monument was analyzed and merged using computer software according to the Reflectance Transformation Imaging (RTI) technique as developed by Cultural Heritage Imaging and Hewlett-Packard Laboratories. This has provided an unparalleled way to review and interrogate stela details, which is far less prone to subjectivity than artistic drawings. The combined ability to view color, together with the surface shape and texture, helps resolve the difference between features carved intentionally and those arising from deterioration in the stone. Furthermore, the virtual re-lighting and magnification makes it practical to document features with a robust audit trail, which cannot easily be seen or photographed otherwise. These images confirm the superior accuracy of NWAF photo drawings in Norman 1973, 1976 over artistic re-drawings from on-site/video inspection (NWAF 1999, 2007 test case).

**Jones, Eric (Wake Forest University), Pierce Wright (Wake Forest University) and Peter Ellis (Wake Forest University)**


Excavations at the Redtail site (31Yd173) have begun to reveal the internal arrangement of a Piedmont Village Tradition (PVT) settlement occupied during A.D. 1200–1600 in the upper Yadkin River Valley of the western North Carolina Piedmont. Research projects over the last 40 years have established similar information for a small number of settlements in the eastern and central Piedmont of North Carolina and Virginia. This research examines the morphology and spatial patterning of postmolds and pit features at the Redtail site and compares the results to those from sites in the Eno, Haw, and Dan River valleys. The results of this community-level analysis complement recent regional and sub-regional analyses of settlement ecology by displaying the variability across PVT settlement patterns on multiple scales. This has implications for a number of PVT cultural characteristics and phenomena, including social organization, economic exchange, and political relationships. These results further suggest a need to create a new and more complex model for studying the non-Mississippian, non-hierarchically organized societies and communities of the Late Precontact Southeast.

**Jones, Brian (University of Connecticut) and Brianna Rae (Archaeological and Historical Services, Inc.)**

[281] **A Snook Kill Phase Site in Marshfield, Massachusetts**

Archaeological and Historical Services Inc. recently excavated a rich Snook Kill phase site in Marshfield, Massachusetts. Dated features and diagnostic tools from the site indicate a radiocarbon age of 3500 years ago. Artifacts were recovered beneath a horizon of peat that had formed over the past 1500 years in this near-coastal setting. The strikingly pristine site documents a complete lithic artifact production, use, and discard sequence, from the reduction of rhyolite cobbles into carefully prepared cores, and large flake blanks into tools. Bifacial implements include numerous Snook Kill points, asymmetrical knives, and over a dozen awls. Refitting between debitage and tool fragments indicates two contemporaneous areas of activity. The organization of the site and spent tool kit suggest that a focused episode of construction occurred here, possibly related to bark canoe manufacture.

**[281] Chair**

**Jones, Catherine (University of Wisconsin-Milwaukee)**

[301] **Mixed Burials and Commingled Human Remains Recovered from the Milwaukee County Institution Grounds Poor Farm Cemetery**

From the mid-1800s to its abandonment in 1974, the MCIG Poor Farm Cemetery in Wauwatosa, Wisconsin served as a burial place for institutional residents, unidentified or unclaimed individuals
from the Coroner’s Office, and the community poor and indigent. Previous excavations at the cemetery in 1991 and 1992 recovered 1649 individuals in predominantly single interments with an occasional extraneous body part representing incidental amputation or autopsy. The 2013 excavations at the site yielded 650 additional coffin burials, including a significant number of multiple interments unexpected for a historic cemetery of this time. These represent a wide range of burial contexts, including multiple complete individual skeletons as well as body parts likely reflective of autopsy and medical school cadaver use. In addition, many graves contained debris consistent with general refuse disposal and/or medical waste. The Milwaukee County Poor Farm Cemetery Project has worked to carefully excavate these commingled burials, to separate the remains, and to return individuality to those whose stories have been lost.

Jones, Warren (Qanirtuuq Incorporated)
[337]  Archaeology and Cultural Preservation: A Perspective from a Yup’ik Village
Qanirtuuq Incorporated and the village of Quinhagak have supported archaeology in our community since 2009. Thousands of our cultural artifacts have been saved from an eroding archaeological site, and are now being studied and preserved. Working with archaeologists from the University of Aberdeen is helping our people by protecting of our cultural heritage and also in helping to reconnect young people, elders and culture-bearers. In this presentation, I will speak about my community’s experience with archaeology and archaeologists, and where we will go from here.

Jones, Martin (University of Cambridge)
[345]  Discussant

Jones, Penny (McDonald Institute for Archaeological Research, University of Cambridge), Emma Lightfoot (McDonald Institute for Archaeological Research, Un), Martin Jones (Department of Archaeology and Anthropology, University), Tamsin O’Connell (Department of Archaeology and Anthropology, Univer) and Cameron Petrie (Department of Archaeology and Anthropology, Univer)
[345]  A Climatic Imperative? Testing the Connection between Climate and Crop Adoption in the Indus and the Hexi Corridor
Why might societies adopt new crops or change their cropping patterns? Climate change is one of several possible drivers, but its role in crop exchange has rarely been empirically tested and its importance relative to other factors, particularly cultural factors, remains controversial. As part of the Food Globalisation in Prehistory project, two isotopic studies have aimed to directly test the relationship between climate change and crop movement in particular contexts. One focuses on the Hexi Corridor, which is one of the main routes by which crops may have traveled between China and Central Asia. The other focuses on the Indus region in northern South Asia, where climate change has been invoked in both the spread of African, Eurasian and indigenous millets, and the decline of the Indus Civilization. In both cases, we have aimed to generate focused, archaeologically-relevant climatic data which have the capacity to provide a robust empirical foundation for testing the relationship between climate change and crop movement. In so doing, we hope not only to further our understanding of the possible role of climate in these two key locations, but to demonstrate new approaches and techniques with the potential for much broader application.

Jones, Ian (University of California – San Diego)
[402]  Questioning Technological and Economic “Decline” in the Medieval Rural Levant
This paper argues against a common view of medieval Levantine villages as isolated from larger regional centers by examining a group of hand-made ceramics — commonly called Hand-Made Geometrically Painted Wares (HMGPW), and formerly “pseudo-prehistoric” wares — prevalent across the Levant from the 12th-17th centuries A.D. They are generally seen as the products of non-specialist village potters and, as the older name suggests, an example of technological decline. That view, though, is based primarily on ethnographic evidence from the late 19th and 20th century Levant, and hinges on a number of assumed, and generally unquestioned, dichotomies: urban/rural, specialist/non-specialist, wheel-made/hand-made. As HMGPW is the most visible indicator of
settlement during these periods in the southern Levant, these assumptions have influenced the ways archaeologists conceive of rural Levantine economies, leading to a view of villages as disconnected from larger centers where higher-quality, wheel-made pots were produced. This view, however, is at odds with historical evidence for substantial state investment in rural agriculture. In this paper, I present a broader approach to HMGPW — integrating archaeological and ethnoarchaeological insights from beyond the Levant — that helps us better understand what the widespread adoption and longevity of this “retrogressive” technology says about rural economies.

Jones, Kari

Before San Francisco: The Archaeology of El Polin Spring in the Presidio of San Francisco

Archaeological research at El Polín Spring in the Presidio of San Francisco illuminates the early history of the city before San Francisco and Yerba Buena. Initial historic research and archaeological excavation at El Polín revealed what was interpreted to be the home and associated refuse midden of two intermarried colonial families. This is the first known Spanish-colonial occupation outside the walls of El Presidio de San Francisco, dating to sometime after 1812. More recent excavation at the site has uncovered additional features, including a terra cotta tile kiln, suggesting a more complex settlement. This paper explores the potential of the preserved archaeological site at El Polín to answer questions about the Spanish and Mexican period in what is now San Francisco. Current efforts to interpret this history to park visitors are also discussed.

Jorda Pardo, Jesus F. [155] see Aura Tortosa, J. Emili

Jordan, Keith (California State University, Fresno)

From Tula Chico to Chichen Itza: Implications of the Epiclassic Sculpture of Tula for the Nature and Timing of Tula-Chichen Contact

Although most scholars now reject hypotheses of a Toltec invasion of Yucatan to explain similarities between the art of Tula and Chichen Itza in favor of models involving economic, political, and religious interaction between the two centers, questions remain concerning the nature and timing of this exchange. Some archaeologists and art historians posit a 9th-10th century florescence for “Toltec” Chichen, and argue that since this makes the “Toltec” style in Yucatan older than the Tollan Phase at Tula, most of the style features shared between the cities originated with the Maya. I examine the relevance of the Epiclassic relief sculpture of Tula Chico for this debate. The presence of reliefs of reclining figures in clear “Toltec” style at Tula Chico, in contexts predating their occurrence at Chichen Itza, suggests that claims for a predominantly Maya origin for that style stand in need of revision. Such rethinking is supported by other images from Tula Chico (eagles and Venus symbols), as well as by new studies of ceramics and chronology at Chichen.

Jordan, Amy (University of Washington)

Alone in the Deep Blue Sea: A Comparison of Indonesian Colonial Period Nutmeg Plantations and New World Plantations

Plantations on the nutmeg-bearing Banda Islands are contemporaneous with early North American plantations and are an excellent place to investigate cross-cultural responses to colonialism. The Banda Islands were the world’s sole source of nutmeg in the 16th century and control over this spice was a major goal for European powers during the Age of Expansion. Consequently, the Banda Islands were the location of early experiments in colonialism by European powers and can provide information for cross cultural studies of the different responses to colonialism, as suggested by Deetz (1991). Using models of ethnogenesis and resistance developed from the study of New World plantations, I review how well these models fit the archaeological record from three colonial era nutmeg plantations in the Banda Islands, Maluku Province, Indonesia.

Jordan, Jillian (University of New Mexico) and Keith Prufer (University of New Mexico)

Late Classic Household Ceramic Production at Uxbenká, Belize

Uxbenká, an Early Classic to Late Classic period Maya polity, is the most extensively excavated site in southern Belize. Recent ceramic analyses have succeeded in refining our understanding of the
extent and duration of occupation at Uxbenká as well as its position in regional interaction spheres. Like other sites in the Maya Lowlands, we know very little about household ceramic production due to the lack of workshops and tools, probable seasonal production resulting in low volumes of finished products, and firing areas located outside structures where excavations are focused, making it difficult to identify these contexts in the archaeological record. Recent analyses of previously excavated ceramic and lithic assemblages from settlement groups located in the southwest periphery of Uxbenká’s hinterland revealed evidence of Late Classic (A.D. 600-800) household ceramic production. Evidence includes polishing stones, ceramic tools, and unifacially retouched chert flakes that may have been to scrape ceramic vessel walls. This poster presents the results of use wear analyses on ceramic production tools. These data, in concert with contextual and spatial data, provide information on household production and intracommunity interaction at Uxbenká.

Jordan, Alexis [301] see Freire, Shannon

Jordan, Alexis (University of Wisconsin-Milwaukee), Catherine Jones (University of Wisconsin-Milwaukee) and Shannon Freire (University of Wisconsin-Milwaukee)

[301] The Sum of Their Parts: Reconstituting Individuality from Atypical Mixed Burials at the Milwaukee County Institution Grounds Poor Farm Cemetery

Excavations in 2013 at the Milwaukee County Institution Grounds cemetery recovered 650 burials from one of four locations used by Milwaukee County officials for burial of more than 7000 individuals from the mid-1800s through 1925. Of those recovered during the 2013 excavations, at least 25% have been identified as multiple interments. The diverse depositional contexts of several of these burials are indicative of a variety of mortuary behaviors atypical for a historic cemetery during this period. The interment of partial human remains, medical waste, and presence of secondary burials suggest a deliberate departure from mortuary norms exhibited elsewhere at the site and have resulted in a loss of individuality for the deceased. Examination of the burial assemblages, associated historical documentation, and skeletal analyses will shed light on the society that conducted these atypical interments and allow us to retrieve a degree of individuality for those interred.

Jorge, Ana (University of Aberdeen), James Conolly (Trent University) and Rick Knecht (University of Aberdeen)

[337] Soils, Plants, and Animals in the Making of Hunter-Gatherer Pottery in Coastal Alaska

Explorations of human-environmental interactions in prehistoric Alaska tend to draw on biological, botanical and faunal data. Artifacts have often received much less attention beyond links to subsistence concerns and the gathering of additional paleoenvironmental information (e.g. wood and grass species). Pottery, in particular, has featured in such discussions only in regards to the processing of foodstuffs: both its suitability for particular cooking methods and the substances it may have contained. Yet, ceramic technologies can be viewed in terms of people’s engagement with the environment and transmission of environmental knowledge as well as use of material resources. Ongoing study of pottery assemblages from the late prehistoric site of Nunalleq shows that ceramic vessels were often tempered with grasses, while lamps were often tempered with fur or not tempered at all. In the tundra and highly dynamic deltaic landscape of this part of Alaska, sourcing for clay required great understanding of the land and its sharp seasonal changes. This paper will argue that detailed ceramic technological studies can provide the opportunity to further explore interactions between prehistoric arctic hunter-gatherers and their environment.

Joslin, Terry

[32] Fishing and Ecological Resilience on California’s Channel Islands

On California’s Channel Islands, the Chumash and Tongva relied on a relatively consistent repertoire of small and medium-bodied fish species over a period of more than 10,000 years. Throughout all time periods, the majority of fishes in the archaeological record could have been procured from the near shore waters of rocky intertidal, sandy beach, and kelp forest habitats. There is also limited evidence for offshore fishing for large pelagic fish later in time. I argue that the significant continuity
in fish species caught through time reflects the abundance and resilience of fish in this highly productive marine ecosystem. Even during periods of lowered marine productivity small and medium-bodied fish were important contributions to islander diets, suggesting the fish resources around the islands were both abundant and stable through time. Various island assemblages show a dramatic increase in fishing alongside an increase in population density during the Late Holocene (4000 cal BP to present). This reflects the flexibility of subsistence fishing and its ability to be intensified to support larger populations. These results provide significant insights on the long-term adaptability of island fishers, and the role of rich marine fisheries in mitigating resource stress.

Joyce, Rosemary (University California Berkeley)

Interrogating “Property” at Neolithic Çatalhöyük

Neolithic Çatalhöyük poses an interpretative challenge: while there is evident distinction among houses in elaboration, concentration of mortuary remains, and generational persistence, this did not translate into the kinds of material advantages that can be discerned as dietary privilege or preferential mortuary treatment. This has led to the characterization of the people of the site as “fiercely egalitarian”. In this paper, I reconsider the established facts from the perspective of the ethnographic analysis of living societies on which the social model of the "house", used to understand Çatalhöyük, is based. Materially visible inequality is not always present in ethnographically, or else is blurred by processes such as distributed curation and use of materials by people other than their acknowledged owners. This leads to a reconsideration of what kinds of "property" can distinguish the estate of a house, with particular attention to what was labeled "immaterial property" in the initial definition of house societies. Economic stratification can be independent of hierarchies of status, prestige, or ritual power. I report on an investigation of one way that one form of immaterial property might be reflected archaeologically: through control of knowledge, or even authorization to produce, craft goods, specifically, pottery vessels.

Joyce, Arthur [249] see Brzezinski, Jeffrey

Joyce, Arthur (University of Colorado at Boulder), Arion Mayes (San Diego State University), Bethany Weisberg (San Diego State University) and Chris Morgan (Western Door Archaeological & Osteological Service)

The Bioarchaeology of the Cerro de la Cruz Cemetery

This paper discusses preliminary bioarchaeological findings from the Late Formative cemetery at Cerro de la Cruz in the lower Río Verde Valley on the Pacific coast of Oaxaca. The Cerro de la Cruz cemetery has figured prominently in a long-running debate over the hypothesized conquest of the region by Monte Albán. We discuss the results of detailed bioarchaeological analyses of four individuals from the cemetery in the context of an ongoing regional study. Although taphonomic processes complicated the analysis, the individuals from the cemetery did not reveal evidence of traumatic injuries consistent with warfare. Instead, the range of pathological conditions visible on the bones is consistent with broader regional patterns. Although the age profile of the cemetery is clearly biased toward adults, this pattern appears to be the result of cultural selection and not death in battle. We also discuss the migration implications of a strontium isotope analysis from individuals in the cemetery. We consider the Cerro de la Cruz cemetery in relation to four cemeteries discovered in the region that span the Late Formative to the Early Classic periods.

Juarez, Santiago (University of Illinois at Chicago)

The Preclassic Maya Site of Noh K’uh: A Network of Communities

In many societies around the world, the concept of community plays a central role in the formation of individual identities. Communities are subject to change and the focus on community identity provides a theoretical approach in which the individual can be situated in a broader sphere of social interaction. I research community through spatial analyses of human constructions at the Preclassic site of Noh K’uh in Chiapas, Mexico. My findings revealed that house-mounds clustered on hill-tops that were heavily modified to accommodate multiple structures. Through spatial observations and
other archaeological data, I propose that the site of Noh K’uh could be best understood as a collection of corporate households, in which individual buildings and platforms were designed to meet specialized needs. In practice, these aggregates were micro-communities where the processes of production, distribution, transmission and reproduction took place over very wide spread spaces that encompassed multiple buildings. Spatially similar to neighborhoods, these micro-communities were tightly knit with well-defined and unique identities that were constructed and maintained through ritual activities. As an early urban society, Noh K’uh offers the opportunity to study how populations organized themselves during an era of incipient urbanization.

Judd, Veronica (Arizona State University), Hannah Zanotto (Arizona State University), David Abbott (Arizona State University) and Douglas Craig (Northland Research, Inc.)

Digging without Getting Dirty: Making use of Archival Data to Explore Variations of Labor Costs in Hohokam Residential Architecture at Pueblo Grande

Archaeological research in Arizona’s Phoenix Basin has been ongoing for nearly four decades, reaching its heyday during the 1990s. This resulted from large CRM projects associated with development in Phoenix, especially A.D.OT. The potential uses of data collected as a part of these excavations has only begun to be realized, and efforts to digitally preserve and make available these data accessible for new analysis are underway. At Pueblo Grande and elsewhere in the lower Salt River Valley, there was a rapid change from Hohokam pithouses to narrow-walled adobes at ~1150 A.D. This change was probably the result of environmental degradation, which made it necessary to use less wood and more adobe in house construction. Later, a second transition to massive-walled adobes enclosed behind towering compound walls occurred across the Hohokam region around 1275 A.D. Using archival data we calculated labor costs for more than 100 rooms at Pueblo Grande and compared them within and between architectural styles. We found the labor costs for massive-walled adobes were considerably greater than for other kinds of structures. From these labor costs we aim to better understand the architectural transitions, as well as examine potential wealth differentiation at Pueblo Grande and beyond.

Juengst, Sara (UNC-Chapel Hill)

Community and Ancestors in the Titicaca Basin during the Formative Period

The Formative Period (1500 B.C.-A.D. 200) in the Titicaca Basin was a time of important social and economic changes, such as the establishment of sedentary settlements and long distance trade routes, increasing horticultural investment, and an emerging regional ritual tradition, Yaya-Mama. However, while archaeologists have documented and described these changes, less is understood about how they impacted local communities. In particular, Yaya-Mama has been interpreted in a variety of ways: as a unifying lake basin identity, a social mediator, a cult of ancestor worship and the emergence of social stratification. To investigate this ritual tradition and its impact on the lake basin, this project uses human skeletal remains excavated from four temple and two non-temple sites. Specifically, I ask how people participating in Yaya-Mama ceremonies were related, both socially and genetically, to others in the lake basin and how they negotiated changing community boundaries and identities. In this paper, I will report dietary and disease lesion data and the results of biodistance and strontium isotope analyses in order to reconstruct who shared access to resources, who was considered acceptable reproductive partners, and if participants at temple rituals were local or foreign.

Juleff, Gillian (University of Exeter)

Does Practice Make Perfect? Is It Possible to Read Technological Development in the Actions and Outputs of Individual or Group Practitioners?

No smelter of iron, industrial or pre-industrial, expends energy in gathering raw materials, designing, building and running a furnace without the intention of producing useable metallic iron at the end of the process. Therefore their work is ultimately driven by a success imperative. At a macro, cultural-scale technological development may be readily discernable through indicators such as material/alloy properties, artifact traits and production levels. However, change is brought about by individual or small group actions, whether incremental or fundamental, and actions are rooted in more than one origin. This paper considers the interplay between actions derived from inherited and
established practice, ease (convenience), idiosyncrasy (personality) and optimization (conscious trial and error) and explores what opportunities may exist to detect these in the archaeological record. Two examples will be examined; the macro-morphology of smelting sites and residues, and the micro-morphology of tap slags produced during experimental smelting.

Julien, Sion [242] see Barrientos, Isaac

Júlíusson, Árni Daniel [351] see Harrison, Ramona

Just, Bryan

Incoherent Internationalism: Mayoid Elements in the Art of South-Central Veracruz

During the Epiclassic period, several discrete iconographic motifs and technical qualities were adopted by peoples of South-Central Veracruz that have close affinities to art of the greater Maya area. For example, some Rio Blanco modelled-carved bowls mimic the iconography of Tiquisate wares of Escuintla, Guatemala. Nopiloa figurines bare well-known ties to figurines from Campeche, Mexico. Apparently indicating an alternate direction of artistic influence, decorative motifs common on polychrome plates from the Las Tuxtlas region of Veracruz were incorporated into plates of Maya manufacture. It will be shown that such artistic relationships are not indices of some unified, emergent world religion (Ringle, Gallareta Negrón, and Bey 1998) nor components of a broadly-shared, political-ideological system (López Austin and López Luján 2000). Instead, they seem intensely local and particular. This paper will posit that such cases of apparently disjunctive, long-distance copying or emulation must also be taken into account when considering the nature of multiculturalism and interaction during the Epiclassic period.

Justeson, John

Language Contact and Intergroup Interaction in Precolombian Mesoamerica

Research on contact linguistics has shown that, and to a great extent how, the nature of the linguistic influence of speakers of different languages on one another relates systematically to the nature of the interactions among speakers of these languages. This paper will survey some of the evidence and inferences that historical linguistics can contribute to some of the culture-historical situations addressed by other papers in this symposium, from varying time frames, and will address some of the controversies and the kinds of analysis and evidence that seem to contribute to the understanding of precolombian intergroup interaction across a range of times and places. Facets of this framework are applicable within other kinds of expressive systems. However, understanding the internal histories of languages and language families depends upon detailed documentation of Mesoamerican languages, and a great deal of the linguistic diversity remains to be documented. Until richer documentation work is done, especially on Oto-Manguean languages, linguistic resources will not be able to elucidate some of the major transformations in Mesoamerican prehistory.

Kabata, Shigeru [317] see Murakami, Tatsuya

Kacki, Sacha (UMR 5199 - PACEA) and Dominique Castex (UMR 5199 - PACEA)

From Burial Grounds to the Interpretation of Past Epidemics: Diagnostic Approach and New Insight on Funerary Practices

Archaeological discoveries of mass graves testify to an abnormally high death rate linked to a specific event, such as wars or epidemics. Two research lines are fundamental to ascertain the nature of such crises: biological analysis of the exhumed skeletons (age, sex, and paleopathology), and research on the DNA of the ancient pathogens which may have caused the deaths. In addition, these burial sites provide insight into the impact of such a high mortality on funeral customs. At present, enough data are available, especially on plague, to develop an interdisciplinary strategy in order to interpret accurately mortality crises of the past. Therefore, we propose a synthesis on this topic based on several European burial sites related to epidemics. Through the analysis of
archaeological data, our aim is to better understand the attitude of ancient societies toward epidemic death, and to highlight discrepancies between the archaeological evidence and both the textual and iconographic sources that describe these peculiar events.

Kahanov, Yaacov [368] see Bar-Yosef Mayer, Daniella

Kahn, Jennifer (The College of William and Mary) [388] Priests’ Houses and Architectures of Ideology in East Polynesia
Most studies of East Polynesia religion focus on the largest monumental sites, those related to the “marae complex”. Yet ethnohistoric documents indicate that a wide range of site types had ritual importance, including specialized structures within monumental ritual centers that had diverse functions. Priest houses form one element of the architecture of ideology. Can we identify the houses of full time ritual specialists in the archaeological record of East Polynesian in order to enrich our understanding of religion and social complexity in prehistory? Utilizing ethnohistoric data and archaeological case studies drawn from the Society Islands and the Hawaiian archipelago, I argue that priests’ houses conform to specialized house sites and differ in sometimes dramatic ways from mundane sleeping houses, both in their spatial context and in their suites of artifacts and sub-surface features. I conclude that identifying formalized occupational specialists in the archaeological record adds to our understanding of the integrated nature of ideology and social and economic control as important power bases for socio-ritual elites in complex societies. Such a bottom-up perspective draws on the strengths of household archaeology while allowing for a contextualized approach to identify ritual practitioners and their association with monumental architectures of ideology.

Kaijankoski, Philip (Far Western Anthropological Research Group) and Jack Meyer (Far Western Anthropological Research Group) [293] A Land Transformed: Holocene Sea-Level Rise, Landscape Evolution, and Human Occupation in the San Francisco Bay Area
The effects of landscape evolution on the archaeological record of the San Francisco Bay Area have been profound, primarily due to rising sea levels. These changes are illustrated through a trans-Holocene “tour” of the bay that incorporates the landscape context of many sites featured in subsequent papers. For the region’s first inhabitants, this area was a vast inland valley rather than the state’s largest estuary. The Holocene transgression is illustrated utilizing a new sea-level curve developed for region, which is based on an analysis of over three hundred radiocarbon dates from marsh deposits in the bay and delta. This curve is used to reconstruct the extent of the bay at various times in the past, illustrating just how much of the landscape once available for prehistoric human populations is now submerged. The terrestrial response to rising sea levels during the latter portion of the Holocene included infilling of formerly incised stream channels, alluvial deposition on surrounding floodplains, and the formation of extensive wetlands and dune fields, as illustrated by recent geoarchaeological studies from the region. These examples show how large-scale landscape changes structured the region’s archaeological record, and likely explain why the early portions of California’s past are poorly represented.

Kaiser, Jozef [12] see Láznicková-Galetová, Martina

Kaiser, Jessica (University of California, Berkeley) [240] Where’s your Mummy? The Business of Mummification in Late and Roman Period Egypt
It is often said that the practice of mummification became a veritable business during the Late and Roman periods, when it was extended to include not only the elite, but also those on the lower end of the status scale. The increase in the number of bodies being embalmed led to the widespread adoption of more expeditious techniques, sometimes resulting in mummies that, though outwardly pleasing in appearance, concealed nothing but a jumbled mess of bones beneath their wrappings. The non-elite Late through Roman Period cemetery of the Wall of the Crow at Giza has yielded several examples of such presumed shoddy workmanship. In one example, a coffin contained one primary individual and three additional lower legs. In others, the bodies had been heavily
manipulated or were missing altogether. Scholars have often interpreted such 'fake' or 'composite' mummies as false advertising on the part of the embalmers. However, archaeological finds accompanying the Giza burials and the appearance of some of the coffins suggest that the mourners must have been at least somewhat aware of their imperfect contents, rather than unwitting victims of 'embalming fraud', perhaps influencing the way their loved ones were represented in death more than previously thought.

[240] Chair

Kakaliouras, Ann (Whittier College)

[146] Quantifying Indianness: Commonsensical Practice in U.S. Bioarchaeology and Skeletal Biology
Throughout the 19th and 20th centuries, U.S. museums and universities amassed massive stores of the skeletons of Native American people. These collections eventually became the source-base for bioarchaeology, a subfield of both physical anthropology and archaeology that emerged in the 1970's and continues producing interpretations about past Native American identities from the study of skeletal remains. Over the last few decades, the reburial movement and the passage of NAGPRA has slowed—or sometimes stopped—further collection of Native American remains, and has given indigenous people a say in the fates of their ancestors and a seat at the archaeological table. Yet, cultural interpretations in bioarchaeology and skeletal biology remain insular and informed by processual concerns with objectivity. This “objectivity,” though, has commonly rested on older, biologized notions of identity, including claims that remains must “look Indian” to be related to or ancestral to contemporary Native people. Kennewick Man/The Ancient One represents the most famous recent instance of this interpretive tradition in bioarchaeology and skeletal biology. This paper, however, focuses on other more ubiquitous and less publicized cases to assert that commonsense notions that equate morphology with cultural identity need further examination in the anthropological and archaeological sciences.

[146] Chair

Kakoulli, Ioanna [140] see Muros, Vanessa

Kalra, Kanika (University of California Los Angeles)

[180] Innovations under Limitations: A Landscape Approach to Agricultural Practices and Water Management in a Frontier Zone of Medieval South India
Agricultural intensification and water management are widely studied in the context of changing political complexity. My research, centered on semi-arid southern India, addresses this theme through a survey of three areas that exemplify the diversity of archaeological sites and trajectories of change in the Raichur region. Irrigation played a significant role in the expansion and intensification of agriculture in this region, achieved through the construction of reservoirs that conserved surface run-off during the monsoons. These reservoirs directly fed the agricultural fields and also replenished the underground water table, from which people drew water by constructing wells close to the embankments. Inscriptional and historical data provide the wider context within which the results of the systematic survey are analyzed. This research indicates that the spread of state society into the Raichur frontier zone did not by itself necessitate monumental investments in agricultural intensification. However, when political stress increased, local elites came to amass greater allegiance and control over resources that allowed them to construct and maintain substantial hydraulic infrastructure. The over-arching regional powers in turn depended on these local elites to control and extract resources from these frontier areas.

Kamenov, George D. [164] see Krigbaum, John

Kaminski, Amanda [164] see Hendrix, Jillian

Kamp-Whittaker, April (Arizona State University) and Bonnie J. Clark (University of Denver)
Creating a Community in Confinement: The Development of Neighborhoods in Amache, a WWII Japanese American Internment Camp

In 1942 Japanese Americans from the west coast of the United States were forcibly relocated to incarceration camps scattered across the interior of the country. Constructed by the Army Corp of Engineers and designed to house around 10,000 individuals, these centers followed a rigid, gridded layout that allowed for the rapid construction of what were ostensibly cities. Residential sections were laid out in blocks, each containing twelve “apartment” buildings to which internees were assigned on arrival. Four seasons of intensive pedestrian survey at Amache in Colorado, accompanied by extensive oral histories, has determined that these residential blocks became neighborhoods with individual character and personalities. Particularly compelling are the internee-created landscaping features, which are sometimes coordinated at the level of the block. This paper will discuss the strategies of these frequently arbitrary arrangements of families for creating more cohesive units in a place they did not choose to live. Especially in light of the nature of institutional confinement, these results contribute to the disciplinary conversation about the social role of neighborhoods in the formation of community identity.

Kandler, Anne (City University London)

Analyzing Cultural Change

The archaeological record provides information about frequencies of different cultural artifacts in potentially time-averaged samples. The temporal frequency changes of these artifacts reflect the dynamic of the underlying evolutionary processes but the question remains whether inferences about the nature of those processes, especially about the nature of cultural transmission processes, can be made on the base of observed frequency patterns. Here we develop a non-equilibrium framework which establishes whether observed frequency changes between samples at two different time points are consistent with different hypotheses about cultural transmission, in particular with unbiased, frequency-dependent and age-dependent transmission. We account for the fact that any evolutionary process acts on the population of artifacts and not only on the observed sample and allow for time-averaging mechanisms. The model produces theoretical samples conditioned on the considered transmission hypotheses and using Bayesian techniques we are able to infer which hypotheses could and more importantly could not have produced the observed frequency changes between the two samples. Lastly we apply the developed framework to a dataset describing the Linear Pottery Culture and show that unbiased and frequency-dependent transmissions are not adequate descriptions of the observed data. Age-dependent transmission, however, is mostly consistent with the observed frequency changes.

Kane, Susan [3] see Carrier, Sam

Kang, Bong (Gyeongju University)

A Reexamination of the Terrestrial Animals Depicted on the Rock Art of Bangudae in Southern Korea: Problems of Animal Domestication and Chronology

Many aquatic and terrestrial animals such as whales, sea lions and turtles, tigers, wild cats, deer, boars, and weasels were identified on the rock art of Bangudae, located in the southeastern part of Korean peninsula. The scenes of human figures, whale hunting, boats, and net and fence hunttings are also presented. Some Korean scholars have suggested that domesticated animals such as cow, horse, sheep, goat, pig, and dog appear in the rock art. This paper argues that domesticated animals do not exist on the rock art and its chronology is much earlier than the Bronze Age (ca. 300 B.C. – 100 A.D.).

Kansa, Sarah (AAI / Open Context)

DINAA and Bootstrapping Archaeology’s Information Ecosystem

Data management is fundamental to the practice of archaeology in the 21st century. As such, archaeological data management requires wide engagement and capacity building across our discipline. Archaeological data management increasingly involves the choreography of diverse data, software, Web-based services, and communications channels deployed and curated by a host of
actors, ranging from individual researchers, to open source projects, libraries and archives, publishers, and commercial ventures. A major challenge centers on cultivating collaborative and synergistic approaches to working with digital data given the wide array of interests, players, and institutions involved. This poster presents the Digital Index of North American Archaeology (DINAA), a project that can help catalyze Web-scale collaboration in using data to understand the prehistory of North America. The project emphasizes Linked Open Data (LOD) strategies to publish governmentally-produced site file data without revealing site coordinates and other sensitive information. DINAA is an Internet index for archaeological concepts of culture histories, site types, diagnostic materials, investigation strategies, and important attributes. The poster illustrates how DINAA is starting to be used as an investigative tool and a tool to help cross-reference relevant data curated by researchers and institutions across the Web.

Moderator
Discussant

Kansa, Eric (Open Context / UC Berkeley)

Academic Freedom, Data, and Job Performance in the Panopticon

This paper explores the challenges in recognizing and rewarding greater openness and collaboration in archaeology, given neoliberal institutional realities. After years of advocacy, governments and major granting foundations have embraced many elements of the open science reform agenda. The White House recently made open access and open data in research a policy goal, and it is exploring other policies to promote “reproducibility” in federally-funded research, including archaeology. Despite open science’s success in entering the mainstream, the outlook for enacting meaningful improvements in practice remains far from certain. Archaeologists, like most scholars, face both tremendous competitive pressures and increasing time constraints on their research. It is a great irony that “data” in the form of normative publication performance metrics, dissuades many from sharing their own data. This paper explores how Taylorism, especially performance metrics, helps shape the published archaeological record. New policy requirements, including Data Management Plans, the growing prominence of new Web-based “Alt-Metrics”, and emerging Linked Open Data technologies will further expand the scope of performance monitoring. Open science and digital humanities advocates have struggled for recognition and autonomy to pursue their research goals. How will we encourage greater academic freedom and avoid further entrenching workplace surveillance?

Discussant

Kansa, Eric [123] see Kansa, Sarah

Kantner, John (University of North Florida)

Discussant

Kaplan, Robert [122] see Ranhorn, Kathryn

Karacic, Steven (Bryn Mawr College)

Producing Pottery in a Province of the Hittite Empire

The Hittite Empire seized control of Cilicia, corresponding with the present-day states of Mersin and Adana in the Republic of Turkey, in the latter half of the second millennium B.C.E. While this region was under imperial rule, Hittite-style pottery became the most common ceramic type. Geochemical analysis of the pottery from Tarsus-Gözlükule, an urban center within Hittite Cilicia, indicates that the Hittite-style pottery was locally produced. At the same time, alternative ceramic types are found alongside the Hittite-style pottery. These alternative types developed from Cilician traditions pre-dating the Hittite conquest and were made using the same raw materials as the Hittite-style pottery. The aim of this paper is to explore how pottery production was organized within the community of Tarsus-Gözlükule and to examine what this organization can say about the relationship that
developed between imperial and provincial actors. Ultimately, this paper will use the production of pottery as a means of speaking to the complex, inter-societal nature of empire.

Chair

Karberg, Rebecca (US General Services Administration)

49ers and Firm Foundations: A Short Archaeological History of San Francisco’s Civic Center

As part of the work undertaken as part of the rehabilitation of the historic Federal Office Building at 50 United Nations Plaza in San Francisco, the US General Services Administration uncovered some of the remaining foundations for San Francisco’s old City Hall, which was destroyed in the earthquake of 1906. These foundations represent the easternmost extent of the city hall, which had not been previously documented. Previous work on the rehabilitation project had turned up artifacts that originated from another chapter in the site’s history, when the civic center area of San Francisco served as the main burial ground for the city, Yerba Buena Cemetery. In this paper I will explore the archaeological history of this small but important part of San Francisco, the artifacts that GSA has uncovered at the site of 50 United Nations Plaza, and the role that the federal government plays in preserving and maintaining these historic resources.

Kardamaki, Elina  

Kardulias, P. Nick  

Kardulias, Paul (College of Wooster)

Stone Tool Use in Late Prehistoric and Historic Contexts in the Eastern Mediterranean Region

In part because of their lack of plasticity (compared to ceramics, for example), lithics exhibited relatively little change over long periods of time. This rigidity of form also conferred great benefits on lithics. With some modification, various stones could make extremely useful implements for cutting, scraping, drilling, incising, and abrading, grinding, or crushing various materials, even when compared to tools provided by new technologies. Indeed, both flaked and ground stone tools persisted even as new materials and technologies were introduced because their relatively low cost and high durability provided substantial value and utility for people. Specifically, this study examines the continuation of lithic technology from the end of the prehistoric period (Bronze Age) into subsequent historical phases (Archaic, Classical, Roman, Byzantine) in the eastern Mediterranean and Near East. In some instances, such as with threshing sledges and the use of millstones to grind grains, the technology persisted well into the 20th century and was a significant part of the domestic and political economy. The concepts that underlie this technological persistence are strategic thinking and economizing behavior on the part of people in cultures past and present.

Kardulias, P. Nick  

Kariwiga, Jason  

Karkanas, Panagiotis (The Malcolm H. Weiner Laboratory for Archaeological Science, ASCSA)

Micromorphology Reveals Changing Levels of Site Occupation Intensity at Pinnacle Point 5-6

Using simultaneously fine and coarse resolution sedimentary studies of the deposits of the MSA site of PP5-6 at Pinnacle Point, Mossel Bay, South Africa, it was able to reveal different patterns of anthropogenic input and behavior and how these changed through time. Through the microfacies approach using micromorphology it was documented that the PP5-6 sequence shows occupations characterized by small groups and short visits during MIS5. This part of the sediments is dominated
by numerous single and mostly intact hearth structures in a roofspall-rich matrix. The sea was very close to the site and the people were focused on exploiting the rocky shores. With the beginning of the glacial conditions of MIS4, the occupation of the site becomes much more intense. This part of the sequence is characterized by the occurrence of thick palimpsests of burnt remains, sometimes disturbed by small-scale sedimentary gravity processes. As sea level dropped and the coastline retreated, the geogenic input shifted to predominately aeolian sediments implying an exposed shelf probably associated with a rich but more distant coastal environment. Since sites dating to MIS4 are abundant in the Cape, we suggest that populations during MIS4 responded to glacial conditions with population growth and technological change.

Karsten, Jordan [166] see Heins, Sarah

Kartal, Metin [91] see Grant, Sarah

Karul, Necmi and Mert Bertan AVCI
[218] Heritage and Sustainable Tourism In Turkey: The Case Study of Aktopraklik
This paper will present the Aktopraklik Cultural Heritage Management Project, which was established as a result of the archaeological evidence excavated from the prehistoric site of Aktopraklik in northwest Turkey. The project encompasses all aspects of archaeological heritage as well as heritage and sustainable tourism. The paper discusses public outreach and interactive engagement through reconstruction of the prehistoric life, ethnographic exhibits, and experimental areas together with the conservation and presentation of the archaeological site. As the archaeological excavation on the site is still ongoing, the paper will also scrutinize the question of sustainability through in regard to the local and regional economy. One of the main ideas is to integrate the Aktopraklik Project into the existing natural and cultural tourism both on the local, national and global level. With the reconstruction of a traditional village near the prehistoric mound, for which the wooden architecture of the surrounding mountain villages has been chosen the local and regional population has been actively engaged in this project. The aim is therefore to redirect the focus of urban tourism towards the surrounding natural environment and rural life, while providing sustainable tourism via educational information about ecology, archaeology, history and rural traditions.

Kasper, Kimberly (Rhodes College), Karen Hess (Rhodes College), Anthony P. Graesch (Connecticut College) and David M. Schaepe (Stó:lō Research and Resource Management Center)
Many archaeologists overlook the presence of uncharred archaeobotanicals, specifically seeds, within excavated cultural contexts. Frequently assemblages of uncharred seeds receive little analytic attention due to the difficulty of differentiating taphonomic variables associated with their presence, including soil moisture, pH, and insect activity. Further confounding this methodological quandary, it is often difficult to distinguish between the “cultural” and the “modern” seed rain recovered within archaeological samples. As a result, most assemblages of uncharred seeds are excluded from analyses, and their interpretive significance is seldom addressed. This poster addresses the above methodological issues through the investigation of archaeobotanicals from Welqámex, an island-based Stó:lō-Coast Salish settlement in the upper Fraser Valley of British Columbia. Focusing our analysis on residential architecture, we consider the taphonomic and cultural processes accounting for the presence of uncharred archaeobotanicals recovered from house floors, pit features, and roof layers. We argue that rigorous sampling procedures - systematic collection of samples beyond features and across vertical space – afford an opportunity to analytically distinguish between cultural and natural site formation processes. In turn, we demonstrate how both charred and uncharred seeds further our understanding of variation and the choices embedded in foodways and medicinal practices among Stó:lō-Coast Salish extended-family households.
Kassa, Sonja (Central Washington University), Anne Parfitt (Central Washington University) and Patrick McCutcheon (Central Washington University)

[91] Selective Conditions for Obsidian Stone Tool Manufacture and Use in Central Washington State

The presence of obsidian in chipped stone tool assemblages in central Washington State is well known. Local, low quality obsidian sources have been documented occurring in conjunction with more commonly found nonlocal, high quality obsidian sources. Though the archaeological occurrence of obsidian is well documented in this area, a systematic study of the organization of technology using evolutionary archaeological approaches can help clarify how obsidian was selected and incorporated into stone tool industries. Recent x-ray fluorescence sourcing, paradigmatic lithic analysis, and statistical comparisons of obsidian frequencies from central Washington sites reveal patterns different from those noted in previous studies in the Pacific Northwest. First, source diversity varies through time, rather than decreases. Second, lithic attributes typically associated with local, low quality obsidian also occur on non-local, high quality obsidian. Third, obsidian frequencies do not follow a monotonic decay curve, where increased source to site distances should result in decreased source frequencies. These patterns demonstrate that understanding obsidian occurrence in central Washington is complex and best approached using evolutionary archaeology where scientific explanations for the observed obsidian lithic variation are possible.

Kassabaum, Megan [8] see Steponaitis, Vincas

Kassabaum, Megan (University of Pennsylvania)

[289] The Importance of the Center: Exploring Circular Spaces in the Lower Mississippi Valley

The mound-and-plaza complex is a hallmark of late prehistoric sites in the Lower Mississippi Valley. While these mounds and the spaces between them have been the focus of much productive research, many mound-and-plaza centers began as circular or oval-shaped middens and only later incorporated mounds. Moreover, sites organized around central “empty” spaces are common starting in the Archaic period. I argue that by examining these earlier and less frequently studied examples of “plazas,” we can increase our understanding of how later mound-and-plaza centers are used and specifically, their functions as gathering places and locations of communal ritual activity.

Kataoka, Osamu [233] see Giovas, Christina

Katz, Steven (Midwest Archaeological Research Services, Inc.) and Addison Kimmel (Independent Researcher)

[90] Addressing Anthropogenic Safety Concerns in the Archaeological Workplace: A Case Study

The changing nature of contract and academic archaeology has led to new safety challenges that cannot be addressed simply through adherence to OSHA regulations. In this paper we move beyond the still-relevant environmental safety challenges that were the focus of earlier work on archaeology and workplace safety, and examine anthropogenic safety issues that can commonly arise during fieldwork. We address issues such as potential theft, assault, harassment, uncontrolled animals, as well as the witnessing of crimes and other human-made safety challenges, and look at how other industries have responded to similar issues. We then introduce a recent long-term, large-scale urban architectural survey as a case study in how archaeologists can proactively respond to these challenges. Lastly, we argue that these challenges need to be explicitly addressed by employers within the archaeological sector, and that field safety manuals should be updated frequently as to enhance archaeologists’ ability to participate in the Section 106 process and to effectively conduct research in a safe and efficient manner.

Katz, Sandra (University of Pittsburgh) and Kathleen Allen (University of Pittsburgh)

[109] Stone Tool-Making at Two Sixteenth Century Cayuga Sites

Cowan’s (1999, 2003) research on small Iroquoian camp sites in New York State demonstrated that analyses of stone tools and debitage assemblages enable archaeologists to investigate which type of stone tool industry was emphasized at a site (core flaking versus biface reduction) and to draw
inferences about site function. This study illustrates the broader applicability of Cowan’s approach for conducting micro-scalar analyses of technological organization. We compared debitage assemblages from one house at each of two 16th-century Cayuga sites in NY State, Parker Farm and Carman. Our analyses revealed a combination of core flaking and biface reduction within both houses, thereby indicating at least seasonal occupation and longer term use. Comparison of flake attributes from different areas within the structures showed more evidence of core flaking and/or early-stage biface reduction in the vestibule areas, and more evidence of late-stage reduction within family compartments. This finding suggests that task sequencing of tool production might have taken place inside these houses. Overall, this study demonstrates that coupling flake attribute analysis with typologically-based approaches to tool production (e.g., core flaking versus biface reduction) and site function can enhance our understanding of site role and the organization of stone tool production within Iroquoian households.

Katz, Jared (University of California, Riverside)

[133] Music in the Court: An Analysis of the Status of Musicians in the Maya Court

Just as there was a formal class of scribes in Maya courts, there was also a class of formal musicians. This paper will focus primarily on analyzing the position and social status held by musicians in the Classic Maya area. To begin, the paper will discuss musicians as a formal class within the Maya courts. Musicians are frequently depicted in iconographic portrayals of political events, and based on the garb they are shown wearing, it appears they formed cohesive groups. By analyzing the role of musicians in the court setting, we can gain a more complete understanding of both the composition and structure of Classic Maya courts, as well as the role of formal musical groups. Next, the paper will examine how other elites engaged with music. For example, several elite women were interred with musical artifacts; however, there are no depictions of women playing music at elite settings, demonstrating the gendered aspect of music. Music was widespread throughout the Maya court, and by analyzing both formal musicians, as well as other elites who played music, we can better understand the differences between those categories in order to see the role music occupied in the lives of the elite.

[133] Chair

Katzeman, Chelsea [314] see Griffith-Rosenberger, Jacob

Katzenberg, M. Anne [328] see Offenbecker, Adrianne

Kaufman, Brett [51] see Barnard, Hans

Kaufman, Brett (Joukowsky Institute for Archaeology and the Ancient World, Brown University)

[89] Behavioral Metallurgy of the Phoenicians, Carthaginians, and Neo-Punic Peoples

Some cultures do not just adopt or develop innovative technologies, but actually define themselves based on their technological acumen. The Phoenicians were such a culture, whose economic reliance on metallurgical and maritime knowledge went further in defining their long-term communal cohesion than did other factors. Lacking historical texts written by Phoenicians, it is only through archaeology and archaeometric analyses that such a resource-based ideology can be reconstructed. Compositional and microstructural characterization using pXRF, XRD, VPSEM-EDS and metallography demonstrates that various Phoenician groups—from Tyrians to Carthaginians to Neo-Punic Roman subjects—manipulated a wide range of metallurgical techniques in order to preserve political autonomy, dominate trade in tin and precious metals, expand militarily, and subsist as colonial subjects. Metallurgical remains of ferrous and non-ferrous forging, smithing, and melting activities from three sites spanning roughly 1400 years are analyzed and interpreted through the lens of an identity based in technological achievement.

Kawano, Masanori (Meiji University)
Spread of Digging Tools and the Social Change in Kofun Period Japan

This paper discusses an aspect of the social change that took place in Kofun Period western Japan as a result of evolution of digging tools. The iron blades of such digging tools changes from rectangular plates with bent edges to U-shaped edges in the fifth century A.D. This change was not merely morphological but technological as well. Background to this change was the introduction of highly advanced smithing technique from the Korean peninsula. This technological innovation diffused to all over western Japan in the following sixth century, which facilitated large-scale construction works, including irrigation system, and consequently resulted in the increase in productivity of wet rice agriculture. Behind this rapid spread of new technology was, I argue, the strategy of the central Yamato polity wanting to gain more direct control over local regions.

Kay, Marvin (University of Arkansas)

Breckenridge Shelter, Arkansas and the Younger Dryas

In 2012 renewed excavations by Arkansas Archeological Survey personnel re-exposed 1960s test units of up to 3m thickness to further evaluate the unusually deep deposit and its stratigraphy; and to collect sediment, associated artifacts, and radiocarbon samples. Compared to Rodgers Shelter and Big Eddy, two well-dated alluvial archaeological sites in the western Ozark Highland of Missouri, Breckenridge Shelter is clearly of similar antiquity but represents a high hill slope setting within the White River drainage. Basal Breckenridge Shelter likely defines a Younger Dryas encampment, or encampments, by people who used two discrete technological systems--Dalton and Packard—that reflect the last of fluted and western stemmed point traditions in North America.

Keach, Levi [7] see DiBenedetto, Katelyn

Geospatial Analysis of Areal (Polygonal) Units: Applications at the Site Level in Neolithic Cyprus

For the first time in the age of GIS, there is a growing resurgence of interest in intra-site level spatial analysis. Many studies focusing on the application of GIS technology to site level phenomena focus, either explicitly or implicitly, on the analysis of fine resolution datasets. Realistically, however, few archaeological data are recorded as sub-centimeter points. The majority of archaeological data tends to be recorded at the resolution of the 1x1 or 2x2 meter excavation unit. These data are best considered as areal units; however, doing so presents a number of problems both technically and statistically. This poster will present results of the recent application of GIS-based intra-site spatial analysis using areal units to the pre-2014 chipped stone assemblage of ‘Ais Giorkis, Cyprus. ‘Ais Giorkis is an Early Aceramic Neolithic site (c. 9.5 kya) located in the western foothills of Cyprus’ Troodos Mountains that has produced a chipped stone assemblage exceeding 250,000 pieces. This assemblage was recorded at a variable resolution, generally lower than 2x2 meters making it an excellent test case for lower resolution applications of GIS-based spatial analysis. This poster demonstrates several successfully answered questions using areal data at the site level.

Kealhofer, Lisa, Judith Field (University of New South Wales) and Adelle Coster (University of New South Wales)

Phytoliths and the Development of Agriculture

Investigations of rainforest archaeological sites from the Koombaloomba Dam environs in the NE Queensland Wet Tropics, have established a human presence here since the early Holocene (Cosgrove et al. 2007). These open sites have yielded abundant archaeological finds including excellent preservation of plant macro-remains in the form of wood charcoal and the carbonized shells of some toxic starchy economic plant species including Beilschmiedia bancroftii, the Yellow Walnut. Examination of the microfossil record from soils collected during excavation at Urumbal Pocket (a Eucalyptus pocket within the rainforest) and Goddard Creek (rainforest) has revealed an in situ record of phytoliths and, through part of these sequences, starch remains. The Urumbal Pocket excavations also yielded a small grindstone fragment from which starch grains were recovered. This paper presents the compiled phytolith and starch data and discusses the possible interpretation of
site use and change through time as reflected in the plant microfossil record. Using recently developed analytical techniques for the analysis of starch we will explore the quantitative identification of starch to genera, and possibly species.

Keall, Edward [401] see Khalidi, Lamya

Keegan, William (Florida Museum of Natural History)
[105] No Man or Woman is an Island Revisited: The Social Construction of Small Island Space

The construction of space usually begins with the georeferencing of physical boundaries. As such, space becomes an external container that affects the structure of its contents. This paper explores the construction of space from the perspective of the individual. It begins by recognizing the minimal distance of face-to-face interactions and expands outward from there. The first step is to reject three-dimensional space and to situate the individual in an n-dimensional space. Production, consumption, procreation, mobility, exchange, and ritual are some of the common categories used to express dimensionality, but they tend to be investigated as cause-effect relationships. Yet these dimensions share more in common with clouds than they do terra firma. In practice, space is expressed in the creation of covalent and ionic bonds that define the social being, which is materialized through diverse expressions. Expressions of an infinite volume in a finite space. Archaeological examples from The Bahamas and Turks & Caicos Islands are used to examine social spaces on small islands.

Keener, Nichole
[12] Hanna’s Town Unbuttoned: An Archaeological Study of Clothing Adornment and Fasteners

Of the three basic necessities humans need to survive – food, clothing, and shelter – clothing is often underrepresented archaeologically as fibers do not typically survive due to environmental challenges. Although often under-analyzed, these small commonly-found artifacts are valuable parts of the archaeological record. Through decorative and utilitarian buttons and fasteners, patterns can be identified to address questions regarding daily life during an occupation of a site. Patterns in the archaeological record reflect the way that people of a community portrayed themselves. One such community is Hanna’s Town. Hanna’s Town was an important center during the Revolutionary War, acting as both the original county seat of Westmoreland County, Pennsylvania, and one of the first North American communities to declare its independence from Britain. Although diversity of Hanna’s Town’s residents is not fully realized, the history and site continue to hold meaning to the local community today. Analysis of the button and buckle collection from Hanna’s Town offers a unique glimpse into lives of historically silent members of this community, which helps relate its story to future generations.

Keeton, Glen [327] see Triozzi, Nicholas

Kehoe, Alice (University of Wisconsin-Milwaukee)
[340] Introduction: Evidence-Based Practice versus Ivory Tower Careers

As contract firms have become employers for the majority of archaeologists, evidence-based practice is demanded. Universities have responded by creating contract programs separate from traditional doctoral tracks. Some glorify theory construction, some others—where some of our presenters are affiliated—are responding to mandated public involvement by encouraging faculty and students to seek to work with local and descendant communities. Action archaeology, Kleindienst and Watson called it in 1956, when they were grad students in Sol Tax’s department in Chicago. Theory, that is, hypotheses and interpretations, gets tested not in laboratory-like controlled projects but in confrontation with stakeholders, descendants, and not least, all the data a site vouchsafes. Archaeologists who have engaged with communities, particularly non-Western societies, often find inference to the best explanation greatly expanded and enriched by premises and experiences outside Western Enlightenment tradition. This broadened interpretive base reflects the postcolonial standpoint. We believe the YouTube video mocking the best-known theorists is a sign that the hollow Sound of Theory can no longer command all academic programs, much less
most practicing archaeologists. The musics of many folk sound instead.

Chair

Keim, Sherry [336] see Corbett, Debra

Keinan-Schoonbaert, Adi [235] see Bonacchi, Chiara

**Kelleher, Anna and Sudarsana Mohanty**

[232] **Analysis of In-tact Mummy Bundles from the 2014 Field Season at Panquilma**

The Ychma site at Panquilma, dates from the 13th to 15th centuries, and lies in the Lurin Valley of central coastal Peru. The site provides an interesting case study for the development of ideologies, specifically mortuary rituals, due to the close proximity and the relationship the Ychma community maintained with the important Andean religious center of Pachacamac. Significantly, during excavations in the 2014 field season, two intact mummy bundles were found at the site. One was of an adult, found in the domestic sector and the other was of an infant, found in the funerary sector. It is the goal of this paper to describe and interpret the analysis of these bundles in order to contribute to the ideological dialogue of Yschma mortuary rituals.

**Kellett, Lucas (University of Maine at Farmington), Sarah Jolly (University of Pittsburgh), Danielle Kurin (University of California, Santa Barbara) and Guni Monteagudo (Museo Andahuaylas)**

[203] **Life at Achanchi: A High Altitude Chanka Burial Site from the Andahuaylas Region of Southern Peru**

Recent archaeological research from a high elevation (4,000 m asl) hilltop site in the Andahuaylas region of southern Peru offer new data to illuminate aspects of life and social organization within the Chanka society that lived during the tumultuous Late Intermediate Period (A.D. 1000-1400). In contrast to the machay (or cave) burials typical of this time period, an intramural burial site excavated from the ridgetop site of Achanchi may offer another perspective on this localized polity. This highly fragmented and commingled burial assemblage contains the remains of roughly 40 individuals associated with several burial goods, including a copper bracelet, nine ceramic vessels, and five human rib “trophies.” Preliminary skeletal analysis suggests that raiding-style violence and infectious disease were features in this community that would have impacted quotidian lifeways. Furthermore, preliminary non-metric data suggests some individuals may be genetically related. This burial could thus represent a small social unit or extended kin grouping. Finally, the appearance of multiple types of cranial vault modification may suggest some degree of socio-ethnic integration within Achanchi during a time of heightened environmental and political stress and balkanization.

**Kelley, Alice, Joseph Kelley (School of Earth and Climate Sciences & Climate Cha) and Daniel Belknap (School of Earth and Climate Sciences & Climate Cha)**

[243] **A Predictive Model for Submerged Prehistoric Sites, Northern New England and Canadian Maritimes**

Predictive models to address site location and preservation of submerged cultural resources have improved with growing societal interest in the nearshore. While some commonalities exist and are broadly applicable, working at a local scale requires an understanding of regional geology, geomorphology and sea level history, and the dynamic landscape processes that acted in the region through time. Along the Atlantic coast of Northern New England and the Maritime Provinces of Canada, varying bedrock and surficial geology, combined with complex postglacial sea level changes have created areas of high preservation potential and regions where only isolated, out of context artifacts are likely to remain. Our study of the archaeological preservation potential of the Bass Harbor and Green Ledges areas of the Maine coast illustrate the factors that lead to site formation and preservation in this region: abundant surficial materials available for reworking by waves to form productive terrestrial environments attractive to human use, occasional slow rates of sea-level change, and shelter by islands and shoals from open-ocean waves. While focused on the Maine and the Canadian Maritimes, this model is useful as a starting point for other glaciated regions
that have experienced both marine transgression and regression.

Kelley, Joseph [243] see Kelley, Alice

Kelley, Krystle (Texas Tech University)
[263] *Establishing the Acropolis: Two Seasons of Excavation at Chan Chich*
Open plaza spaces are a commonality among Maya sites. Excavating through the sealed contexts of these plaza surfaces can yield reliable data on the construction history of the site and how the space may have changed over time. This paper details the results from two seasons of excavations, which took place in May-June of 2012 and 2013 at the Maya site of Chan Chich in Northwestern Belize. Our investigations focused on the Upper Plaza, located at the acropolis of the site. Our investigations uncovered buried architecture below the plaza surface, as well as a series of plaster and compact dirt surfaces, a problematic deposit, a midden, and a burial that included human and canine remains.

Kellner, Corina [31] see Whalen, Verity

Kelly, Robert (University of Wyoming)
[178] *David Hurst Thomas: A Retrospective*
This contribution opens the Fryxell session by providing an overview of the career of David Hurst Thomas. Thomas’ career spans some 50 years and includes contributions to Great Basin, Southeastern and Southwestern archaeology, from the paleoindian to the historic periods. He has produced widely-used textbooks; the first textbook in statistics for anthropologists; and other popular words. Significantly, he served as a founding board member of the National Museum of the American Indian. Throughout his career, his work has been both interdisciplinary and cutting edge, and his career shows no signs of slowing down.
[135] Discussant
[35] Chair

Kelly, Kenneth G. [50] see Goldberg, Kelly

Kelly, Sophia (Arizona State University)
[304] *Evaluating Multi-Sector Supply and Demand on Canal System 2 as a Component of a Complementary Hohokam Economy*
As one of the largest canal systems in the Phoenix Basin, Canal System 2 likely served as the economic, social, and political center of life for thousands of people residing on the north side of the Salt River. Canal System 2 capitalized on a fortuitous geographic location that permitted irrigation systems and associated fields to extend miles from the river. Despite the large size of the canal infrastructure, the low population density relative to the size of the system indicates that local residents may have invested more time in building, maintaining, and using irrigation networks than their nearby counterparts. This paper explores how high labor investments in irrigation agriculture by the residents of Canal System 2 may have contributed to demand for goods produced by specialists. Specialists located in areas less optimal for irrigation agriculture may have supplied goods to the residents of Canal System 2. The analysis evaluates the emergence of a Hohokam economy that relied on complementary exchange of agricultural and craft products by producers and consumers located in different areas of the Phoenix Basin.
[390] Discussant

Kelly, Kenneth (University of South Carolina)
[311] “The City’s gone—Nought…Remaining to Disclose the Site of this Forgotten Babylon:” Ephemeral Architecture and Identity at Black Rock City. (Apologies to Horace Smith; “Ozymandias”)

The temporary (at least physically) community of Black Rock City, which is constituted for one week each year in the Nevada desert at the Burning Man festival, is made up of hundreds of camps. Many of these camps create architecture, or create reference to architectural style and history, that helps cement a sense of identity to that particular camp. The architectural referents are generally not obscure, as they are intended to be read by both camp members and others who are not members of the camps but pass by in the process of interacting with fellow citizens of Black Rock City. By looking at the choices that are made in creating architectural stages, such as that at the Black Rock French Quarter among others, I explore the ways in which a sense of place is created that references both real and imagined localities.

Kelsoe, Camilla (University of Pittsburgh)  

A Tale of Two Towns: Demographic and Economic Change in Two Middle Yangzi Communities

The late Neolithic marked the emergence of a new kind of settlement pattern in the middle Yangzi river valley. During this period, large, tightly nucleated communities, many of which were surrounded by moats or walls, rapidly replaced the dispersed hamlets and small villages of the middle Neolithic. This dramatic transition in settlement organization may have been associated with significant changes in social and economic relations between individuals both within and between settlements. To address these possibilities, and their potential implications for the evolution of complex societies more generally, we compare the results of a full-coverage regional survey and a geochemical study of local utilitarian pottery. Our analysis indicates that demographic and economic change within these communities occurred at very different rates.

Chair

Kelvin, Laura see Hodgetts, Lisa

Kemp, Leonard, Cynthia Munoz (Center for Archaeological Research, University of ), Raymond Mauldin (Center for Archaeological Research, University of ) and Robert Hard (Department of Anthropology, University of Texas at)

Archaeological Implications of Vegetation Shifts in the Northern Chihuahuan Desert

Modern climate and ecological data from the Northern Chihuahuan Desert suggests that precipitation is temporally and spatially localized leading to pulses of plant production. Regional paleoenvironmental models have been developed that focus on large temporal and spatial scales. These scales obscure short-term human adaptation within this region. We present a study of stable carbon and nitrogen isotopes of bone collagen from leporids that can provide a high-resolution proxy for aspects of the region's paleoecology. Cottontails and jackrabbits have a generalized feeding strategy, restricted home range, and short lives. As such, their diet, and their collagen, likely reflect local vegetation regimes at short (ca. 2 year) temporal scales. Focusing on carbon as an indicator of vegetation types and nitrogen as an indicator of aridity, 33 modern and 212 prehistoric (A.D. 600 to A.D. 1350) leporid specimens from 10 archaeological sites were analyzed. Our results show a dramatic shift in vegetation and an increase in climate variability over time that can be used to develop high-resolution models of prehistoric human adaptation within arid settings.

Kemp, Dylan (University of Montana), Kelly Dixon (University of Montana) and Nikki Manning (University of Montana)

Urban Landscapes: Social, Cultural, and Ecological Heritage

Urban locations have an entire component of the landscape that is often overlooked: historic underground spaces. Not to be confused with the underground art and culture scene that occurs in a thriving, modern city, the historic underground can provide insight into a city’s past social, cultural, and ecological heritage. Because this particular part of the landscape is often neglected in anthropological research, there are not a lot of resources available to understand the historic uses of these urban spaces. There is a common phrase, “build it from the ground up,” yet there is a lot to be learned by modifying that to “build it from the ground, above and below.” During 2012-2014, a study was conducted in Missoula, Montana, to investigate subterranean archaeological features including
steam tunnels, sidewalk voids, and city basement spaces to determine if the socio-cultural, economic, and cultural heritage of that city could be detected in the archaeological record. This project seeks to build upon that work by employing tried and true archaeological survey and historical research, but also newer, modern archaeological tools such as Geographical Information Systems and ground penetrating radar technology for a more detailed spatial analysis of historic urban design and urban ecosystem transformation.

Kendall, Heather (Simon Fraser University)

[185] Chert Characterization and Provenance in the mid-Fraser Region of British Columbia

Globally, chert is the most common rock material found in archaeological contexts. Its prevalence on the Earth’s surface in Quaternary deposits and relative abundance in archaeological contexts indicate that it was an important resource material for ancient populations and, as such, can provide information about toolstone exploitation in prehistory. The results of this research suggest a local origin for the chert artifacts recovered from ST 109 at the Keatley Creek site (EeRI-7) in the mid-Fraser region of south-central British Columbia, but also to a remote origin for the toolstone deposits found within the study area. Elemental characterization suggests that although the chert deposits in the study area are geographically separate, they are likely derived from a larger parent chert source, redeposited in the mid-Fraser region by glacial activity prior to human occupation of the area. This thesis also demonstrates through the application of the Keatley Creek Lithic Typology that the visible properties of color and texture are not a reliable means for discerning the provenance of chert artifacts.

Kendrick, James

[29] Recent Archaeological Studies in National Parks of the Northeast Region

The Northeast Region of the NPS extends from Saint Croix Island on the Maine-New Brunswick border to Booker T. Washington National Monument in Virginia, and from Cape Cod National Seashore to New River Gorge in West Virginia. The national parks of this region contain the archaeological signatures of presidents, poets, war, human rights struggles, maritime history, industrial history, and thousands of years of American Indian heritage. This paper discusses recent archaeological studies in the national parks of this region. These studies range from baseline documentation efforts to inventories of areas threatened by climate change. Recent archaeological overviews are discussed, with those at Petersburg and Richmond National Battlefields highlighted. Several geophysical investigations have recently been conducted, and those at Longfellow National Historical Site and Booker T. Washington National Monument are reviewed. Recent inventories are presented, and those at Cedar Creek and Minute Man National Historical Parks are discussed. A progress report is given of the National Constitution Center project in Philadelphia, one of the largest excavations conducted within a national park. Attention is brought to sites threatened and damaged by climate change, with specific mention of sites at Cape Cod, Saint Croix Island, and Colonial National Historical Park.

Kennedy, John (SWCA Environmental Consultants)


Metal projectile points of the Protohistoric and early Historic periods are a somewhat rare, yet ubiquitous artifact type that has received little attention regarding synthetic research. Their roughly 300 years of use across the interior west coincided with perhaps the most profound and rapid culture changes experienced by native groups of North America during the entirety of their prehistory and history. A survey of 14 states across the interior west is currently underway to gather data on all available metal projectile points. Current numbers from this ongoing data collection effort are presented along with preliminary results and goals for future research.

Kennedy, Ryan (Indiana University)

[45] Plants, Animals, and Food Choice Within the Market Street Chinatown, San Jose, California

The Market Street Chinatown was a major urban Chinese community in nineteenth century San
Jose, California. From 1866 to 1887, the community housed and served as a home base to several thousand Chinese residents and laborers. Excavated in the 1980s, the Market Street Chinatown yielded an incredibly rich collection of material culture as well as faunal and floral remains. This paper examines food consumption and food choice amongst Market Street's nineteenth century Chinese residents. The author draws upon botanical data from the site as well as recently collected faunal data. Ultimately, the data show that Market Street's residents utilized a combination of traditional and local plants and animals to construct their diet. This combination of both the familiar and the unfamiliar typifies Chinese dietary strategies in the United States. This paper ultimately explores how Chinese dietary flexibility with both plants and animals played out in the Market Street Chinatown.

Chair

Kennedy, Gail [169] see Jackson, Brittany

Kennedy Richardson, Karimah (Autry - Southwest Museum of American Indian/UCR) [160] Discussant

Kennett, Douglas [32] see Jazwa, Christopher

Kennett, Douglas (Penn State) [334] Past and Present Human Response to Drought in the American West

Multi-year droughts in the American west have major impacts on water resources and agricultural systems that sustain growing populations. Environmental engineering projects (e.g., California Aqueduct or Hoover Dam) were designed within the context of instrumental climate records and historical knowledge of the last century. Archaeological and climatological records now provide a longer-term perspective on the severity and longevity of droughts and the impact of these droughts on human populations. Paleoclimatological records for the last 2,000 years indicate that the multi-year droughts of concern today are modest compared to medieval droughts between A.D. 900 and 1300. Lessons embedded in the archaeological record of this interval provide context for managing water in the American west going into the future.

Discussant

Kerchusky, Sarah (University of California, Santa Barbara) [31] Investigations of Nasca-Wari Interaction and Imperial Expansion during the Middle Horizon: A View from the Las Trancas Valley, Nasca, Peru

During the Middle Horizon (A.D. 750-1000) the Wari Empire established at least three colonies (Pacheco, Pataraya, and Inkawasi) in the Nasca Valley and its tributaries. Archaeological survey of the Southern Nasca Region conducted by Katharina Schreiber and students in previous decades observed dramatic changes to the local settlement patterns during this period (Edwards 2010, Schreiber 1999). The number and size of habitation sites in the Nasca and Taruga Valleys decreased but increased in the Las Trancas Valley, away from and perhaps in contention with the Wari. Sites in these valleys were established in more defensible locations. In addition, sites in Las Trancas formed a four-tiered site hierarchy in Las Trancas with Huaca del Loro as an administrative and ceremonial hub, a second-tier center (Zorropata), and smaller villages and hamlets (Schreiber 2005). The present research investigates the potential impact of Wari encroachment on the various economic, social, political, and quotidian practices of Nasca peoples living at the site of Zorropata in the Las Trancas Valley. This paper presents some of the preliminary findings of recently completed archaeological fieldwork and laboratory analysis at this site.

Kerdsap, Puangtip [49] see Yankowski, Andrea
Kerdap, Puangtip
[407] Environmental Archaeology of Spinning, Weaving and Dyeing in Ancient Thailand
This paper will address the question of “what impact would cultivation, and possible domestication, of native and introduced fiber plants have on the local environment and people’s lives in prehistoric Thailand?” This study begins by considering artifacts such as spindle whorls but will also discuss evidence of fiber plants. How many are native? Where do the introduced species come from and when do they first appear in Thailand? In addition to the cultivation of fiber plants, it is noted that other environmental impacts would result from subsequent processing, including dyeing and weaving. I argue that when considering the implications of agriculture, archaeologists often concentrate on the obvious crops (rice & millet for example), however, plant (and animal) products have clearly been important for reasons beyond subsistence. Thus, the larger aim of this paper is to broaden the conversation about human-environment relationships beyond subsistence practices to a wider social and cultural context. This paper will consider evidence from the site of Ban Non Wat (c. 4000-1000 BP) in Northeast Thailand initially, but also consider evidence from across Southeast Asia.

Kerry, Sagebiel [147] see Haines, Helen

Kersel, Morag (DePaul University)
[409] Landscapes of the Dead: Mapping, Survey, and Site Monitoring at Fifa, Jordan
Birds’ eye views of archaeological sites and landscapes provide excellent vantage points for our understanding of the past. Images from archives, balloons, drones, kites, poles, and satellites are changing the ways in which we carry out archaeological investigations. In cooperation with the Jordanian Department of Antiquities under the umbrella project of Follow the Pots, the Landscapes of the Dead Research Project is using Unmanned Aerial Vehicles (UAVs, ‘drones’) to monitor archaeological site looting at the Early Bronze Age site of Fifa in Jordan. Drones, both fixed and rotary wing, are being deployed as part of a 5-year study of the scale and pace of looting at the site. By constructing high-resolution digital elevation models (DEMs) across multiple years, we are able to both map the site and identify new looting events from year to year. This change-over-time data, in conjunction with pedestrian surveys and ethnographic interviews, is particularly valuable for identifying looting events in an already heavily disturbed site. Unfortunately findings from the first two years of the project document significant, on-going damage. These early outcomes are currently being used to develop site protection strategies and local community outreach programs to protect the cultural heritage of this landscape.

[279] Discussant

Kessler, Nicholas (University of Arizona)
[311] Documenting the Legendary 1844 Flood from a Kaw Village in the Kansas River Valley
Geoarchaeological fieldwork has documented an alluvial deposit associated with a flood event which overtopped a relatively high terrace in the Kansas River Valley near present day Topeka, Kansas. The deposit, defined as an overwash phase, exhibits structures indicative of flowing water. The overwash phase’s position, overlying a historic Kaw Village, corroborates second hand historic accounts which date its origin to a flood in the year A.D. 1844. This flood event probably resulted in the rapid abandonment of the village and thus presents archaeologists with a “strong case” for reconstructing the systematic context of this village. This fact is significant because of the paucity of well-preserved stratigraphically defined contexts for early historic period sites. These findings are also notable as they provide a geologic marker recording the height of this legendary flood event.

Keyser, James (US Forest Service-Retired)
[353] The Hunter’s Revenge: Magical Use of a Petroglyph
A petroglyph panel at 48SW85 in southwestern Wyoming presents a convincing case for the use of rock art imagery in hunting magic rituals. Based on differential weathering and revarnishing of the
petroglyphs, different stylistic signatures of artists carving various animals and humans, and key superimpositions, the panel can be confidently identified as the product of at least half a dozen artists reusing the site for more than a century, and possibly much longer. The panel's basic structure shows a communal big game hunt whose components show a corral (that incorporates the panel's natural surface features), several animals, and several humans in different roles as participants.

Khaksar, Somayeh and Grant McCall (Tulane university)

Delazian: An Open-Air Upper Paleolithic Site in Central Iran

Most Paleolithic research in Iran has been focused on the caves and rock shelters of Zagros Mountains. Only in recent years has this focus shifted to other parts of the country, leading to the discovery and study of additional Paleolithic sites. Delazian is one such newly-discovered site with an assemblage of lithic artifacts indicating the presence of Paleolithic societies in central Iran during more hospitable periods of climate. In 2009, a systematic survey was conducted at this arid open-air site, which recovered an assemblage of 1344 artifacts. In this poster, we present a technotypological analysis of this assemblage showing that Delazian was probably used as a residential camp at which tool production occurred as part of daily activities. We also find a general lack of evidence for the intensive reduction cores, which we consider to be a sign of easy access to local lithic raw materials. This conclusion is also supported by the presence of many unused blanks in the assemblage. This flake-based assemblage is characterized by the presence of some tool types common to the Upper Paleolithic and Epi-Paleolithic periods but the small sample size prohibits a definitive assignment to one particular time period.

Khalidi, Lamya (CNRS - Archéorient - University of Lyon 2), Clément Ménard (TRACES - University of Toulouse), Bernard Gratuze (CNRS - IRAMAT - University of Orléans), Amélie Diaz (University Paul Valéry Montpellier III) and Edward Keall (University of Toronto - Royal Ontario Museum)

Obsidian Value and Exchange in the Southern Red Sea Region and Its Role in the Establishment of Prehistoric Complex Societies: New Data from South Arabia and the African Horn

The Red Sea is renowned as a locus of maritime activity during the early historic periods. As a result of systematic obsidian analyses of sources and artifacts, maritime interaction in South Arabia can now be traced back to the beginning of the Neolithic period. Its increased intensity is echoed in the cultural sphere that eventually formed on opposing shores of the two continents by at least the third millennium B.C. New geochemical, archaeological, and technological data from South Arabia, Ethiopia and Djibouti illustrate the current state of research on Afro-Arabian prehistoric interactions, highlighting variabilities and relationships between two mirroring regions either bound or separated by the Red Sea. While major chronological gaps remain regarding the transition from the LSA to the Neolithic, the study of lithic and faunal material from several sites allows us to note major technological and subsistence shifts that occurred independently in each region, but also early links, such as maritime interaction, that may have affected the nature of the process of neolithization. Finally, we discuss obsidian circulation in light of elements of cultural convergence that make up the Red Sea cultural sphere and that occur sometime in the late 4th millennium B.C.

Kharlamova, Anastasiya [28] see Kukekova, Anna

Khatchadourian, Lori (Cornell University) and Ian Lindsay (Purdue University)

The Fortress Refigured: Authority and Community in the South Caucasus (ca. 1500-300 B.C.)

In many world regions, the mountain fortress has long stood as little more than a practical instrument of institutionalized force. Such reductionism obscures more than it reveals, for fortresses are equally salient as projects of communal labor, mediators in the making of subjects and authorities, and objects of contestation, curation, and commemoration. In the South Caucasus, fortresses played a
crucial role in the reproduction of polities from the Late Bronze Age to the mid-first millennium B.C. Based on research in Armenia, this paper tracks the shifting role of the fortress in forging political associations from the earliest complex polities to the age of empires. For centuries, authorities of southern Caucasia relied upon fortresses and the range of esoteric and governmental practices they hosted to bind seasonably mobile communities in a shared sense of identity and obligation. However, with the collapse of the Urartian Empire, communities living under Persian rule brought about a transformation in the logics of political order. Opting out of a politics premised on steep social asymmetries, they recast this once pivotal apparatus of sovereignty into an object of ambivalence—at once indispensable to the reorganization of social life but also a focus of collective repudiation and redefinition.

Khreisheh, Nada (Emory University)
[33]  Learning to Think: Using Experimental Flintknapping to Interpret Prehistoric Cognition
The analysis of stone tools has long been a technique used when addressing prehistoric cognition. While experimental studies have been used extensively as a tool that can give information on these technologies, these studies have often been short term and involved a small number of participants. This paper uses the examples of two longer term multi-disciplinary studies of experimental flintknapping, involving the teaching of early knapping technologies, to demonstrate the value of experimental archaeology in providing information that can be related to hominin cognition. In these studies volunteers without previous knapping experience were taught skills in some of the earliest known technologies with the aim that they would achieve expert levels of ability. Through careful mapping and assessment of skill level together with analysis of materials produced, a picture of learning in different technologies could be constructed. This information has been related to hominin cognition and the evolution of modern human brains and intelligence to build a picture of the different cognitive requirements of the technologies assessed. Analysis of materials allow this experimental work to be tied in with the archaeological record, indicating aspects of this that can be analyzed when seeking evidence of early hominin cognitive processes.

Kiahtipes, Chris [239] see Roos, Christopher

Kidder, Barry (University of Kentucky), Daniel Vallejo-Cáliz (University of Kentucky), Shannon Plank (University of Kentucky), Jacob Welch (Yale University) and Scott Hutson (University of Kentucky)
[24]  Great Expectations: Negotiating Community at Ucanha, Yucatán, Mexico
Activities of all actors should be considered collectively given that communities were likely forged through a negotiation of needs and wants from the perspectives of rulers and subjects. Successful elite institutions would need to closely monitor these negotiations. If the needs of the general public were not met, elite institutions could be undermined. During the Terminal Preclassic, Ucanha, a secondary center connected to other monumental centers via an 18-km long causeway in the Northern Lowlands, experienced significant population growth and large-scale monumental construction, from mobilizing regional support. Ceramic and architectural evidence shows larger structures near the ceremonial center likely served as nodes that galvanized the community on a more intimate local scale, while monumental contexts integrated the community at large. The presence of an elite structure with pop motifs suggests the presence of formal rulership by the end of the Preclassic. By the Middle Classic, however, many houses were abandoned, and the hinterlands along the causeway experienced a florescence. Nonetheless, Late Classic monumental construction and residential reoccupation evidences that local elites were successful in coaxing people back to Ucanha. Tacking between elite and nonelite structures across time enables us to present a better picture of the social dynamics at Ucanha.

Kidder, T.R. [155] see Winter, Jacob

Kidder, Tristram (Washington University)
[288]  The Roots of the Modern Anthropocene: The Yellow River Valley, China, 5000-2000 BP
Using geoarchaeological data, I argue that human activity in the late Holocene transformed the environments of the Yellow River, China, into an anthropogenic landscape and that these changes altered China’s history. Ancient China provides a critical case study for understanding how economic intensification, demographic change, technological innovation, and political centralization combine to create the roots of the modern Anthropocene. The Yellow River—known as “China’s Sorrow”—is seen as a natural scourge that afflicts the inhabitants of North China. However, when viewed over the long term, China’s Sorrow is clearly the result of human manipulation of the environment. These data provide an archaeological perspective on contemporary transformations in China. Today, China is developing economically at a stunning pace; it is not clear that this rate of change is environmentally sustainable. Many of the environmental issues facing contemporary China, however, have been experienced in the past—albeit at a different scale—and it is instructive to understand how Chinese society has grappled with these issues and which approaches and strategies have been successful and which have failed.

Kieffer, C. L. (University of New Mexico, Maxwell Museum), Kyle Ports (Texas Tech University), Marisol Cortes-Rincon (Humboldt State University) and Rissa Trachman (Elon University)

Analysis of Faunal Material from Sacred Spaces at Agua Lluvia and along the Dos Hombres to Gran Cacao Archaeology Project in Northwestern Belize.

This research focuses on the faunal material from the caves and sacred deposits at Agua Lluvia and along the Dos Hombres to Gran Cacao Archaeology Project in northwestern Belize. The analysis and interpretation of faunal material in caves can be problematic for zooarchaeologists. Unlike other archaeological features, caves have the added complexity of bioturbation, irregular stratigraphy, and inconsistent preservation. Similarly, faunal remains found within caves can easily be disregarded on the grounds that preservation conditions allow for invasive species to enter the archaeological record. This research bears these factors in mind while comparing the new data with existing cave faunal studies in Central America. Due to the quantity of jute (pachychilus spp.) found throughout the sites, special attention was paid to contexts in which the jute was discovered and how it was modified. This study also stresses the importance of analyzing species utilization through time, as well as spatial deposition on the sacred landscape to gain a better understanding of the exploitation of and reliance on ritual resources. Ultimately, the data reflects an assemblage that was not completely environmentally driven or accumulated by natural means. Rather, these assemblages demonstrate a purposeful deposition of faunal remains by human activity in a ritualized manner.

Kieffer, C.L. [266] see Ports, Kyle

Kielhofer, Jennifer (University of Arizona), Josh Reuther (University of Alaska, Fairbanks), Francois Lanoë (University of Arizona), Dave Plaskett (University of Alaska, Fairbanks) and Jason Rogers (Northern Land Use Research Alaska, LLC)

New Carbon-14 (14C) Dates on “Old” Cultural Components near Quartz Lake, Interior Alaska

As part of the Quartz Lake/Shaw Creek Flats research initiative, excavations took place in 2014 at the Cook, Keystone Dune and Klein sites in the middle Tanana Valley, interior Alaska. Although these sites were previously tested, continued excavation was vital to expand the 14C chronology and enhance understanding of prehistoric subarctic foraging behavior and paleoecology. At the Klein site, our goal was to gather more geochronological information on a component previously dated ~3700-5100 cal. B.P. New excavations revealed additional datable cultural remains from this underrepresented period. Excavation at the Keystone Dune site (KDS) exposed a hearth and the first in situ artifacts and faunal remains (extinct elk [wapiti]) found at this locale, despite more than ten years of intensive inspection. The KDS remains are located on a soil dated to ~12,600 cal. B.P. Finally, Cook site excavations revealed a deeper component and older soils (thought to date to >9000 cal. B.P.). Closely associated animal bone and charcoal samples provide the initial 14C chronology for this deeper component. These findings add to a growing body of archaeological data in the region that dates back ~14,000 years, allowing for a refined chronology of human land use in this subarctic lowland setting.
Kilby, David (Eastern New Mexico University), George Crawford (ENMU Blackwater Draw Site) and Stacey Bennett (Eastern New Mexico University)  
[150] New Investigations into a Late Paleoindian Bison Kill and Terminal Pleistocene Environmental Change at Blackwater Draw Locality 1  

Intensive investigation of an area of Blackwater Draw Locality 1 known as “Isequilla’s Pit” has revealed a well-preserved stratigraphic sequence and the remains of a Late Paleoindian bison kill. The work constitutes a resumption of excavation in this area of the South Bank. Alberto Isequilla abruptly abandoned his fieldwork in 1969, leaving behind an open excavation pit and few field records. Over the past 6 years, the ENMU Archaeological Field School has successfully relocated and mapped Alberto Isequilla’s excavation grid and carried out excavations of Unit E (Carbonaceous silt/Late Paleoindian) and Unit D (Diatomite/Folsom) sediments. Both stratigraphic units contain faunal remains and sparse cultural material, but the concentration of bison remains in Unit E appears to represent a portion of an extensive Late Paleoindian (presumably Cody) bison kill. Paleoenvironmental investigations indicate that this kill was made near the outlet channel of a prehistoric body of water that was in transition from a Younger Dryas-age freshwater pond to an increasingly alkaline early Holocene marsh. This paper presents the results of an integrated series of archaeological, faunal, geomorphic, and paleoenvironmental investigations, and attempts to shed additional light on a relatively poorly known time period in the Southwest and Southern High Plains.

Kilikoglou, Vassilis (Institute of Materials Science, NCSR Demokritos) and Anno Hein (Institute of Materials Science, NCSR Demokritos)  
[25] Petrography and Chemistry Live Together in Perfect Harmony  

Historically, pottery provenance studies in the Aegean were conducted by the application of chemical techniques for element determination. The underlying principle was that ceramics made with the same clay paste should exhibit lower chemical variability than those with different pastes. Although this principle has not changed over the years, pottery studies have undergone serious analytical and most importantly, methodological developments. The main reason for the methodological developments was the systematic introduction of petrography, which related pottery objects to their geological environments and the technology of manufacture. This had a positive effect on the use and interpretation of elemental analysis data, especially in the way that variability was explained. Here complex chemical data sets of Mycenaean pottery are interpreted with the integration of petrography. These represent areas with long potting traditions, as well as consumption sites. We suggest that maximum information can be extracted by the stepwise isolation of petrographic groups and consequent study of their chemical variability. This amplifies the advantage of the high sensitivity of chemistry, by considering the petrographic variation of specific ceramic fabrics. Incidental chemical similarities can be identified and accordingly treated in the statistical evaluation as well as increased chemical variability due to variations fabrics.

Killgrove, Kristina (University of West Florida)  
[124] Giving 3D Scanning a Porpoise: Digitizing the Zooarchaeological Type Collection at the University of West Florida  

The faunal type collection at the University of West Florida’s Department of Anthropology, used for zooarchaeological reference, is composed primarily of specimens of local fauna donated by students, staff, and faculty. These crowdsourced contributions are stored in a lab facility and therefore are not readily available to archaeologists needing to make IDs in the field or to researchers working from afar. Using the department’s NextEngine Desktop 3D scanner and hand-held Sense 3D scanner, we have created digital models of common fauna found on archaeological sites in the greater Pensacola area, including dolphin/porpoise (Delphinidae sp.), turtles (Chelonidae and Pseudemys sp.), great blue heron (Ardea herodias), alligator (Alligator mississippiensis), and shell (Rangia cuneata and Crassostrea virginica). This presentation will discuss how digitally preserving animal bone can solve problems such as access to collections, space management
issues, lack of funding, and biological hazards. The models will be made publicly available for
download and printing.

[42] Discussant

Killick, David [77] see Chiu, Scarlett

Killick, David (University of Arizona) and Edwin Wilmsen (Center for African Studies,
University of Edinburg)

[79] Ceramic Petrography, Historical Linguistics and the Bantu Expansion: Tracking the Arrival of
the First Pottery-Using Peoples in Northern Botswana

It may seem counterintuitive that colonists travelling substantial distances on foot into new territory
should have carried ceramic vessels with them, but in some cases the evidence from ceramic
petrography shows that they did. This case study examines the movements of the first pottery-using
migrants into northern Botswana between the first and the fourth centuries CE. Southern Africa was
the terminus of the long expansion of Bantu languages from their region of origin in present eastern
Nigeria, and we will tentatively suggest that the petrographic and stylistic analysis of pottery may
provide material evidence for the convergence in Botswana of the Western and Eastern streams of
the Bantu languages. We will also present our current thoughts on the status of Bambata pottery,
which some archaeologists have argued was brought into this region by a separate and slightly
earlier migration of sheep and cattle pastoralists.

Kim, Lynn (University of Texas at San Antonio)


Although significant research has been accomplished on the Inka Empire, there are still questions
about how the Inka integrated diverse people and lands, especially those regions near their imperial
frontier, such as the Camata Valley. Understanding how the valley became part of the Inka imperial
frontier will shed light into studies of colonialism, borderlands, landscapes, and imperialism. The goal
of this poster is to explore patterns across the landscape of the Camata Valley. More specifically, I
will investigate the landscape patterns in the valley from the time of the Inka to early Spanish
colonialism with Geographical Information System (GIS), through the examination of (a) the
environment, (b) agricultural terraces, and (c) site location. In the future, the research will expand on
these analyses and focus on agrarian practices, the road system, and site function, so I may
evaluate whether the inhabitants of the valley experienced a colonial or indigenous landscape during
the Inka reign.

Kim, Ha Beom (University of Oregon)

[49] A Study on the Mid-to-Late Neolithic and the Early Bronze Age Agricultural Economies and
their Development at Huizui Site, Yiluo Valley Region, China

In order to gain procedural understanding of early agricultural economies, researches have much to
gain from in-depth, diachronic study of agricultural development in a single region. This study
focuses on the changes in agricultural plant-use over time in the Yiluo Valley, North-Central China by
using archaeobotanical data from the Mid-to-Late Neolithic and the Early Bronze Age occupations (c
3500 – 1500 B.C.) at Huizui. The study’s analysis confirms that changing plant-use patterns at Huizui
were a part of larger agricultural development in the Yiluo Valley region. The Huizui inhabitants relied
heavily on millets as their primary means of subsistence, while beginning to include broader range of
crops such as wheat and rice toward the Late Neolithic period. The study also finds the presence of
statistically significant differential crop and associated weed species inclusions between Mid-to-Late
Neolithic and Early Bronze Age deposits at Huizui. These results suggest an interesting hypothesis,
one where crop consumption at Huizui toward the Early Bronze Age may have involved more trade
and importation of processed crop goods than earlier periods. This hypothesis highlights the
dynamics of early agricultural development occurring at the Yiluo Valley during the Mid-to-Late
Neolithic and Early Bronze Age.

Kim, Jangsuk (Seoul National University)
[80] Demographic Dynamics Inferred from Radiocarbon Dates and Sampling Biases

Using the number of uncalibrated BP dates or summed probabilistic density of calibrated dates, many studies attempt to monitor demographic dynamics of the past. However, some practical factors including differences in intensity and density of archaeological investigations and the preservation of datable materials, natural decay, and even different financial situations of investigations can cause sampling biases, eventually leading to distorted distributions of radiocarbon dates. Thus, database control to remove sampling biases is critical. The temporal distribution of South Korean radiocarbon dates from houses (approximately 10,000 in number) reveals extremely unusual fluctuations over time. Although this may suggest an abrupt population decline and re-growth or result from ‘cultural sampling biases’ such as change in duration of houses and destruction of earlier houses by later houses, the first thing to check is whether it is caused by practical sampling biases such as inter-investigation difference in intensity of material sampling. I propose some methods that can mitigate over- and underestimation of population, by analyzing the number of radiocarbon dates and the total area of archaeological features from which materials for dating were sampled. Then, I compare the controlled database with original database to see how much sampling biases affect the pattern.

Kim, Jangsuk [80] see Choi, Seonho

Kimmel, Addison [90] see Katz, Steven

Kimura, Birgitta [328] see LeFebvre, Michelle

Kincaid, Meaghan (University of Alaska Anchorage), Ryan Harrod (University of Alaska, Anchorage) and Aaron Woods (University of Nevada, Las Vegas)

[273] Cut Marks and Fragments: Piecing Together Possible Explanations for Variation of Processed Human Remains among Neighboring Villages in Pre-Contact Southwest

The discovery of disarticulated and processed human remains at several archaeological sites has provided evidence of extreme violence in the pre-contact American Southwest. Several theories have been presented to explain the presence of these traumatic injuries, including witchcraft executions, ancestor veneration, and cannibalism. The research being presented consists of a detailed reexamination of a small sample of human remains recovered from two neighboring Fremont sites and one nearby Ancestral Pueblo. Novak and Kollman, who previously analyzed the Fremont remains, suggest that the patterning of trauma resembles episodes of extreme violence in the American Southwest. The trauma was analyzed using cutmark analysis techniques described by Ventura Pérez. The reconstructions of cutmark morphology and distribution were compared by site and also to data published on other archaeological examples of disarticulated and processed human remains. The goal of this research is to provide insight into the possible motivation behind the disarticulation and modification of human remains seen by Fremont and Ancestral Pueblo groups. Our results suggest that the patterns and variation of cut marks and fragmentation between these sites may demonstrate different behaviors between these neighboring villages.

King, Eleanor (Howard University) and Stephen Epstein

[236] Where Are We Going? The Impact of Project Archaeology on the Profession, Past and Future

Over its 25 years, Project Archaeology has helped revolutionize not only how we teach archaeology in pre-collegiate and other settings, but also how professional archaeologists look at public engagement. The program’s original objective was to prevent looting by inculcating a sense of stewardship in children. Its initial success made it the profession’s premier outreach instrument. As various states adapted Project Archaeology to different regional audiences, it became clear that the deep cultural knowledge that brings archaeology to life promotes a sense of protectiveness toward the archaeological record. Even more importantly, it can give children a thrilling connection to their own identities. Project Archaeology thus helps develop a public that values cultural heritage. As economic stresses continue to threaten disciplines with no obvious connection to jobs, archaeology
will need broad public support to remain healthy. That public includes members of groups currently underrepresented in the profession, such as African Americans and Native Americans. The multicultural Project Archaeology lessons, tailored to national and educational standards, can attract a wider range of students to study their cultural heritage and pursue archaeological careers. We need their voices if we are to enrich archaeological understanding and foster a public that cares about what we do.

[330] Discussant

King, John [243] see Robinson, David

King, Justin, Heather Richards-Rissetto (University of Nebraska-Lincoln) and Kristin Landau (Northwestern University)
[289] Enter the Void: A GIS Analysis of the Visibility of Empty Spaces at Copan, Honduras
The concept of visibility: what or who is visible and who can see what, provides archaeologists with information about power, ideology, and interaction. Geographic Information Systems (GIS) allow us to quantify the visibility of archaeological features in landscapes and 3D visualizations and gives us a way to experience these past landscapes. In Maya archaeology, most visibility studies measure the visibility of monuments as a means to understand the role of architecture within ancient Maya society. In this paper, we reverse our approach—measuring the visibility of “empty” spaces at the ancient city of Copan in Honduras—in order to interpret the role they may have played in conveying messages and shaping daily life. Using GIS we identify “empty” spaces across the city and begin to interpret their potential significance. These spaces that appear “empty” today could have been agricultural fields, household gardens, or ritual stages, which each have different implications in terms of visibility. We focus particularly at “empty” spaces in San Lucas—a neighborhood overlooking Copan’s main civic-ceremonial complex.

King, Jason (Center for American Archeology), Jason Herrmann (Eberhard Karls Universität Tübingen), Jane Buikstra (Arizona State University) and Taylor Thornton (Center for American Archeology)
The Golden Eagle site (11C120), located near the confluence of the Mississippi and Illinois Rivers, in Calhoun County, Illinois, is the only known Lower Illinois Valley mound site that includes an earthen enclosure. The site is frequently discussed in regional interpretations of moundbuilding traditions, though little is directly known about the site, particularly the embankment. Archaeological investigations have been limited to topographic mapping, pedestrian surveys, and limited inspection of an erosional cross-section on the eastern side of the embankment. In 2013, the Center for American Archeology (CAA) began geophysical prospection of the site, followed by excavations conducted by the CAA and the Arizona State University Field School in 2014. In this paper, we report results from ground-penetrating radar (GPR) survey and groundtruthing in the northwestern portion of the embankment. GPR and excavation results are used to characterize the structure of the embankment, and evaluate evidence from the eastern erosional profile.

King, Adam (SC Institute of Archaeology and Anthropology)
[335] Exploring Community Creation at the Mississippian site of Etowah (9Br1)
Etowah was the locus of a prehistoric community for 550 years. After its founding, the site was abandoned and re-occupied twice, meaning Etowah’s communities were created three separate times. Periods of abandonment create points in the life of a community where it is possible to question and modify local tradition. Re-establishment after abandonment can lead to novel ways of casting identity, social relations, and history. Data collected at Etowah and the wider region reveal this process and allow me to explore how the built environment and material culture of Etowah were transformed with the creation of each new community.

King, Stacie (Indiana University) and Ricardo Higelin Ponce de Leon (Indiana University)
Mortuary Practices in the Nejapa region of Oaxaca, Mexico

To date, we have documented or recovered the remains of over 15 individuals in the Nejapa region of Oaxaca. This paper summarizes these finds and takes a first step in comparing the mortuary practices of Nejapa to those in other regions of Oaxaca. Eight individuals were found buried nearby one another at the site of Majaltepec, an early Colonial period town in the mountains surrounding Nejapa. Morphoscopic dental analyses indicate the presence of at least 4 younger individuals between 15 and 21 years old, 3 infants, and 1 individual of undetermined age. Though poorly preserved, the burials provide us clear examples of early Colonial indigenous mortuary practices. Notably, residents of Majaltepec buried their dead below floors of buildings with grave offerings, similar to practices in Prehispanic Oaxaca. The persistence of these practices alongside Dominican presence and Catholicism suggests that there were limits to Spanish oversight. Prehispanic burials in Nejapa, by comparison, are uncommon in spite of extensive excavation. The lack of sub-floor burial in Nejapa, in particular, might signal a difference in identity between the Prehispanic residents of Nejapa and the residents of Majaltepec in the late sixteenth century.

Kingwell-Banham, Eleanor (Institute of Archaeology, UCL)

From Wild Rice Harvesting to Domestic Rice Agriculture in South Asia

It is still unclear if India saw an independent domestication of rice, and so the origins of Oryza sativa indica, as distinct from the Chinese rice O. s. japonica, are shrouded in mystery. However, there is very early evidence dating to ca. 9000 BP of wild rice exploitation, and perhaps of crop management, from Northern India. Once rice becomes widely reported within the archaeobotanic record, there is long term evidence for low impact agrarian practices across the subcontinent, including shifting cultivation, lasting up to 5000 years until domestic rice agriculture became widely adopted. This presentation will sum up archaeological and genetic evidence for rice domestication in India and outline the pathway to domestic rice agriculture that the current data supports, a pathway which is almost uniquely protracted and muddled.

Kinkopf, Katherine (University of California, Berkeley) and Jess Beck (University of Michigan)

Bioarchaeology and Looting: A Case Study from Sudan

Disturbing the dead has been considered a criminal activity in the Nile Valley since the trial of Egyptian tomb robbers in 1100 B.C.E. Looting is one of the most destructive forces at archaeological sites; grave robbing, in particular, leaves human remains and cultural heritage irreparably damaged. During 2007-2008, the Oriental Institute Nubian Expedition (OINE) worked to identify, record, and preserve important archaeological sites that have since been destroyed by the Merowe Dam. Al-Widay, a cemetery that was excavated by the OINE near the Fourth Cataract region of the Nile River in northern Sudan, is a site with important implications for understanding the taphonomy of archaeological looting. Over 60% of the tumuli excavated at Al-Widay were disturbed in antiquity, making it an ideal case study for examining the effects of looting on the recovered human skeletal remains. Our research applies bioarchaeological methods of quantifying fragmentation to an assessment of culturally significant anatomical regions in order to evaluate the nature and degree of human disturbance activity at Al-Widay. Studying the preservational patterning of looting makes it possible to access aspects of looting behavior in the past, as well as to reconstruct the original archaeological context of disturbed remains.

Kintigh, Keith (Arizona State University)

Discussant

Kintigh, Keith W. [167] see Bocinsky, R. Kyle

Kinz, Theresa (The Underground)

Fields of Resistance: Reflections on Archaeology and Anarchist Praxis

In this paper I offer personal reflections on my experiences as an anarchist archaeologist. I'll be addressing how my perspective has shaped my interpretation of material culture and landscape;
describe my experiences as a CRM field archaeologist organizing to resist exploitation, lobbying for a more egalitarian profession and recognition of our unique form of archaeological knowledge; analyze the eco-anarchist movement’s appropriation of anthropological and archaeological data and theory.

Kirakosian, Katie (UMass Amherst)

Kirakosian, Katie [281] see Doucette, Dianna

Kirch, Patrick (Univ. California Berkeley)

Kirch, Patrick [339] see Swift, Jillian

Kirkendall, Whitney [106] see Leon Guerrero, Annamarie

Kiser-Go, Deanna (University of California, Berkeley)

Kissel, Marc (University of Notre Dame) and Agustin Fuentes (University of Notre Dame)

Kissel, Marc [53] The Evolution of a Distinctive Human Niche: Assessing and Describing the Development of Wisdom in the Pleistocene the Archaeological Record

How can anthropologists assess the pattern of complex decision-making that early humans undertook when navigating social networks and what role does this ability, which we might call wisdom, play in the origin & development of the cultural human experience? While it is clear that there are behaviors unique to humans such as the creation of complex lithic artifacts, unaddressed for the most part has been how behaviors such as collaboration, land use patterns/long-distance raw material transport, symbolic thinking, aesthetic preferences, ritual behavior, and stigmergy (self-
organization) are expressions of wisdom itself. We suggest that specific changes occurred in the material record between 500-100 kya that engendered substantial changes in the human niche. Here, we report on a large-scale comparative database of archaeological and fossil sites, which includes behavioral patterns, materials used, types of representation produced, possible uses for these items, and, where available, local ecological and demographic parameters. This allows focus on the feedback loop between social and material complexity in order to examine how these experiences shaped other evolutionary processes. These data will then be used to develop a model to determine patterns that can provide insight into the creation and use of the distinctive human niche.

Kistler, Logan (The University of Warwick)

Molecular Archaeobotany from Its Early Foundations Onward: New Questions and Perspectives for the Genomic Era

Following the inception of ancient DNA-based research in the mid 1980’s, researchers began applying the new toolkit of archaeogenetics to a diverse range of questions surrounding human-plant interactions. These early studies laid the groundwork for the field of molecular archaeobotany, exploring aspects of selection and domestication, movement of crop plants alongside humans, and human impacts on ancient ecosystems. Some two decades later, ancient DNA researchers began experimenting with next-generation sequencing technologies, and recent years have seen the high-profile fluorescence of genome-scale ancient DNA research with the publication of a number of complete genomes from ancient humans and archaic hominins. These technological developments have allowed researchers to mitigate—though certainly not eliminate entirely—the perennial challenges of ancient DNA-based research, such as severe limitations of sample size, molecular marker choice, and accessible DNA fragment length. The same new methods are beginning to gain more widespread usage in anthropologically motivated plant archaeogenomics, dramatically increasing the breadth and resolution of approachable research using ancient plant DNA. Several recent studies begin to illustrate the utility of molecular archaeobotany in the age of genomics, but the full potential lies ahead.

Kitchell, Lindsey [33] see Schoenemann, P.

Kjolsing, Jason (UC San Diego) and Paul Goldstein (UC San Diego)

Seeing Prehistory in Color: Interpreting the Use of Colored Pigments at the Tiwanaku Omo Temple, Moquegua, Peru

Although color is often at the background of our lived experience, colors also have the power to demand our attention. In this paper we explore how color was a meaningful component of the built environment in prehistoric South America and specifically the ways it demanded the attention of the Tiwanaku (A.D. 500-1100) of the south-central Andes. Extensive excavations at the Tiwanaku Omo ceremonial temple (M10A) in Moquegua, Peru have revealed the use of red and green pigments on selective walls and doorways throughout the structure. Using ethnographic, ethnohistoric, and archaeological data, we argue that the colors of Omo’s built environment symbolized circulating liquids and guided temple supplicants along a ceremonial procession pathway. We suggest that attention to color is an important avenue for understanding the significance of the built environment and other materials from prehistory.

Klaric, Laurent (CNRS UMR-7055 PRETEC)

Palethnographic Interpretation of the Gravettian Site of La Picardie (Indre-et-Loire, France): A Difficult Path

After nine years of excavations (1998-2008) the site of La Picardie has delivered a major lithic collection (more than 13 000 artifacts piece plotted) chronologically related to the “Raysse burin” Gravettian (second phase of Middle Gravettian ca. 24 ky BP uncalibrated). Through the study of lithic material several major results have been brought to light (chronological attribution, description of a new retouched bladelet type, reconstruction of the flint knapping process for blade and bladelet production). However, palethnographic study and interpretation of the site have yet to be broached.
In spite of some taphonomic problems, different studies can be combined in order to push our understanding of the site further: functional analysis of stone tools; assessment of skill level in flint-knapping; vertical and horizontal distributions of artifacts and tools; and observation of the organization of the different “structures” made of limestone blocks. Through several illustrative examples we will try to expose, step by step, the various elements that help us to rebuild the probable function of the site. Finally, making quick comparisons with other "synchronous" Gravettian sites (Solvieux, Plasenn-al-Lomm), we will see why La Picardie is quite unique for this peculiar phase of French Middle Gravettian.

Klassen, Sarah (Arizona State University), Damian Evans (University of Sydney), Terry Lustig (University of Sydney), Barry le Plastrier (Independent Scholar) and Eileen Lustig (University of Sydney)

[286] Evaluating the Sustainability of an Angkor-Period Engineered Landscape at Koh Ker, Cambodia

Several studies have argued that the collapse of an unsustainable hydraulic network was a major factor in the abandonment of medieval Angkor (~9th to 15th centuries A.D.) as the capital of the Khmer civilization. However, Angkor presents us with a great deal of uncertainty due to the spatial and temporal complexity of the archaeological remains. The Angkor-period city of Koh Ker, in contrast, provides the opportunity to study a medieval water management system whose structure and functioning can be discerned with relative clarity. Here we present the results of an investigation into the archaeological landscape of Koh Ker, including the use of airborne laser scanning (lidar). We argue that the system at Koh Ker was a hybrid one, combining elements of a ‘highland system’ of damming river valleys (as in Phnom Kulen) with elements of the classical ‘lowland system’ of reservoirs, canals and bunded fields (as at Angkor). We assess the strengths and weaknesses of this engineered landscape in the context of different hydrological, hydraulic, agricultural, social and demographic models; present evidence for the catastrophic failure of the system during the Angkor period; and assess the implications of these data for our understanding of the sustainability of medieval Khmer cities.

Klaus, Haagen [187] see Hurtubise, Jenna

Klehm, Carla (Washington University - St. Louis), Eileen Ernenwein (East Tennessee State University), Katie Simon (Center for Advanced Spatial Technologies, Universi), Jeremy Menzer (East Tennessee State University) and Mica Jones (Washington University in St. Louis)


This multi-component project addresses how societies in Iron-Age Botswana (550-1650 CE) experienced the change from small, rural-centered life to centralized power based on increasing involvement in trade across the Indian Ocean. How this change occurred remains a central focus, with increasing pressures on the environment in this desert-margin landscape a likely contributing factor. It features the Bosutswe region, situated on the eastern edge of the Kalahari Desert, where the site of Bosutswe has been well studied but surrounding sites are almost entirely unknown. These smaller, even ephemeral sites were drawn to the magnet of opportunity that Bosutswe provided: temporary camps for traders and hunter-gatherers, and smaller homesteads inhabited for a few years or possibly generations. The project includes low-altitude aerial and geophysical survey of two small ground sites and a hilltop site, Mmadipudi Hill, located within 4km of Bosutswe associated with the beginning of this transition period. The data from the drone-based platform, including thermography and a photogrammetrically-produced digital elevation model was compare to on-the-ground geophysical surveys including electromagnetic induction (EMI), ground-penetrating radar (GPR) and magnetometry and targeted test excavations.

Klehm , Carla [8] see Simon, Katie

Klein, Richard (Stanford University)

[296] Archaeological Shellfish Size and Later Human Evolution in Africa
About 50,000 years ago, modern humans expanded from Africa to Eurasia. Significant behavioral change accompanied this expansion, and archaeologists commonly seek its roots in the African Middle Stone Age (MSA) before 50,000 years ago. Easily recognizable art objects and “jewelry” become common only in sites that postdate the MSA in Africa and Eurasia, but some MSA sites contain possible precursors. Population growth is the most popular explanation for these precursors and for the post-MSA florescence of art. Economically important gastropods from coastal sites in South Africa allow a test this idea, since the number of human collectors is probably the principal determinant of average gastropod size. In every examined gastropod species, average size is similar in MSA layers with precocious artifacts and those without, and MSA gastropods are always substantially larger on average than those in succeeding Later Stone Age (LSA) layers that formed under equivalent environmental conditions. The sum suggests that whatever the cognitive implications of precocious MSA artifacts, they were not associated with population growth. MSA populations remained consistently small by LSA standards, and a substantial increase in population size is obvious only at the MSA/LSA transition, when it is dramatically reflected in the Out-of-Africa expansion.

Klein, Lauren [273] see Fernandez, Andrew

Klokler, Daniela (Universidade Federal de Sergipe - UFS) [152]  
Fish Heads that Turn Heads: Catfish from Cabeçuda Shell Mound  
Zooarchaeological analysis of the Cabeçuda shell mound identified a number of Ariidae (Genidens barbus, G. genidens) neurocrania with exceptional preservation. This site is a large mound located in southern Brazil, and the faunal collection was sampled during archaeological interventions done in the 1950s. Generally, Ariidae specimens are a common find in Brazilian shell mounds. However, Cabeçuda is the only site that presents elements with this level of preservation. Catfish neurocrania are composed of several bones that easily disconnect from each other and their presence at the site in such condition leads to some questions. This paper explores the importance of catfish and its decline throughout the occupation. Is it due to changes in preferences or environmental shifts, site formation processes and their influence on differential preservation, or site function?

Klokler, Daniela [152] see Gaspar, Maria

Klontz, Barbara (PaleoResearch Institute) and Linda Scott Cummings (PaleoResearch Institute) [415]  
PaleoNutrition, Coprolites, and Hemachromatisis: What is the Connection?  
Evidence of cribra orbitalia in the physical anthropology record has long been interpreted to represent in adequate sources of iron in the diet. Pairing coprolites with naturally mummified bodies from Nubia allowed examination of the diet and correlation with physical evidence retained by the bones at both the population and individual levels. Although the diet included foods sufficiently rich in iron, it also contained foods heavy in phytates, which block the absorption of iron. In this population, iron deficiency anemia was more likely related to eating foods rich in phytates than to not having access to sufficient iron in the diet. Hemachromatosis, commonly referred to as iron overload, is genetically controlled. To many it is the opposite of iron deficiency anemia. How might examination of prehistoric diet shed light on the origins of hemachromatosis? Hemachromatosis is more common in people of northern European origin than in people and then from other areas of the world. Can a correlation be shown through time between dietary adaptation and genetic mutation? How does nutritional analysis of coprolite evidence of diet contribute to a better understanding of health?

Knab, Timothy (Universidad de las Américas Puebla) and John Pohl (UCLA) [259]  
Round and Round We Go: Cholula, Rotating Power Structures and Social Stability in Mesoamerica  
Rotating power structures of the mayordomías circulares in Cholula show extreme stability through time. We will analyze how these systems work and why they are so effective using notions of social capital to show how these and other organizations in Cholula build up social capital needed to keep
Cholula’s baroquely complicated system of ritual festivals running. In so doing, we will show that the system can be sourced to the early post conquest period when it was maintained by the city’s merchants, and further propose that it was rooted in Postclassic structures that maintained Cholula as a coherent urban entity at the apex of a vast trade network. The extreme social stability of rotating power structures make them a much better model for looking at Mesoamerica’s past than the linear Aztec models so often used for the comparative analysis of ceremonial centers.

Knabb, Kyle (University of California, San Diego), Matthew Howland (University of California, San Diego), Tammy Rittenour (Utah State University), Yigal Erel (Hebrew University) and Thomas Levy (University of California, San Diego)

Rethinking The Cultural and Natural Dimensions of Landscape Pollution in the Faynan Valley, Southern Jordan

The human impact on marginal environments is an issue that has especially affected societies in the Middle East during the past 8,000 years, a time when some of the most significant political and economic developments in the history of human societies took place. Such development often permanently altered the character of these fragile ecosystems. Landscape degradation, especially heavy metal pollution, is a poignant example of the deleterious effects that humans can have on the environment. We conducted a study of ancient pollution in the Faynan valley of southern Jordan – an area rich in copper ores – during the most intensive episodes of production: the Iron Age and Roman period. Based on the results of excavation and survey, geochemical analysis, and OSL dating, we created a GIS model of the spread of ancient metal ions through biophysical processes. This information has allowed us to simulate the ways in which potential pollutants would have moved across the landscape, and hypothesize the effects on the landscape. We argue that intensive copper production did not directly lead to environmental degradation, but instead, was probably the result of a combination of post-abandonment factors, including erosion and the collapse of supportive infrastructure.

Chair

Knapp, Dante [230] see Green, Debra

Knaub, Colene, Nicole Jacobson (University of Central Florida) and Kate Flor-Stagnato (Rutgers University)

Exhumation vs. Excavation: The Armenian Genocide and Our Ethical Responsibilities

Records of human rights violations precede biblical times and have shown no signs of decelerating despite the contemporary measures taken to clearly define such atrocities. In the case of the Armenian Genocide, committed by the Ottoman Empire during WWII, the Young Turk government took great care as to restrict the publication of photographs and reports that would expose the widely condoned practice and to this day claim to have no responsibility or knowledge of such occurrences. The physical evidence obtained from the remains of victims that are exhumed from mass graves is delicate and controversial. We will discuss the various ways that archaeologists and physical anthropologists attempting to recover and restore historic memories that had been selectively recalled have undertaken a twofold endeavor; the exhumation as well as the excavation of mass graves. The initial and unarguably integral mission of these specialists is to identify the remains of individuals associated with human rights violations so as to be repatriated to family members. Secondly, the obligation towards collecting scientific evidence that is unable to be dismissed so that historic acknowledgement of the enormous human and material loss occurs. We will examine the nuanced process in which these endeavors are undertaken.

Knecht, Rick

Prehistory and Climate Change in Southwest Alaska

Significant elements of the artifact assemblage, architectural features as well as recent DNA analysis of human hair recovered from the Nunalleq site (GDN-248), all support the idea of Thule cultural expansion onto the Yukon-Kuskokwim Delta region of Alaska. Other evidence points to strong links
ABSTRACTS OF THE SAA 80TH ANNUAL MEETING

with the Alutiiq (a dialect of Yup’ik) speaking peoples on the Kodiak Archipelago, Alaska Peninsula and Prince William Sound. There are clear similarities between late prehistoric Yup’ik and Alutiiq religious and ceremonial artifacts, game pieces, and hunting technologies. This paper compares two large and well-preserved late prehistoric assemblages: the Nunalleq site now being excavated near Quinhagak, south of the Kuskokwim River and the Karluk One site on Kodiak Island. Both are wet sites that have yielded more than 20,000 artifacts, many of rarely preserved wood and other organic materials and both were occupied during the Little Ice Age. Comparison of these sites reveals telling similarities and differences in the way coastal Yup’ik and Alutiiq peoples may have responded to climate change.

Knecht, Rick [337] see Britton, Kate

Kneifel, Rebekah (University of Montana), Rachel Loehman (USGS, Alaska Science Center), Connie Constan (USFS, Santa Fe National Forest) and Jim Reardon (USFS, Rocky Mountain Research Station)

Fuel Treatment Guidelines to Reduce Wildfire Damages to Ceramic Artifacts in the American Southwest

Artifact assemblages in the American southwest are currently subjected to periodic wildfires and prescribed burns, and have been exposed to fires in the past. Ceramics are a key constituent of these assemblages, leading to questions regarding effects of post-depositional heat and flame exposure on pottery. Alterations of ceramic pattern, form, and chemistry have been observed following wildfires, and such changes are significant because intact ceramics provide temporal context and other social information. Over the past 150 years, southwestern wildfires have shifted away from the historical high-frequency, low-severity regime; thus, cultural resources can be exposed to fires that are potentially more damaging than have occurred in the past. The wide range of fire environments and the duration and intensity of heating that result in damages to ceramic artifacts has not previously been systematically assessed. We report on results from laboratory tests conducted as part of the Joint Fire Science Program-funded ArcBurn project. Our results demonstrate that the type of fire environment and sustained dose determine patterns of alteration. Results can be used to identify fire environments that cause loss of information from artifact assemblages, and to develop management treatments and procedures to guide archaeological preservation in fire-prone landscapes.

Knell, Edward (California State University, Fullerton)

Terminal-Pleistocene through Late Prehistoric Settlement Strategies around Pluvial Lake Mojave (Soda and Silver Lake Playas), California

Multiple lines of evidence are used to establish terminal Pleistocene-early Holocene (TP-EH) through Late Prehistoric spatio-temporal patterns and settlement strategies around pluvial Lake Mojave (more recently Soda and Silver Lake playas), California. Data from pedestrian survey and in-field analysis of lithic artifacts at four survey areas along the eastern shoreline of Soda and Silver Lake are analyzed using GIS to establish whether settlement strategies changed in accordance with variations in the lake water-level. Prior analysis of the Little Cowhole survey area identified three spatially separated, dense bands of artifacts that follow the TP-EH shorelines and reflect a gradual, time transgressive shift in TP-EH habitation closer to the receding water-level (Knell et al. 2014). Other survey areas at Soda and Silver Lake have sites dating from the TP-EH to Late Prehistoric, providing the opportunity to evaluate whether post-TP-EH peoples continued shifting towards the receding water-level. The analyses indicate that the Middle and the Late Holocene sites are at sequentially lower elevations than the TP-EH sites, ultimately providing temporal and spatial context for the TP-EH sites (the focus of my research) and key insights regarding Lake Mojave’s or Soda and Silver Lake playas role in the regional settlement system.

Knight, Charles (University of Vermont)
The Middle to Late Formative Olmec Chipped-Stone Assemblage from Los Soldados, Veracruz, Mexico

The use of chipped-stone in domestic Olmec contexts has only recently become a focus of archaeological investigation. With the publication of data on the chipped-stone assemblages from the Olmec centers of San Lorenzo and Tres Zapotes in the last few years, a picture emerges of great diversity in materials consumed and technologies used by commoners and non-commoners alike. The Middle to Late Formative household chipped-stone assemblage from the 2010 excavations at Los Soldados, in the hinterland of the Olmec center of La Venta, adds to this picture of regional diversity. Unlike other Olmec period sites where obsidian from numerous sources was the principal chipped-stone material consumed, the Los Soldados assemblage reflects the utilization of a wide variety of microcrystalline materials, the most common being chert. While obsidian also is common, it appears to have been used in ways that differ from other materials. What this variation suggests about the participation of the Los Soldados inhabitants in a region-wide obsidian exchange network is addressed through regional comparison.

Knight, Charles L. F. [259] see Smith, J. Gregory

Knight, Terry (Ute Mountain Ute Tribe) [369] Discussant

Knipper, Corina [93] see Harris, Susan

Knodell, Alex [385] see Gosner, Linda

Knox, Kelsey (University of Colorado, Denver) [396] Biogeography of Neandertals: The Southern Italian Middle Paleolithic

Most research on the Middle Paleolithic in southern Italy has focused on the region of Apulia. This research has been extensive and productive, and so it stands to reason that other less researched regions of southern Italy hold similar potential. This paper uses predictive niche modeling to identify Neandertal niche from site location and environmental variables in Apulia, and applies the modeled niche to under researched regions to predict locations of new Middle Paleolithic sites. The model will also be tested against locations of recent site discoveries in the regions, allowing a reflexive look at both where researchers choose to look for sites as well as the accuracy of the predictive models as derived from Apulia and applied elsewhere in southern Italy. Results will help call attention to the potential of the area while guiding future research.

Knudson, Kelly J. [338] see Novotny, Anna

Kober, Brent [304] see Craig, Douglas

Kocer, Jacqueline [354] An Examination of Gallina Utility Ware: Vessel Morphology and Function

The morphology of a ceramic vessel is directly related to intended use, and potters consider function during manufacture. Functional types such as cooking vessels, ollas, water jars, seed jars, bowls, and pitchers, are common in our ceramic lexicon. However, the relationship between morphology and function is not always intuitive, especially when considering secondary function and special use. The Gallina (A.D. 1050-1300) produced a wide variety of utility wares, but archaeologists have conducted almost no research on the ceramic style, use-wear and function of these non-decorative vessels. How many different shapes of utility ware were utilized in Gallina country? How did the Gallina use these different morphological types? Do interpretations based on shape indicate something different than use-wear and residues? I examine whole vessels from the Gallina culture area and categorize them into morphological classes. I also compare sooting on these different
morphological classes to evaluate actual use. I test whether or not vessels in the identified morphological classes were positioned over the fire in the same manner as evidenced by sooting patterns. Finally, a qualitative discussion of individual vessels allows for further interpretations about vessel use.

Koenig, Charles (Texas State University - San Marcos, Texas)  
[256]  
Floods, Muds, and Plant Baking: ASWT Excavations at Skiles Shelter  
Skiles Shelter (41VV165) is a “wet” rockshelter situated approximately ½ kilometer upstream from the confluence of Eagle Nest Canyon and the Rio Grande in the Lower Pecos Canyonlands of Texas. Due to the threat of inundation and damage due to extreme flooding events when Rio Grande flooding backs up from Amistad Reservoir, Skiles Shelter is the most-threatened site within Eagle Nest Canyon. Initial testing of Skiles was conducted during the 2013 Texas State field school. In 2014, the Ancient Southwest Texas (ASWT) Project greatly expanded on these preliminary excavations, focusing on four main research objectives: 1) understanding the site’s depositional history; 2) quantifying how much earth oven baking occurred there; 3) using ground based (e.g., hand-held digital cameras) Structure from Motion (SfM) photogrammetry to document every excavation unit, layer, profile, or exposure; and 4) relating the prehistoric record at Skiles to the other sites within Eagle Nest Canyon. Combining the SfM data with Total Data Station shots, we have created an unparalleled 3D record of the site, as well as high resolution documentation of every sample collected for radiocarbon dating, geoarchaeology, archaeobotany, and zooarchaeology. This presentation will highlight the investigative methodology and preliminary results of the ongoing analyses.

Kohl, Philip (Wellesley College)  
[340]  
Silence and Noise in the Archaeological Record: Are Archaeological Understandings Always Underdetermined?  
In his seminal critique on the practice of history: Silencing the Past: Power and the Production of History, Michel-Rolph Trouillot persuasively argues that historians often cannot understand or even recognize major historical events, such as the slave organized and directed rebellion in Haiti (1791-1804) that led to the end of slavery and the establishment of the Republic of Haiti. It was simply inconceivable that slaves could plan and lead a successful revolt against their French masters. If historians with such a rich textual record can overlook or largely ignore this past, what chance do we have as archaeologists to recognize and interpret the silences of the material cultural record that are so fundamental to the discipline? This paper addresses the acute archaeological problem of interpreting “the absence of evidence” through the development of international collaborative research programs that foster a more robust understanding of the archaeological record; more dissonance undercuts the refractory silences of the past.

Kohler, Tim (WSU/SFI/CCAC)  
[348]  
The Effects of Temporal Coarse-Graining on Inferred Networks of Human Movement  
Analyses using tree-ring dates provide an attractive test-bed for examining effects of temporal coarse-graining in archaeological contexts, due to the high-resolution of dendrochronology. After compiling a database of every known tree-ring date in the U.S. Southwest, we use tree-ring-date counts and locations as proxies for gridded human population estimates in the upland portions of the SW US. Grid-squares that lose dates are connected to nearby grid squares that gain dates as we move from one time slice to the next, thus forming spatial networks of (putative) population flow. We progressively coarse-grain the cutting dates (e.g., bin them first by decade, then by 20 years, etc.) and we quantitatively monitor the effects that this coarse-graining has on the statistics calculated on the networks. These spatial networks, which we call spatial genealogies, tend to show that areas developing distinctive ceramic types and wares emerge as more-or-less separate components in a network sense. Thus, the implication is that style zones emerge because of relatively dense circulation within them, compared to sparser movement between them. In this paper we ask, At what temporal coarse-graining does this effect disappear?

[84]  
Discussant
Kohler, Timothy A. [84] see Crabtree, Stefani

Kohut, Lauren (Vanderbilt University)

**[11] Fortified Lookouts and Border Patrol in the Late Intermediate Period Colca Valley, Peru**

During the Late Intermediate Period (A.D. 1000-1450), the Colca Valley in the southern Peruvian highlands was heavily fortified. Survey of hilltop fortifications (pukaras) identified a class of large non-habitation pukaras located along the rim of the valley that were perhaps designed to monitor the vast expanses of puna surrounding the valley. Additionally, a prehispanic road which leads into the valley from the south passes through a primary defensive wall at one of the sites—further suggesting access into and out of the valley was a central concern for local groups. In this paper, I use spatial modeling of ideal regional routes (least-cost paths) along with known prehispanic roads to examine the relationship between the location of this class of fortifications and access points to the valley. The results show that the number of ideal access points is limited by the geography of the valley. The proximity of these fortifications to these access points indicates they likely functioned as monitoring outposts and were strategically placed to monitor access into and out of the valley. This pattern suggests that communities in the Colca Valley were organized against external threats, rather than local raiding within the valley during the Late Intermediate Period.

Kolar, Miriam

**[59] DIY Digital Archaeoacoustics: Sensory-Spatial Mapping**

An experiential link to past life, sound is a medium for engaging questions of ancient emplacement and human activity. Spatial sonics can be linked to a dynamic sensory map of one's surroundings; beyond conveying information about structural boundaries and environmental events, architectural and landform acoustics can help or hinder communication. Although acoustics and audio digital signal processing are specialist disciplines, consumer audio technologies can enable the extraction of sonic characteristics from the objects that produce sound and the structures that shape it. Inexpensive, free, and/or open source audio computing tools can be leveraged for non-invasive research methods, important to site conservation. Integrative archaeoacoustics fieldwork at the Andean Formative ceremonial center at Chavín de Huántar, Peru has relied upon customized digital audio research tools and methods, frequently developed in the field DIY-style, in response to site features and logistical challenges. New research connects acoustic data with coincident auditory perceptual responses to generate sensory spatial maps, informed by DIY archaeoacoustics, to engage sonic questions.

**[59] Chair**

Kolb, Charles (National Endowment for the Humanities)

**[35] Tales from Three Caves and a Rockshelter in Balkh Province, Northern Afghanistan**

The geomorphology and archaeology of four Balkh River Valley sites near the bazaar town of Aq Kupruk (36°05′0″N 66°50′0″E) spanning the Upper Paleolithic through Contemporary Nomadic cultures are detailed and compared. This valley served as a significant north-south corridor through the Hindu Kush Mountains, a western extension of the Himalayas, and a caravan route from the Turkestan Plain to the Bamiyan Valley and on to the Kabul River Valley, Indus and the Subcontinent. Major excavations were conducted at Aq Kupruk I (Ghar-i-Mar/“Snake” Cave), a rockshelter with a slight overhang and highly complex stratigraphy located on the east side of the river, and Aq Kupruk II (Ghar-i-Asb/“Horse” Cave), a true cave situated on the west side. Aq Kupruk III, an open-air Upper Paleolithic campsite, was also tested and a small sondage excavated in Aq Kupruk IV, a shallow cave, which yielded ten disarticulated secondary burials and grave goods dating to the late Early to Late Iron Age. Chronologically, the longest stratified archaeological sequence anywhere in Afghanistan occurs at Aq Kupruk I: Upper Paleolithic, Epi-Paleolithic, Neolithic, Bronze Age, Iron Age, Achaemenid, Early Kushan, Great Kushan, Early Sasanian, Kushano-Sasanian, Hephalites, "Early" and "Late" Islamic, and Contemporary Nomadic.
Kolb, Michael [368] see Balco, William

Kolber, Jane [149] see Huang, Jennifer

Kolise, Jennifer (USAG Fort Carson) and Pamela Miller (USAG Fort Carson) [363]  
"Got Data, Now What?": Fort Carson's Steps Toward Addressing Data Gaps in Archaeological Research  
For several decades, the U.S. Army Garrison (USAG) Fort Carson, Colorado, has had an active cultural resources management program, resulting in the documentation of over 8,000 archaeological resources. The known archaeological resources represent every period of human occupation from the Paleoindian period to the present. Site types include cache sites, open/sheltered camps, village sites, game drive sites, rock art panels, quarries, historical ranch complexes, historical trails, historical trash scatters, and cairns. In support of the Army's training mission, the Fort Carson Cultural Resources Management Program has focused their most recent efforts on the identification, protection and monitoring of significant resources. Through the execution of programmatic agreements (PAs) that allow for creative mitigation opportunities, the accumulated data is now being analyzed and synthesized to address gaps in the prehistory and history of southeastern Colorado. This poster will discuss current and future archaeological research and management goals and objectives.

Koller, Jared [238] see Alders, Wolfgang

Koller, Jared (Boston University) and Kaoru Ueda (Boston University) [238]  
In Search of Southeast Asia’s Trade Network: Comparative Ceramic Analysis  
Southeast Asia is a region whose inhabitants have long been engaged in long-distance trade connected through ocean and river systems. This paper presents the preliminary results of a petrographic study on earthenware samples from archaeological sites in Singapore, Indonesia, and Thailand in order to scientifically investigate the putative trade networks. The preliminary results show a complex picture of local production and imported ceramics, one that changes depending on the location and the specific socio-political of each site. This paper argues that fine-paste ware analysis is crucial to understanding the region’s trade networks, and is an essential step toward building a baseline database of Southeast Asian ceramics.

Kollmann, Dana [19]  
Put ‘em to Work! The Transition from the Classroom to the Field  
Many students eager to begin a career in the forensic sciences have never been on a crime scene and it is even more unlikely that they have ever had the opportunity to process one. This paper details the unusual circumstances that enabled Towson University students to partner with law enforcement and work on both active and cold cases that have necessitated the search for human remains and associated evidence.

Komas, Tanya [310] see Everett, Mark

Kontonicolas, MaryAnn and C. Myles Chykerda (University of California, Los Angeles) [368]  
Methone (located in Pieria, Greece) was a key trading hub in the prehistoric and historic North Aegean, visible in the discovery of an array of workshops, production tools, and imported artifacts, and by some of the earliest evidence for the Greek alphabet in the Mediterranean. The 2014-2016 Ancient Methone Archaeological Project aims to enrich our understanding of the settlement and situate it within the wider Mediterranean world. The principal components of the project--intensive surface survey, excavation, and geophysical and geomorphological survey--work together in interdisciplinary collaboration to enhance our current understanding of this significant site. This
presentation outlines the initial findings of the 2014 survey, focusing on critical information concerning the surrounding natural and cultural landscapes of the settlement. Over six weeks in summer 2014, a total of 80 hectares was surveyed via intensive pedestrian survey methods. Geographically-linked data was digitized and visually presented in ESRI's ArcMap 10.2. General trends show a rich material assemblage ranging from the Late Neolithic (ca. 3500 B.C.E.) onwards, with a number of individual finds attesting to the industrial manufacturing and trade that took place at this center. Other materials represent military, cultural, and economic spheres of Methone throughout its rich occupational history.

Konwest, Elizabeth [235] see Bollwerk, Elizabeth

Konwest, Elizabeth (Indiana University, Bloomington)

[335]  Where We Live: Houses, Households, Barrios, and Towns in Postclassic Oaxaca

Greater La Amontonada, a cluster of Postclassic period sites in the Nejapa region of Oaxaca, Mexico, is an ideal location for investigating the ways in which people would have negotiated their roles as members of households, neighborhoods, and larger communities. Group members enact their relationships through everyday choices, habits, and routines that are materialized through daily action. The practices enacted in one community, the learning and doing, may be materialized differently than those learned in other communities. These practices are physically manifested in the learned methods of production that are passed down from generation to generation, and can be seen in technological choices, production methods, and raw materials. Through an analysis of the production technologies of artifacts recovered from excavated residential structures, primarily ceramics and lithics, this paper will consider how the residents of greater La Amontonada would have been linked to various spatially defined groups including, but not limited to, households and communities. Maintaining these group ties was important, as people of greater La Amontonada reacted to various foreigners traversing through Nejapa on trade and conquest campaigns between the politically powerful Oaxaca Valley and the resource rich Tehuantepec coast.

Kooiman, Susan (Michigan State University)

[280]  Pottery Function, Cooking, and Subsistence in the Upper Great Lakes: A View from the Middle Woodland Winter Site in Northern Michigan

The relationship between subsistence and food-processing technology is a burgeoning topic in archaeology and has the potential to yield new perspectives on resource choice and cuisine in the Upper Great Lakes. This paper presents the results of exploratory functional pottery analysis from the well-dated Winter site, a Middle Woodland habitation in the western Upper Peninsula of Michigan. The analytic data discussed includes those physical properties affecting ceramic vessel performance, as well as use-alteration traces, particularly those indicative of cooking and food processing techniques. The analytic results are compared to similar data from the Naomikong Point site, another northern Michigan Middle Woodland site. Both sites are then contrasted with data from the nearby Late Woodland Sand Point site in order to explore possible temporal changes in subsistence practices, which could be linked to a broader suite of behavioral changes taking place during the late prehistoric period in this region. Together, the comparative application of functional pottery analysis to these assemblages could serve as the foundation for a more refined regional understanding of prehistoric vessel function, cooking techniques, and diet.

Koons, Michele [90] see Nash, Stephen

Koons, Michele (Denver Museum of Nature & Science)

[404]  Southern Moche Politics Reevaluated: The Reconciliation of Relative (Ceramic Chronologies) and Absolute (Radiocarbon) Dates

Recently I performed a reevaluation of published radiocarbon dates for the Moche culture (200-900 A.D.). I only considered 14C samples obtained from short-lived plant materials found in association with "dateable" ceramics (Moche I-V, and Early, Middle, and Late Moche). The purpose was to test the validity of the relative ceramic chronologies in each valley against absolute dates. For this paper,
using Bayesian analysis I compare the well contextualized Moche dates from the Chicama Valley to those from the Moche and Viru Valleys to demonstrate that ceramic style does not strictly follow time and that there are marked differences in the dates when each ceramic style was in use in the different valleys. This has major implications on our understanding of Moche politics in the Southern Moche region. The reevaluation of the Moche 14C record demonstrates that ceramic phases are insufficient for understanding Moche chronology. However, by careful analysis of the absolute dates associated with ceramic styles at different sites, we can begin to reconstruct Moche political dynamics and site affiliations through time.

Koontz, Rex (University of Houston)

[39] Patterns of Elite Self-Presentation in North-Central Veracruz, Middle to Epiclassic Periods
Elite public imagery in north-central Veracruz during the Cacahuatlic phase (c. 350-600) focused on frontal presentations of single figures and a restricted iconography. The Late Classic brought considerable changes to elite self-presentation in the region, including a more complex multi-figure narrative format and the palma, a new costume object. Both of these changes were directly related to changes in the visual patterns of public sculpture and the performance of public rites. This essay looks at the changes in patterns of elite self-presentation from the iconic, earlier Cacahuatlic through the complex narrativity of the Late and Terminal Classic periods (Isla A and B) against the backdrop of the growing importance of the urban center of El Tajín.

Koontz, Cassandra [208] see Birge, Adam

Koontz, Cassandra

[208] Landscapes of Violence: Trophy Head Production and Interpersonal Violence during the Wari era in the Middle Majes Valley, Arequipa, Peru
The Middle Horizon (600 - 1000 A.D.) is known as a period of increased social hierarchization, changing mortuary customs, and high rates of interpersonal violence in many regions of the prehistoric Peruvian Andes. This project compares rates and types of violent practices (antemortem, perimortem, and postmortem violent dismemberment) between the northern and southern sectors at the recently excavated Middle Horizon cemetery site of Uraca in the middle Majes Valley to skeletal data from the early and late Middle Horizon excavated by Tung in the upper Majes Valley in order to determine whether violence types and rates are different near the ritual center of Toro Muerto than at other mortuary and residential sites in the upper valley. Spatial distributions of violence types and rates from the present project and published data are also explored in order to determine whether local geography predicts the type of violence practiced. Differences observed in violence rates and types can be explained by two alternate hypotheses. The northern and southern sectors at Uraca may have been used for interment during different time periods, or for interment of individuals from different social classes, ethnic identities, or occupational groups.

[208] Chair

Kopperl, Robert (SWCA Environmental Consultants), Amanda Taylor (SWCA Environmental Consultants), Kenneth Ames (Portland State University) and Christian Miss (SWCA Environmental Consultants)

[360] New perspectives on Native American occupation of the Puget Lowlands of Washington during the Late Pleistocene-Holocene transition from the Bear Creek Site (45KI839)
The Bear Creek site (45KI839) in Redmond, Washington has yielded important information about Native American settlement, subsistence, and technology in the Puget Lowlands during the Late Pleistocene-Holocene transition. This poster presents new data on radiocarbon and optically-stimulated luminescence dating, paleoenvironmental reconstruction, and lithic analysis conducted as part of the 2013 data recovery investigation. New dates contribute to an age model that places the initial archaeological component prior to 10,000 cal BP. Occupation of this lacustrine shoreline ended by the early Holocene as the position of the shoreline shifted and the local environment became a wetland. The lithic assemblage, comprising over 5,000 artifacts in all, is dominated by an expedient flake technology, but also contains bifaces, retouched tools, and associated debitage. Analysis
focuses on procurement strategies of local volcanic and metasedimentary cobbles and extra-local materials, production sequence of flake tools, and technological comparisons of the Bear Creek stemmed and concave-base points with Paleoarchaic technologies of Western North America including Clovis, Western-Stemmed, and Olcott traditions. Microwear and residue analysis of a portion of the assemblage suggest potential functions of the site occupants’ toolkits.

Kornfeld, Marcel (PiRL - University of Wyoming) and George Frison (University of Wyoming) [138] Paleoindians and Rockshelters in the Middle Rocky Mountains
Since at least the 1980s the University of Wyoming has conducted Paleoindian and rockshelter studies on BLM administered properties from northern Colorado to southern Montana. The cooperative and assistance agreements have benefited both the agency and the University. An enormous amount of research effort contributed by the faculty, and enhanced by volunteers and avocationals, have produced results far beyond what could have been accomplished without the cooperation. The results include students training (many becoming federal archaeologists), student and faculty conference presentations, publications including MA and PhD thesis, and public education. We highlight some of our research results including excavations at Mill Iron, Upper Twin Mountain, Krmpotich, Two Moon Shelter, Last Canyon Cave, and others.

Kornfeld, Marcel [166] see Larson, Mary Lou

Korpisaari, Antti (University of Helsinki, Finland) [184] On the Absolute Chronology of Late Tiwanaku / Early Late Intermediate Period Ceramic Traditions: Case Studies from the Bolivian Altiplano and North Chile
Although the timing of the Tiwanaku collapse is debated and probably varied somewhat from one region to another, this process probably took place in the 10th and 11th centuries A.D. In 1998-2006, I worked at two Tiwanaku heartland sites which produced long series of radiocarbon dates corresponding to this critical period. At the cemetery site of Tiraska, ceramic grave goods in a style closely resembling Tiwanaku V were present from the early 10th until the mid-13th century A.D. On the island of Pariti, our investigations uncovered the remains of a probable closing offering: huge quantities of "Classic" Tiwanaku pottery in two contexts securely dated to circa A.D. 1000. As for North Chile, many of the 16 radiocarbon dates I obtained in 2013-2014 for four "Middle Horizon" cemetery sites of the Azapa Valley are surprisingly late; this is especially true for the dates related to the Cabuza ceramic tradition, all of which post-date A.D. 1000. In light of the abovementioned case studies I shall discuss the use-life of the "Classic" and "Decadent" ceramic styles in the Tiwanaku heartland and the possibility that the spread of the Cabuza pottery into North Chile was largely related to the collapse of the Tiwanaku state.

[184] Chair

Korstanje, Maria Alejandra (Universidad Nacional de Tucumán - CONICET), Marcos Quesada (Universidad Nacional de Catamarca - CONICET) and Mariana Maloberti (Universidad Nacional de Tucumán - CONICET) [180] Agriculture Roles in Landscapes and Taskscapes: An Interdisciplinary Approach from Northwestern Argentina
Traditionally, the Agriculture of the Formative Period (1000 B.C.-100 A.D.), was conceived as technologically simple and spatially reduced. However, this simplicity is reconsidered when we take into account that these technologies made possible the practice of agriculture in desert environments with eroded and underdeveloped soils, during millennia. Our research in El Bolsón valley, which is a high basin in western Catamarca, allowed us to know in detail some peasant practice as the irrigation technologies, the field preparation and other agronomic techniques as well as how the agrarian landscapes were structured in the past. In this presentation we summarize the results obtained through multiple lines of work (including landscape archaeology, archaeobotany), that allowed us to discuss the idea of agriculture perpetuated from traditional models, and also rethink it from a perspective that considers the complexity of the relationship between plants, soil, water, agricultural knowledge and ways of labor organization. Thus, we have recognized a significant
variability of peasant practices through which agriculture was configured during the Formative period. We have also recognized the persistence of certain aspects of this agriculture during Regional Development Period (1000 - 1500 A.D.), for which it has been assumed a re-articulation of production and power structures.

[347] Discussant

Kosakowsky, Laura (University of Arizona)

Remembrances of Things Past: Peter D. Harrison and Maya Archaeology

After Peter Harrison’s forays at Tikal, Guatemala and in Quintana Roo, Mexico, he turned his attentions to archaeological research in Belize in the late 1970s. Thus began his multi-year project at Pulltrouser Swamp, with his colleague Billie Lee Turner, which resulted in a series of foundational publications on Prehispanic Maya agriculture. In this paper we reflect on Peter’s contributions to Belize archaeology and to the discipline as a whole, as we celebrate his many interests in Maya settlement patterns, agriculture, architecture and hieroglyphs.

[295] Chair

Kosiba, Steve (University of Alabama)

Killing Time, Becoming Inca: Subject Creation and Monument Construction in Ancient Cuzco

The Incas built the largest indigenous empire in the Americas, and though they lacked a written history, they were keen to tell Spanish scribes how they assembled their domain. Inca nobles explained that their ancestors vanquished anyone who dared challenge Inca claims to authority. Like the boasts of other conquerors, these stories cast only particular people as the subjects of history and the cultivators of “civilization.” But they also conceal another side of Inca history: For, it was precisely during these violent encounters that the places and people of the Andes became Inca—essential members of an Inca polity.

This paper challenges Inca and archaeological tales of domination by focusing on the negotiated sites and violent practices that created Inca subjects and constructed official histories in Inca and Spanish Cuzco. It presents recent archaeological and ethnohistorical data to trace the social life of the Inca deity and shrine at Huanacauri, a contested monument that first served to support Inca absolute authority and later came to embody a generalized Andean identity. Over the past six centuries, Cuzco’s people have built, revered, and demolished this monument, thereby collapsing Inca myth and history while giving rise to different understandings of the concept “Inca.”

[305] Chair

Kotegawa, Hirokazu (Universidad Veracruzana)

An Olmec Cylinder Seal from Los Soldados

In 2010, a young man from the Ejido Diaz Ordáz found a Prehispanic clay cylinder eroding out of a road cut in the Olmec site of Los Soldados. Although the exact archaeological provenience is not secure, we consider the object belonging to the Olmec culture through other data obtained by the Proyecto Arqueológico Arroyo Pesquero-Los Soldados. The artifact is of particular importance because of the unique images presented on this artifact, which appears to constitute a domestic scene. We know of no comparable Olmec or other Mesoamerican cylinder seals. In this study we develop an iconographic comparison between similar Mesoamerican images to clarify unique and common characteristics. And we argue that the scene represented on this clay cylinder seal has much to do with the activities engaged by the residents of the site. We consider the potential that this archaeological piece has in helping to reconstruct the daily life of the Ancient Olmec.

Kott, Isabela [52] see Pratt, Jordan
Kott, Isabela, Carl P. Lipo (California State University, Long Beach), Christopher Lee (California State University, Long Beach) and Terry L. Hunt (University of Oregon) [52]  
Spatial Analysis of Prehistoric Garden Features on Rapa Nui (Easter Island, Chile)  
Manavai are circular walled stone gardens used for cultivation by the prehistoric populations of Rapa Nui (Easter Island, Chile). Though not fully mapped, over 1000 manavai are known across the island in a distribution that reflects dispersed settlement patterns. Object-based image analysis of newly available high-resolution imagery of the island offers a means of systematically identifying manavai features. Using the results of these analyses, we examine the spatial patterns of manavai and their association with topography and other environmental resources to test hypotheses about the role that these gardens played in past communities.

Kouvatsou, Patricia [81] see Avila-Ortiz, Alan  

Kovacevich, Brigitte [22] see Callaghan, Michael  

Kovacevich, Brigitte (Southern Methodist University) [86]  
The Materiality and Mobility of Jade in the Upper Usumacinta Basin  
Distributions of jade in the Upper Usumacinta basin suggest that the movement of jade followed political connections and were not purely instances of down-the-line trade motivated by economic gain. Jade objects were likely gifted between elites to solidify political relationships. Some sites along the Usumacinta River received a wealth of jade, while others were relatively impoverished and turned to replicas or other forms of symbolic capital. The materiality of jade during the Classic period gave it a unique role within Maya society in the constitution of social identity and social connections.

Kovach, Adreinne [81] see Howey, Meghan  

Kovacik, Peter (PaleoResearch Institute) [176]  
New Perspectives on the Use of Yucca in the Arid Southwest: Archaeobotany and Experiment  
Macrofloral analysis conducted on sites concentrated in the northwestern Permian Basin (southeastern New Mexico) recovered evidence of charred yucca (Yucca sp.) leaf bases in numerous features. Ethnographically various yucca plant parts are mainly associated with fiber and food processing. The presence of these remains in solitary hearth features distributed on the arid landscape of southeastern New Mexico suggests use of these plants simply as tinder. Yucca plants represent a natural and easily accessible element in this environment. Experimental burning of whole yucca plants was carried out to better understand the ignition properties of dry yuccas and to identify charred plant remains that would be common in the archaeological record. In addition, scanning electron microscope imagery was used to compare the microscopic anatomy of archaeological and modern yucca reference materials. Results of this study were plotted, using GIS, on the landscape to show distribution of these remains compared to all of the feature samples examined within the project area. In addition, hundreds of AMS radiocarbon dates on charred yucca leaf bases and other remains from features that contained charred yucca also were obtained, indicating burning this common native plant by people crossing this landscape consistently for a few thousand years.

Kovácik, Peter [62] see Varney, R.  

Kovacs, Shawn (McMaster University), Eduard Reinhardt (McMaster University) and Dominique Rissoleo (Waitt Foundation) [370]  
Calcite Rafts as a Proxy for Reconstructing Holocene Surface Water Conditions of Hoyo Negro: A Phreatic Coastal Karst Basin in Quintana Roo, Mexico  
Located in the Sac Actun cave system on the eastern coast of the Yucatán Peninsula, Hoyo Negro pit (HN) has proven to be a very important pre-Maya archaeological site as human (Naia, dated between approx. 13 000 - 12 000 calendar years ago) and faunal remains have been discovered
(Chatters et al., 2014). Reconstructing the flooding history (accessibly when the cave system was dry) and water chemistry of HN is critical to our understanding of the movement of humans and fauna into and through the cave over time. To accomplish this, cores of calcite raft piles from the upper cave passage connecting HN to Ich Balam Cenote (IB) and the base of the HN pit were analyzed for stable isotope composition ($\delta^{13}C$, $\delta^{18}O$ and $\delta^{87}Sr/\delta^{86}Sr$) and trace element concentration. This study identifies the long-term paleohydrochemical conditions in IB and HN while comparing/contrasting independent climate records within the circum-Caribbean region. Furthermore, this will represent an innovative proxy that will reconstruct surface groundwater salinity and its potability during the Holocene.

Koyiyumptewa, Stewart [239] see Ferguson, T. J.

Kozuch, Laura [152] see Marquardt, William

Krall, Angie [110] see Wescott, Konnie

Kramer, Karen [153] see Greaves, Russell

Krasinski, Kathryn [72] see Seager-Boss, Fran

Krasinski, Kathryn (Adelphi University)

[87] Towards a Multivariate Model for Accurately Identifying Cutmarks

The identification of cutmarks has been integral to expanding the understanding of hominin behavior ranging from the origins of meat eating to megafaunal extinctions and the peopling of Australia and the Americas. However, paleoanthropological and archaeological research has demonstrated that while cutmark placement may be indicative of activity, cutmark morphology is more complex and influenced by multiple variables such as raw material, tool shape, and bone density. Further, significant overlap in the classic features of cutmarks, such as the standard V-shaped cross-section, has also been recognized in numerous processes including carnivore gnawing and trampling. This presentation establishes an empirical, probabilistic, and multivariate approach through logistic regression for differentiating raw materials (lithics, steel, and teeth) as well as actors which produce modifications commonly identified as evidence for butchering in the archaeological record. The results demonstrate that no diagnostic attribute of cutmarks produced by lithics was identified. Therefore, single attributes are insufficient for accurate cutmark identification. However, an approach which includes excavation history, stratigraphic context, location, orientation, and color of mark improve the likelihood with which cutmarks are identified accurately.

[87] Chair

Krause, Samantha [350] see Beach, Timothy

Krause, Samantha (University of Texas at Austin), Timothy Beach (University of Texas at Austin), Sheryl Luzzadder-Beach (University of Texas at Austin) and Thomas Guderjan (University of Texas at Tyler)

[350] Maya Wetlands: Natural and Anthropogenic

In our continuing endeavors to better understand Maya wetland formation and agricultural systems across the Maya Lowlands, we now compare natural and anthropogenic wetland field formation. Natural wetland processes can form patterned environments that may be similar visually to intensive, culturally modified, wetland systems. This paper will consider natural factors that can produce similar topography to Maya wetland fields. We will also present aerial photography, GIS, soil stratigraphy, and wetland chemistry to clarify the differences between natural wetland features, such as hogwallow, tree islands, ant mounds, and gilgai patterns, and intentional ancient canal and field systems. By developing new techniques to better quantify wetlands that have been culturally
modified, it will be possible to improve upon previous models of identifying and mapping Maya agricultural systems and understanding other earth surface processes and forms.

Krause, Johannes (Max Planck Institute - SHH), David Reich (Department of Genetics, Harvard Medical School, Bo), Iosif Lazaridis (Department of Genetics, Harvard Medical School, Bo), Nick Patterson (Broad Institute of Harvard and MIT, Cambridge, MA,) and Alissa Mittnik (Institute for Archaeological Sciences, University )

[396] Ancient Human Genomes Suggest Three Ancestral Populations for Present-Day Europeans

Ancient DNA can reveal historical events that are difficult to discern through the study of present-day individuals. To investigate European population history around the agricultural transition, we sequenced complete genomes from a ~7,000 year old early farmer from the Linearbandkeramik (LBK) from Germany and an ~8,000 year old hunter-gatherer from Luxembourg. We also generated genome wide data from seven ~8,000 year old hunter-gatherers from Sweden. We compared these genomes and published ancient DNA to genome wide data from 2345 present-day individuals from 185 diverse populations to show that at least three ancestral groups contributed genetic material to present-day Europeans. The first are Ancient North Eurasians (ANE), who are more closely related to Upper Paleolithic Siberians than to any present-day population. The second are West European Hunter-Gatherers (WHG), related to the Loschbour individual, who contributed to all Europeans but not to Near Easterners. The third are Early European Farmers (EEF), who were mainly of Near Eastern origin but also harbored WHG-related ancestry. We model the deep relationships of these populations and show that about ~44% of the ancestry of EEF derived from a basal Eurasian lineage that split prior to the separation of all other non-African lineages.

Krause, Samantha [350] see Hanratty, Colleen

Kretzler, Ian (University of Washington), Joss Whittaker (University of Washington) and Ben Marwick (University of Washington)

[200] Grand Challenges vs Actual Challenges: Text Mining Small and Big Data for Quantitative Insights

Kintigh et al (2014) recently published a survey of archaeologists that claimed to identify 'archaeology's most important scientific challenges'. Numerous commentators have critiqued the small sample size of this survey (181 respondents) and the subjective reading of the responses. We use quantitative methods to analyze the full text of the survey responses and discover different challenges to those highlighted by Kintigh et al. We also analyze over 6000 archaeology journal articles in JSTOR to investigate the importance of the 'grand challenges' over time. We show how quantitative analysis of text reveals the diversity and dynamism of archaeological topics.

Krigbaum, John [205] see Steinbruchel, Amber Joliz

Krigbaum, John (University of Florida (Anthropology)), Christina M. Giovas (Department of Anthropology, University of Pittsburgh) and George D. Kamenov (Department of Geological Sciences, University of F)

[164] Strontium and Lead Isotope Evidence for Paleomobility of Introduced Fauna in the Southern Caribbean

Increasingly, studies seeking to understand the interconnectivity of pre columbian Caribbean island societies have employed isotopic approaches to identify the movement of peoples and goods between islands and continents. These investigations advance reconstructions of mobility and exchange, and their social context, by providing robust data on the non-local status of archaeological remains and their ultimate origins. Here we report on the results of strontium (87Sr/86Sr) and lead isotope (206Pb/204Pb, 207Pb/204Pb, and 208Pb/204Pb) analyses of introduced South American mammals, agouti (Dasyprocta sp.), opossum (Didelphis marsupialis), and dog (Canis lupus familiaris), in the southern Lesser Antilles during the Ceramic Age, ca. 2500-500 BP. Importantly, we report new data for bioavailable strontium and lead for four islands with variable volcanic and carbonate geologies: Grenada, Carriacou, Mustique, and Barbados. When incorporated with zooarchaeological findings, these data inform on Amerindian exchange, socio-economic networks,
faunal exploitation, and the potential captive management of introduced animals and their possible ecological impacts.

Discussant

Krigbaum, John [205] see Groff, Amanda

Krill, William [358] see Sakai, Sachiko

Kristan-Graham, Cynthia (Auburn University)

The council house (popol nah or nim ja in Maya languages) is found from North Mexico to southern Mesoamerica. With roots in Classic-period architecture and enduring until after the Conquest in some regions, the council house typically was located in central areas of civic-ceremonial centers and featured a rectangular colonnade and built-in benches. In situ glyphs and ethnohistory indicate that lineages used these buildings for ritual-administrative purposes, and perhaps also as dwellings. This paper analyzes the proliferation of the council house during the Epiclassic period and queries whether it can be considered diagnostic of Epiclassic architecture, and how its consistent form came to be spread over a wide geographic area.

Chair

Kroot, Matthew (Skidmore College)

Beyond their identification and recording during survey, small sites have only occasionally and sporadically been the object of significant research in archaeology. Yet, such sites can be of great significance when trying to understand a wide variety of social systems and practices. While the potential practices associated with small sites in the past are virtually limitless, some patterns are commonly found within specific forms of settlement systems. Within autonomous village-based settlement systems, such sites can often play central roles in subsistence production and the exercise of land tenure. One aspect of the occupations at small sites within such systems that is especially important is the temporal dimension. Typically, small sites within autonomous village-based settlement systems are only occupied during a portion of the annual cycle. However, understanding the temporal patterns of occupation at such sites is often quite difficult, given the frequent paucity of materials available for analysis. This paper examines evidence for temporal patterns of occupation at the Pre-Pottery Neolithic B small site of al-Khayran. Because al-Khayran is the first such site excavated from this time period, understanding the role of the site within broader settlement systems is potentially of great significance.

Chair

Krug, Andrew (University of Missouri), Kyle Waller (University of Missouri) and Christine VanPool (University of Missouri)

Previous studies of shell exchange in the Southwest have supported archaeological interpretations of competing regional networks in which the Hohokam, Sinagua, and Anasazi acquired shell from the Gulf of California, while the Casas Grandes, Mimbres, and Western Puebloan groups acquired shell from West Mexico. This study will build on previous analyses by integrating stylistic analysis with an expanded compositional database to further examine the role of shell exchange in the Animas phase region of New Mexico and Arizona. ICP-MS analyses of shell artifacts from 76 Draw will be combined with modern shell and an expanded Casas Grandes geochemical dataset to investigate potential regional sources for shell procurement. The geochemical analysis of shells from 76 Draw, as well as other Animas phase and Casas Grandes samples, will provide a clearer picture of exchange and interactions between the Casas Grandes core and sites in the borderlands.
Krummel, Jordan

A Bioarchaeological Analysis of Human Remains on the Summit of Tigre Pyramid, El Mirador, Guatemala

On the platform between the triadic group on the Tigre pyramid at the site of El Mirador, Guatemala, the Mirador Basin Project discovered human remains scattered over the upper platform of this pyramid associated with hundreds of projectile points, in both local chert and obsidian from Central Mexico. Additional artifacts included shell, bone, and large quantities of Early Classic ceramics. This presentation will focus on the osteological remains from this deposit. Skeletal analyses of the remains will be considered with artifacts recovered in their proximity in order to reconstruct who these individuals were and the events that led to their deaths.

Kuckelman, Kristin [85] see Smith, Susan

Kuckelman, Kristin (Crow Canyon Archaeological Center)

Fortified Settlements as Forces of Social Change Among the Ancestral Pueblo Peoples of the Northern San Juan Region

The sociopolitical landscape of the ancestral Pueblo peoples residing in the northern San Juan region of the American Southwest was influenced and shaped in significant ways by a variety of pressures associated with the construction and habitation of fortified communities during periods of heightened social tensions and increased violence. Evidence of the formation of fortified communities and the implementation of various defensive strategies dates from at least three major periods of occupation within this region: the Basketmaker III period (A.D. 500–750), the Pueblo II period (A.D. 900–1150), and the Pueblo III period (A.D. 1150–the early A.D. 1280s).

This paper explores the societal effects of defensive strategies employed during these periods, which, during the earlier periods, included the construction of wooden stockades that surrounded individual farmsteads or hamlets and, during the final period, included the aggregation of populous communities and the construction of fortified villages near springs in protective alcoves and on canyon rims. Among ancestral Pueblo communities of this region, diverse environmental and societal pressures necessitated the construction and habitation of fortified settlements, an adaptation that, in turn, strained existing social systems and forced the development of more complex and integrated sociopolitical organization.

[85] Chair

Kuester, Falko [409] see Meyer, Dominique

Kuhn, Steven (University of Arizona) and Mary Stiner (University of Arizona)

The Antiquity of Hunter-Gatherers Revisited

One of the challenges of Paleoanthropology is developing coherent models for ancient social and economic systems that have no close analogues in the recent archaeological and historical records. Systematic observations of variability among recent foragers produced by Binford, Kelly and others, are vital tools for understanding early humans. They provide necessary frames of reference for predicting variation, and for understanding why observations may not fit predictions. In a 2001 paper we argued that Middle Paleolithic hominins were very different kinds of hunter-gatherers than recent humans. Data accumulated over the past decade provide an opportunity to refine and reshape these arguments. Both theoretical and empirical findings highlight the importance of demographic factors in explaining the anomalous features of the Middle Paleolithic record. However, this begs the question of what might account for differences in the demographic potentials of hominin populations.

[241] Discussant

Kuhn, Steven [296] see Stiner, Mary
Kuijt, Ian [56] see Gunter, Madeleine

Kuijt, Ian (University of Notre Dame)

[82] Where We Sleep: Ethnoarchaeological Perspectives on the Near Eastern Neolithic House and Households

How many people lived in individual buildings within early food producing communities? Be it as an explicit driver or as an implicit background landscape, all modeling of small-scale household life, developing Neolithic villages, and the evolutionary trajectory towards the full-blown domestication is linked on some level to demography and the increasing scale of human communities through time. The reconstruction of the scale of Neolithic house, including our engagement with what may represent the shape and materialization of what can be called nuclear and extended households, is both complex and in need of further research. Ethnographic and archaeological studies demonstrate that the number of people living in early food producing houses, farms and villages varies depending upon household life-history, and that in many cases there is significant out migration of household members to other households or neighboring communities. Drawing upon comparative ethnoarchaeological research on 19th century houses and households from the fishing village of Inishark, Co. Galway, western Ireland, I explore how this comparative context reframes discussion of how we model social relations and connections within and between houses in specific, and Near Eastern Neolithic settlements in general.

Kukekova, Anna, Jennifer Johnson (University of Illinois at Urbana-Champaign), Anastasiya Kharlamova (Institute of Cytology and Genetics of the Russian), Rimma Gulevich (Institute of Cytology and Genetics of the Russian) and Lyudmila Trut (Institute of Cytology and Genetics of the Russian)

[28] Genetics of Behavior in Fox Model of Animal Domestication

Domestication as a special form of evolution offers valuable insight into how genomic variation contributes to complex differences in behavioral and morphological phenotypes. The silver fox (Vulpes vulpes) is taxonomically close to the dog but normally exhibit distinct patterns of aggressive and fear-aggressive behavior to humans. At the Institute of Cytology and Genetics (ICG) in Novosibirsk, Russia the process of animal domestication has been experimentally reconstructed and a strain of domesticated fox with behavioral patterns extremely similar to those of domestic dogs has been produced. The research program aimed to identify genetic regulation of these behaviors is under way. The Fox Experiment provides a strong support for genetics-centered view of animal domestication.

Kulaga, Nicole


Both Paleoindian and Archaic sites hold valuable information concerning some of the first people in North America, yet these sites remain to be some of the most difficult to identify. Without diagnostics like architecture and ceramics to turn to, projectile points are what are most commonly depended on when trying to date these locales. However, debitage makes up the bulk of the artifacts found on these sites and sites of later dates, and it is highly plausible that debitage characteristics will follow a pattern based on the technological changes that occur over time. Taking debitage and the associated patterns into greater consideration allows for more accurate dating and data. In-field debitage analyses on single-component sites paired with analyses done in the past at sites spanning from the Paleoindian to Pueblo IV in the Petrified Forest is presented here. I will be looking at a variety of variables, including size, platform types and sizes, proportions of raw materials, debitage types, and other morphological characteristics. By doing so, I hope to find lithic assemblage signatures that correspond with specific time periods which would allow for Paleoindian and Archaic sites, as well as later sites, to become more distinguishable in the archaeological record.

Kulhavy, Kathryn [204] see Pack, Frankie
Kulick, Rachel (University of Toronto)  
Recent studies of structural remains at Magdalenian open-air sites have provided valuable insights into patterns of occupation and intra-site spatial organization. However, interpretations of activities that may have occurred within the structures have primarily been limited to understandings of the repetition and duration of such activities. Determining more detailed use-of-space within the structures has been challenging at many sites due to site disturbance, not only from natural and anthropogenic post-depositional processes, but also from difficulties in amalgamating structural data from recent studies with those of previous excavations (e.g., at Oelknitz, Andernach-Martinsberg, and Gönnnersdorf). Current excavations at the site of Peyre Blanque, Fabas, Ariège, have revealed a possible Magdalenian stone structure, and spatial analyses of the archaeological finds and structural remains have been implemented. For the first time at a Magdalenian open-air site, a systematic geoarchaeological analysis of the potential structure has been conducted to better understand the use-of-space within the structure, and the post-depositional and soil formation processes that have affected the structure and overall site. This study demonstrates how soil micromorphological and geochemical analyses provide a high-resolution record of human activities and environmental processes that can enhance our understanding of Magdalenian site occupation and social organization.

Kulow, Stephanie [21] see Torvinen, Andrea

Kupriyanova, Elena [345] see Hanks, Bryan

Kurin, Danielle [11] see Diaz, Diana

Kurin, Danielle (University of California Santa Barbara)  
[334]  Chair

Kurnick, Sarah (Lehigh University)  
[335]  Discordant Relationships: Household and Community at Callar Creek, Belize  
From the Late Preclassic to the Late Classic period (400 B.C.E. to 900 CE), the Mopan Valley of Belize was a complex political landscape and an arena of intense political competition. During this time, the Valley witnessed the sequential rise of three, closely-spaced, major centers – centers likely in direct competition with one another – as well as the establishment and abandonment of minor centers and settlement clusters. The Mopan Valley Archaeology Project recently completed excavations and analyses of the minor center of Callar Creek. Located approximately halfway between the contemporaneous major centers of Buenavista and Xunantunich, Callar Creek was likely the home and administrative center for a low-level elite family. This paper will examine the relationships between members of the Callar Creek household and those living in both larger centers and small settlements. Excavations elsewhere in the Valley have suggested that individuals living at both major and minor centers actively cultivated relationships with those in adjacent hinterland settlements. Those living at Callar Creek, however, appear not to have engaged directly with those living in nearby settlements, and the Callar Creek household appears to have prospered while the surrounding households declined and were abandoned.

Kus, Susan (Rhodes College) and Victor Raharijaona (Chercheur Associé Université de Fianarantsoa, Mada)  
[20]  Some *Muse*nings on Past and Recent Encounters with Lutins, Naiads, and Non-Anthropomorphic Forces: Reconsidering Vocabulary and Questions Concerning “Religion” and “Belief” in the Face of Ethno-Archaeological Experiences in Madagascar
This contribution involves a re-examination of assertions we have made in the past concerning "religion", "belief" and "ideology": jettisoning some, reasserting others, and offering "refinements" where appropriate. Often limited cultural exposure to a circumscribed terrain of contemporary religions in service of the state contributes significantly to the initial framing of our questions (and attendant expectation of answers). One of our lives, embedded in context in rural and urban Madagascar, and our shared professional experiences in the field as ethno-archaeologists, have offered us some "alternative" insights because of a number of "grounded" and material encounters: with "imps", "mermaids", and "things; with others who have had such encounters; and with individuals capable of cajoling a range of quasi-anthropomorphic and non-anthropomorphic forces. On this edge between "religion" and "magic", we focus attention on the audacious stance of specialists in a "lifeworld" (à la Jackson) where humans are sometimes ephemeral features among amoral autochthonous and immanent forces. We continue to argue that the inscrutability of some concrete material (syncretic) tropes of word, object, and deed in such lifeworlds might prove more challenging than the assumed insubstantiality of (orthodox) beliefs that may be deliberate artifacts of the calculated abstractions of ideologues (and later, social theoreticians).

Kus, Susan [142] see Raharijaona, Victor

Kusimba, Chapurukha [264] see Williams, Sloan

Kuzminsky, Susan [204] see New, Briana

Kuzminsky, Susan (Universidad Católica del Norte, Chile, University of California, Santa Cruz) [357] Cranial Morphological Variation among Paleoamerican Skeletons: A Test of the Coastal Migration Hypothesis

Although the origin of the first Americans has been resolved through genetics, the routes that early humans traveled from Asia into North and South America are still the subject of intense scholarly debate. Recent genetic and archaeological data suggest an early migration may have occurred along the Pacific coast of the Americas. Based on these lines of evidence, it is hypothesized that Paleoamericans may show morphological affinities to prehistoric skeletons from coastal sites if an early Pacific migration occurred. To test this hypothesis, I compared Paleoamerican crania (>8,000 years BP) to samples from 30 coastal and interior sites in North and South America (7,500 - 1,000 years BP). High-resolution digital models were created with a 3D surface scanner and used to record standard craniofacial landmarks. A suite of 3D geometric morphometric analyses was conducted with the coordinate data to assess similarities among the coastal and interior groups. The results indicate close affinities between nearly all Paleoamerican and coastal samples, but do not exclude the possibility of an interior migration during the initial peopling of the Americas. This research is in accordance with recent genetic, archaeological, and skeletal analyses addressing the possible migration routes and biological affinities of the first Americans.

Kvamme, Kenneth

[284] NCPTT and the Growth of American Archeogeophysics

Before the turn of the millennium there were few practitioners of geophysical prospecting in American archaeology. In this relative vacuum NCPTT came into being at the right time, situated to support and promote these methods for site exploration, documentation and, in effect, preservation of site structural information because vast areas of the subsurface and its archaeological content could finally be mapped. In the late 1990s NCPTT was an early supporter of research into the integration or "fusion" of multiple geophysical data sets as means to build on relationships between complementary information and to provide a fuller picture of the subsurface. Since that time these approaches have risen to the forefront and occupy a central focus of contemporary research. By the early 2000s NCPTT also funded website development to promote knowledge of archaeological geophysics among American archaeologists and to share information about results across the country. In more recent years the NCPTT realized the importance of expanding knowledge of instrument capabilities and theoretical knowledge of the geophysical responses to archaeological
phenomena. Through these efforts NCPTT has been a constant promoter and support of geophysical prospecting in archaeology.

**Kvamme, Emily (Four Corners Research)**

[364]  *Tree-Ring Analysis at Petrified Forest National Park, Arizona*

Samples of ponderosa pine and juniper have been collected from various historic sites at the Petrified Forest National Park. Historic sites include several structures that were built by the Civilian Conservation Corps in the 1930s, old fences and sign posts, as well as Navajo hogans. The CCC structures were constructed with ponderosa pine beams that were imported to the park from sources not too far from the Petrified Forest. From tree-ring analysis, climatic variations in the past can be inferred from these CCC structures. Old fences, sign posts and Navajo hogan roof beam samples of juniper are also being analyzed. The presence of cut old growth juniper is apparent and will provide an interesting perspective on past structures in the Petrified Forest.

Kvetina, Petr [82] see Pavlu, Ivan

**Kvetina, Petr (Institute of Archaeology Prague, Czech Republic)**

[82]  *Chair*

**Kwak, Seungki (University of Washington)**

[407]  *Farming as a Dominant Subsistence Strategy? Organic Geochemical Analyses on Potsherds from Prehistoric Korean Peninsula*

This study attempts to understand prehistoric human subsistence in Korean peninsula using organic geochemical analyses on potsherds. Organic geochemical analyses strive to be precise about the types of food groups that were processed within a pot by attempting to isolate and identify the specific organic compounds trapped in the fabric of its wall or adhering to its surface in residues. Traditionally, the transition from foragers to farmers in the central part of the Korean peninsula has been described as the subsistence change from hunter gathering to intensive rice farming around 3400 BP. However, due to the limited paleobotanical evidence in this region and high acidity of the sediment, detailed information about the subsistence is not yet known. Organic compounds have the advantage in that they are often preserved directly within archaeological ceramics. Studies have showed that high-temperature boiling using pottery is particularly effective in the preparation of various resources. In this regard, the methods have potential to become important tools of investigation to better understand the subsistence of ancient Korean people. This research provides a unique opportunity to reveal the characteristics of the transition from foragers to farmers in the central part of the Korean peninsula.

Kyriakou, Xenia-Paula [132] see Tica, Cristina

**La Favre, Karl (UCLA)**


The Lake Titicaca region of Peru and Bolivia has been extensively surveyed by a number of archaeologists over the past 3 decades, but the accumulated data await systematic synthesis and comparative analysis. This study places the settlement pattern data from a dozen different surveys into a uniform analytic framework that focuses on demographic dynamics and their relationship to political change. Substantial regional variation is apparent in characteristics such as the variability of total population size through time, whereas trends such as changes in rank-size relationships display greater inter-regional synchrony of sometimes surprising patterns.

La Motta, Vincent M. [343] see Estes, Byron
La Salle, Marina (Vancouver Island University)

The Institution of Archaeology

Archaeology is perhaps now, more than ever before, a viable career choice for university students. Although academic positions seem to be dwindling, opportunities in contract, commercial, or compliance archaeology are skyrocketing as the development ethic of North American capitalism continues to expand. Armed with a field school and a handful of undergraduate courses, these new graduates represent the dominant practice of archaeology today. The question is, what are they practicing? Who has been teaching them, and what are they learning in their archaeological education? In this paper, I take a critical approach to the who, what, where, when, how, and why's of the institution of archaeology. In the gap between theory and practice -- between what is said versus what is done -- the unspoken power of archaeology as an ideological tool of the state is exposed. While this conclusion has been long-established, archaeological educators remain reticent to directly confront this "negative reality" in their classrooms, pressured by both within and without. The result is that the institution of archaeology remains complicit in what is ultimately a hegemonic project of imperialist violence.

Lack, Andrew and Todd Bostwick

Games, Feasting, and Trade Fairs: Assessing the Relationship between Ball Courts and Exchange at the Ironwood Village Site

A significant amount of research in Hohokam archaeology has been dedicated to understanding the structure of interaction and exchange. One particular model that has gained recent momentum is that of a marketplace economy revolving around ball court events that served as gathering points for social and economic interaction. These markets, or trade fairs, would have provided a reliable mechanism for the exchange of goods to spatially and socially disparate populations. Feasting also may have been associated with the ballgames. Villages possessing a ball court may have achieved a socially and economically prominent status within their communities, and likely had greater access to non-local and other socially-significant goods. Recent excavations at the Ironwood Village Site in the northern Tucson Basin have revealed a previously unknown early ball court. In this study, we assess the relative proportions of local and non-local artifact classes, along with socially valuable goods, from deposits that immediately preceded and followed the construction of the ball court. Spatial relationships of features adjacent to the ball court are also examined. The results are then compared to other ball court and non-ball-court villages in the vicinity to better understand the strength of association between ball courts and exchange.

Lacombe, Sebastien (Binghamton University)

Investigating the Symbolic Aspects of Flint in the Making of Prehistoric Cultures: The Case of the Middle Magdalenian of Southwestern France

Recent research on Magdalenian flint provisioning strategies in southwestern France, particularly from sites associated with decorated caves, have opened doors to new interpretations regarding the role that these materials played in the construction and maintenance of Magdalenian society. Beyond the traditional typological and technological factors that seem to mainly fluctuate according to circumstances, more consistent symbolic functions appear to have been imbedded in most of these materials, and in close connection to the area from which they originate. Echoing similar behaviors noted in other prehistoric contexts, these observations offer a genuinely renewed vision of Magdalenian culture.

Lacy, Sarah (University of Missouri-St. Louis)

Using Oral Health Indicators as Evidence of Environmental Instability and Subsistence Shifts in the Late Upper Paleolithic of Western Eurasia

Oral pathology prevalence can be used to make inferences about the behavioral and environmental factors that contribute to individual and population health. Late Upper Paleolithic Western Eurasian human groups were expanding geographically as well as increasing in density, and the major climatic oscillations that define this period stressed these pioneering humans. Evidence of this strain includes temporal differences in oral pathology prevalence, namely caries, periodontal disease, tooth
loss, and evidence of oral infection, taken from 124 Upper Paleolithic individuals. Relative to the Early Upper Paleolithic, these Late Upper Paleolithic peoples show increased caries and periodontal disease prevalence, likely reflecting a shift towards carbohydrates from fats as the major nutritional supplement to an otherwise high protein diet. This would be an adaptation to increasing food resource pressures and reflect shifting ecozones. Though the severity of periodontal disease and percentage of teeth affected by alveolar lesions actually decreases in the Late Upper Paleolithic, more individuals are affected and tooth loss prevalence increases dramatically. This may indicate increasing cultural buffering of the effects of poor oral health and ultimately subsistence and environmental change. These trajectories continue into the Mesolithic. Terminal Pleistocene oral health reflects changing environmental conditions relative to the earlier Upper Paleolithic.

LaDu, Daniel (the University of Alabama) and Ian W. Brown (the University of Alabama)
[220] The View from Mazique (22Ad502): Reconsidering the Coles Creek / Plaquemine Cultural Transition from the Perspective of the Natchez Bluffs Region of the Lower Mississippi Valley Around A.D. 1000 Mississippian culture emerged in the Eastern Woodlands of North America. Originating around the confluence of the Missouri and Mississippi rivers, Mississippian culture rapidly spread south and east, radically transforming Late Woodland societies in its wake. Although Mississippian culture had come to dominate much of the interior of the Southeast by A.D. 1100, its advance into the Lower Mississippi Valley was impeded. Here, Mississippian societies encountered the Late Woodland Coles Creek culture that resisted replacement or transformation for the better part of a century, and it was not until A.D. 1200 that the Lower Mississippi Valley experienced a major reorganization of lifeways. Through the selective adoption of new forms of socio-political organization, settlement, and subsistence, Coles Creek culture gave way to Plaquemine culture. Current perceptions of this transition rely heavily on studies conducted in the Lower Yazoo and Tensas basins, and have produced conflicting interpretations regarding Plaquemine origins. Drawing on the results of excavations conducted during 2012 and 2013, this paper examines how this important transition manifested at the Mazique site and reconsiders Plaquemine culture from the perspective of the Natchez Bluffs region.

Laffey, Ann (University of Florida)
[153] What's in your Ancient Chicha? Ethnoarchaeology and Organic Residue Analysis Ethnoarchaeological chicha brewing was conducted on modern ceramic sherd samples for organic residue analysis. The goal was to identify botanical biomarkers that can evidence the use of Schinus molle L., Erythroxylaceae coca, and Echinopsis pachanoi (San Pedro cactus) for ancient brewing in the Middle Horizon (MH) era (c. 600-1100 CE). There is strong evidence that during this period socio-political influence was inexorably linked to the ability to provide chicha in exchange for labor, goods, and during competitive hosting. Oversized vessels, likely used for boiling and fermentation, as well as fine ware and plainware serving and drinking vessels suggest that both the MH Wari and the Tiwanaku secured their interests by serving large amounts of chicha. All three botanicals have been identified in MH paleobotanical assemblages. However, whether they were used in chicha recipes remains unknown. This research is designed to identify these ingredients in archaeological ceramic assemblages in an effort to refine our understanding of large-scale Middle Horizon chicha production. By tracing these ingredients it may be possible to identify chichas that were restricted to ritual use, seasonally limited chichas, and chichas that were used for mass consumption. Pressurized liquid extraction and gas chromatography-mass spectrometry were employed to qualify chemical biomarkers.

Lafrenz Samuels, Kathryn (University of Maryland, College Park)
[405] Parsing ‘Public’ for Heritage Management in the Transnational Sphere Engaging local communities and the many publics has become responsible practice for archaeologists and heritage managers. However, the character of the public sphere is changing. Neoliberal reforms around the world have seen private and commercial actors increasingly fill the vacuum left in the wake of state withdrawal from social services provisioning. This withdrawal has meant the blurring of public and private interests and opening of new governance mechanisms
beyond those of the nation-state. Therefore, the landscape of archaeological heritage in the 21st century is increasingly shaped not simply by local and national frameworks for heritage management but also transnational ones driven by private, commercial, and non-governmental entities. In this talk I discuss the significance of these reformulations of ‘public’ activity in the transnational sphere for archaeologists seeking to collaborate with public partners. Focusing on issues of particular transnational import helps draw out in sharp relief the opportunities and challenges posed by the diverse publics of archaeology in the transnational sphere. I therefore situate my discussion within the unfolding crisis of global climate change, around which a suite of key markers of transnational heritage management may be found, including economic development, corporate social responsibility, public-private partnerships, human rights, and deliberative democracy.

Lake, Mark (University College London)

Is Wright-Fisher Reproduction an Appropriate Null Model for Cultural Transmission via Objects?

For various reasons many archaeologists are interested in identifying what kinds of social learning operated in past societies. One approach to this problem that has proved increasingly popular since it was pioneered by Neiman in the 1990s is use of the Wright-Fisher population genetics model of reproduction as a null model for human cultural transmission. The basic idea is that a mismatch between the amount of cultural diversity predicted by the neutral allele theory and that actually observed (e.g. artifact types) provides evidence for interesting biases in social learning, such as conformism or anticonformism. Archaeological applications of this null hypothesis have to date produced a variety of results, but it has recently been demonstrated by Premo that the time-averaged nature of many archaeological assemblages may lead to false inferences about the presence of biases in social learning. In this paper we investigate a further concern, which is that disanalogies between biological and cultural reproduction may similarly result in false inferences. In particular, cultural transmission via material objects may produce levels of diversity that do not match those predicted by the Wright-Fisher model even if social learning was unbiased.

Discussant

Chair

Laland, Kevin [33] see Morgan, Thomas

Laluk, Nicholas (White Mountain Apache Tribe), Sarah Cowie (University of Nevada-Reno) and Ben Curry (University of Arizona)

Archaeological Collaboration in North America: Are “Benefits” to American Indian Communities Truly Being Maximized?

With the continued evolution of collaborative archaeological projects between American Indian communities and archaeologists in North America archaeologists are constantly speculating ways in which their research will benefit American Indian communities. However, do archaeological research goals and agendas truly and positively contribute to the wants and needs of tribal communities involved? This paper examines various case studies in reference to collaborative archaeological projects in North America. The authors conducted a literature review of published deliverables from collaborative archaeological field projects to gain a better understanding of the continued disconnect between archaeological research goals and the utilization of collected data for “mutual benefit.” Ranging from continued paternalistic notions to discrepancies in access to funding and social capital, various issues in the archaeological collaborative context need to be further critically examined.

Chair

Lam, Yin [37] see Fargo, David

Lamb, Céline (University of Kentucky) and Scott R. Hutson (University of Kentucky)

Within and Between: A Comparative Discussion of Intra-site Variability and Hinterland Complexity at the Sites of Yaxché, Yucatan and Cerén, El Salvador
Long-standing research at sites like Cerén exemplifies the increased interest in rural households and settlements and the shift away from the elite-centric nature of many earlier projects in Maya archaeology. Our expanding knowledge of ancient Maya hinterlands has allowed us to consider the heterogeneity that these smaller settlements displayed and revise our western binary perspective of “urban versus rural”. Recent investigations by members of the Ucí-Cansahcab Regional Integration Project (UCRIP) have revealed a range of variability among Yaxché households, including wealth, economic specialization, ritual activity, access to non-local goods, and occupation histories. In this paper, we discuss the intra-site variability found at Yaxché in an attempt to glean insights on social organization and socioeconomic integration of this hinterland. Comparing household behaviors and supra-household interactions at the ancient Maya sites of Yaxché and Cerén allows us to underline the diversity found within and between hinterland occupations. Ultimately, we wish to contribute to our understandings of ancient Mesoamerican communities and underscore the plurality and complexity of “rural” occupations.

Lamb, Angela [154] see Madgwick, Richard

Lambert, Shawn (University of Oklahoma) and Patrick Livingood (University of Oklahoma)
[3] Locally-Made or Transported Heirlooms?: XRF Source Analysis of Post-Removal Choctaw Ceramics from Southeastern Oklahoma
This paper explores the benefits of using compositional analysis in order to investigate whether post-removal Choctaw-made ceramics were locally made in southeastern Oklahoma and/or were transported from their original homeland in east-central Mississippi. A total of 20 sherds were analyzed using X-ray fluorescence spectroscopy (XRF) to determine their chemical composition. 10 sherds are from two post-removal Choctaw sites, 34MC544 and 34MC399 and were compared with 10 sherds from the Pevey site, 22LW510. Similarities and/or variations in chemical composition of Choctaw-made sherds may shed light on the symbolic importance of why and how the Choctaw chose to maintain traditional pottery manufacturing practices during the post-removal period.
[330] Discussant

Lambert, John (UC Davis), Thomas Loebel (Illinois State Archaeological Survey) and Matthew Hill (Iowa State University)
[150] Paleoindians on the Postglacial Margin: Early Holocene Hunter-Gatherer Mobility in Northern Wisconsin
The area south Lake Superior was first colonized by Late Paleoindian groups during the Early Holocene after the final retreat of the Laurentide ice sheet from the region. As a result, Paleoindian sites in the area are ideal for testing ideas about the nature of hunter-gatherer adaptive responses to early postglacial environments. This project presents data from reanalysis of the lithic assemblages from a number of sites spread across northern Wisconsin and Michigan’s Upper Peninsula. The first hunter-gatherer groups to occupy the region would have encountered a rapidly changing boreal forest environment with no clear modern analog. Long-distance transport of high quality raw materials and the composition of lithic toolkits both indicate that high residential mobility, investment in key organic technology (i.e., watercraft and tailored leather clothing), and seasonal use of emerging wetland environments were important strategies used to cope with the unique ecological challenges presented by this recently deglaciated landscape.

Lambrides, Ariana [105] see Harris, Matthew

Lambrides, Ariana (University of Queensland) and Marshall Weisler (University of Queensland)
[152] Investigating Resource Sustainability during Two Millennia of Occupation on Ebon Atoll, Marshall Islands: The Ichthyoarchaeological Evidence
Low coral atolls, consisting predominately of unconsolidated sand and gravel, are commonly less than 2 m above sea level; consequently, atolls are amongst the most precarious landscapes for sustained human occupation in Oceania. Constraints encountered by colonizers include nutrient-
poor soils and salt laden winds which hindered plant growth, the absence of perennial surface freshwater, limited terrestrial biodiversity, and an inherent vulnerability to extreme weather events. Conversely, the marine ecosystem is exceedingly rich and diverse. Recent excavations have documented two millennia of continuous occupation on Ebon Atoll where fish remains are ubiquitous throughout the sequence. Ecological measures of diversity and trophic level analysis were applied to assess resource sustainability over time. This diverse range of analytical methods provides a more comprehensive understanding of the dialogue between humans and their environment.

Lancelotti, Carla [73] see Frances, Guillem

Lancelotti, Carla (Universitat Pompeu Fabra), Xavier Rubio-Campillo (Barcelona Supercomputing Center), Matthieu Salpeter (Universidad de Barcelona) and Marco Madella (UPF/ICREA - CaSEs research group)

[73] Climate, Resources and Strategies: Simulating Prehistoric Populations in Semi-Arid Environments

The aim of this study is to model resource management and decision making among hunter-gatherer and agro-pastoral groups in semi-arid zones in order to explore evolutionary trajectories in relation to (a) the appearance of other specialized groups during the mid-Holocene and (b) environmental variability. The study of coexistence and interaction between groups with different subsistence strategies and land-use behaviors represents an interesting research challenge to understand socio-ecological dynamics. This study deeply depends on the appreciation of past settlement dynamics and resource management and the approach is through Agent-Based Simulation. Our case study focuses in Northern Gujarat (India), a marginal environment between the Thar Desert and the more fertile area of Saurashtra. This region is an ecotone characterized by the seasonal influence of the monsoon, where contrasting ecological niches are in tension and small climatic shifts can generate significant environmental changes. Archaeological evidence points to the presence and possible coexistence in the area of groups of people with different resource management strategies and mobility behaviors during the mid-Holocene: hunter-gatherers (HG) and agropastoralists (AP).

[176] Chair

Landau, Kristin [289] see King, Justin

Landau, Kristin (Northwestern University)

[366] Engaged Investigation: Archaeology within Copán’s Past and Contemporary Neighborhoods

Generations of Copán archaeologists have revealed the secrets of royal tombs and hieroglyphic inscriptions, as well as explored humble households of the rural periphery. A new project brings together these two initiatives to study the diversity of settlement within one particular neighborhood of the ancient city. Growth and change in the San Lucas neighborhood are articulated with major political events at Copán’s center to assess the degree of state integration, and more importantly, when, how, and why this degree fluctuated over time. Simultaneously, the project prioritized community integration with the indigenous people residing in today’s San Lucas. We collaborated with a local high school to teach a year-long introductory anthropology course and directly involved students in the excavations. This talk highlights how typical academic archaeological investigation may be productively coupled with high school education through a focus on neighborhoods and a blurring of the arbitrary distinction between past and present.

Landreth, Frances [225] see Rodrigues, Teresa

Landry, Shannon (Northern Arizona University)

[212] Zooarchaeology in the Southwest: Ritual Consumption and Faunal Resources at Ridge Ruin Pueblo

The greater Sinagua region spans a distinct convergent geographical and cultural setting which provides a range of resources. Ridge Ruin is a prominent Sinaguan site occupied during the
ABSTRACTS OF THE SAA 80TH ANNUAL MEETING

transition from the Pueblo II to Pueblo III period. In 1941, John MacGregor published a bulletin summarizing the results of his Winona Village and Ridge Ruin excavations. In MacGregor’s report and in the few publications on Ridge Ruin since, the majority of research has concentrated on the famous burial of the Magician. MacGregor’s lengthy bulletin includes only a brief summary of the faunal analysis, which combined a small sample of faunal data from both Ridge Ruin and Winona Village excavations and provides minimal detail about faunal use in the sites. In this paper, I summarize and interpret the results of a recent analysis conducted on the long curated Ridge Ruin faunal assemblage from the Museum of Northern Arizona. Additionally, this analysis provides a preliminary discussion regarding whether the faunal remains reflect the previously established interpretation that Ridge Ruin was a ritual site, as evidenced by the focus on the Magician burial.

Lane, Kevin (University of Cambridge), David Beresford-Jones (University of Cambridge), Alexander Pullen (University of Cambridge), Charles French (University of Cambridge) and Susana Arce (Museo de Ica)

Investigations at the Mouth of the Río Ica, Peru: A Preceramic Record of Rich Seas, Fog Meadows, Incipient Agriculture and Shorelines

The earliest evidence of human occupation on the Río Ica, south coast Peru are middens at the river’s mouth, accumulated through episodic fisher-hunter-gatherer occupations during the Middle Preceramic Period. We present results of ongoing investigations and dating of these sites to between 7,000 and 6,000 cal yr BP. Apart from a variety of rich marine resources, the occupants of these middens also exploited the river estuary, riparian woodlands in the river floodplain and lomas (or ‘fog meadow’). The long Middle Preceramic is a period critical in three respects: (1) the onset of modern El Niño (ENSO) conditions after millennia of apparent quiescence; (2) eustatic sea-level stabilization, and (3) the gradual transition to sedentism and agriculture here. Interplay between these factors determined the availability of resources to prehistoric populations through, for instance, drinking water, the size of the estuary, beach formation, the extent and composition of adjacent lomas vegetation and indeed, the technologies developed to exploit them. We seek to understand and date these processes of environmental and social change because they are essential to understanding early human trajectories here, not least the transition from fishing and gathering to agriculture.

Lane, Rachael (University of Sydney)

Difference Theory and the Relevance of the Archaeological Past to the Present

The relevance of the archaeological past to the present is not usually considered an ethical or moral issue, except in the context of western heritage and conservation values. There appears to be both internal conditions to archaeology, as well as external conditions, that prevent the relevance and use of archaeological knowledge. The notion of relevance is frequently embedded in presentist discourses in the humanities and social sciences with an emphasis on sociality, and social recursive methodology. Materiality is viewed as an epiphenomenon of the social and ‘the individual’ is placed as a prescriber of materiality. This is also an anthropocentric view elevating ‘the category of the human’ to a platform from which all else is subjugated. Difference theory attempts to get away from presentism and social-centricism within archaeological theory and interpretation, and public perception. The theory proposes that social rates of change will be at odds with material rates of change, causing productive dissonance. We have an impetus to study the past from the long-term material perspective if we know it can provide useful insight into the present, particularly if what can be observed holds relevance to the sustainability of human communities in modernity.

Lane, Brent

Chair

Lane, Brian (University of Oregon)

The View from Rapa: Behavioral Ecology and Fortifications in Polynesia

Fortifications are found in the archaeological record around the world. Studies of fortifications on the landscape tend to focus on aspects of human territoriality, especially in relation to conflict,
Lange, Christine

The Use of Shell Ornaments at Las Capas, an Early Agricultural Site in Southern Arizona

Recent excavations at the site of Las Capas, located along the Santa Cruz River in the Tucson Basin in southern Arizona, have given us an opportunity to examine an Early Agricultural period site in this area. Along with other pieces of material culture such as flaked stone and ground stone tools, ornaments manufactured from marine shell were also part of the lifeway of the local inhabitants. Deriving from locales in California and northern Mexico, where established marine shell ornament manufacturing industries were thriving, the shell ornaments of personal adornment recovered from this Early Agricultural site suggests that the local inhabitants were active participants in maintaining social and economic networks outside of the immediate surroundings. They also reveal that Early Agricultural period populations placed a high value on their shell ornaments. The study of shell ornaments recovered from Early Agricultural sites gives us a glimpse into the past as we attempt to understand the social, economic and cultural ways of earlier populations.

Langlie, BrieAnna (Washington University in St. Louis)

Parsing out Differential Plant Use among Households during a Period of War in Puno, Peru

In the Peruvian altiplano near Lake Titicaca during the Late Intermediate period (LIP; A.D. 1100 to 1450) peoples’ lives were overwhelmingly structured by warfare. Martial conflict between competing ethnic groups incited people to live defensively in fortified hilltop villages during the LIP. However, little is known about the agricultural practices and the internal sociopolitical dynamics of these fighting communities. Drawing on recent excavations and macrobotanical data collected from Ayawiri, one of the largest hillforts in the northern Lake Titicaca basin, I present information about the community’s agricultural food products and intracommunity relations during this violent time period. Ayawiri is organized into household compounds. By comparing paleoethnobotanical remains recovered from various compounds throughout the site I identify the distribution of resources and possibly wealth allotment across the Ayawiri community during the LIP. This research also elicits a picture of differential landscape exploitation by various households during the LIP. By comparing household plant use to the landscape ecology surrounding the site, the data will shed light on which households had access to and utilized various microenvironments. These paleoethnobotanical results offer a more nuanced picture of household community relations during the altiplano LIP.

Langlitz, Meredith [72] see Thomas, Ben

Langlitz, Meredith (Archaeological Institute of America) and Ben Thomas (Archaeological Institute of America)

Keeping Up with the Times: Evolving Programs and Publics
As an organization for both professional archaeologists and laypersons the Archaeological Institute of America’s role in archaeological outreach and education has evolved and expanded over the course of its 136 year history. The Institute has launched a number of initiatives in response to perceived needs and strategic plans to promote the understanding of archaeology. Since 2004, the AIA has expanded its efforts locally and globally through Local Societies, International Archaeology Day, and the Site Preservation Program.

Today the AIA is calling for a more concerted effort to collaborate and to establish a network of committed professionals. To stimulate this cooperative endeavor, the AIA hosted a conference entitled Building a Strong Future for Archaeological Outreach and Education in January 2015. Program topics included ethics in archaeological outreach and education, state and regional approaches to outreach and archaeology, high school archaeology courses, teaching with archaeology, metrics, and promoting archaeological outreach. The AIA sees this as the first in a series of programs that will allow archaeologists and heritage educators to define best practices and develop effective ways to increase public awareness of archaeology.

Langston, Lucinda [333] see Franklin, Jay

Lanoe, Francois [92] see Daughtrey, Cannon

Lanoë, François (University of Arizona), Pierre Desrosiers (Avataq Cultural Institute), Dominique Marguerie (Center National de la Recherche Scientifique) and Daniel Gendron (Avataq Cultural Institute) [360] A Winter at Akulivik: Faunal Analysis of a Thulean House at the Site of Kangiakallak-1 (Nunavik, Québec)

The site of Kangiakallak-1 (JeGn-2 – AKU-10-018), located near Akulivik (Nunavik, Québec), has yielded several occupations attributed to the Dorset and Thule periods. Level A corresponds to a Thulean winter house for which collapse and preservation in permafrost provides an excellent and undisturbed record of Thulean lifeway. This paper presents the results of a faunal analysis conducted on animal remains found within the Level A house. The dominant species recovered were caribou Rangifer tarandus, ringed seal Pusa hispida, and bearded seal Erignathus barbatus. Faunal materials were extremely well preserved, enabling an accurate taphonomic reconstruction of human butchery and consumption patterns. Butchery practices particularly differ between species of terrestrial mammals (caribou), for which emphasis was put on marrow was systematically exploited, and species of marine mammals, for which soft tissues were predominantly utilized. The Level A house at Kangiakallak-1 reflects the range of economic activities conducted by Thulean people, but also how people’s mobility related with the distribution of resources across the landscape.

Lapeña, Queeny (California State University, Los Angeles), Jessica Morales (California State University, Los Angeles) and René Vellanoweth (California State University, Los Angeles) [32] The Distribution and Chronology of Abalone Middens on the California Channel Islands

The California Channel Islands contain one of the most productive coastlines in the world. Despite the perceived marginality of available resources on the islands, they encompass approximately 428 linear kilometers of rocky and sandy bottom habitats that have abundant shellfish beds. Thousands of shell middens dated to the past 12,000 years attest to the importance of these resources to native islanders. In this paper, we define the ecology and biogeography of intertidal shellfish communities and summarize the paleoenvironmental conditions that directly affected the productivity of past marine environments. Abalone middens provide an ideal example to examine past human/environmental dynamics through time. For this paper, we provide a summary of the distribution and chronology of abalone middens across the Channel Islands. Although typically referred to as red abalone middens, they exhibit variability in the species of abalones and other
faunal remains present, as well as in the types of artifacts and features that occur at these sites. The diversity of abalone middens suggests island-specific differences in shellfish communities, harvesting patterns, as well as the type of behavioral activities that took place at each site and on each island.

Lapeyre-Montrose, Stephanie (Simi Strathearn Historical Museum)

[27] Forget Me Nots: Smaller Collections Need Archaeologists Too

From Native Americans to Spanish and European settlers, Southern California has a rich history. One town in particular, Simi Valley, incorporated in 1969, was home to several Chumash villages, part of the Santiago Pico 1795 Land Grant, and attracted European settlers. CA-VEN-346, the El Rancho Simi Adobe, was occupied during all three eras. It was a Chumash village, home to Santiago Pico, and home to European settler Robert Strathearn and family. When Robert Strathearn purchased the El Rancho Simi Adobe in the 1890s, he added onto the Adobe rather than destroying it, preserving both Spanish and European history. Upon Strathearn’s death, he willed the property to become a historical park and museum, thus preserving and educating others about Simi Valley history. In addition to the El Rancho Simi Adobe collection, the museum houses several other Chumash collections from multiple sites throughout Simi Valley. Unfortunately, all of these collections have remained in storage untouched. In fact, many researchers are unaware of their existence and need for attention. Recent interest in the collection has prompted the museum to look for additional ways to attract researcher’s interest to study the forgotten and long overlooked shelved collections.

Lapp, Jennifer (SUNY at Buffalo)

[133] The Lithics of Conchal, Nicaragua and the Story They Tell

During the excavations of Conchal, Department of Rivas, Nicaragua relatively few lithic materials were encountered. While there were only 315 lithic pieces found, much can be learned from these pieces; this includes the daily activities that the prehistoric population conducted. By examining the data from the excavations, it was determined that the population began as a semi-nomadic one that eventually permanently inhabited the area. The formal and informal tools, along with the site furniture allow us a glimpse of how the original population survived and then began to thrive along the coast of Pacific Nicaragua during the Sapoa Period. Flakes were found most frequently, followed by metates and metate pieces. Other tools found include: points, scrapers, celts, hammerstones, manos, pestles and hand axes.

Larios Córdova, Diana Irasema [156] see García, Carlos

Larmore, Sean (ERO Resources Corp.)

[65] Backed Knives and Subsistence Strategies at the Hurdy Gurdy Bridge Site

Excavations conducted near the ancestral Tolowa village of Naa-k’vt’-at on the South Fork of the Smith River produced unexpected results in terms of the apparent absence of tools, such as harpoon tips and fishing weights, related to salmon fishing. Rather, an unusual lithic tool was identified, described as a “backed” knife produced from splitting a biface or uniface longitudinally to facilitate hand-held use. This paper will explore the possible function(s) of this tool in ancestral Tolowa assemblages and then compare the overall lithic assemblage of CA-DNO-1028 with the results from limited testing conducted at the ancestral village of Lhch’aa-gii’-li~ (CA-DNO-34) located downriver at the confluence of the middle and south forks of the Smith River. The clear identification of salmon fishing implements at CA-DNO-34 and the absence of these tools at CA-DNO-1028 suggest that the backed knives must have functioned in a capacity other than salmon processing and that upriver settlement was the focus of subsistence activities other than salmon fishing despite their availability.

Larsen, Susan (Western Washington University)

[168] Anthropogenic Thermal Alteration of Marine Bivalves, Recrystallization, and Isotope Integrity

Archaeologists have given little direct attention to the taphonomic effects of cooking methods for
marine invertebrates, particularly the effect on shell mineralogy. Various methods of heating and steaming shellfish directly in the shell are recorded as traditional for Northwest Coast peoples and the shell samples at the Tse-Whit-Zen Village site in Port Angeles, Washington State, contain many specimens that visually appear to be thermally altered. This type of heat exposure has been shown experimentally to cause aragonitic fish otoliths to convert to calcite and become depleted in 18O and 13C, and thus become unsuitable as a source of isotope ratios for paleoenvironmental reconstruction. Biogenic aragonite in marine molluscs is known to alter in the same way, but at lower than expected temperatures. I conducted controlled heating experiments of modern specimens of four taxa of molluscs common in the site assemblage (Clinocardium, Saxidomus, Leukoma, and Ostrea) to determine the conditions (temperature, time) at which isotopic integrity was lost.

Larsen, Clark (Ohio State University)

[178] Lives in Transition: Impacts and Adaptations in the Georgia Bight
The St. Catherines Island Archaeological Project, now more than 40 years in duration, has provided a wealth of data for addressing questions and hypotheses about native adaptations in the Georgia bight. Owing to the rich archaeological context and robust research design, the project has provided opportunities to document and interpret key developments and adaptive transitions in ways not dreamed of when fieldwork began in 1975. The bioarchaeological arm of the investigation, viewed in its rich social, cultural, and natural contexts, focusses on the pre- and post-contact populations inhabiting the island and the Georgia bight generally. This paper discusses the long-term study of two key adaptive transitions, the foraging-to-farming transition in late prehistory and the impacts of exploration and colonization by Spain. The research provides a comprehensive record of time transgressive changes in health, lifestyle, and adaptations that forever altered the landscape and the people inhabiting it. Although the results of this study focus on one region, the implications are global in scope.

Larsen, Thomas [191] see Popp, Brian

Larson, Greger (Durham University), Keith Dobney (University of Aberdeen), Anna Linderholm (University of Oxford), Allowen Evin (University of Aberdeen) and Thomas Cucchi (University of Aberdeen)

[28] Paleo-Population Genomics as a Means to Understand the History of Dog Domestication
Dogs were unquestionably the first domestic animal and the only animal domesticated within a hunter-gatherer context prior to the advent of agriculture. Understanding the precise temporal and geographic origins of domestic dogs has proven difficult for several reasons including: the widespread distribution of wolves and the lack of easily interpretable phylogeographic signatures among modern dog populations. More recently, studies making use of high-coverage genomes of dogs and wolves have demonstrated that the wolf population from which all dogs descend is likely extinct, only exacerbating the difficulty in identifying the wolves which gave rise to dogs. In addition, the history of both domestic plants and animals has incorporate significant degrees of admixture between domestic animals and wild populations that were never involved in the original domestication process. Here, I present an empirical demonstration of long-term admixture and how that limits our ability to understand the origins of dogs. In addition, I will present case studies of how we can overcome these limitations by generating nuclear sequences from global samples of ancient dogs and wolves, and how the results may provide answers to where, when and how many times dogs were domesticated.

Larson, Katherine (University of Michigan)

[101] Raise a Glass: The Late Hellenistic Origins of Domestic Glass Tableware
For over three millennia after its discovery in the early Bronze Age, glass in the Near East was used almost exclusively in palatial, religious, and funerary contexts, ascribed with high status reflecting the intrinsic or perceived value of the material. But during the last few centuries B.C.E. this pattern changed, as glass cups and bowls began to appear in domestic and other urban areas in greater quantities. This transition occurs before the discovery and diffusion of glass blowing in the first
century B.C.E., which has largely been credited for the democratization of glassware. Instead, sagging and molding technologies, already practiced by the fourth century B.C.E., became utilized on a wider scale and were effective enough so as not to be supplanted by blowing for almost two centuries after its invention. At the same time, elite, cosmopolitan customers began to demand a supply of glass skeuomorphs of metal, ceramic, and wooden drinking vessels. I argue that two major factors contributed to this new function and market for glass: a decrease in the price of the raw material which enabled it to be manufactured and sold more affordably, and an aspirational economic and social class which emulated palatial consumption practices.

Larson, Mary Lou (University of Wyoming), Marcel Kornfeld (University of Wyoming) and George Frison (University of Wyoming)

Mammoth Bone from Hell Gap

Mammoths and thus mammoth bones are associated with Clovis occupation of North America, while subsequent cultures are associated with Bison antiquus (Paleoindians) or various Holocene faunal species. However, this simple scenario is complicated by occasional occurrences of extinct species in later period assemblages. The Hell Gap site joins this exclusive club with a recent discovery of a mammoth tusk in deposits at Locality I. The Hell Gap site in eastern Wyoming is a stratified Paleoindian multilocus in the midst of mammoth finds, but without a well-defined Clovis component. The purpose of this presentation is to evaluate the context of the tusk object, describe its features and consider its place in our understanding of early Paleoindian existence in North America.

Discussant

Lash, Ryan [315] see Alonzi, Elise

Lash, Ryan (Northwestern University), Terry O'Hagan (University College Dublin), Elise Alonzi (Arizona State University), Franc Myles (Archaeology and Built Heritage) and Anne Wildenhain (University of Notre Dame)

A Pilgrimage Lost and Found: Cultivation and the Cult of Saint Leo on Inishark, Co. Galway

Pilgrimage traditions on islands along the coast of Connemara in western Ireland provide a valuable context for exploring the relationship between ritual practice, identity, and political economic change from a long-term perspective. The island of Inishark, Co. Galway, contains a number of ritual remains dating from the 9th-13th centuries, including a church, a holy well, cross-slabs, one or more burial grounds, as well as a number of penitential stone platforms known as leacht. Islanders in the 19th and 20th century incorporated some of these monuments into processional circuits associated with the veneration of St Leo. The origin of St Leo's cult remains obscure, but new research suggests how islanders adapted a medieval liturgical landscape to confront new ecological and political economic circumstances. Using excavation data alongside LiDAR survey, antiquarian accounts, census records, ordinance survey maps, and local folklore, this poster traces the development and re-use of the pilgrimage landscape on Inishark in relation to shifting patterns of settlement, subsistence, and political economy. Changing spatial relationships between foci of communal worship and places of everyday household labor suggests how islanders adapted an inherited tradition to negotiate new relationships between themselves, their ecology, and their past.

Lash, Ryan [56] see Gunter, Madeleine

Lassen, Robert (Gault Project at Texas State University)

Making Sense of the Variation in Folsom Projectile Point Technology

Analyses of Folsom projectile point technology generally focus on the making and use of the classic bifacially fluted form. Often some mention is made of Midland or unfluted points, but formal technological analyses of these types are rare. Utilizing a sample of 989 points and preforms from Folsom and closely related technologies, this research explores the variation that is present in Folsom point production. Points from Folsom contexts are divided into five types: Folsom, Midland, unifacially fluted, pseudo-fluted, and miniature. These types are then compared based on the following variables: width, thickness, basal width, and edge grinding to determine whether they share
similar hafting characteristics. Flaking technology is also compared to explore overlaps in production techniques between the point types. Results indicate that overlapping reduction techniques do occur between all the point types, reinforcing the idea that Folsom, Midland, and the other forms were made and used by the same groups. However, slight differences in morphology between Folsom and Midland points may indicate that they were hafted differently.

Latinis, Kyle [407] see Dega, Michael

Lau, Hannah (UCLA)

Cooperation and Feasting at Late Neolithic Domuztepe: Assessing Emergent Political Complexity through Faunal Remains

Cooperation occurs at all scales of social life: among individuals, among households, and among groups that supersede the household level. In some cases, such cooperation precipitates the formation of complex social structures and institutions and perpetuates their endurance. The variability of forms such cooperation can take at all scales of social complexity is broad, but an increasing degree of scalar cooperation correlates with increasing social complexity. This study uses zooarchaeological data from the Late Neolithic site of Domuztepe (ca. 6000-5450 cal. B.C.E.) in Southeastern Turkey as a proxy for assessing increasing scales of cooperative behavior at the site over time. Faunal data from the site's three feasting assemblages, when compared to the quotidain subsistence system, provide a means to assessing resource and labor coordination among inhabitants by elucidating the different animal management strategies employed by Neolithic agropastoralists in these different consumption settings. Such coordination has implications for reconstructing the political economy and emerging political complexity of the wider region during the Late Neolithic. While cooperation in resource exploitation and labor in any context elucidates socioeconomic and political organization, this study focuses specifically on feasts because feasting by its nature entails explicit cooperation among participants.

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

Life, Land, and Labor at Yayno (A.D. 400-800), a Recuay Fort in the North Highlands of Peru

This presentation examines the domain of work as part of the social life of fortified settlements. In particular, it focuses on the gargantuan commitment – physical and symbolic – evidenced in defensive architecture. Using data from Yayno, a large mountaintop citadel in the north highlands of Peru (Recuay culture, A.D. 200-700), work estimates are presented to demonstrate the great labor expenditure in stonemasonry construction. Builders combined massive stone blocks (local granites, imported limestones) to construct fortifications and defensible, multistorey residential compounds. The buildings ranged from small to monumental, and from low-quality to extremely fine-quality construction. The variability is attributable to changing construction styles by phase, defensive strategy, differential labor access and social inequalities. The paper concludes that making walls was indispensable work in the high Andes, both in terms of sheer effort and in terms of embodying group cooperation at different scales. While the compounds cloistered internal groups (segregating competing factions within Yayno), there was also a larger project of protecting the overall settlement that demanded intersubjective work, but located in a greater notion of collectivity. Aptly, then, the labor of defensive walls was to build subjects and community.

Laue, Ghilraen (Rock Art Research Institute, University of the Witwatersrand, South Africa)

Exploring Regionality: A Chaîne Opératoire Approach to “Style” in the Rock Art of the Eastern Cape Province, South Africa

Regional differences in southern African hunter-gatherer rock art have long been noted, but methods towards a rigorous definition of these regions have not been developed. Addressing a recent call for the use of style in defining rock art regions I propose a chaîne opératoire approach. Rather than focusing only on the finished product I will consider multiple factors in the production and
consumption of rock art images. Instead of relying on vague notions of style, the component parts and different elements that comprise the art can be investigated. Case studies from two sites, in different regions of the Eastern Cape Province, South Africa, illustrate this approach and how it can be used to elucidate ideas around regionality.

Lauer, Adam [205] see Steinbruchel, Amber Joliz

Lauer, Adam (University of Hawaii at Manoa) and Alexandra McDougle (University of Hawaii at Manoa)

[238] Infant Health and Burial Practices in Late Prehistoric and Contact Period Kiyyan, Ifugao

Infant death in Ifugao villages has only been viewed through a lens of modern ethnography. Recent excavations at the Old Kiyyangan Village site have revealed new information on the resource base, trade networks and impact of outside groups on the prehistoric and early historic Ifugao. This work has produced a small sample (16) of individuals who died at, or around, full term to the age of two years. The age, health, and mortuary profiles of these skeletons will be presented and placed into context. These skeletal remains appear to be the product of cemetery subdivision that places adults and juveniles in one location and fetal and infant remains in another. The age-at-death estimates for these individuals range from 26 weeks in utero to 1.5 years. Fetal and infant remains are subjected to either jar or open interment in a pattern that may reflect ritualized beliefs, health status or both. Skeletal lesions were recorded from all infant skeletons. These lesions are most likely caused by nutrition-related diseases. This study establishes new information for Cordillera prehistoric and colonial period burial practices and fits into the larger Southeast Asian sample of high mortality in the late period of gestation and early infancy.

Laurenzi, Andy (Archaeology Southwest), Matthew Peeples (Archaeology Southwest) and William Doelle (Archaeology Southwest)

[278] The Salado Preservation Initiative: Combining Research Investigations with Regional Preservation Planning

Regional planning is an essential element of comprehensive archaeological management programs. The Salado Preservation Initiative at Archaeology Southwest is linked to our research agenda focused on Salado and related developments across the Southwest in the late precontact period. Working exclusively within a temporally defined period of record (1250-1450) and conscribed geographically by the distribution of Roosevelt redware, Archaeology Southwest conducted a series of expert workshops and interviews using a geographic information system and archaeological site databases to collectively identify high-priority archaeological resources (sites, site complexes and in some instance landscapes). This project demonstrates the potential advantages of using research to complement assessments of individual site eligibility for purposes of listing on the National Register of Historic Places by providing an added layer of regionally contextualized information at larger geographic scales. By establishing spatially explicit priority areas, this information assists Archaeology Southwest in focusing its cultural resource protection efforts and can also enhance cultural resource considerations in local, state, and federal land use planning.

Lavallée, Danièle [309] see Chevalier, Alexandre

LaValley, Stephen (Envirosystems Management, Inc.)


This paper reports on mid-20th century aspen dendroglyphs from the Sangre de Cristo Mountains in extreme north-central New Mexico. A class III archaeological survey conducted by Envirosystems Management, Inc. in July 2014 recorded ten previously unknown historic sites between 10,400 and 11,000 feet in elevation on the Carson National Forest. Each contains at least two and up to twenty-one carved aspens that date from the 1930s to the 1950s. Upon initial assessment, these sites appear to have been part of a summer grazing rotation by members of the same family, Martinez, and/or ranch hands of an outfit from Arroyo Secco, New Mexico. The dendroglyphs include names,
dates, hometowns, and art. These sites, along with other previously recorded and contemporary dendroglyph sites nearby are examined for spatial and temporal patterns to illicit a better understanding of how, when, and for what purpose these high elevation areas were occupied. A records search provides critical information as to the people and/or ranch that utilized these lands. Lastly, these practices and dendroglyphs are cross-examined with similar sites throughout the Sangre de Cristo Mountains to gain a greater context and draw comparisons.

Laviña, Javier [170] see Mendizabal, Tomas

LaViolette, Adria (University of Virginia, Dept. of Anthropology) [285] The Fortified Settlement of Pujini and Implications for a Swahili Urban Landscape

During its lifespan from the mid-fifteenth to early sixteenth century A.D., the fortified settlement of Pujini shared Pemba Island, Tanzania with numerous, undefended, more typical Swahili settlements ranging from earth-and-thatch hamlets to stone-built urban centers. The site expresses a unique combination of qualities on the Eastern African coast: complex ramparts around nearly two hectares of space, in which stood some dozen domestic and special-purpose features. Archaeological evidence from the site shows that its builders invoked multiple architectural tropes used widely in Swahili stonehouses and stonetowns, markers of Swahili urbanism and cosmopolitanism. This paper provides an analysis of the archaeology of this settlement by identifying a series of nested socially constructed contexts, from the most intimate spaces in building interiors outward to the Swahili coast itself. I argue that the combination of qualities that makes the fortified site appear singular can also be used to illuminate meaningful networks of social, economic, and political interactions and tensions: locally; in the urban landscape of Pemba Island; and in the tumultuous Swahili world of the fifteenth-sixteenth centuries that includes early incursions of Portuguese sailors, merchants, and soldiers into the region.

Lavris Makovics, Jennifer [267] A Perfect Pothunting Day - An Examination of Vandalism to the Cultural Resources of Canyon de Chelly National Monument

It has been postulated that one-third to one-half of all known archaeological sites in the US Southwest have been vandalized; however there are few accurate and complete datasets available to prove this assumption, or to determine exactly which factors encourage illicit activity. In fact, in 1987 the Government Accounting Office identified this lack of data as a major reason for not fully comprehending the archaeological vandalism problem on public lands in the United States. For over 20 years, archaeologists at Canyon de Chelly National Monument in Arizona have been collecting detailed standardized data on archaeological site condition and the natural and human-caused agents of destruction that affect the Park’s cultural resources. This allowed a detailed statistical analysis of the site-specific factors which have been declared to encourage illicit activity such as illegal visitation, defacement, and “pothunting”, and the development of a Site Vulnerability Assessment (SVA) which was utilized to produce an “At Risk” list of cultural resources to be targeted for protective measures. Regional and local factors thought to be influential were also considered.

Lawler, Dennis [28] see Widga, Chris

Lawrence, John [77] see Marsaglia, Kathleen

Lawrence, John (John A. Lawrence), Kathleen Marsaglia (California State University Northridge ), Scott Fitzpatrick (University of Oregon ) and Thomas Wake (University of California Los Angeles ) [79] Preliminary Petrographic Analysis of Ceramics from the Bocas del Toro Archipelago, Panama

Petrographic analysis of ceramic sherds can elucidate manufacturing techniques and exchange systems. We present the first mineralogical assessment via thin-section petrography of archaeological ceramics collected from the Bocas del Toro province on the Caribbean coast of Panama.
Panama. Examined sherds include surface finds collected from archaeological sites on Bastimentos Island and at Cerro Brujo on the mainland, and excavated samples from Sitio Drago, Isla Colon. Thin-section petrography of the surface-find sherds indicates that seven different types of temper were used. Compositions of representative sherds from each group were determined by counting and classifying 200 points per thin section, into 14 mineral and rock fragment categories (temper), grog (temper), and two matrix categories (silt and clay). One group contains mainly clay rich (purpose-made?) grog temper, whereas the others contain mainly rock temper with different proportions of quartz, feldspar, dense minerals, and various varieties of volcanic lithic fragments. The latter are consistent with derivation from local Panamanian geologic units including one, with pyroclastic temper, from a more volcanically active region (El Baru volcano?). Additional sherds are being processed from Sitio Drago in order to understand how the ceramics from the largest known site in Bocas del Toro relate to the previously examined specimens.

Lawrence, Ken (SWCA-Texas State University), Charles Frederick (Consulting Geoarchaeologist-Geologist), Jacob Sullivan (Ancient Southwest Texas Project) and Christina Nielsen (SWCA-Texas State University)

Ongoing Geoarchaeological Investigations in Eagle Nest Canyon

This presentation summarizes the 2014 geoarchaeological investigations conducted at Kelley Cave (41VV164), Skiles Shelter (41VV165), and Eagle Cave (41VV167) and highlights elements of the ongoing analyses. Research begun in 2013 at Kelley Cave and Skiles Shelter was expanded and new work was begun in Eagle Cave. The geoarchaeological investigations have encountered new problems, opportunities, and several surprises. The data obtained from each site includes micromorphological samples, high-resolution cube samples, and bulk matrix samples. This presentation discusses the preliminary results of these investigations, their interpretations, and how they correlate to the cultural deposits from the excavations.

Laws, Kaitlyn see Heikkila, Raija

Laws, Kaitlyn, Cheryl Makarewicz (Christian-Albrechts-Universität zu Kiel) and Isabella Von Holstein (Christian-Albrechts-Universität zu Kiel)

Grazing Herds on a Modern Jordanian Landscape: δ13C and δ15N Analysis of Plants and Caprine Hair Keratin along an Altitudinal Cline

The topography of Jordan is uniquely characterized by dramatic shifts in altitude from -300 b.s.l. to +1300 a.s.l. over extremely short distances, which results in sharp differences in precipitation levels and the composition of vegetation communities along altitudinal gradients. Graze species favored by sheep and goats collected along an altitudinal gradient indicate predictable shifts in floral δ13C values, influenced by altitudinal differences in water availability, while nitrogen isotope values are determined by a complex host of factors. In contrast, the carbon isotopic composition of sheep and goat hair keratin indicate heavy anthropogenic inputs that obscure spatially defined isotopic patterning visible in plants. These modern data provide a point of entry into understanding the range of isotopic variability visible in ancient herd animals, and the extent to which we can identify herding practices that involve vertical transhumance over large altitudinal clines through carbon and nitrogen isotope analyses.

Lawson, Charles [29] see Morgan, David

Layer, Paul W [151] see Macias, Jose Luis

Layzell, Tony [190] see Mandel, Rolfe

Lazaridis, Iosif [396] see Krause, Johannes

Láznicková-Galetová, Martina (Moravian Museum), Tomáš Zikmund (Laboratory of X-ray
Micro CT and Nano CT, CEITEC V), Marie Šejnohová (Laboratory of X-ray Micro CT and Nano CT, CEITEC V) and Jozef Kaiser (Laboratory of X-ray Micro CT and Nano CT, CEITEC V)

Analysis of the State of Preservation and Determination of Raw Material of Gravettian Mammoth Ivory Personal Ornaments (Dolní Věstonice, Czech Republic) Using Micro Computed Tomography

This poster examines the utilization of non-destructive and non-invasive microCT analysis to identify raw materials used to fabricate Gravettian artifacts, assess their current state of conservation and work out a procedure for treatment of artifacts in a problematic state of preservation.

Raw materials and manufacturing technology of Gravettian personal ornaments from Dolní Věstonice (Czech Republic) made from hard animal tissues, such as mammoth ivory, can only be identified using the microCT analysis non-destructive analyses because these objects represent rare and unique cultural relics protected by the state. The preserved mammoth ivory objects from this period, both mammoth tusks as the primary raw material for products and the products themselves, are often found in a very problematic state of conservation. The current final form of artifacts, which differs from the original one due to modifications performed, has stereotypically been borrowed by authors of individual publications. The objects discovered thus live their second life. In order to analyze how they were manufactured, what was their purpose and how they were possibly used in past societies it is necessary to reconstruct the original form of the artifacts.

Láznicková-Galetová, Martina [28] see Germonpré, Mietje

Lazo, Juana [187] see Smith, Michele

Lazzari, Marisa and Marina Sprovieri (Universidad de La Plata)

Weaving People and Places: A Long-Term Term Perspective on Obsidian Circulation and Social Value in NW Argentina

The south-central Andes have a very rich record of long-distance circulation of things, animals, and people, the origins of which can be traced to the earliest hunting-gathering societies that occupied the territory ca 9600BP. We summarize the available information on obsidian circulation resulting from nearly three decades of research in the area, with a particular focus on the Calchaquí valleys area of north western Argentina (NWA) from early sedentary settlements until the Inca occupation. Understanding “social landscapes” as deep-time regionalities—regional worlds of social experience built over the long-term—we discuss the creative transformation of NW Argentina’s landscape in relationship to the transfer of raw materials and artifacts across the region since the beginnings of settled life. Combining geochemical, contextual and artifact analysis we propose that, while obsidian was generally used as raw material for everyday tools, it had varying performative social capacities across time and space. The physical properties and limited geographical availability of obsidian are indeed important to understand its social value, yet these are not seen as essential characteristics but rather as elements in a relational field of social, material and semiotic connections that both drew upon, as well as exceeded, subsistence practices and economic calculation.

Le Plastrier, Barry [286] see Klassen, Sarah

Leach, Peter (Department of Anthropology, University of Connecticut)

The Suitability of Ground-Penetrating Radar for Mapping Sub-Marsh Paleogeography and Implications for Large-Scale Archaeological Surveys of Wetlands and Marshes

Prehistoric sites beneath modern marshes are uncommon and valuable cultural resources with superior organic preservation potential. Such sites generally offer greater stratigraphic integrity than their terrestrial counterparts as they were not historically plowed. However, these sites are overlooked and understudied in eastern North America due to low visibility, disagreement on surveying strategies, and misperceptions regarding the high costs of investigation and low potential for site preservation. A recent large-scale coring survey (>3000 augers) in Delaware, USA, identified four prehistoric sites beneath 50cm to 2m of tidal freshwater marsh sediments. Coring revealed well-
preserved paleosols with debitage and formal tools within upper soil horizons, and demonstrated that these sites were preserved due to indirect armoring from locally-outcropping, discontinuous conglomerates or lithified sediments of the Columbia Formation. While successful and informative, the field strategy comprised a brute-force, 8m grid of cores across the expansive project area. This paper describes attempts to refine wetland survey methods on two of the previously discovered sites through ground-penetrating radar mapping of sub-marsh paleogeography. Given the completeness of the existing coring data, as well as low-salinity sediments more suitable for GPR, this project area presents an ideal case study for refining archaeological prospection methods in wetland/marsh settings.

Leal Hernandez, Edgar (Universidad Autónoma de Yucatán), Luis J. Venegas de la Torre (Universidad Autónoma de Yucatán) and Mario Zimmermann (Universidad Autónoma de Yucatán)

Chemical Residue and Microbotanical Analyses in the Royal Kitchen at Kabah, Yucatan

Since 2010 the “Proyecto de Restauración e Investigación Arqueológica en el Grupo Este de Kabah, Yucatán,” under the direction of archaeologist Lourdes Toscano, performed explorations in the area that covers structures 1C-2, 1C-3, 1C-4 y 1C-5. The goal of these interventions is to test the hypothesis that the group served as a special food-processing area. Excavations resulted in the recovery of faunal remains, ceramics, as well as several types of lithic tools like prismatic blades, bifacials, hammers, and manos and metates. In addition to chemical analyses of soils from the structure’s surroundings, now starch grain analyses have been conducted on sediments recovered from within metates to identify the kinds of plants that were ground. This paper will discuss the results of recent analyses aiming to contribute to an interdisciplinary perspective on precolombian Mayan kitchen areas and their associated activities.

Lechado, Leonardo (Lechado) and Sagrario Balladares (Sagry)

Investigaciones arqueológicas en el Caribe Sur Nicaragüense

Los primeros datos arqueológicos obtenidos para la costa Caribe de Nicaragua, surgieron en la década de los setenta del pasado siglo con los trabajos del norteamericano, Richard Magnus, (1974, 1975 y 78) y el arqueólogo nicaragüense, Jorge Espinoza, 1974, sobre todo en la Región Autónoma del Atlántico Sur (RAAS), ya que la norte RAAN, los estudios son muy escasos; entre 1998 y 2006, se desarrollaron estudios conjuntos entre la Universidad Autónoma de Barcelona UAB y la Universidad Nacional Autónoma de Nicaragua, UNAN, Managua; y entre 2012 y 2014 se desarrolló el inventario arqueológico en el territorio Rama-Kriol BICU-CIDCA y la UNAN, Managua, todos reportando variedad de evidencias (concheros, estructuras rituales, petroglifos, montículos)..<br><br>Aunque los datos son insuficientes, existen evidencias antiguas que permitieron conocer una secuencia ocupacional (de más de 3 mil años de antigüedad y sitios con mucha complejidad socioeconómica) anteriores a las incursiones colonizadoras europeas en la zona, lo cual conlleva a desmentir hipótesis acerca del despoblamiento de la región y del atraso de las sociedades que la han ocupado, tanto en la antigüedad como en la actualidad, en comparación con las del resto del país.

LeCount, Lisa (University of Alabama)

Between Earth and Sky: The Social and Political Construction of Ancient Lowland Maya Territories

This paper introduces the Lowland Maya Territories: Local Dynamics in Regional Landscapes symposium that critiques the current model of territories as stable geo-political entities. We use data from the Actuncan Archaeological Project and other upper Belize River valley projects to suggest
that territories were in flux, reacting and changing to social and political relationships. Territorial dynamism is driven by at least two processes: the social construction of place and the political construction of territories. We suggest that a territory is defined by the geographic extent of political authority as established through alliances, voluntary subjugation, coercion, or other integrative practices that bound centers and hinterland communities to capitals. Rather than bounded entities, territories are conceptualized as networks of politically connected sites. Their long-term stability was dependent on the social construction of place that imbued meaning and emotional attachments to people, land, and spaces over time. However, social and political constructions were often in conflict when political competition over homelands reshaped territories. The inherent tensions between dynamism and stability are exemplified at Actuncan and other sites in the upper Belize River valley through shifting political capitals, settlement patterns, architectural and pottery styles, and veneration practices through time.

Ledbetter, Jerald [333] see Smallwood, Ashley

Ledger, Paul (University of Aberdeen) and Veronique Forbes (University of Aberdeen)

What Can Archaeobotanical Remains from Exceptionally Well Preserved Contexts Tell Us about Past Arctic Life-Ways?

Anthropological studies of western Alaska consistently remark upon the substantial knowledge of the regional flora by local Eskimo groups. Despite the attritional impact of Western lifestyles on traditional ecological knowledge, the indigenous peoples of the region maintain a rich appreciation of the plant resources available in their local environment. Yet, archaeobotanical analyses from the region remain scarce and there rests a general opinion that plants did not play an important role in past Eskimo subsistence. Faunal analyses and isotopic studies which indicate a predominately marine diet entrench this assumption, but they do not present the whole picture. Ethnography demonstrates that plants were not only integral to Eskimo diets, but they also served ceremonial and utilitarian functions. Using the exceptionally well-preserved botanical macro-remains from 14th to 17th century sod structures at Nunalleq in southwestern Alaska, this paper aims to establish the role of plants in past Arctic life-ways.

Lee, Christina (University of Nottingham)

Weaving Identities

My paper will look at textiles as marker of identity in the Viking Diaspora in Britain and Ireland. While oval brooches and metal work have been given prominent roles in the discussion of identity, the textiles they adorned are often only mentioned in passing. However, techniques and fabrics may tell us something about connections with the homelands, as well as identities which are maintained in the areas of the Viking diaspora.

Lee, Christine

Preliminary Bioarchaeological Analysis of the Qijia Culture Mogou Site (2400-1900 B.C.E.), Gansu Province, China

At the Mogou site 1000 graves were excavated from 2008-2011. A preliminary bioarchaeological analysis was done on 154 individuals. The male to female sex ratio is the same as other Qijia sites, with more males than females. The sample population was heterogeneous with 8% of the individuals originating from the west (Xinjiang), north (Mongolia), and east (China) of the region. This may be a result of the site being situated on trade routes from the West into China. Analysis was done on trauma patterns, infection rates, anemia, enamel defects, infectious diseases, and congenital defects. The individuals buried at Mogou are from very closely related family groups. Six individuals suffered from one to three periods of starvation starting at 2 years of age until 5 years of age. All of these individuals died young. Trauma patterns were concentrated in males as opposed to females or children. The majority of the injuries appear to be warfare related. There is a high percentage of infectious disease at Mogou, which suggests continual contact with outsiders (trade route).
domesticated animals, and a large enough population for endemic diseases.

Lee, Cheng-Yi (Department of Geosciences, National Taiwan University), Maa-Ling Chen (Department of Anthropology, National Taiwan University), Peter Ditchfield (Research Laboratory for Archaeology and the Histor), Mark Pollard (Research Laboratory for Archaeology and the Histor) and Ching-Hua Lo (Department of Geosciences, National Taiwan Univers)

[49] The Diet and Subsistence System of Yuan-Shan People in Taiwan
Carbon and nitrogen isotope compositions of human bone collagen (n=5) were analyzed to discover the paleodiet of Neolithic people of Yuan-Shan (YS) Culture, in northern Taiwan. A local isotope baseline was constructed by 71 faunal samples. Four inferences are drawn: (1) pigs share similar isotope compositions with deer, which indicates they were herbivores rather than omnivores. Pigs were likely raised by humans and we suggest that C3 plant was used as pig’s feed based on their δ13C values. (2) The main food resources consumed by YS people were local herbivores, which is revealed by the difference in δ15N values between human and herbivores (Δ15N human-herbivore). (3) Rice grain had previously been found in YS site, suggesting the rice as their main crop; however, the isotope data doesn’t seem to support the suggestion (Δ15N human-herbivore > 4‰). One possible explanation is that the cereal grains had intrinsic higher δ15N value than that of herbivore’s feeds or grasses, or the grain’s δ15N value was affected by manuring. (4) Aquatic resources were also consumed by YS people, though in small quantities. Middens indicated another aquatic food resource, but no isotopic compositions of shellfish soft tissue are available thus far.

Lee, Gyoung-Ah [49] see Tang, Zhuowei

Lee, Rachel (University of Michigan)

[49] Mumun Period Households and the Rise of Inequality in Korea
In the Jinju area of South Korea, social inequality first emerged during the Mumun Period (1060 – 340 cal. B.C.), during which permanent agricultural villages were also established. Excavations in the last two decades have uncovered close to 15 of these settlements, but the process of emergent inequality during the Mumun Period is just beginning to be understood. This poster provides results from the first systematic study of households from the Jinju area that intersects this important period. By doing so, the research moves away from top-down, elite-driven approaches to inequality, instead positioning the household as an active participant in the development of complex societies. Through spatial analysis and micromorphology, I provide evidence for significant changes in household composition, activity, and ideology that occurred due to the loss of egalitarian lifeways. I contend that this, in turn, further contributed to the development of social inequality that would be foundational for the formation of the first Korean states in the subsequent Samhan or Proto-Three Kingdoms Period.

Lee, Jaeyong (Seoul National University), Youngseon Lee (Seoul National University) and Jangsuk Kim (Seoul National University)

[80] Bayesian Analysis of the Uncertainty in Radiocarbon Dating Measurements
The goal of the study is to investigate the uncertainty of radiocarbon dating measurements. To study the variability of the measurements, the samples from the same specimen were sent to different radiocarbon dating labs and the estimated dates from various labs were obtained as data for analysis. Through a Bayesian analysis of the data, we could estimate the variability of the labs as well as variability between labs.

Lee, Sean (UC San Diego Department of Anthropology), Andrew D. Somerville (UC San Diego Department of Anthropology) and Margaret J. Schoeninger (UC San Diego Department of Anthropology)

[166] Paleoenvironmental Reconstruction of the Northern Frontier of Mesoamerica: Stable Isotopic Analysis of Lagomorphs from La Ferrería, Durango, Mexico
Central to understanding the social and economic dynamics of past societies is the reconstruction of the environment in which they developed. The marginal environmental region of Northwest Mexico,
in particular, has been a focus of debate concerning the importance of environmental change in the
rise and decline of complex societies in the region. This study analyzes 49 Leporid (rabbit and hare)
bones from the settlement of La Ferrería in modern Durango, Mexico for stable isotope ratios of
d$_{13}$Clapatite, d$_{18}$Opapatite, d$_{13}$Ccollagen, and d$_{15}$Ncollagen. Ratios of these elements reflect
different aspects of the diet and environment in which the animals lived. Results of this study
demonstrate significant changes in isotope ratios across the occupational history of the settlement,
indicating environmental changes through time. When considered in combination with the material
culture from the site, it is possible to make inferences about social-environmental dynamics at La
Ferrería. This study contributes towards a more comprehensive understanding of the culture history
of La Ferrería and increases our understanding of the relationship between society and the
environment in prehispanic Mexico.

Lee, Christopher (CSU Long Beach), Carl Lipo (CSU Long Beach) and Suzanne Wechsler
(CSU Long Beach)
[409] Small Commercial Aerial Platforms for the Generation of Systematic, High-Resolution, Multi-
Spectral Imagery and Photogrammetry: Trimble UX5 and X100

In the last 5 years, the commercial availability of embedded computer systems and low-cost
hardware has led to an explosion of lightweight aerial platforms for photography. Offering
multispectral imaging with outstanding spatial resolutions, these platforms offer researchers an
inexpensive means of systematically documenting the archaeological record on the scale of
landscapes. Through our exploration of hobby-class vehicles and the Trimble X100 and UX5 aerial
platforms, we learned that the quality of the products created strongly depends on the degree to
which one can ensure systematic coverage and optimized flights. Our results point to an exciting
future of archaeological remote sensing.

Lee, Gyoung-Ah (University of Oregon)
[414] Niche Construction of Agricultural Communities in the Yiluo and Guanzhong Regions of
Northern China in the Mid-Holocene

Through a lens of niche construction perspective, this paper examines evolving enterprise of plant
managements in different ecological and cultural contexts in Mid-Holocene China. Along a stretch of
the Yellow River, bulging communities, facing different challenges of changing climates and
ecological constraints, constructed agricultural and socially intertwined niches. Multiple Yangshao
communities in the Yiluo valley and those in Guanzhong Plain are such examples. Drastically
different from the earlier Neolithic cultures, the Middle Neolithic people in these regions laid a
foundation for socially complex entities up to a state level in the subsequent periods. This paper will
offer a window onto the unique effects of human niche construction through its examination of
agricultural trajectories and social interactions in these regions.

Lees, William (University of West Florida), Della Scott-Ireton (Florida Public Archaeology
Network) and Sarah Miller (Florida Public Archaeology Network)
[261] Lessons Learned Along the Way: The Florida Public Archaeology Network after 10 Years

The Florida Public Archaeology Network delivers programming through public outreach, assistance
to local governments, and assistance to the Florida Division of Historical Resources. The general
goal of FPAN is to achieve preservation gains through raising the awareness of Florida archaeology
to the public and governmental officials. Authorized by statute in 2004, the Florida legislature funded
FPAN in 2005. The program is administered by the University of West Florida but operates in a
quasi-decentralized fashion through eight Regions operated with the assistance of other partner
organizations. As a new statewide organization in 2005, FPAN's structure and goals were designed
by a steering committee intent on avoiding certain potential pitfalls. Ten years of experience with this
structure provides the opportunity to assess FPAN's success to date and to discuss broadly useful
insights into the operation of regional public archaeology programs. Likewise, reconciliation of
programming goals envisioned in 2005 with experience and with a new post-recession reality
provides insights of general interest.

Lee-Thorp, Julia [294] see Copeland, Sandi
Lee-Thorp, Julia (University of Oxford), Kirsty Penkman (University of York) and Curtis Marean (Arizona State University)  
[294] A Late Pleistocene Aridity and Vegetation Record from Stable Light Isotope Ratios of Ostrich Eggshell in Pinnacle Point  

Even when interior regions experienced depopulation during the last glacial, the Southern Cape apparently remained attractive to Middle Stone hunter-gatherers for millennia. The region’s year-round rainfall and generally mesic conditions may have contributed to its attractiveness. Although seasonality and vegetation shifts have been observed in the nearby Crevice Cave stalagmite isotope record, indications for possible shifts in aridity are few. We apply oxygen (δ18O) and carbon (δ13C) isotope ratio analysis to a sequence of ostrich eggshell (OES) fragments from the PP5-6 site spanning a period from late OIS 5 to 3 to explore aridity changes. The OES δ13C and δ18O trends are broadly coherent but differ from the stalagmite. The δ18O data follow similar, but more marked, trends, suggesting a positive shift to more arid conditions during the latter stages of OIS4 compared to early OIS4 (Unit SA.D.BS) and to today. The δ13C record is more muted, and indicates that ostriches ingested mostly C3 vegetation although slightly higher proportions of C4 or CAM are reflected in moister Unit SA.D.BS. Since the presence of 13C-enriched vegetation is indicated in the stalagmite record, the OES data suggest that ostriches found the taxa unattractive or they did not occur in the breeding season.

Lefebvre, Karine (CIGA - UNAM)  
[50] Using Archaeological Data and Historic Documents to Reconstruct a Colonial Landscape  

La conquista española conllevó importantes trastornos en el paisaje del antiguo México. En la región de Acámbaro (Guanajuato), estos cambios se reflejaron ya desde una fase muy precoz, puesto que la colonización fue temprana y los especies animales y vegetales introducidos por los europeos se adaptaron rápidamente. Por otro lado, el dominio de los conquistadores sobre el territorio se acompañó de una renovación del patrón de asentamiento, que tuvo por consecuencia liberar numerosas tierras fértiles, en beneficio de los nuevos colonos. Por consiguiente, la explotación de la zona inició rápidamente. Las intervenciones europeas permitieron establecer un sistema agropecuario intensivo destinado a proveer las minas y los centros urbanos emergentes. A través del acercamiento de datos arqueológicos recientes, de las fuentes coloniales escritas y de la documentación cartográfica del siglo XVI procesados en un sistema de Información Geográfica, presentaremos la metodología desarrollada para intentar reconstituir el terruño colonial. A partir de la modelación del nuevo patrón de asentamiento y de uso del suelo (agrícola, pecuaria, pero también drenaje, riego y deforestación) pretendemos reconstituir las dinámicas del paisaje en distintos puntos del espacio y del tiempo.

LeFebvre, Michelle (University of Florida), Birgitta Kimura (Santa Fe College) and Susan deFrance (University of Florida)  
[328] Precolumbian Human Mobility and Interaction in the Caribbean: A Zooarchaeological and Ancient DNA Study of Guinea Pigs  

Current zooarchaeological records indicate that humans introduced the domestic guinea pig from South America to the Caribbean around A.D. 600. Using zooarchaeological and ancient DNA datasets from domestic guinea pig remains from the Caribbean, we address human mobility and interaction between the islands of the Caribbean and South America during the second half of the Ceramic Age (ca. A.D. 600-1500). We present new data regarding the continental origins of precolumbian guinea pig, as well as the phylogenetic relationships among guinea pig remains from two sites located in different regions of Puerto Rico in the Greater Antilles (NCS-1 and Tibes) and from Carriacou located in the southern Lesser Antilles. The results indicate that all sampled guinea pig specimens share a common point of genetic origin based in the region that is modern Colombia, South America. The genetic data suggest that guinea pigs arrived in the Caribbean as a single introduction not multiple distinct introductions. The temporal associations of the Puerto Rican guinea pigs suggest that the animals were introduced there first and then relocated to other islands, including the Lesser Antilles.
Lehner, Mark
[237] Neighborhood to National Network: Pyramid Settlements of Giza
A twenty hectare swath of Old Kingdom 4th Dynasty settlement that began with the building of the Pyramids at the low southeastern base of the Giza Plateau shows distinct components that must have functioned as neighborhoods in the sense of geographically localized social networks within the larger conurbation. Correlation between architectural patterns and builders’ graffiti with district signs suggests links to larger national networks. Flanking the major Nile port of its time, community members served in both ships crews and work gangs, linking them to broader interregional networks. Immigrants from source countries that specialized in procurement and transport of exotic products made for ethnic diversity in the distinct components of ‘downtown Egypt.’ It has been observed that as settlement size increases, social interactions per person increase in a predictable, ‘superlinear’ way, and that social clusters increase as networks with broader spatial ranges. That regardless of a city’s size, we all live in villages, may have been true for downtown Egypt at the pyramids.

Lei, Yu
[349] From Settlement to City: Two Issues Related to Phases I of the Site of Sanxingdui, Southwest China
Since the first archaeological excavation in 1934, the site of Sanxingdui has been explored in 16 separate field projects, exploring an area of nearly 10000 m². Due to various reasons, only the data of 5 excavations (Yuelliangwan in 1934 and 1963, Sanxingdui in 1980, the Sanxingdui sacrificial pits in 1986, and Rensheng cemetery in 1998) have been published, reporting only on 3000 m² of excavation surface containing mainly Bronze Age remains. Our understanding of the Neolithic period (Phase I) at Sanxingdui has therefore remained rather limited, comprising only some finds from Yuelliangwan and settlement layers of the central portions of Sanxingdui. It was therefore generally assumed that the Neolithic remains were limited to a rather small area with shallow settlement layers and very few objects. Based on an evaluation of excavation records spanning the most recent excavation campaigns from 1980 to 2000, this paper argues that the distribution of the Phase I remains at Sanxingdui was actually substantial, both in surface extent and in depth of settlement layers, making Sanxingdui the most substantial settlement of the Neolithic Period not only on the Chengdu Plains but also along the whole upper Yangzi River.

Leight, Megan (CUNY Graduate Center)
[133] The Art of Noise at Teotihuacan: The Conch Shell Motif in the Classic Period
Teotihuacan was a major cosmopolitan city located in the Basin of Mexico during the Classic Period (100-700 CE). The artwork has long fascinated but bewildered scholars, and despite the emulation of Teotihuacan’s recognizable artistic styles across Mesoamerica, we still understand relatively little about their artistic styles today. This paper aims to examine the conch shell motif from artwork at Teotihuacan, particularly visible in extant mural paintings. It will focus on investigating the appearance of conch shells, conchs used as trumpet devices, and cache burials of carved conchs. Many scholars have proposed the conch is most related to noise, the wind, and the underworld. In particular, scholars link Teotihuacan’s Quetzalcoatl using a conch shell as a sounding device to best Mictlantecuhtli in the underworld and the American Southwest’s Zuni culture’s feathered serpent named Kolowiki, which was summoned by the conch shell trumpet. In these cases, there are strong ties to the underworld and emergence myths. In order to better understand these historically proposed relationships, this study will explore the conch shell as an isolated theme in Teotihuacan art.

Leisz, Stephen [21] see Urquhart, Kyle
Lejay, Mathieu [181] see Bon, François

Lejay, Mathieu (TRACES-Toulouse University), Farid Sellami (TRACES-INRAP), Marie Alexis (METIS-Paris 6 University), Romain Mensan (TRACES) and François Bon (TRACES-Toulouse University)

[181] *Fireplace Variability in the Aurignacian: a Multiscale Analysis at the Open-air Campsite of Régismont-le-Haut (Hérault, France)*

Through the study of several contemporary fireplaces at the Aurignacian open-air site of Régismont-le-Haut we will distinguish differences in the function and operation of a common-place form of archaeological vestige. To achieve this goal we rely on multiscale examination of hearths, which consists of classic planimetric and stratigraphic observation coupled with both micromorphological and geochemical analyses. Results are also compared with experimental hearths analyzed using the same methodology.

Experimental data shows clear microscopic and geochemical variations that correlate with types of fuel used in fireplaces. These variations are equally seen in archaeological samples (while controlling for post-depositional processes), which highlight whether wood or bone were used as fuel. Regarding the question of rhythms of use, our observations of thermo-altered sediments highlight the maximal intensity of fire, but not fire length or possible reutilizations. The lack of in situ residues, such as charcoal or ash lenses, makes the study of rubefied sediment limited in regards to the chronology of fireplace use.

Along with technological and spatial analysis of artifacts, these results allow us to identify strong differences between areas organized around fireplaces. The complementarity of these areas has a structuring effect on their variability, demonstrating the complex nature of the site.

LeJeune, Colin (University of Illinois at Chicago)

[307] *Local Earthenware Ceramic Decoration and Cultural Transformation on Kenya’s Swahili Coast, A.D.700-1700*

Description of locally produced earthenware ceramic assemblages excavated from Swahili town sites on the Kenyan coast suggest that incised and impressed decoration became less common and less formally complex, particularly on cooking vessels, after A.D. 1200 (Chittick 1984; Horton 1996; Wilding 1989). This development appears to be contemporaneous with shifts in consumption practices, domestic architecture, religion, and the importance and expression of socio-economic identity within coast town society that began prior to A.D. 1000 and rapidly progressed and matured between A.D. 1200 and 1500. These shifts were associated with the formation of the cosmopolitan, hierarchical, Islamic, urban culture which has characterized Swahili town-life since the 13th century (LaViolette 2008). This paper integrates existing knowledge concerning social and cultural development experienced on the Swahili coast between A.D. 700 and 1700 and the character of local earthenware ceramic assemblages excavated from town settlements on the Kenyan coast to interrogate the meaning and function of incised and impressed decoration on these ceramics over-time. This effort will involve discussion of the utility of this variable for study querying how socio-cultural identification and its expression on the Swahili coast evolved in relation to the developmental trajectory this region experienced.

Lekson, Stephen (University of Colorado)

[354] *Architectural Wood Use in Chaco Kivas*

The architecture of Chacoan kivas was markedly unlike far more numerous non-Chacoan kivas. While Chaco is famous for its stone masonry, we focus here on wood use, and specifically on radial beam pilasters and wainscoting. Both are enigmatic and, consequently, both have often been overlooked during excavation and sometimes even removed in modern stabilization. But when the kivas were in use these features would have been dominant, eye-level aspects of kiva interiors. Using examples from Chaco Canyon, Bluff Great House, Aztec Ruins and Chimney Rock, we explore the construction, function, and symbolism of these distinctively Chacoan features.

[1] *Discussant*
Lemke, Ashley (University of Michigan) [135] Hunter-Gatherers and Prehistory

Robert Kelly’s seminal work, The Foraging Spectrum, cataloged diversity among ethnographic foragers to demonstrate the tremendous range of cultural, economic, demographic, and political systems within the broad category, “hunter-gatherer.” While we have a clear understanding that ethnographic foragers are diverse, archaeological interpretations of prehistoric hunter-gatherers still tend to be seen through the lens of ethnographic analogy. The creative and critical use of ethnographic data is difficult, and doing archaeology as Kelly tells us is like piecing together a jigsaw puzzle without a picture on the box. The question remains, what is the proper role of ethnographic data in archaeological research, particularly of prehistoric hunter-gatherers? In addition, how can we highlight diversity in prehistoric foragers and discover novel lifeways that extend beyond the ethnographic record? These are the central questions and goals of this symposium, and individual papers and participants will each contribute pieces to a prehistoric hunter-gatherer puzzle.

[135] Chair

Lemke, Ashley [192] see OShea, John

Lemonnier, Eva, Céline C. Lamb (University of Kentucky, Department of Anthropology), Daniel Vallejo-Caliz (University of Kentucky, Department of Anthropology) and Shannon Plank (University of Kentucky, Department of Anthropology) [183] Between House and Site: Considering Intermediate Units in Classic Maya Lowlands Settlements

Traditionally, settlement archaeology of the Classic Maya Lowlands recognizes several intermediate residential units between the house and the site. For over 50 years, the concept of neighborhood has been mentioned occasionally, but conclusive case studies are still rare. Yet the concept raises the important issue of the internal social structures of communities and their relationships. After briefly describing the methods that have helped identify intermediate units in the recently studied sites of La Joyanca (Peten, Guatemala) and Yaxché (Yucatan, Mexico), we consider the implications of such units within their larger social and political landscapes.

Lennen, Joel and Jamie Arjona (University of Illinois) [269] Queering Historical Worlds: Disorienting Materialities in Archaeology

This essay draws from contemporary strands of affect and materiality in queer theory to discuss approaches to queer materialities in archaeology. This attempts to move beyond privileging sexual acts and orientations as defining queerness (Blackmore 2011), towards vast assemblages of human and material convergences that queered social norms (Chen 2012). The provocative capacities of bodies, both human and non-human, to disorient social norms offers archaeologists alternative perspectives on queer world-making in historical communities. We will illustrate how spatial and material textures can create transgressive atmospheres that reciprocally stick to human bodies. By considering a set of historic relationships that altered bodily states physiologically and sensorially, we acclimate to a world of queer matter beyond representations of identity and being. We will offer examples of how substances, spaces, and bodies intersect in ways that transform and disrupt the movements of everyday life. These relationships, in turn, remind us of the spectrum of matter that has the potential to queer contemporary social networks and prompt new theoretical approaches to queer materialities in archaeology.

Lennon, Joel [173] see Drane, Leslie

Lenoir, Michel [389] see Dogandzic, Tamara

Lenoir, Michel [53] see Martisius, Naomi L.

Lentz, David (University of Cincinnati) and Venicia Slotten (University of Cincinnati)
Common and Lima Beans (Phaseolus spp.) from Cerén: Wild and Domesticated Germplasm

Archaeological investigations at Cerén, a Classic period Maya site in western El Salvador, have unearthed an abundance of carbonized bean remains, both Phaseolus vulgaris and P. lunatus. Surprisingly, the Cerén P. vulgaris bean remains were derived from both wild and domesticated populations. This find reveals that the Late Classic inhabitants continued to draw upon wild food sources even though they had clear access, as seen in the Cerén paleoethnobotanical record, to a full array of domesticated food crops. This discovery not only offers insights into human behavior patterns of the past, but also has implications for explaining the genetic interchange between wild types and cultivars. In turn, these data help elucidate the interpretation of the multiple origins of Phaseolus domestication and the proliferation of its varieties.

Lentz, David [75] see Slotten, Venicia

Lentz, Kari

Tokens of Travel: Material Culture of Transoceanic Journeys in San Francisco

During the second half of the nineteenth century thousands of travelers embarked on voyages aboard steamships headed for San Francisco that could last weeks or months. In the past decade, William Self Associates has conducted multiple excavations within the vicinity of the original coastline of Yerba Buena Cove that have yielded an abundance of artifacts. This paper focuses on dinnerware pieces employed for meals aboard vessels of the Pacific Mail Steamship Company that were recovered from domestic privies dating to the 1870s. The paper examines the function of tableware utilized during maritime expeditions as well their potential purpose once collected by disembarked crew members or passengers. This paper posits that these artifacts may have operated as keepsakes or mementos that reminded migrants of their time spent aboard a ship in a “world between worlds” (Maddocks 1982) that served as a liminal space “between origin and destination” (Wenzlhuemer and Offermann 2012).

Leon, Xochitl [144] see Lindquist, Shayna

Leon Estrada, Xochitl (Universidad Veracruzana/Universidad Nacional Autónoma de México)

Settlement at Matacanela: Preliminary Interpretations

In this presentation we discuss data collection strategies implemented in the Matacanela Archaeological Project and provide initial interpretations of these data. Field work, completed in the summer of 2014, consisted of systematic surface collection, geophysical survey, and mapping. This discussion focuses primarily on data acquired through surface collection. Using these data, we address the architectural organization of the site, identify possible areas of craft production, and site chronology.

Leon Guerrero, Annamarie and Whitney Kirkendall (URS)

Cruising along the Coastline: Exploring the Possibilities of using LiDAR Data to Predict Climate Change Effects along the Southern Monterey Coast

This paper presents the collaborative efforts of the Society for California Archaeology, the US Forest Service and the Cabrillo College Archaeological field school to document sites along the southern Monterey coastline. During the 2012 field season, a new generation of archaeologists documented sites along a 2-mile stretch of coastline in order to study how coastal erosion is affecting these sites. Part of the purpose of this presentation is to highlight the importance of these types of coastal surveys, and to illustrate how much data these efforts can collect. However, the primary focus of this presentation is to explore the possibility of using LiDAR to monitor the potential loss of this collected archaeological data. By examining previous LiDAR data, it may be possible to predict how the coastline will be affected by climate change. This information can assist with predicting at what rate this data might be lost at and can be used in making management decisions about these sites.
Leonard, Lorne [32] see Jazwa, Christopher

Leonard, Daniel (B.C.R Consulting LLC) and Jennifer Chmilar (University of Calgary Dept. of Anthropology and Ar)

Fedick-ian Approaches to Wetland Studies: Rock Alignments, Resilience, and the Pulse-Based Ecosystem

It was nearly ten years ago when Dr. Scott Fedick unleashed his graduate students Daniel Leonard and Jennifer Chmilar into the Yalahau wetlands. Upon their return, Scott asked what questions each had about the wetlands, and two projects were born. During the ensuing field seasons, and time in between, Scott helped to solidify and expand on background knowledge, encourage interdisciplinary collaborations, and offer much needed support. In time, both Dan and Jen emerged from the wetlands able to answer the questions that drew them in. This presentation will reflect on the intellectual legacy of Scott Fedick through the lens of two dissertations in the Yalahau wetlands. The first, carried out by Chmilar, focuses on the function of rock alignments in the context of detailed topography and paleoenvironmental change. The second, by Leonard, involves a regional survey to assess the nature and extent of wetland manipulation throughout the Yalahau physiographic zone. We will discuss how Scott's mentorship influenced our approach to the unique environmental archaeology of the Yalahau wetlands, and inspired the interpretations and conclusions we reached.

Leonard, Kevin (Archaeoconsulting Inc.)

Influences of Gaming on Mi'kmaq Culture during the Late Woodland Period

About A.D. 1320, the bones of ten people were cremated in an ossuary on Canada's east coast. Grave offerings recovered from the eroding site in 1990-91 included fragments of tiny, calcined bone rods and charred plum pits with smoothed surfaces. They are interpreted as parts of a gaming set that probably included a shallow wooden bowl and a small bag to hold the dice, still used by members of the Mi'kmaq First Nation to play waltes. Although game sets were traditionally a woman's property, 17th century observers reported wives being wagered and lost in waltes matches. Overlap of the dice and bowl game with cord-wrapped stick decorated, shell tempered pottery in part of northeastern North America suggests waltes contributed to intergroup mobility for women. Consequently, their knowledge of plant management could spread in concert with certain plant species they carried with them. Intra-band waltes gambling fostered economic leveling, maintaining the status quo in an egalitarian society. At a personal level, the waltes bowl was imbued with magical powers and was used for divination by 19th century Mi'kmaqs. At the individual, group and intergroup levels, waltes helped to shape culture during the Late Woodland period in the Northeast.

Leone, Mark (University of Maryland)

The Spirit of Wye House

The role of the supernatural in establishing subjectivity is well understood in Marxist terms, particularly through Althusser and Zizek. There are two parallel, complementary religions at Wye House near Easton, Maryland in the eighteenth, nineteenth, and twentieth centuries. Through archaeology, African and African American religions and their role in the cosmos, people's lives, and the maintenance of heritage is becoming well understood through African and African American material remains. The archaeological remains of Puritan Christianity and Anglican Christianity are different. There is ample evidence of both, but traditions, practices, and recorded beliefs show a role for parallel expressions of the supernatural in daily life.

Lepofsky, Dana [312] see Lyons, Natasha

Lercari, Nicola (University of California Merced)

Virtually Rebuilding Çatalhöyük History Houses

3D technologies, remote sensing, geographic information systems, and virtual reality have changed the documentation and interpretation process of Çatalhöyük (Berggren et al. forthcoming 2015).
Work at Çatalhöyük Building 89 has allowed a new methodology of data capture, processing, visualization, and analysis of stratigraphic layers based on digital technologies (Forte et al. 2012). On the other hand, virtual reconstruction of Neolithic buildings rebuilt in the same place has been little discussed. Current visualization technologies allow us to simulate the tridimensional context, shared material culture, and experiential aspects of the unique urban environment at Çatalhöyük, but require archaeologists to address methodological questions such as: what is the significance of virtually rebuilding Çatalhöyük history houses? Can a scientific simulation of Neolithic buildings tell us more about the social and religious meanings of built space at Çatalhöyük? How can uncertainty, ambiguity, and different interpretations be conveyed in a tridimensional simulation? My contribution to the digital reconstruction of history houses aims to define a new approach to digital archaeology that integrates a plurality of data in a visual-analytical environment where advanced interactive techniques simulate the cosmology, shared space, material culture, and experiential aspects of Çatalhöyük cultural landscapes.

Lercari, Nicola [401] see Forte, Maurizio

Lerner, Harry (Université Laval)
[17]  
Scales of Analysis, Scales of Interpretation: Interpretive Scope and Analytical Precision in Lithic Use-wear Research, or 'Trees Are Great but Don't Forget about the Forest'

Ever since the inception of the New Archaeology back in the 1960s there has been an emphasis within the discipline on increasing analytical rigor through ever-more precise quantification of material culture variability. While striving to improve and expand our analytical arsenal is always a worthy pursuit, these efforts must be accompanied by critical reflection on how and why we use our increasingly refined analytical techniques to address larger behavioral and cultural questions. Precise and accurate measurement of physical artifact attributes is, of course, an essential component of any program of research, but an appropriate contextual rationale for the recording and evaluation of such data is equally fundamental. The proposed presentation will examine the use of GIS in characterizing changes in stone tool surface microtopography documented using both incident light and scanning electron microscopy and how the resulting specific quantitative data can be used to not only characterize the individual tool surfaces but also to explore broader patterns of tool using behavior and their possible cultural underpinnings.

Lerner, Shereen (Mesa College)
[197]  
Applying the Principles of MATRIX in the Real World

In 2001, the SAA received a National Science Foundation grant to revise undergraduate archaeology curriculum to reflect the needs of archaeologists in today’s world. As part of this grant, seven principles were developed: (1) discuss the importance of stewardship, (2) take into account the diverse pasts of stakeholders, (3) articulate the social relevance of the past, (4) include a consideration of archaeological ethics and values, (5) teach effective written and oral communication, (6) provide fundamental archaeological skills, and (7) incorporate real-world problem solving. The question that now arises is whether these principles are being applied in the field of archaeology. Was this a purely academic exercise or do we see implementation in the real world?
[320]  A Refined Relative Sea Level Curve and Paleoshoreline Modelling for the Prince Rupert Harbour Region

Deglaciation following the last glacial maximum caused dramatic coastline changes around the world. Locating and analyzing archaeological evidence of human settlement requires an understanding of the relative sea level (RSL) history and related changes to the landscape. On the Northwest Coast of North America RSL was affected by local glacial and tectonic conditions, and current research demonstrates that sea level histories are locally contingent and vary widely. This paper presents a refined sea level curve for the Prince Rupert Harbour (PRH) region reconstructed through diatom analysis of sediment isolation basin cores, geological survey, and geoarchaeological evidence. The sea level curve is used with high-resolution digital elevation models constructed from LiDAR data to construct an archaeological survey model that targets high-potential coastal landforms from times when the RSL differed. This study is significant given that the PRH and immediately surrounding area was one of the most densely occupied regions of the Northwest Coast and has been intensively surveyed, but lacks recorded sites dating older than 6000 cal. BP, arguably due to variable paleoshorelines. This research furthers our understanding of the paleolandscape that the first peoples would have encountered and how human settlement is affected by changing sea levels.

Leventhal, Richard [218] see Cain, Tiffany

Leventhal, Alan (College of Social Sciences, San Jose State University)

[293]  Shellmounds of the San Francisco Bay as Sacred Landscapes

Prior to the time of European contact, ancestral Ohlone tribal groups of the San Francisco Bay region buried their dead within many "shellmound" sites located near the bayshore. Archaeological inquiry over the past century has revealed that many of these burials had rich grave associations. Even so, the prevailing assumptions held by the scientific community has been that these bayshore mounds were the result from the refuse of habitation/village activities focused around the exploitation of shellfish as an explanation of site formation process. The analysis of the mortuary complex from CA-ALA-329 has permitted the development of an alternative perspective. This alternative perspective suggests that the burial activities represented at many of these mounds were central to, rather than peripheral to, the function of these sites. Indeed, the resultant analyses support the position that many of these "shellmounds" served principally as formal ceremonial sites and mortuaries for high-ranking individuals over the centuries. It can therefore be postulated that the important socio-religious Funerary and Annual Mourning ceremonies also figured centrally in the lives of these ancestral Ohlone. Furthermore, not only were these mounds deliberately constructed over time, given this alternative perspective these sites can also be interpreted as “Sacred Landscapes.”

Discussant

Leventhal, Richard (University of Pennsylvania) and Brian Daniels (University of Pennsylvania)

[254]  Museums and the Destruction of Heritage

What are museums to do during times of war and with the destruction of cultural heritage in conflict zones? This is a question that came into focus during World War II, and more recently in Afghanistan, Iraq, Syria and other parts of the Middle East. What are the professional and ethical responsibilities of museums in the United States, in western Europe, or in other parts of the world when destruction of cultural heritage is planned or occurring? Do museums in the West have additional responsibilities if museums in these conflict zones are being destroyed? In this paper, we argue that possible actions by museums and professional museum organizations, such as the AAM, AAMD, ICOM, include: 1) providing personnel and financial resources to provide training and help preserve the heritage in situ; 2) providing a safe haven for artifacts and movable heritage during times of conflict – with assurances that these artifacts are returned to the country of origin after the conflict; 3) making sure that artifacts and material from the conflict zone are not available for sale; and 4) working to create an international task force to implement these activities on a broad scale.
Levi, Laura [66] see Wigley, Sarah

Levine, Marc N. [25] see Fargher, Lane

Levine, Marc (University of Oklahoma)
[249] Ceramic Molds for Mixtec Gold: New Insights into Lost Wax-Casting Traditions of Late Postclassic Oaxaca

Lost-wax casting in prehispanic Mesoamerica reached its apogee in Late Postclassic Oaxaca, Mexico. Nowhere is this artistry more evident than in the spectacular gold and silver offerings from Tomb 7 at Monte Albán. Researchers have long understood the general process of lost-wax casting, but have incompletely examined variability in techniques utilized through space and time. This poster presents new evidence of ceramic molds from Late Postclassic Tututepec that are believed to have been used to make casting cores—an important component of the lost-wax casting process in Oaxaca. To date, archaeometallurgical studies in Mesoamerica have overlooked the use of ceramic molds for making casting cores. The relatively large sample of molds from Tututepec suggests that this Mixtec capital was an important production center for making gold and silver jewelry that was consumed by local elites and possibly exported to distant centers, such as Monte Albán.

Levstik, Linda S. [236] see Henderson, A. Gwynn

Levy, Janet (UNC at Charlotte)
[187] Intersecting Identities in Southeastern U.S. Prehistory

Archaeological evidence from the southeastern and mid-south regions of the U.S. suggest that dress, personal ornamentation, and body modification were key strategies for presenting the self during later prehistory. These markers were apparently deployed to designate multiple and intersecting aspects of identity, including gender, age, community affiliation, and leadership status. Evidence comes from recovered artifacts, human burials, and representational images of humans. Some archaeologists have also examined patterns of architecture, food preparation, and artifact manufacture for evidence of group and personal identity. Ethnographic evidence has also been influential in scholarly attempts to understand the variability of social and individual identity. It is a complex task to integrate both multiple sources of evidence and multiple aspects of identity and life course without either oversimplifying or throwing up one’s hands in despair at the complexity. This paper reviews research in the southeast with a focus on how gender identity intersects with other aspects of self-presentation.

Levy, Thomas E. [241] see Howland, Matthew

Lewandowski, David (Northern Arizona University)
[273] Shifting North: Social Network Analysis and the Pithouse-to-Pueblo Transition in the Mogollon Highlands

This poster examines the changes in the social networks of the Mogollon Highlands that accompanied the transition to pueblo architecture around A.D. 1000 using Social Network Analysis (SNA). SNA offers a set of formal methods in which ties and relations between sites can are examined. Using the proportions of decorated ceramics within a site’s assemblage, social networks are created for 50-year intervals, allowing for changes in the networks to be observed before and after the pithouse-to-pueblo transition. This poster focuses on the relationship of the Mogollon Highlands to the Cibola region to the north, and the Mimbres region to the south and the social factors which accompanied the changing social networks.

Lewarch, Dennis (Suquamish Tribe)
[249] Artifact Distribution Patterns among Aztec Period Households in the Coatlan del Rio Valley, Morelos, Mexico

Using assemblages in over 4,000 4-x-4-m surface collection units from eight Aztec period sites in the
Coatlan del Rio Valley of western Morelos, Mexico, I analyze the valley-wide distribution of plain ceramics, decorated ceramics, lithic artifacts, spindle whorls, and figurines in over 300 household middens to define functional artifact sets analogous to the “bundles of goods and services” of economic geographers. Cluster analysis, multidimensional scaling, and network analysis quantify flow of ceramic classes and lithics among households and group ceramic and lithic functional classes into activity suites. Groups of functional classes reflect universal household maintenance activities as well as manufacturing of a variety of craft goods for both household use and market exchange. Distribution of plain and decorated ceramic classes and lithic materials and tools among households provides evidence of various provisioning mechanisms, including market exchange. Results contribute to the increasing corpus of research documenting complexity of Aztec period economic organization in the tributary provinces of the Aztec empire.

Discussant

Lewarch, Dennis [360] see Lewarch, Evan

Lewarch, Evan (Suquamish Tribe), Dennis Lewarch (Suquamish Tribe) and Stephanie Trudel (Suquamish Tribe)

Holocene Site Assemblage Structure and Economic Organization In Admiralty Inlet and Puget Sound, Washington

We compare 80 site components in Admiralty Inlet and Puget Sound, Washington, using component age, deposit thickness and complexity, feature type and diversity, portable artifact functional classes, and assemblage diversity to study the range of functional site types and diversification of tool kits through time. We previously (2011) analyzed 75 components using Thompson’s (1978) 20-functional class system to code portable artifacts. We noted that most inland riverine and prairie sites did not have shell matrices that preserved bone and antler tool classes and we could not differentiate assemblages comprised primarily of lithic artifacts because variation was masked by the definition of Functional Class 9: utilized flakes and chipped stone tools. Here we use 49 functional classes generated by subdividing Thompson’s original classes. Results of the new analyses suggest marine and riverine/prairie inland site assemblage patterns may be accounted for in part by differential preservation of bone or antler tools, recovery techniques, and sample size. We compare bone/antler and lithic assemblages separately to tease out functional patterns among sites not conditioned by recovery. Finer-grained analyses such as use-wear or technological studies are necessary to track functional organization of lithic assemblages.

Lewis, Patrick [92] see Davis, David

Lewis, Jennifer (Simon Fraser University)

Applying North American Approaches to Community Archaeology in Khirbet al-Mukhayyat, Jordan

“Community based” archaeology programs are all the rage in North America, as both academic and consulting archaeologists respond to descendant communities’ rights to management over their cultural heritage in the face of large-scale development and resource management. This movement is not yet applied in other regions facing similar challenges of economic development opportunities and access to heritage. The Khirbet al-Mukhayyat Community Archaeology Program (KMCAP) is inspired by North American approaches, while recognizing the unique socio-political and economic setting of Jordan. My paper presents the methods, findings, challenges, and futures from the (inaugural) 2014 season, within the larger Town of Nebo Archaeological Project (directed by Dr. Debra Foran of Wilfred Laurier University). The KMCAP is informed by my experience as a consulting archaeologist in British Columbia, and by my academic work in the southwestern United States.

Lewis, Michael [276] see Burrillo, Ralph

Li, Shuicheng
Painted Pottery of the Siba Culture and Its Implications
The Siba Culture (c. 3950-3550 years BP) is an early Bronze Age culture in Northwest China. Painted pottery of the Siba Culture is characterized by a red slip and is decorated with thick black paint. The painted motifs consist largely of geometric patterns, apart from a few animal and human figures. These art treasures provide an important dataset to investigate the subsistence and culture of the ancient Qiang groups. Studies of the painted pottery also address: 1) implications of a change in ceramic materials in in Northwest China, and 2) early East-West interactions between ancient China and farther west.

Discussant
Li, Xiuzhen Janice [89] see Martinon-Torres, Marcos

Pastoral Communities Thrived in a Rocky Valley of the Tian-Shan Mountains--New Survey Results of the Dense Pastoralist Sites in the Mohuchahan Valley of Xinjiang, China
Newly identified pastoral sites in the Mohuchahan Valley have the potential of preserving 3000 years of pastoral settlement history in the middle section of the Tian-Shan Mountains. Located between a rich high-elevation meadow and a low-elevation oasis, this seemingly barren valley might have served as an ideal residing place for numerous generations of local nomads. The scale and density of the burials and settlements they left suggest the communities once thrived here in ancient times probably were of much larger size than the current one. Considering that many of these sites are located in an apparently harsh environment, it becomes mysterious how these communities managed to survive and thrive here. Based on my ethnographic work and survey of some of sites, I suggest the success of ancient communities in the Mohuchahan Valley may partly be attributed to their connection with the meadow area and the oasis nearby. In other words, the harsh environment of the Mohuchahan Valley probably never supported local pastoral communities alone but always together with other eco zones such as the meadow and oases.

Li, Tao (University of Pittsburgh)
Economic Differentiation in Hongshan Core Zone Communities: A Geochemical Perspective
It is proposed that a greater degree of differentiation between households in Hongshan villages (4500-3000 B.C.) in northeast China with regard to productive activities implies a greater degree of economic interdependence between households and a more complex economy, which possibly provides leaders with enhanced opportunities to mobilize labor toward such ends. Analysis of household artifact assemblages in the Hongshan periphery has indicated some very modest levels of productive differentiation in lithic production. If the Hongshan core zone showed stronger evidence of productive differentiation and thus a more complex village economy, it might help us to understand how the greater investment in public ritual spaces came to be. A combination of geochemical and mineralogical analyses was thus proposed to investigate productive differentiation between 50 individual artifact (pottery) concentrations of household scale in the Hongshan Core. By recognizing the compositional clusters represented in each household-scale analytical unit, we were able to understand the degree of compositional variety within household units in the Hongshan core zone and the degree of productive differentiation that characterized Hongshan pottery production. This study offers important insight to the role of production and distribution of utilitarian pottery to the economic foundations of early complex societies.

Li, Dongdong (University of Pittsburgh) and Wenjing Wang
Emergence of Walled Towns in the Neolithic Jianghan Plain: Warfare or Flooding Control?
The late Neolithic in the Jianghan plain is characterized by the emergence of a new kind of settlement pattern. In this period, highly nucleated large local communities were walled as regional centers. In the past decades, the emergence of walled sites has caused hot debates about social dynamics, particularly with regard to function and causal factors. Most explanations for the emergence of walled sites fall into either a warfare model or flooding control model. To evaluate
those models, we investigate both archaeological data and historical records. Our holistic analysis of archaeological data and historical records indicates that the warfare model is more reasonable for explaining the emergence of local walled sites and the trajectory of local social complexity in the Neolithic period.

**Li, Yongxian**

[349] *Centers of Power and Ritual: Discussing the Archaeological Remains from Two Large Zhangzhung-Period Settlements on the Tibetan Plateau*

The two large settlement sites of Ka’erdong and Zebang which were radiocarbon-dated to 3000-1500 BP probably belong to the former Zhangzhung Kingdom (1500 B.C.–A.D. 645). These two sites are unusually large, covering an area of 130,000 m² and 500,000 m² respectively. Both sites have large cemeteries, residential areas, ritually-used spaces, and defensive structures. The largest structure observed is a large stone-mound tomb with a diameter of 60 m and a height of 6 m that can be attributed to a “king” or some other high-ranking individual. At some distance, there was an altar with stone pillars associated with a bronze statue that probably depicted a god; furthermore, one of the graves located in the vicinity of the altar contained a gold mask. Based on this evidence and the particularities of the object assemblages in graves and settlement layers, this paper argues that these are the remains of a stable society with a centralized power even though part of the manufacturing economy showing many characteristics of a self-regulating tribal system. The presence of the ritual installations and depictions associated both with altars and special graves indicate that this area was a regional center of worldly and religious power.

**Lieb, Brad** [311] see Doherty, Raymond

**Liebmann, Matt (Harvard University)**

[81] *In the Shadow of the Moor: An Archaeology of Pueblo Resistance in Colonial New Mexico*

Historians and archaeologists often consider the Pueblo Revolt of 1680 to be the final chapter in the saga of early Spanish colonialism in New Mexico. Borderlands scholars endlessly debate the origins of the uprising, and in recent years their attention has turned toward proximate causes. In this paper I take a longer view, investigating how the events of early Spanish contact and colonialism created conditions ripe for Native insurrection. I pay particular attention to the differential responses of Pueblo groups to similar colonial circumstances. I also review the contributions of recent archaeological investigations into the Pueblo Revolt Era, which suggest that long-term intra- and inter-Pueblo politics had at least as great an effect on the outcomes of the Pueblo Revolt of 1680 as did Spanish colonial policies.

[239] *Chair*

**Liebmann, Mathew** [239] see Farella, Joshua

**Liendo, Rodrigo**

[86] *Territorial Attachments and Border Formation in the Upper Usumacinta River Basin: Discussing Ceramic Mobility within a Fractured Political and Geographical Landscape.*

To date, archaeologists working in the Northwestern Maya Lowlands, specifically in the Upper Usumacinta region have focused their attention to ceramic variability and regional distributions trying to “picture” the degree of variability in the role of local centers in regional ceramic exchange systems. Nevertheless, little attention has been paid to territorial variability-for example, the distinction between contiguous and non-contiguous territorial formations highlighted by recent regional archaeological studies for Piedras Negras, Yaxchilan and Palenque- and how the latter affects ceramic regional distributions. The existence of a fractured geographic and political landscape poses interesting questions for archaeological scholarship: what does the existence of political allegiance or tribute from non-contiguous populations imply for ceramic distributions? How does it differ from those among territorial contiguous populations? How are not only distributions of resources but also histories of migrations, genealogies, military conquest and alliance building implicated in these patterns?
Chair

Liendo, Rodrigo [86] see Silva De La Mora, Flavio

Lieske, Rosemary (Vanderbilt University)
[151] A History of Izapa Group B: Buildings, Burials, and Offerings

The Group B complex in central Izapa contains the oldest known structures at the site and is vital to understanding the growth and development of Izapa as a regional center. This paper offers a reconstruction of Group B’s architectural development through time as revealed through the excavations and discusses the placement of its numerous burials and offerings. Most of what is known concerning the development of Group B is restricted to Mound 30a, the Mound 30 acropolis, and its auxiliary platforms. The placement of offerings in relation to the platforms aids our understanding of its development. The number of offerings and burials placed in Group B is significantly more than any other location in central Izapa. The messages conveyed by the monuments, combined with the placement of elaborate burials and offerings, delineate Group B as a very special place.

Lieverse, Angela [131] see Schulting, Rick

Lightfoot, Kent (University of California, Berkeley)
[175] The Forging of Communities at Colony Ross (1812-1841) in Northern California

The purpose of this paper is to examine the multiple communities that materialized at Colony Ross, the mercantile outpost administered by the Russian-American Company in northern California from 1812-1841. Archaeological and archival research suggests that several distinctive pluralistic communities, comprised mostly of colonial men and indigenous people, were established at Colony Ross. The paper will examine the dynamic relations of these communities, including how they formed, how they changed over time, and how people with diverse backgrounds were recruited into the different residential neighborhoods of the colony.

Lightfoot, Kent [178] see Blair, Elliot

Lightfoot, Emma (McDonald Institute for Archaeological Research)

The spread of agriculture in the Neolithic and Bronze Age is an important topic of archaeological research, with major implications for human societies across Eurasia. The Food Globalisation in Prehistory project (FOGLIP) has furthered our knowledge of the spread of crops across Eurasia in prehistory using a variety of archaeological methods including archaeobotany, genetics and stable isotope analysis. This presentation will focus on the contribution of stable isotope analysis to our understanding of this early episode of crop exchange, particularly the consumption of millet away from its domestication center. By combining published literature with data generated by the FOGLIP project, I will contribute to our understanding of where, when and why crops were spread across Eurasia by early farmers.

Ligman, Michael [362] see Adams, Jesse

Lilley, Ian (The University of Queensland)
[77] Lapita - the Australian Connection

Recent research in southern New Guinea, Torres Strait and northeastern Australia suggests that Lapita users and possibly makers may have been present in regions hitherto believed to be beyond their reach. In New Guinea, the discovery of late Lapita near Port Moresby has just been complemented by findings of late Lapita ceramics in the western Gulf of Papua. Southwest of the
Gulf, undiagnostic ceramics dating to perhaps 2500 years are now known in the Torres Strait. Bill Dickinson showed that some of this latter material is from New Guinea. In northern Australia, undiagnostic material has been found in surface contexts on Lizard Island off Cape York Peninsula. The Lizard sherds remain undated but are hypothesized to be pre-colonial. They were discovered after Dickinson suggested that late Lapita in the Solomons could originate from places such as Lizard. Ceramics have never been found before in pre-colonial contexts in either Torres Strait or mainland Australia and its offshore islands. The proximity of their find-spots to the new discoveries of Lapita in southern New Guinea, and the dating of at least some of the Torres Strait material, raise dramatic new possibilities regarding the course of prehistory in those areas.

Lin, Yi-Xian (College of Applied Arts and Science of Beijing Union University), Ian Freestone (Institute of Archaeology, University College London) and Hui WANG (Gansu Provincial Institute of Archaeology and Culture)

Understanding the Production of Majiayao Painted Pottery in Gansu: New Data and New Thoughts

This paper examines the evidence for local production of painted pottery of the Majiayao Culture in Gansu province based on their distinguishing characteristics in mineralogical, compositional and technological aspects, and on correlations of these features with the geographical source. We examined a database of painted pottery sherds from one Yangshao-period site and two Majiayao-period sites with comprehensive analytical methods such as petrological, grain-size, Raman microscopic analyses combined with XRF, ICP-MS, NAA, EPMA and SEM analyses, to assess factors enable diagnosing Majiayao pottery locally made in Gansu. We also examined the effects of raw materials on changes in compositions and inclusions of ceramics by studying a number of modern pottery vessels fired with local clays separately in Lintao and Linxia counties. The present case study suggests that we should be wary of linking all types of compositional and technological diversities to different provenances. However, some certain local technological characteristics of Majiayao painted pottery in Gansu might exist.

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

Craft Production and Domestic Economies of the Prehistoric Chengdu Plain, Southwest China

The Chengdu Plain has been home to several large walled settlements and many small villages since the late Neolithic era. Evidence from several sites suggests that multiple types of economic and subsistence production were usually coupled within a given community. Such activities might have mutually influenced one another while sharing or competing for resources, including labor and customers. Although some artisans possibly produced luxury goods or gifts used on special occasions, most of the products were everyday goods that only circulated among a village or community. It is curious and worth noting, however, that the counterparts or imitations of these local products, which followed the same prototypes but whose details were differently implemented, can be found in diverse contexts and many other far-off settlements. By comparing the manufacturing traditions of different working groups, we can discern the extent to which environments, settlement patterns and subsistence economies played an important role in shaping respective traditions. It is also clear that, to understand how these types of production were incorporated into domestic economies and perhaps also larger exchange networks, we need to further investigate users' social interests and strategies.

Lina, Zhuang (National Museum of China) and Zhou Runken (Nanjing Museum)

Use-wear Analysis on the Stone Tools from the Dongshancun Site

The Dongshancun Site is located in Zhangjiagang city in Jiangsu Province in the eastern area of China. The site is only 2 kilometers from the Yangtze River. During 2008-2010, the Nanjing Museum excavated about 37 tombs belonging to the Songze Culture (3900-3100B.C.). Excavations revealed that some of interred were buried with abundant pottery vessels, jade artifacts, and other well-made stone tools such as the stone yue axe, stone adze and stone chisel. In this paper, we employ a low-
power method to observe the use-wear patterns on the stone stools. Our research included the examination of 20 yue axes, 17 stone adzes, and 17 stone chisels unearthed from 10 tombs. Our paper will address whether the tools were utilitarian or produced strictly for the ritual surrounding the burial event.

Linares, Adriana [261] see Coronado, Anabella

Lincoln-Babb, Lorrie [225] see Rodrigues, Teresa

Lindauer, Owen [278] see Jacobs, David

Lindeman, Michael (Desert Archaeology)
[304]  Settlement Structure at La Villa: A Preclassic Hohokam Village
For roughly 400 years after La Villa was founded, around A.D. 500, the village would have been one of the largest in the Phoenix Basin, rivaling, perhaps, the great centers of Snaketown and Grewed on the Middle Gila River. Recent excavations at the site by Desert Archaeology Inc. combined with a series of previous investigations provide intriguing new information about the organization of settlement at Hohokam villages. The work at La Villa has resulted in the identification of two large plazas as well as occupation extending more than 120 m beyond the plaza edges. Our investigations at La Villa have identified multiple long-lived social units close to the plazas while occupations farther from the plazas are of shorter duration. We suggest that settlement along the perimeter of the plaza would have been by the village founders and their descendants, with these spaces curated for hundreds of years. A plaza proximate location would have served to display the historical relationship of the households to the founding of the village reinforcing social, political, and economic rights that are likely to have been derived from first-comer status.
[304]  Chair

Linderholm, Anna [28] see Larson, Greger

Lindgren, Alexandra [336] see Corbett, Debra

Lindley, Tiffany (The University of Texas at San Antonio)
[376]  Searching for Continuity in the Hinterlands: Households at Rancho San Lorenzo’s Floodplain North Settlement Cluster, Belize
In this paper I will summarize the results of the 2013 and 2014 field seasons at the Floodplain North settlement cluster, located within the Rancho San Lorenzo Survey Area in the Mopan River Valley, Belize. Investigations sought to identify continuous occupation from the Late Classic to Postclassic periods. Maya occupation at Rancho San Lorenzo peaked in the Late Classic, followed by a drastic decrease in population levels. However, pedestrian survey undertaken in 2013 revealed Postclassic ceramics at the Floodplain North settlement cluster, one of five distinct clusters within Rancho San Lorenzo. The 2013 season also included test excavations at five house-mounds with the primary goal of identifying more Postclassic ceramic data. Based on the 2013 data, the primary objectives of the 2014 field season were to continue testing house-mounds throughout the Floodplain North cluster and, using ceramic data, identify a chronology of occupation. A total of six house-mounds were tested. Excavations revealed a strong Late Classic to Terminal Classic presence, with possible continuity into the Postclassic.
[376]  Chair

Lindquist, Shayna (University of Vermont) and Xochitl Leon (Universidad Veracruzana)
[144]  The Obsidian of Matacanela
The Matacanela Archaeological Project (MAP) seeks to add to the greater understanding of the Classic to Postclassic transition, within the Gulf lowlands of Mesoamerica. Within the surface
obsidian assemblage analyzed from the first season of this two-year project, distribution patterns and source frequencies delineate a definite Classic presence, reflecting certain hallmarks of surrounding established Classic period sites. In this paper, we present the obsidian recovered, and further consider Matacanela’s identity among regional contemporaries, particularly how the data contributes to the discussion of the site as a polity challenging regional authority. We finally discuss Matacanela’s Postclassic occupation and areas for potential investigation.

Lindsay, Audrey (Shumla Archaeological Research and Education Center, Northern Arizona University), Victoria L. Muñoz (Shumla Archaeological Research and Education Center), Jeremy B. Freeman (Shumla Archaeological Research and Education Center) and Carolyn E. Boyd (Shumla Archaeological Research and Education Center)

High Tide in the Lower Pecos: Digital Documentation of the Threatened Rattlesnake Canyon Mural

Rockshelters of the Lower Pecos Canyonlands display visually striking and compositionally complex Pecos River style murals painted by hunter-gatherers during the Late Archaic. The Rattlesnake Canyon mural (41VV180) is regarded as one of the six finest surviving examples of this world-renowned pictograph style. However, the site is severely threatened by repeated flooding episodes along the Rio Grande, exacerbated in recent years by siltation of Amistad Reservoir. Three known flooding episodes have impacted the paintings since 2008. Building upon the recording project conducted by the TAS Rock Art Recording Task Force during the 1990s, Shumla is collaborating with the National Park Service and Texas Tech University to record the Rattlesnake Canyon mural using state-of-the-art, digital documentation techniques before it is damaged further and eventually lost. Fieldwork sessions in June and September 2014 collected comprehensive baseline data facilitating current and future research, conservation, and public education for this threatened cultural legacy.

Lindsay, Ian (Purdue University)

Shifting Human-Environmental Interactions in the Late Prehistoric Periods of Southern Caucasia

The Caucasus Mountain range is an exceptionally dynamic landscape whose diverse topographic, tectonic, hydrological, climatic, and pedological dimensions provided the backdrop to equally vibrant social transitions from the Neolithic through the Iron Age. The past two decades of intensive excavations and radiocarbon dates in the South Caucasus (particularly Armenia and Georgia) have resulted in important refinements to material culture sequences from the first farmers to the earliest political hierarchies and empires. A long-standing tradition has persisted in the region to uncritically invoke “the environment” as a driver of important historical transitions—from determinative access to vital highland resources like obsidian and metals, to the adoption of pastoral transhumance—despite a lack of concrete paleo-environmental data. Indeed, until recently very few data have existed to reconstruct the daily challenges and affordances of highland climatic and hydrological regimes that effected daily life for ancient populations, and how these may have precipitated settlement and subsistence change over the longue durée. This paper will discuss the current state of knowledge of how ancient societies (including the region’s earliest complex polities) in Southern Caucasia engaged with their natural environment from the 6th through 2nd millennium B.C.

Chair

Lindsay, Ian [285] see Khatchadourian, Lori

Linduff, Katheryn (University of Pittsburgh)

Discussant

Lindzy, Annmarie [315] see Chesson, Meredith

Linford, Samantha
[364] Clay Reconnaissance and Suitability Testing within Petrified Forest National Park
The likelihood of endemic clays both suitable and used for local ceramic production within the Petrified Forest National Park, Arizona is disputed. Researchers imply clays within the park are unsuitable for ceramic production. Ethno-archaeological studies, though, document that most traditional potting communities procure clay for ceramic production within a three to five kilometer radius of their residence (Arnold 1985). In this case, past individuals residing within the current park boundaries must have located and obtained clay from a reliable source, as large amounts of utility ware is present within the park. I will ascertain the utility of naturally forming clays within the Petrified Forest National Park through the collection and firing of naturally forming geologic and alluvial clays. This study examines clay sources within three to five kilometers of five archaeological sites: AZ K: 13:114, Puerco Pueblo (AZ Q:01:022), Pottery Mound (AZ Q:01:281), Sivu’ovi (AZ Q:01:114), and Twin Buttes (AZ Q:01:2), serving as a base study for sourcing ceramics within Petrified Forest National Park and contributing to specific questions regarding ceramic production. Determining the source of ceramic production within Petrified Forest National Park can shed light on trade patterns as well as cultural preferences for material and design.

Ling, Johan
[137] War Related Social and Ritual Traits in Rock Art
War related social and ritual traits are common features in European Bronze Age and Native North American rock art. There are some general similarities in the material that needs to be stressed between the North American images and those from Bronze Age Europe, fighters depicted with spears and shields etc. This resemblance speaks of how distant un-connected human groups may create similar imageries, given only a set of rather superficial social similarities in general terms. Moreover, the striking resemblance between the figurative depictions of armed humans and weaponry on the steiae of Iberia, dated to Late Bronze Age, and Scandinavian rock art is also important in this context. Most scholars seems to agree about that the Bronze Age in parts of Europe was an unstable period characterized by conflicts and constraints and that small-scale raiding and warfare was a common feature. This is also the case for some of the societies that produced North American Rock art. This indicates that rock art was neither a mere depiction of an ideal cosmology nor a mere religious declaration, but also a vehicle for projections and conceptions arising from tensions in the real social world.

Link, Jasmin [73] see Balbo, Andrea

Linn, Erin (Integrated Heritage Project)
[72] Archaeology as Heritage Resource: Foundations for Successful Archaeological Tourism, Achievements and Challenges from Petra to Angkor
Global heritage tourism is at an all-time high with tourism numbers expected to increase in the coming years. The challenges associated with managing heritage sites are as countless as they are complex. Heritage resources are finite non-renewal assets that provide critical links to the past, a source of identity, knowledge, and cultural values that enable communities and individuals to better understand and navigate the present. The management of archaeological resources, as part of heritage tourism, offers a unique set of challenges associated with their multifaceted use and fragility. Despite the difficulties in navigating the delicate balance between archaeology as academic resource, archaeology as a commodity, and archaeology as cultural heritage, numerous projects around the world are developing innovative approaches to heritage tourism management at archaeological sites. This paper will examine heritage management programs, including past and present initiatives, at heritage sites in Jordan, Cambodia, and Turkey to identify strategic successes and ongoing challenges of managing archaeological tourism at heritage sites. In particular, this paper will highlight the critical importance of community and stakeholder engagement in the creation and implementation of heritage tourism management plans and the need for educational outreach programs to establish long-term success at these dynamic sites.
Lints, Andrew (University of Alberta)

[373] *Reconstructing a 600 Year Old Ceremonial Event from the Northern Plains: Analysis of Phytoliths from within a Modified Bison Skull*

While numerous ethnographic accounts indicate the use of plants in the creation of ceremonial bison skull altars within many areas of the Great Plains, few examples of this practice have been identified from archaeological contexts. Analysis of phytoliths from soils (n=2) obtained from within and beneath a ceremonial bison skull (A.D. 1339 and 1397) recovered from the Crepeele site (DiMe-29), southwestern Manitoba, led to the identification of phytolith assemblages dominated by C4 grasses. Samples obtained from stratigraphic control samples (n = 24) produced phytolith assemblages composed primarily of C3 grasses, more common to Northern Plains environments. Contradictions between phytolith types found within and beneath the bison skull feature and surrounding soil profile suggest that C4 plant materials were placed beneath the ceremonial bison skull during the creation of this altar. Results of this research indicate that bison and maize (Zea mays spp. mays) played both a dietary and spiritual role within pre-contact foraging societies inhabiting the Northern Great Plains approximately 600 years ago.

Lione, Brian Michael (Iraqi Institute for the Conservation of Antiquities and Heritage) and Jessica Johnson (Museum Conservation Institute, Smithsonian Institution)

[254] *Coursework in Disaster Preparedness and Emergency Response in Iraq: Meeting Immediate Training Needs at the Iraqi Institute*

Decades of regime rule, war and economic sanctions resulted in reductions in professional staff, isolation from the international community, and ultimately; neglect and deterioration of Iraqi cultural heritage. During a period of relative stability, the Iraqi Institute for the Conservation of Antiquities and Heritage (established through US funding in 2008) began offering academic programs in architectural conservation, artifact / object conservation, and archaeological site preservation to Iraqi professionals in 2009. Since its first courses, the Institute has educated over 250 Iraqis, most in courses delivered by the University of Delaware.

Managed by an Iraqi board of directors and an international Advisory Council, the Institute is a model of successful international collaboration. It is also noteworthy for its balanced approach to conservation education: graduates immediately apply their updated skills—and international connections—to improving the management of Iraqi sites and collections. This successful model was modified in 2014, when the University of Delaware temporarily suspended longer academic courses in favor of tailored training events in disaster preparedness and emergency response. This paper will discuss the intent, goals and content of these courses, and how graduates of the courses are applying new skills to protect and preserve cultural heritage in uncertain times.

Lipe, William (Washington State University)

[354] *Woodrats Rule! Climbing and Coring in Southeast Utah Cliff Dwellings*

For the past decade Tom Windes and his volunteer band of merry beamsters--the Woodrats-- have been collecting dendrochronological samples from cliff dwellings in the Natural Bridges and Cedar Mesa areas of southeastern Utah. As a result, the number of dated sites has increased dramatically, and it has become clear that in the A.D. 1200s, building in these canyons declined before the onset of the "great drought" of 1276-1299. The meticulous maps and records made by the Woodrats also enable detailed reconstructions of the individual histories of these sites.

Lipo, Carl (California State University Long Beach) and Mark Madsen (University of Washington)
[191] **An Approach to Fitting Transmission Models to Seriations for Regional-Scale Analysis**

At scales where individual copying events are not measurable but the regional archaeological record is rich enough to support models more detailed than phylogenies, seriation can play a unique role as a diachronic measurement tool for linking cultural transmission models to data composed of assemblages of artifact class frequencies. As a first step towards fitting cultural transmission models to regional-scale transmission scenarios, we develop an iterative deterministic seriation algorithm. We then implement summary statistics suitable for fitting models to seriations using an Approximate Bayesian Computation (AB.C.) approach.

Lippert, Dorothy (National Museum of Natural History)

[160] **Discussant**

Lippi, Ronald (University of Wisconsin), Alejandra Gudino (University of Missouri) and Estanislao Pazmino (Lethbridge University)

[367] **Fiestas and Funerals? Possible Uses of a Rectangular Platform Mound in Yumbo Territory**

In 2010 the Palmitopamba Archaeology Project in northwestern Pichincha province, Ecuador, was expanded to include excavations in a rectangular platform mound (Tola Rivadeneira, NL-30) 2 km north of the monumental Yumbo and Inca site of Palmitopamba. Earthen mounds (tolas) widely distributed throughout the region, constituted a significant element in the construction of the Yumbo landscape. While recent agricultural work removed the latest occupation of the mound, excavations reveal a history of overlapping occupations that included possible feasting and mortuary functions. The entire mound was built over a Formative Period site that predated the eruption of Pululagua Volcano. Work at the site will continue, but preliminary research so far adds much to our understanding of Yumbo culture.

Lipps, Jere H. [106] see Pedersen, Jeannine

Lira-Lopez, Yamile

[198] **Distribución temporal de la cerámica teotihuacana en el valle intermontano de Maltrata, Veracruz**

Entre Teotihuacán y la Costa del Golfo, bajando el Altiplano Central y el valle Puebla-Tlaxcala, existe un pequeño valle enclavado en la Sierra Madre Oriental, habitado desde el 800 a.C hasta la actualidad. Su ubicación geográfica permitió formar parte de una ruta de tránsito, comunicación e intercambio, entrelazando la Costa del Golfo de México y el Altiplano Central, permitiendo la interacción entre grupos olmecas, zapotecos, teotihuacanos, mixteco-poblanos, aztecas y habitantes locales, quienes permanecieron a lo largo del tiempo mientras que las “grandes culturas” florecían, se dispersaban o decaían. Particularmente durante el Clásico mesoamericano el valle de Maltrata formó parte del “corredor teotihuacano”, siendo utilizado desde la fase Tzacualli como ruta comercial, enclave y posiblemente como colonia, dada la gran cantidad de cerámica de estilo y comercio teotihuacano (vasijas cilíndricas, Anaranjada delgada). Hasta el momento no hay reportado otro asentamiento, en el tramo hacia la Costa del Golfo, con tal evidencia. El material que se presenta proviene de excavaciones realizadas por el Proyecto Arqueología del valle de Maltrata (Instituto de Antropología-Universidad Veracruzana-IIA-UNAM), permitiendo profundizar en el análisis de la expansión de la cultura teotihuacana en el tiempo, cuya expansión o influencia hacia la Costa del Golfo alcanzó sitios como Matacapan.

Liss, Brady [241] see Howland, Matthew

Lister, Diane (University of Cambridge), Huw Jones (National Institute of Agricultural Botany (NIAB), ), Hugo Oliveira (Research Center In Biodiversity and Genetic Resour), James Cockram (National Institute of Agricultural Botany (NIAB), ) and Martin Jones (McDonald Institute for Archaeological Research, Un)
West to East: The Spread of Wheat and Barley Cultivation across Eurasia

By the end of the 2nd millennium B.C., the South-west Asian crops wheat (Triticum spp.) and barley (Hordeum vulgare) are being cultivated in much of Central, South and East Asia. How did these crops spread from west to east? Can we find evidence of the routes of spread through the archaeogenetic analysis of these South-west Asian cereals? We describe our analyses of Eurasian barley and wheat using microsatellite and Single Nucleotide Polymorphisms (SNPs); this data is enabling us to elucidate possible routes of spread across Eurasia. We are primarily studying extant cereal landraces, with the inclusion of some historic and archaeobotanical material. Analysis of SNPs involved in flowering time genes is revealing the role environmental adaptation has in the establishment of cereal cultivation in new areas. We also present our analyses of the relationship between wild and cultivated barleys, and draw conclusions about the origins of wild barleys in the Tibetan Plateau.

Litschi, Melissa [2] see Sharp, Kayeleigh

Litschi, Melissa (Southern Illinois University, Carbondale) and Kayeleigh Sharp (Southern Illinois University, Carbondale)

pXRF Meets GIS: A Preliminary Investigation of Spatial Variability in Domestic Ceramics at Songoy-Cojal, North Coast, Peru

Archaeometric approaches to ceramic analysis allow us to critically examine differences in ceramic manufacture and use. By integrating pXRF methods with spatial analysis, it becomes possible to contextualize such differences. Do elemental and technological differences correspond to distinct ceramic styles? Are these differences spatially meaningful? Attendant to our broader objective investigating Mochica-Gallinazo identity and coexistence at the Songoy-Cojal site complex, Zaña Valley north coast, Peru, the current work explores these two questions through data obtained during our short-term lab season in 2014. We collected elemental data, using a pXRF analyzer, on a sample of Gallinazo and Mochica ceramics to test for differences in chemical composition between the two ceramic styles. We then mapped the results alongside data collected in previous seasons. Our geospatial analysis uses three lines of evidence, stylistic, technological, and elemental, to explore intra-site spatial variability. We present the results of this preliminary analysis that tested our original questions of material and technological differentiation, and highlight the best areas to target in future investigations.

Litteral, Matthew [144] see Crothers, George

Little, Aimee (University of York, UK), Shannon Croft (University of York), Charlotte Rowley (University of York), Oliver Craig (University of York) and Nicky Milner (University of York)

Taken to Task at Star Carr: Integrating Scientific Approaches to Artifacts and Their Archaeological Contexts

New research on microwear and micro-residue traces on flint and organic artifacts from Star Carr is currently underway. Extensive 3D recording of thousands of artifacts spanning several excavation seasons using GIS has provided an excellent high-resolution spatial record. As well as low/high power approaches to microwear analysis, microresidues are being analyzed using the contextual approach. Flint tools displaying residues of particular interest are being flagged for more detailed imaging by Scanning Electron Microscopy (SEM) and BIOchemical characterization. Results from these analyses are being integrated with technology and refitting studies, experimental archaeological research, geochemoical survey, and a study of the micromorphology of the sediments. Integrating these datasets is enabling discrete episodes of human activity at Star Carr to be distinguished. Concentrations of tools in association with features, including structures, are revealing microscopic evidence for subsistence and craft-related activities. Some tasks were conducted in the wet, others were conducted on dry land. This presentation will outline the methods applied, before offering an interpretation of the social significance of these findings.

Little, Maran E. [152] see Hadden, Carla
Littman, Robert [409] see Silverstein, Jay

Liu, Yu and Zhanwei Yue (Institute of Archaeology, Chinese Academy of Social Sciences)

[67] **Casting Technology and Craft Production of Bronze Wares in the Central Plains of China in Late Shang Dynasty (13th B.C.-11th B.C.)**
Casting technology played a more significant role in the formation of Chinese ancient civilization than any other early civilizations. Accompanying with the appearance of bronze vessels in Erlitou period (1800 B.C.-1500 B.C.), the piece-mold casting technology was first established and then became a prolonged thousand-year manufacturing tradition after the Shang Dynasty. The formation of piece-mold casting technology tradition, which is very different from forging and lost-wax method in the west Asia, is closely related to the craftsman’s technological choice.

Therefore, based on the scientific analysis of bronze vessels and foundry remains from Yinxiu, the sequence of bronze casting, and the origin and evolution of casting technology in late Shang dynasty was discussed. By carefully analyzing casting technology and production procedure of bronzes in late Shang Dynasty, the relationship between technological styles, the evolution of bronze production technology, and the effect of mass production can better contribute to an understanding of ancient state development in Bronze Age.

Liu, Li (Stanford University)

[179] **Discussant**

Liu, Xinyi (Department of Anthropology, Washington University in St. Louis)

[234] **Why Moving Starch? Trans-Eurasian Exchange of Starchy Crops in Prehistory**
Scholarly interest has increasingly focused on an episode of Old World globalization of food resources that significantly predates the ‘Silk Road’. The impetus behind this growth of interest has been the expansion of bio-archaeological research in Central and East Asia over the past decade. This paper considers the agents responsible for the food globalization process in prehistory and the forms they took. One of the key aspects of the Trans-Eurasian movements of crops in prehistory was that the movements were not to regions devoid of existing starch-based agriculture, but instead constituted an addition to that agricultural system. Other economic plants, such as grapes, dates and peas, also moved significant distances. However, the novel starchy crops held a particular significance; they went on to become significant staple foods in many of their new destinations.

Drawn from recent discovery from western China, we will take into consideration differences in the projected archaeological signatures of different potential agents involved in transmission of the crops.

[345] **Chair**

Liu, Xu [286] see Jin, Hetian

Liu, Chin-hsin (Appalachian State University) and John Krigbaum (University of Florida)

[407] **Human Dietary Responses to the Ecological Instability of Prehistoric Khao Wong Prachan Valley, Thailand: Corroboration between Paleobotany and Skeletal Chemistry**
In Mainland Southeast Asia, rice agriculture and consumption has been a factor frequently tested for changes in population, biological and socio-cultural dynamics in prehistory. For Khao Wong Prachan Valley (KWPV) in central Thailand, Weber et al. (2010) indicated that rice did not enter the stratigraphy until the 1st millennium B.C., while millet seeds were encountered as early as the 3rd millennium B.C. and persisted throughout. Factors such as climate fluctuation, population expansion, and diminishing wild plants due to deforestation could stimulate the incorporation of newly available plant food resources, in this case rice. A KWPV site occupied during the late Neolithic to the early Bronze Age, human skeletal remains from Non Mak La are isotopically analyzed to examine the relationship between botanical evidence and human dietary responses. Results from enamel apatite demonstrate a clear trend chronologically from a C4-oriented diet (mainly millet) to the increasing...
contribution of C3 foods (rice), echoing the botanical findings. The consumption of C4 plants, however, remained evident over time, suggesting a continuous C3-C4 mixed diet. Data from other prehistoric central Thai sites also suggest that locally-sourced wide spectrum diets were maintained over time despite ecological and cultural variability.

Livarda, Alexandra (University of Nottingham, UK)
[154] Discussant
[154] Chair

Livesay, Alison (University of Oklahoma)
[276] Inscribed Places: Examining Rock Art Sites on the Pajarito Plateau
At Los Alamos National Laboratory (LANL), one constantly encounters cultural remains of the past, whether they are of research buildings utilized during the Manhattan Era, or the remnants of dwellings of Precolumbian farmers on the Pajarito Plateau. Rock art sites are often encountered places where images of various meanings have been physically pecked and scratched out by people inscribing their identities and worldviews onto the surrounding landscape. Because a landscape can persist in form and memory in various states of visitation, deterioration, and commemoration, we need to view rock art in relation to surrounding habitation and activity sites, as well as natural resources at various scales. I take a landscape approach combining Puebloan ethnography and GIS applications to examine approximately 150 rock art sites in the LANL cultural resources database dating from A.D. 600 - 1600. This approach allows for recognition of robust spatial and temporal patterns, such as the range of variation in topographic settings through time. Are there differences in where certain motifs can be seen and accessed, and conversely, are there places where certain images are not depicted and cannot be viewed? Can we identify differences between interior cavate or kiva art and isolated petroglyph panels?

Livingood, Patrick [3] see Lambert, Shawn

Liwosz, Chester (University of California, Santa Cruz)
[362] Rock Art Resonance: Preliminary Results of an Experimental Acoustic Study
Pecked petroglyphs of a prehistoric Mojave Desert slot canyon hint at experience crafting processes in rock image production. The unique qualities here not shared by other area petroglyph sites support the need to consider archaeological and geographic context of these sites as a critical variable, rather than an assumed constant. With narrow passages, dry falls, and towering vertical walls, the slot's metamorphosed limestone substrate yields the potential for sound characteristics not found at many other petroglyph sites in the region. A summer 2014 expedition undertook experimentation with percussive sounds in the highest density concentrations of rock art within the slot. This research aims to identify novel acoustic properties brought about by both the unique landform and curious continuity of the use of a pecking strategy in image production. Weathering suggests continuity in pecked engraving technique over a substantial time depth – likely spanning through both the Numic and part of the Archaic Periods. This study adds depth to the range of variables to consider relevant in recording rock art sites. More broadly, it demonstrates the capacity of experimental archaeology to push the limits of interpretation by expanding the range of inferences which can be reasonably drawn from even faint traces.

Lo, Ching-Hua [49] see Lee, Cheng-Yi

Lockett-Harris, Joshuah (Trent University), Helen Haines (Trent University) and Kerry Sagebiel (Northern Illinois University)
[147] Place Making, Authority, and Ancestors: New Evidence of Developing Middle Formative Socio-Political Complexity from Ka’Kabish, Northern Belize
Northern Belize during the Middle Formative Period (1000-300 B.C.E.) has increasingly become recognized as a critical locus in the development of Lowland Maya socio-political complexity. This
period witnessed the founding of numerous ceremonial centers, substantial material cultural innovation, and the advent of mortuary practices indicating developing social differentiation in Northern Belize. Recent excavations at the site of Ka’Kabish in Northern Belize have uncovered evidence significantly strengthening this view. Excavations underlying Plaza D-South at Ka’Kabish have revealed a series of bedrock-hewn offering pits housing thousands of shell beads, forty-seven greenstone objects and debitage, and extensive ceramic evidence indicating communal ritual and feasting. Significantly, this elaborate series of offering caches appears to center on the secondary, bundled bedrock-cist burial of an important personage and/or ancestor. Comparable contemporary evidence from Northern Belize has been interpreted through models foregrounding site-founding, place-making, ancestor veneration, and aggrandizer driven social differentiation. By integrating and contrasting these existing models with new evidence from Ka’Kabish, this paper argues that the mortuary, caching, and architectural practices evidenced at Middle Formative Ka’Kabish represent a glimpse of the incipience of the ideological complex, the socio-cultural processes, and the material manifestations propagating the development of subsequent Maya socio-political complexity.

Lodge, Spencer

[229] Earth Oven Facilities of the Sheep Range in Southern Nevada

Since 2012, nearly 200 earth oven facilities have been recorded within the Sheep Range on the Desert National Wildlife Refuge in southern Nevada. The identification of these features was aided by the use of Google Earth due to a chemical reaction that occurs in the local limestone when exposed to extended periods of heat. Also known as roasting pits, the widespread use of these features in southern Nevada has not been previously addressed, resulting in a dearth of knowledge regarding their prehistoric role in the region. Roasting pits mark the focused exploitation of previously underutilized resources, such as desert succulents like agave and yucca, which require long baking periods to be rendered edible. A substantial increase in the use of similar features has been noted elsewhere within the American Southwest from 4,000 - 2,000 B.C., and has also been attributed to increasing population densities. This presentation highlights my interpretations of the earth oven facilities of the Sheep Range.

Loebel, Thomas [150] see Lambert, John

Loehman, Rachel [90] see Kneifel, Rebekah

Loehman, Rachel (USGS, Alaska Science Center), Christopher Roos (Department of Anthropology, Southern Methodist University) and Thomas Swetnam (Laboratory of Tree-Ring Research, University of Arizona)

[239] Modeling Ecological Resilience and Human-Environment Interactions in Engineered Landscapes of the Prehistoric American Southwest

The prehistoric human footprint in the American southwest is extensive and includes large and small structures, agricultural features, and other signatures of long and variably intensive landscape use. The southwest Jemez Mountains, focus of the current study, have been occupied continuously for the past 2,000 years, and by circa 1300 CE were densely settled in a network of large village sites and fieldhouses. Evidence from tree-rings and fire scars suggests that prior to ca. 1900 Jemez ponderosa pine forests sustained frequent, low-severity surface fires that maintained open-canopy conditions with park-like understory plant communities, a fire regime that has been significantly altered in the past 150 years by changes in climate and human activities. Prehistoric peoples in the Jemez region likely significantly influenced forest structure, fuel properties, ignitions, and thus landscape fire dynamics, but did not appear to erode the long-term persistence of ponderosa pine forests. We use a coupled natural-human systems process model, informed by rich archaeological, ethnographic, and dendrochronology data sets, to assess the magnitude and importance of human influence on fire regimes and ecological resilience. Results highlight the complexity and extent of prehistoric engineered landscapes, and identify future human activities and climate conditions likely to trigger ecosystem instability.
Loendorf, Chris see Rodrigues, Teresa

Loendorf, Chris (Gila River Indian Community), Shari Tiedens (Gila River Indian Community Cultural Resource Mana), Brett Coochyouma (Gila River Indian Community Cultural Resource Mana) and R. Scott Plumlee (Gila River Indian Community Cultural Resource Mana)

Akimel O’odham Projectile Point Design and P-MIP Archaeological Research

This presentation summarizes a Gila River Indian Community research program that is designed to provide quantified projectile point data, which are used to address significant research questions for the Pima-Maricopa Irrigation Project data recovery investigations. In contrast to people from most other regions of the world, the Akimel O’odham continued to extensively employ flaked stone points until the late 1800s. Consequently, considerable ethnographic and ethnohistorical data are available regarding lithic design and use. This information has been used to generate hypotheses regarding point style and function that have been tested through carefully controlled experiments. Specifically, it has been theorized that serration of the point blade margins was largely done for stylistic purposes, and controlled experiments were conducted that tested the effects of this practice on performance. The projectile experiments employed a fixed stand that consistently fired projectiles. Serrated and unserrated points were alternately launched into a variety of target media, and multiple aspects of performance were measured and recorded. The incidence of serration varies dramatically among different locations in southern Arizona, and this practice even varied between some nearby contemporaneous settlements, which supports the suggestion that it was done for stylistic purposes.

Lofaro, Ellen (University of Florida), Michael Wyld (University of Florida), Susan deFrance (University of Florida) and Paul Goldstein (University of California, San Diego)

Research on a Dog Burial from Rio Muerto, Peru

This poster presentation examines the place of the dog in the ancient Andean society of Tiwanaku. The mummified remains of a small dog were recovered from a domestic context at the Rio Muerto site, located in the Osmore River drainage of far southern Peru. Although dog burials in Peru are not unusual, they appear mostly in high-status contexts in art and in mortuary practice. Offerings of young camelids and dogs have been found buried beneath floors and entryways of houses at Rio Muerto M43 and at other Tiwanaku sites in the Moquegua colony. A 2014 SAA paper provided an initial overview of the history of canids in pre-contact Peru as it relates to this individual burial, offering preliminary information from the archaeological and ethnographic records to suggest possible avenues of study focused on the ancient dogs of Peru. The isotopic study of the individual presented here will examine strontium signatures and carbon values to glean information relating to possible place of origin and dietary practices to further the hypothesis that dogs in ancient Peru were symbols of social rank and status.

Loftis, Kathy, Alex Cherkinski (Center for Applied Isotope Studies, University of ) and Robert Speakman (Center for Applied Isotope Studies, University of )

Application of Compound-Specific Radiocarbon Dating of Hydroxyproline from Bone Collagen

The ability to generate accurate and reliable radiocarbon dates for bone is of great importance in archaeology. Routinely, the age of bones is determined by radiocarbon dating of hydrolyzed bone extract. However, this method does not isolate collagen-derived organic matter, and contaminant organic carbon may be present in the extract. Exogenous organic matter, introduced during burial or post-excavation treatment, can affect the estimated radiocarbon dates. Pre-treatment methods can minimize contamination, but isolation of endogenous carbon is not guaranteed. More recently a compound-specific radiocarbon dating method was developed. This method targets amino acids that originate in the bone sample, such as hydroxyproline. Hydroxyproline is present in limited animal proteins, but is a major amino acid of collagen. As such, this compound serves as a biomarker for bone collagen, thereby yielding more accurate radiocarbon dates. We present our findings of the application of hydroxyproline radiocarbon dating to archaeological bone.

Loftus, Emma see Sealy, Judith
Logan, Amanda (Northwestern University)

[258]  *Excavating Slow Violence Across the Modern/Premodern Divide*

Archaeology as a technique allows us to make visible processes of "slow violence" (Nixon 2011) that unfold over time, providing a critical temporal dimension to understanding how and why modern inequalities come to be. In this paper I attempt to reconcile why “prehistory” matters to understanding structural violence in recent times. While archaeologists of the contemporary and recent past have long used archaeology to make visible the experiences of structural violence among subaltern groups, their gaze rarely extends into deeper pasts. Yet comparison of pasts and presents can coax alternate potentialities to the surface, such as the economic potential of various regions in very different economic settings. For example, in Banda, Ghana, archaeology reveals a greater degree of food security and economic well-being prior to European expansion, suggesting a much higher potential standard of living than observed at present. This comparative project sets the stage for an archaeology of slow violence that embraces the study of long-term processes across the modern/premodern divide.

Lohman, Nicole (Northern Arizona University)

[149]  *New Methods for Rock Art Recording at Petrified Forest National Park*

Researchers and park staff recorded rock art at Petrified Forest National Park with a number of different and disparate approaches over the past half-century. As part of a graduate research project a standardized multi-scalar approach for recording rock art at the park was developed. The development process examined the efficacy of four different approaches for creating panel sketches. A comparison of the variables of time to complete, accuracy, and perceived ease for each method revealed the strengths and weaknesses of each approach. A series of forms to record rock art used by agencies and organizations in the Southwest were also examined and used to compile a park specific recording form. The results of the study permitted the development of a multi-scalar adaptive approach, which permits the collection of data appropriate for both research and management needs.

Lohse, Jon (Coastal Environments, Inc.)

[130]  *A Record of Late Holocene Volcanic Activity from Highland Guatemala*

A record of late Holocene volcanic activity in highland Guatemala was inferred from sediment and tephra stratigraphy in two cores from Lake Amatitlan. Electron microprobe analysis of glass from the tephra samples suggests most eruption deposits are of local origin, coming from nearby Volcanoes Pacaya and Fuego. The 6th-century Ilopango ash is clearly visible, and a few tephra samples have not been correlated to particular volcanoes or eruption events. Using dates from this sequence with others from regional studies of eruptive histories from Fuego and Pacaya, we present a constrained age model spanning from about ~2.7 to .6 kbp to understand the timing and frequency of volcanic history. We find that volcanism was episodic, with periods of high-frequency eruptions followed by periods of relative quiescence. This model is relevant to our understanding of regional patterns of urbanization, population growth, and political centralization.

[75]  *Discussant*

Loney, Helen (University of Worcester, UK)

[50]  *Gender and Age in the 18th–19th Century Worcester Porcelain Industries: Relating the Results of Archaeological Research to Social History*

This poster will present some of the finds analysis from the Worcester Porcelain Project, which is conducting fieldwork in the suburbs and agricultural zones around the City of Worcester, in order to better understand the processes of industrial waste management prior to World War II. The study of industrial archaeology in Britain since the 1960s has emphasized monument and landscape studies, with emphasis on preservation and conservation of iconic factories and installations. In parallel to this work, a number of social historians and scholars have been recording production methods and exploring company archives, in order to critically evaluate the history of industry during the 17th, 18th
and 19th centuries, in particular. These studies have contributed to our understanding of the nature of industrialization, including the roles and contributions of women and children. These results shed light on the stages of the industrial process, leading up to the production of marketable items. Importantly, the results have revealed artifacts which when seen in conjunction with local social and industrial histories can be confidently assigned to specific age and gender groups, most importantly male and female children. This offers the archaeologist an unusual opportunity to develop the link between artifact and gender studies.

**Long, Emily (Sequoia and Kings Canyon National Parks)**

*Elevation, What's the Point?: A Preliminary Study of Selected Obsidian Projectile Points Collected From Varying Elevations at Sequoia and Kings Canyon National Parks*

Sequoia and Kings Canyon National Parks (SEKI) has evidence of a well-established trade network for raw lithic material, specifically obsidian. Obsidian was widely traded throughout the central and southern Sierra, since local material was unsuitable for tool manufacture. High elevation archaeological sites, such as those observed at Taboose Pass (11,400 feet in elevation), consist of high density obsidian lithic scatters with tools, blanks, and diagnostic projectile points. Low density obsidian scatters are observed at lower elevations in the foothills, indicating a wide dispersal of material. Is there an evident transmission of projectile point styles with the dispersal of material? Is there a correlation between projectile point types from higher to lower elevations? As a preliminary study, I selected SEKI archaeological sites with collected diagnostic projectile points from various elevations (15-20 sites per zone) and conducted a basic comparative analysis of material and form. This poster summarizes the results of the projectile point investigation.

**Longhurst, Peta (University of Sydney)**

*Difference in the Archaeology of Institutions*

Historical archaeology has recently been concerned with the study of a diverse range of institutions – of confinement, of education, of religion, of punishment, and of reform. Disjunctions between the social ideals on which these institutions were founded and the material realities permeate much of this literature, often interpreted through a framework of resistance to institutional power. Lu Ann De Cunzo (2006) has characterized institutions as trialectic spaces -simultaneously conceived, perceived and lived. This paper explores the ways in which these disjunctions can be understood through a framework of archaeological difference. Through a consideration of a number of institutional forms, this study reflects on the extent to which De Cunzo’s trialectic can be described as a form of non-correspondence between the institutions’ sociality and materiality. What impact has the resultant friction had on the way in which institutions operated and were experienced? How might ‘difference’ inform future archaeological inquiries into the process of institutionalization?

**Longie, Erich [95] see OBoyle, Virginia M.**

**Longie, Erich [336] see OBoyle, Robert**

**Longo, Julia (MOCHE, Inc.), Cyrus Banikazemi (University of North Carolina at Greensboro), Brian Billman (University of North Carolina at Chapel Hill) and Patrick Mullins (University of Pittsburgh)**

*Modern Settlement Patterns and Site Preservation in the Middle Moche Valley*

During the July field season of 2014, the authors conducted a survey of sites within the proposed reserves of Ciudad de Dios and Bello Horizonte in the Middle Moche Valley of Peru. GPS data was collected for comparison with previously recorded site boundaries to offer insight into the threat of modern encroachment on archaeological sites. Using GIS and statistical analysis, the authors identified areas of site degradation and loss, categorized each site on a sliding scale of endangerment, and determined patterns of modern encroachment. Furthermore, the authors assessed how modern settlement patterns in the area compared to those of the pre columbian era. Topography and geographical location, time period, site type, and number of recorded reoccupations were all factors in determining patterns of encroachment of past and present. The insight gained
through the authors’ analysis of modern and prehistoric settlement patterns shows potential for the use of such studies in effective prioritization of endangered areas and future site preservation efforts.

**Look, Cory** (The Graduate Center City University of New York), **Erin Friedman** (The Graduate Center City University of New York), **Matthew Brown** (Brooklyn College City University of New York) and **Reg Murphy** (National Parks of Antigua and Barbuda)

**[56] Indian Creek Revisited: The Use of Portable X-ray Fluorescence (pXRF) Soil Analysis to Characterize Areas without Artifacts**

This paper reports on a preliminary study assessing the applicability for pXRF analysis of soils within a Pre columbian context. The data generated for this discussion comes from the site of Indian Creek, Antigua; an Amerindian site bound by a series of middens forming a concentric ring around the perimeter of the site. This settlement is the result of over 1300 years of continuous occupation, before it was abandoned just prior to contact in the New World. Aside from the excavations conducted by Irving Rouse along the outer middens, little research studying this ‘bounded’ space has been conducted in part due to the lack of artifacts in these areas. During the summer of 2012-2013 archaeological soils and samples were taken from this space and were characterized using multi-element soil pattern analysis. These findings were then compared to the archaeological record generating new datasets and discussions regarding the nature of human behavior and the soils capacity to characterize them.

**Looper, Matthew** [191] see **Scholnick, Jonathan**

**Looper, Matthew** (California State Univ-Chico), **Jonathan Scholnick** (University of California, Davis), **Yuriy Polyukhovych** (California State University, Chico), **Jessica Munson** (University of California, Davis) and **Martha Macri** (University of California, Davis)

**[248] Patterns of Grapheme Innovation in the Classic Maya Script**

The ancient Maya script evolved over the course of about 1800 years, during which hundreds of distinctive functional graphic units (graphemes) were employed. Previous studies have shown that only a small subset of these graphemes was used at any given time, with bursts of innovation in certain epochs, particularly when the production of monuments spiked. This study revisits the question of the historical development of the Maya script, using the Maya Hieroglyphic Database, a comprehensive archive of Maya inscriptions, organized by glyph block. Selecting provenienced monuments only and controlling for time, region, and number of glyph blocks, the database allows us to chronicle innovations in the graphemes employed in the script, from the Early through Terminal Classic periods. This poster summarizes the results of this analysis, showing that not only was grapheme usage temporally patterned, but exhibited distinctive spatial texture as well.

**Loos, Lukas** (GIScience, University Heidelberg), **Michael Auer** (GIScience, University Heidelberg), **Nicolas Billen** (GIScience, University Heidelberg) and **Alexander Zipf** (GIScience, University Heidelberg)

**[100] MayaArch3D: 2D and 3D Visualization and Analysis Platform**

A central goal of the MayaArch3D project is to provide archaeologists with a research platform for the spatio-temporal visualization and analysis of 2D and 3D data over the World Wide Web. To do this we are developing a web-based Geographic Information System (GIS). The client side of our application builds on top of the open-source geomajas 2D web GIS framework and consists of three central components. First, an interface for working with 2D data from different sources and formats exists. Second, a georeferenced 3D scene to explore landscapes, settlements and buildings is a component. The georeferenced coordinate system in this scene allows the combination of additional geodata (e.g., raster overlays, user defined vector data or map services). And third, a viewer which allows for the study of single 3D objects in higher resolutions exists. For the 3D components we have built a spatially enabled 3D framework “GIScene” developed by GIScience Research Group at Heidelberg University using WebGL technology and the open-source Three.js JavaScript library. Both 3D components support the user’s interaction with models and provide an analysis tool-set and access to the attribute information from the databases.
Loos, Lukas [100] see Billen, Nicolas

Lopez, Karen (University of Puerto Rico - Rio Piedras)

La arqueología latente: educación informal como inspiración para preparación profesional
El Programa Ciudadano Científico de Para la Naturaleza es un proyecto que da al ciudadano común la oportunidad de conocer, guiados por expertos, las huellas del pasado analizadas con técnicas del presente. Esto no sólo da una idea de cómo se vivía en aquel entonces sino permite conocer y entender las costumbres y estilo de vida del humano en el pasado. Comencé a participar de este Proyecto antes de finalizar mis estudios de escuela secundaria. Cuando formas parte de este proyecto aprendes procedimientos nuevos, el uso correcto de herramientas, obtener y clasificar datos y te conviertes en parte del equipo investigativo. Los líderes guían el trabajo diario y asignan las tareas de cada individuo. Haber participado en este Proyecto despertó un profundo deseo de ser Ciudadana Científica. De participar en programas que incentiven la ciudadanía, en particular a los jóvenes, para fomentar el interés, entusiasmo y compromiso en investigaciones de campo y así entender el pasado, comprender presente y mejorar el futuro. El trabajo comunitario y de campo no sólo son horas de experiencias acumuladas. Fueron mi mayor impulso y lo más determinante para que decidiera estudiar Arqueología en la Universidad de Puerto Rico.

Lopez, Max [315] see Couey, Lauren

Lopez, Maxwell (Hamilton College), Nathan Goodale (Hamilton College), Alissa Nauman (Hamilton College) and Greg P. Lord (Hamilton College)

Three Dimensional Modeling in Archaeological Interpretation: A Case Study from the Pacific Northwest
Virtual reconstructions are becoming increasingly commonplace in archaeological vernacular and cultural heritage initiatives. As with any emergent technology however, the advantages, limits and drawbacks of such an approach are not well defined. This study assesses and contextualizes the validity and usefulness of virtual reconstructions in archaeological interpretation and academic publication and explores how such technologies are utilized in the field as a whole. In addition to a survey of the growing body of literature on the subject, and an exploration of the intersection between archaeology and computer science, findings from our own virtual reconstruction of a pithouse from the Slocan Narrows Village in the Upper Columbia River system are extrapolated upon.

Lopez, Oscar (discertante) and Stanley Guenter

Patrons and Artists: New Information on the Producers of Codex-Style Ceramics of the Mirador Basin
Codex-style ceramics are a distinctive product of the Late Classic Mirador Basin of north-central Peten, Guatemala. Through the archaeological work of the Mirador Basin Project and the chemical analyses of affiliated scholars we now have a considerable amount of information on the physical production of these vessels. In this presentation we present new evidence on the artists who produced these vessels, as well as the nobles for whom they were painting. These data provide much needed new information to re-evaluate the sociopolitical system that gave rise to these ceramics.

Lopez Bravo, Roberto (Universidad de Ciencias y Artes de Chiapas) and Elizabeth H. Paris

Collapse from the Outside In: A View from the Western Maya Periphery
Despite the sociopolitical instability and depopulation observed at numerous sites in the Southern Maya Lowlands during the 9th century A.D., often referred to as the “Maya Collapse,” numerous politically and geographically peripheral sites do not show evidence of these characteristics. Many of the small cities and towns of the Central Highlands of Chiapas maintained their roles as political centers throughout the Late Classic-Early Postclassic period transition, and also experienced demographic expansion. Excavations at Moxviquil and Huitepec, two small hilltop sites in the Jovel Valley, suggest their durability in the face of the instability and collapse experienced by their lowland
counterparts was in part due to highly diversified local economies and relatively flexible and shifting participation in long-distance trade networks. We specifically examine the degree to which highland sites shifted exchange networks towards the periphery, to the Ixtapa Valley and Central Depression, and the degree to which such shifts provided economic and political stability. A periphery-centered perspective highlights the complex relationships between periphery polities and core centers, and challenges the assumptions of traditional core-periphery economic models.

López Corral, Aurelio (Instituto Nacional de Antropología e Historia)

[180] Strengthening the State: Intensification and Mixed Agricultural Strategies in Late Postclassic Puebla-Tlaxcala

The development of agricultural technologies is a key element in theory concerning the growth of Mesoamerican state societies. Cultivation of species under improved environmental conditions suggests intensification oriented strategies for the finance of political institutions, and to attend auto-consumption needs of households at the subsistence level. During the Late Postclassic, the Puebla-Tlaxcala region witnessed the rise and consolidation of various rival state-level polities known locally as altepemeh. Recent archaeological research indicates that, parallel to this phenomenon, there is a widespread use of different agricultural technologies, such as terraces, drained fields and canals, to intensively exploit crucial ecological areas. This paper explores the role of large-scale staple food production in relation to the strengthening of institutional apparatus and its implications for the expansion of indigenous state societies.

López J., Julieta M. [317] see Murakami, Tatsuya

López Lillo, Jordi A. [82] see Salazar, Julian

López Luján, Leonardo (Museo del Templo Mayor, INAH) and José Luis Ruvalcaba Sil (Instituto de Física, UNAM)

[194] Templo Mayor’s Gold

Mexico is a not a country rich in native gold deposits, especially compared to Colombia, Peru, or Bolivia. This would explain why the precious metal was always used rather sparingly in Mesoamerican civilizations. A good example is Tenochtitlan (1325–1521 A.D.): after thirty-seven years of archaeological exploration in the city’s sacred precinct, the Templo Mayor Project (1978-2015) has recovered only a meager set of gold artifacts, in contrast to the tens of thousands of metamorphic greenstone, copper, flint, travertine, obsidian, and ceramic objects contained in the same offerings. This paper will analyze the entire collection of gold pieces from the Templo Mayor Project in light of various historical, archaeological, and chemical data, and offer new insights about the chronology, typology, function, meaning, manufacturing tradition, and “geographical area of use” of gold in Late Postclassic Central Mexico.

[298] Chair

López Luján, Leonardo [298] see Sugiyama, Saburo

Lopez Varela, Sandra (UNAM)

[176] Reading Memories of Past Practices in the Landscapes of Poverty Domination: An Ethnoarchaeological Study in Morelos, Mexico

In eradicating poverty through infrastructure building and welfare policies in the State of Morelos, the commodification of the landscape is causing people to forget the social practices of distant pasts. Memory is intimately linked with the landscape, as it creates a sense of place that legitimizes the many identities and social worlds that have existed through time. By exploring current human practices in the landscape, this study illustrates how habit memory translates and maps fragmented pieces of collectively lived histories since the XVI century and explains how economic growth and development interfere with the possibility of identifying and connecting anthropic activity markers to understand past human behavior.
Lopez-Finn, Elliot (University of Texas at Austin)

[307] Defining the Red Background Style: The Production of Object and Identity in an Ancient Maya Court

While many collections today exhibit Red Background vessels for their vibrant colors, supernatural content, and elegant hieroglyphic texts, recent scholarship has embedded these works in the greater social culture of the Late Classic Period. As highly mobile art objects, the vases appeared alongside works with other distinct painting styles in feasts throughout the Guatemalan Lowlands, where the vases would display the prestigious affiliations of the owners. The diverse narrative content on these vessels reveals the importance of mytho-historic origin stories and supernatural identities to the prevailing order, while the unique hieroglyphic texts link the painted style to the royal court of Pa’ Chan. What identities and connotations would the Red Background style communicate as a representative of this geographic or political region? Refocusing the question of agency through the final product reveals that these works acted as part of a larger campaign for the typical courtly trappings of master artisan production and public feasting with representatives of other polities. This paper expands upon themes of my Master’s Thesis to explore how the surface decoration of the Red Background style communicated prestige and the elite identity of a specific place to the larger landscape of competitive and collaborative Maya city-states.

Lopez-Hurtado, Enrique (IEP Instituto de Estudios Peruanos)

[232] Discussant

[232] Chair

López-Jiménez, Antonio [397] see Rhodes, Sara

Lopez-Johnson, Amber (California State University, Los Angeles) and Jaime Awe (Northern Arizona University)


Recent archaeological investigations at Cahal Pech, Belize have focused considerable attention on understanding the form and function of monumental architecture in the site’s largest public courtyard. Designated as Plaza B, the courtyard contains an eastern triadic shrine or “E-Group”, and three large range-type or palace-like buildings that are located on the north, west and south flanks of the plaza. Our investigations of these buildings, particularly on Structure 7, have revealed important architectural data that can be used to examine questions relating to architectural form and function, and that provide important clues for understanding activities conducted in buildings that border public courtyards at lowland Maya sites.

López-Martinez, Mariano [397] see Rhodes, Sara

Lopiparo, Jeanne (Rhodes College)

[412] Crafting Houses for the Living and the Dead: Obsidian Production, Multicrafting, and Household Identities at a Classic Maya Center, Chinikihá, Mexico

Craft production in the Classic Maya world was often carried out within multi-household groups, whose shared practices were passed on from generation to generation and whose social identities were strongly tied to the products they created. Investigations of a residential zone at Chinikihá, a Classic Maya center in the Palenque region, recovered a quantity of obsidian artifacts and evidence for production that is unusual not just at the site, but across the region. Fine-grained excavations have identified contexts of obsidian production as part of a multicrafting industry among household groups in this zone. Lithic materials from all stages of production were recovered from a wide variety of contexts. The elaboration of tool types and widespread evidence for use-wear and retouch indicate both that lithic production was a primary medium for technological mastery, and that we have only begun to understand how these tools were utilized in other activities. A sequence of
burials associated with dense lithic debitage suggests that mortuary practices incorporated the performance of producing the beautiful objects that shaped household identities and socioeconomic relations in life, thus commemorating the mutually sustaining relationship of the living and the dead.

Lord, Greg P. [360] see Lopez, Maxwell

Loren, Diana (Peabody Museum, Harvard University)  
[305]  Defining and Divining the Healthy Body: Materialities of Body and Wellness in the 18th-Century Spanish New World  

This paper explores the intersections of health, religion, race, and dress; how theories of disease and illness in the eighteenth century intersected with Spanish imperial understandings regarding race and dress of colonizer and colonized and culturally-distinct medicinal practices for treating physical and spiritual sicknesses. Colonial empires reshaped and redefined colonial bodies: physical and spiritual care, social and sexual interactions, and dress and language were just a few of the concerns of imperial powers who strove to maintain hierarchies of inclusion and exclusion. For the colonial individual, practices of adorning and protecting body and soul (with medicine, amulets, and religious items) were integral to constructing identities and safeguarding spiritual well-being. Using archival and material sources, I explore how colonial peoples living in New Spanish treated, mended, and covered their bodies through dress, practices of faith, and medicine.

Lorenz, Samantha, Brandon Lewis (Santa Monica College), Toni Gonzalez (California State University, Los Angeles), Bianca Gentil (Santa Monica College) and Joseph Orozco (California State University, Los Angeles)  
[355]  The Sinkhole as Ch'een: A Closer Look at Ancient Maya Sacred Geography  

During the 2014 field season, the California State University, Los Angeles Cave Research Project focused its investigation on a sinkhole at the site of La Milpa that had been given a cursory examination by the TRAP in 2012. An initial inspection suggested that the feature might well have been considered a ch'een by the ancient Maya. Ch'een is generally translated as cave but the indigenous term includes a large number of earth openings that were recognized as sacred landmarks. Excavations along the lip on three sides of the sinkhole documented the existence of a rubble cored platform that appears to have encircled the feature. The platform formalized and bounded the space leaving no doubt of the special function of the sinkhole. Excavations around and within the sinkhole recovered a large assemblage of ceramic and other artifacts that suggested a fairly heavy utilization. At the close of the season, the excavation unit in the sinkhole was yielding Early Classic ceramics that predated the major utilization of the site. Evidence suggests that the unit may be a meter or more above bedrock so that an even earlier date of the initial utilization is likely.

Lorenzo, Cristina (University of Valencia Spain) and Gaspar Muñoz (Politecnic University of Valencia)  
[242]  Material Manifestation of Ritual Survival after Abandonment  

The presence of burials placed on the floor of the palaces and private patios within elite complexes but without offerings is truthful testimony about the time of the Mayan settlements' abandonment at the end of the Classical Terminal period. Such burials have been found at the Acropolis of La Blanca (Petén, Guatemala). Years later, during the Early Postclassic period, when those buildings had already partially collapsed and debris covered Terminal Classic material vestiges, other individuals were buried in this debris. Big Postclassic pots were also found near them. Thinking about death rituals that took place in both periods is the purpose of this presentation.

Lorreyn, Andrew M. [77] see Allen, Melinda

Losey, Robert J. [28] see Germonpré, Mietje

Losey, Robert (University of Alberta)
[28] *Living with People Can Be Bad for Your Health: Tooth Loss and Trauma in Northern Wolves and Dogs*

Humans and dogs have long engaged in complex relationships, ranging from loving and intimate, to extremely violent and exploitive. Archaeology has tended to focus on the former, mostly ignoring the sometimes-ample evidence for trauma and tooth loss in remains of ancient dogs. Inferring the causes of such lesions on ancient dog remains has proven difficult, in part because of the lack of comparative data for canids living outside of the human niche. This paper compares patterns of cranial trauma and tooth loss in a large sample of modern wolves and dogs from northern parts of North America and Russia. Our data demonstrate that tooth loss and fracture are far more common in the dogs than among the wolves. These patterns seem to be related to a high degree of self-provisioning among the dogs, which included scavenging on hard food items. Cranial fractures also are far more common in the dogs than the wolves. The etiologies of these lesions are numerous, but many are entirely consistent with blows to the head from humans. Dogs’ abilities to self-provision and sustain injuries were likely important to both their original domestication and their long-term continued use in harsh northern environments.

Loten, H

[295] *Compiling Tikal Report 15*

Two issues arise in compiling Tikal Report 15 posthumously. Between 1960s fieldwork and current museum policy, illustration formats have changed so that drawings previously inked for photo-reduction are now useless. Secondly, Tikal Report 15 presents data collected under Peter Harrison’s direction, but all figure items have been redrawn digitally with inescapable interpretation, so a question of authorship cannot be avoided.

Loubser, Johannes (Stratum Unlimited, LLC)

[34] *More than Mere Dots on a Map: Archaeological Sites among Venda-Speaking Communities of the Soutpansberg*

This presentation deals with fieldwork conducted between 1983 and 1985 to reconstruct the early history and political-economy of Venda-speaking communities in the Soutpansberg region of South Africa. In order to visit, locate, identify, map, excavate, and interpret ancestral stone-walled sites, the permission, guidance, background information, physical labor, and orally transmitted information of local Venda-speaking people were essential. In most instances, permission and guidance to sites were obtained fairly easily, whereas in a few cases it was a protracted process of negotiation and false leads. Information gathered during the difficult times turned out to be valuable, as the indigenous significance of the sites under question became apparent. The results of the ethnographically-informed archaeological work appear to have had mixed responses among various Venda, revealing information about divisions within society that would not have been obvious otherwise. Whereas members of the politically dominant Singo clan benefited from the exposure that the archaeological research generated concerning Venda-speaking people in general, numerous non-Singo clans appreciated the additional recognition that research into their ancestral settlements awakened among both Venda speakers and the wider southern African society.

Loubser, Johannes [353] see Pritchard, Erin

Loucks, Jordon (University at Albany)

[381] *Irish Built Arteries: Ethnic Identification along the Canals and Railroads of New York*

This study explores the materiality of cultural boundaries manufactured around immigrant communities in industrial localities in New York State. The immigration of thousands of Irish to the United States throughout the eighteenth and nineteenth centuries was met with an intense animosity. Religious and economic differences combined with an anti-immigrant sentiment to provide the Irish-American with a continuation of the racist attitudes similar to the ones that plagued English Improvement. Using artifact data provided by the New York State Museum and documentary evidence, this study hopes to examine the trace materiality left by the actions of racialization. The material evidence left behind by actions inspired through racism may be able to indicate, more
accurately than previous ethnicity-based studies, the defined social groups and their resistance to outside influences. The Irish immigrants who flocked to the sites of industry across New York helped build the infrastructure of the Empire State. As a result of their contribution to the success of New York, the history of Irish presence at sites along railroads and canals is incredibly important, and deserves thorough archaeological study to add to our understanding of their experiences beyond the documentary record.

Loughlin, Michael [151] see Pool, Christopher


**Loughmiller-Cardinal, Jennifer (University at Albany, New York)**

[C]ategorical Imperatives: Re-imagining the Classificatory Schema for Mayan Ceramic Vessels

Various systems of vessel classification have evolved through the need to address specific research questions from disparate sub-fields within Maya studies. Recent work, however, has shown that these classificatory categories may be inadvertently biasing the interpretation of Maya ceramics by presupposing aspects of use, function, and social context. Instead, these aspects should be matters of empirical study and validation derived from the vessels and their contexts rather than imposition by categorical lenses.

**Lovata, Troy (University of New Mexico)**

[A]rchaeology of Skiing

Archaeologists have explored the prehistoric development of skiing, but its study as a modern recreational activity, lifestyle, and commercial practice has generally been left to historians. Yet snow sports entail a unique material culture, are a vibrant link between past and present, and leave a visible environmental impact. Recent consolidation of ownership and demographic shifts has spurred the closure of numerous ski areas in North America. This has led to both the abandonment of slopes and an active community who ski these areas as a link to customary and traditional snow sport and landscape use. Thus, skiing is ripe for study thru the lens of contemporary and historic archaeology. This paper outlines an archaeology of skiing. First, it examines how recreational activities have lasting impacts on the environment. Second, it outlines the large community who continue to ski closed slopes in North America and how recreational activities have long term culture impacts and function as preservation of traditional culture. Third, it discusses preliminary archaeological surveys undertaken at abandoned slopes in the Rocky Mountain states of Colorado and New Mexico. These include skiing slopes as part of phenomenological approach to understanding landscape, its use, and cultural preservation.

**Love, Michael (Calif State Univ-Northridge)**

[El Triangulo del Sur: Izapa, Takalik Abaj, and El Ujuxte](151)

The Pacific Coast borderlands of Chiapas and Guatemala were home to at least three major urban centers in the Late Preclassic Period: Izapa, Takalik Abaj, and El Ujuxte. How these sites were related to one another through intellectual exchanges and commerce tells us a great deal about the nature of urbanism in Mesomamerica during the Late Preclassic Period. These three sites were part of a broader southern “City-State Culture” that included Kaminaljuyu, Chalchuapa, and other early urban centers. The City-State Culture cuts across ethnic boundaries, making a distinction between “Maya” and “Mixe-Zoquean” zones moot. Shared elite elements, such as ruler stelae, texts, calendrics, and ritual performance were present in most of the zone, indicating a strong class-based identity. However, economic patterns, including a multiplicity of long and short distance trade routes, show the complex nature of interactions. The regional political systems indicate a highly competitive and fragmented landscape.

[Discussant] [172]
Love, Sarah (Georgia State University) and Andrew Vaughan (Georgia State University) [201] 3D Modeling of Archaeological Collections: A Case Study in Archaeometry

Artifact collections and skeletal remains curated in multiple facilities and stored in variable conditions across the globe contain a wealth of archaeological knowledge. Access to data about these collections, much less the collections themselves, can be restricted both by policy concerns and practical considerations. Recent technological advancements have made creating high quality digital representations of both artifact and skeletal material possible. In this paper we compare two methods of 3D reconstruction, (software based photographic/photogrammetric 3D reconstruction and laser scanning), for the purpose of research in Archaeology and Bio-Archaeology. Using these methods, digital measurements taken from the models are compared with the same measurements obtained with precision instruments. By comparing 3D representations with manually obtained measurements, a quality baseline of what is currently possible in 3D digitization of archaeological materials can be established.

Loveless, Erana [291] The Invisibility of Reactive Foragers and its Implications for Traditional Ecological Knowledge

"Reactive foragers" are people who switched to intensive foraging in reaction to crises. They are largely a people without history because their turn to foraging decreased their archaeological visibility and increased their remoteness from the centers of civilization where written history is concentrated. Ironically, while colonialism was often a driver for reactive foraging it also introduced the keys for reactive foragers to succeed in some cases. Reactive foraging can explain the loss of technologies among dispersing groups, ethnographically and perhaps archaeologically. This work explores past and present examples of reactive foraging globally, as well as conditions in which reactive foraging is most likely to have developed. Reactive foragers often succeeded when able to learn subsistence skills from marginal groups that maintained traditional ecological knowledge (TEK). Thus, while reactive foragers became more marginalized themselves, it was often pre-existing marginal groups that made this survival tactic possible. Preservation issues and archaeological biases have resulted in an invisibility of reactive foragers which diminishes our understanding of the historical utility of TEK. The ability to cycle adaptively through subsistence strategies can improve the resilience of a group facing adversity. However, for this ability to persist, both ecological resources and TEK must also survive.

Loven, Jeremy (Eastern New Mexico University) [245] Ritual Use of Fauna in the Casas Grandes Region

The use of faunal remains for ritual purposes was an important part of Casas Grandes society throughout the Medio period (1200–1450 A.D.). The past inhabitants of this region utilized the bones of numerous animals for ritual and symbolic functions, as well as for personal adornment. Past archaeological and zooarchaeological research conducted within this region has focused significantly on the site of Paquimé and the artifacts/remains recovered from that site. This paper, although considering the importance of Paquimé and the utilization of faunal remains at that site, examines the ritual use of fauna at several small sites recently excavated throughout the core Casas Grandes region and incorporates recent faunal analyses into our understanding of animal bone usage by the prehistoric inhabitants of this area.

Lowe, Lynnethe (Centro de Estudios Mayas, UNAM) [242] La tradición de los incensarios en el centro de Chiapas

La utilización de incensarios cerámicos con el fin de quemar ofrendas durante las ceremonias, que podían ser resinas aromáticas, papel, semillas, flores u otros elementos, constituyó una tradición milenaria en el centro de Chiapas, como lo han demostrado las evidencias arqueológicas. Las excavaciones realizadas en Chiapa de Corzo y otros sitios de la Depresión Central, como Mirador o Vistahermosa, aportan información de gran interés sobre los orígenes, formas de uso y desarrollo estilístico de estos importantes objetos rituales, así como sus relaciones con otras zonas del sur de Mesoamérica.
Lowery, Darrin
[243]  Geoarchaeological Proxies of Late Holocene Sea Level Rise: Marine Transgression and the Archaeological Record of the Delmarva Peninsula
Understanding the magnitude of sea level rise over the past century is a hot topic in the Chesapeake Bay region. The research presented in this paper combines 20th-century aerial imagery, 19th-century land use data, and geoarchaeological information associated with various coastal archaeological sites to provide a high-resolution marine transgression record spanning the past two centuries. Tide gauge models have suggested that there has been ~1 foot (30cm) to ~1.5 feet (49cm) of sea level rise in the Chesapeake Bay over the past century. Some researchers have even stated that the rate of sea level rise in the Middle Atlantic region over the past century is greater than at any moment during the past 2,000 years. The geoarchaeological research in this presentation shows how tide gauge models for the Chesapeake Bay region have greatly overestimated the amount of historic relative marine transgression. This research also focuses on understanding the geological parameters of sea level rise during the Holocene and provides a geoarchaeological calibration tool to better understand recent sea level change.

Lowman, Christopher
Close examination of Ainu objects in American museums reveals patterns of use-wear, re-use, and intentional marking. These marks draw attention to the life of the object, an avenue of research when depositional data or documents are absent. In colonial contexts, modification as a form of individual or cultural ownership can be used to oppose assumptions of assimilation by revealing ways materials were appropriated or were part of cultural hybridization. Ainu artifacts drawn from multiple collections provide evidence of how “Ainu-ness” continued to be created in the face of Meiji-era internal colonialism in Japan, and how it changed in conjunction with increased tourism and cultural recognition efforts. I use ethnographic objects to examine endurance of Ainu design in material and motif, as well as signs of use and modification. Presence and absence of foreign materials, the re-application of decorative elements, and wear-patterns together mark ways the Ainu maintained, and modified, cultural ownership.

Lowry, K. Bryce [20] see Beach, Jeremy

Lowry, Justin (George Mason University), Jason Paling (Plymouth State University) and Colin Quinn (Dartmouth College)
[246]  Obsidian Trade from the Perspective of Chiquilistagua, Managua, Nicaragua
The 2013 and 2014 seasons at the site of Chiquilistagua, located west of Managua, Nicaragua, included survey, excavations, and descriptions of archaeological remains. Chiquilistagua was chosen because of its proximity to potential trade networks. Lithic and ceramic materials found in the excavations point to production and trade. This paper will discuss the trade networks connecting Nicaragua with southern Honduras and contextualize them within the larger context of Central America interaction. The goal of this research is to describe the early trade networks that existed during the transition between the Tempisque and Bagaces periods.

Lozada, Maria Cecilia [169] see Weinberg, Camille

Lozano-Garía, Socorro [129] see Caballero, Margarita

Lu, Enguo (Xinjiang Institut for Cultural Relics and Archaeology)
[102]  Prehistoric Painted Pottery of Xinjiang
Ever since the 1970s, painted pottery has been discovered in large quantities at cemeteries and occasionally settlements on the southern and northern foothills of the Tianshan Mountain. Organizing
them into four Early Iron Age (ca. 1300-200 B.C.) regional cultures: Yanbulake in the Hami region, Subeixi in the Turfan region, Chawuhu in the Kaidu Valley, and Yili Valley in the eponymous region, this paper characterizes the stylistic distinctions of the painted pottery of them. The Yanbulake culture, for instance, features the ware types of jars and bottles with double handles as well as the motifs of rhombi and triangles, whereas the Chawuhu culture features those of spouted jars and chessboard and thunder designs. Furthermore, this paper considers the possible origins of the painted pottery: while some motifs seem to derive from local textiles, some ware types are reminiscent of leather-made vessels. The painted pottery of Xinjiang, as a whole, manifests intimate connections with the Hexi Corridor. This paper sees no impact of the Harappa culture in Indian Subcontinent and Tripol’e in the Black Sea coast, but it acknowledges inspiration from the Namazga and Chust cultures of Central Asia.

Luan, Fengshi [179] see Cunnar, Geoffrey

Lublasser, Sarah [403] see Makarewicz, Cheryl

Lubley, Edward (Museum Studies Program, San Francisco State University) and Kent G. Lightfoot (Department of Anthropology, University of California) [293] Diachronic Changes in the Shell Mounds of the San Francisco Bay: A Case Study of Ellis Landing (CA-CCO-295)
The purpose of this paper is to examine diachronic changes in the long-term use of the Ellis Landing site (CA-CCO-295), a large shell mound on the San Francisco Bay whose chronology spans more than 3000 years. Originally excavated in 1906-1908 by Nels Nelson, recent investigations of museum materials housed in the Hearst Museum of Anthropology at UC Berkeley are providing new insights into the harvesting practices, mortuary patterns, and community dynamics of the people who resided at Ellis Landing in Late Holocene times. This paper will summarize the findings and discuss interpretations about the long-term use of the Ellis Landing site.

Lucarelli, Rita (UC Berkeley) [240] The Ancient Egyptian Book of the Dead on Coffins: Ritual Protection and Justification of the Deceased.
The collection of texts and illustrations known as the ancient Egyptian “Book of the Dead” was especially en vogue on papyrus from the beginning of the New Kingdom through the Graeco-Roman period. However, abridged versions of Book of the Dead texts and vignettes have also been widely used to decorate a number of other funerary and magical objects. Among others, the anthropoid coffins produced during the Third Intermediate Period and the 25th Dynasty present a few intriguing features in relation to the role that the Book of the Dead plays in their decorative program. In this paper it is argued that most of the extracts from the Book of the Dead occurring on coffins of the late New Kingdom and later periods have a specific ritual character concerning the protection, purification and justification of the deceased. Compared to the papyri of the Book of the Dead, coffins show a shorter but more distinctive selection of texts and vignettes from the same collection, whose analysis may deepen our understanding of mortuary rituals in the late New Kingdom and later.

Lucas, Virginia (University of Alabama at Birmingham) [202] A Reexamination of Human Remains from Late Prehistory in the Alabama River Valley
The late prehistory of central Alabama is not yet well understood, particularly when compared to contemporaneous occupations elsewhere in the Southeast. Previous excavations of Durant Bend (1Ds1), a late Mississippian/Proto-historic, single mound site in Dallas County on the Alabama River, resulted in a number of artifacts, including lithics, pottery, faunal remains, and human remains that enhance our understanding of late prehistoric and protohistoric occupations in the Alabama River Valley. One such excavation in the early 1970s, yielded five sets of subadult human remains as well as one single element from an adult individual, all of which are currently curated at the University of Alabama at Birmingham. These remains originally were examined and included in a 1976 report of the site. A recent reexamination of these remains by the author employing modern analytical
methodologies allows for increased insight into the age and health of individuals occupying the Alabama River Valley during this time period. Utilizing extant collections such as these also allows researchers to apply modern methods to older data in order to gain a better understanding of past individuals. Examining these individuals from Durant Bend allows us to gain a better understanding of this time period in central Alabama’s history.

Lucas, Leilani (University College London) and Dorian Fuller (Institute of Archaeology)  
[414]  
De-centering the Fertile Crescent: Multiple Pathways to Food Production  
Southwest Asia is one of the earliest and most documented centers of agricultural origins. With the expansion of archaeobotanical and zooarchaeological datasets within this region it is now more possible to unravel the evidence on a broader regional scale revealing a more complex picture with multiple centers and pathways of plant and animal domestication. Through a comparison of recent evidence this paper examines the multiple pathways towards domestication and the transition to agricultural economies in the Near East, suggesting four distinct subsistence trajectories. The different regional packages of both plant and also animal data are characterized and the development and diversification of these packages over time is discussed. With the addition of recent evidence from Jarmo an eastern route is established and contrasted with an Upper Euphrates trajectory that leads to Cyprus, the evidence from sites in the southern Levant, and the possible Anatolian path that feeds into the pulse-free Iranian zone represented by the evidence from Chakmak. Further, the differing rates of change within each of the crops is presented and situated within the regionally specific social contexts.

Lucero, Lisa (University of Illinois at Urbana-Champaign)  
[36]  
Climate Change, Dissonance and Urban Diaspora in the Southern Maya Lowlands  
In response to growing needs for dry-season water, the southern lowland Maya constructed increasingly larger and more complex reservoirs at major centers throughout the Late Classic period (550-850 C.E.). Annual rainfall replenished reservoirs and nourished rainfall-dependent crops. In exchange for access to reservoirs during the annual dry season, farmers contributed goods, services and labor to kings and their administrators. When several multiyear droughts struck between 800 and 900 C.E., the effect on reservoirs was noticeable, impacting the basis of royal power. This set in motion a series of events that ultimately resulted in an urban diaspora where farmers abandoned kings and centers for areas with more reliable sources of water and new economic opportunities. Maya kings did not adapt, whereas farmers did. I discuss how the same material infrastructure impacted kings and farmers differently, and how this dissonance bears on present concerns relating to climate change.

Ludeke, Ingrid [181] see Riel-Salvatore, Julien

Lugo Mendez, Anastasia (Utah State University), Steven R. Simms (Utah State University), Tammy M. Rittenour (Utah State University), Molly Boeka Cannon (Utah State University) and Nancy Kay Pierson (Utah State University)  
[10]  
The Geoarchaeology of Late Prehistoric Irrigation in Central Utah  
In 1928, Harvard archaeologist Noel Morss observed ancient irrigation systems in central Utah during fieldwork that first defined the Fremont culture. Instances of Fremont irrigation are known, but perceptions of the Fremont as a small-scale society of indigenous mixed foragers and farmers delayed empirical evaluation of Morss’s report. Fieldwork, beginning in 2010 and continuing, now identifies a complete irrigation system 4.5 miles long bringing water from 8,500’ to a 90-acre field at 7,100’ on the east slopes of Boulder Mountain, overlooking Capitol Reef National Park. Fieldwork includes excavations exposing subsurface canals, experimental archaeology on the costs of system construction and maintenance, magnetometer imaging, and dating of ditch sediments using optically stimulated luminescence (OSL). Exposures dated thus far identify irrigation and construction episodes from A.D. 1500 – 1700 during the Late Prehistoric period, well after the presumed demise of the Fremont. No Spanish entered Utah until A.D. 1776, and our research area did not see Euro-American settlement until A.D. 1880. The implications of our findings offer support for Fremont - Late
Prehistoric continuity, and perhaps post-Fremont integration among Fremont and Puebloan histories and peoples: the Fremont of the Southwest.

Luke, Christina [167] see Gauthier, Nicolas

Lullo, Sheri (Union College) [234] Beauty and Adornment in Fertile Lands and Desert: Toiletries from burials of Han China and her Western Neighbors

This paper presents preliminary research that compares toiletry sets and other items of personal adornment from burials within the political boundaries of Han dynasty China (206 B.C.E.-220 C.E.) to those found at contemporaneous sites near the westernmost periphery of the empire. Toiletry sets of the Han elite are commonly enclosed in rounded lacquer cases and include items such as bronze mirrors, combs, boxes with cosmetic powders, hair accessories, and other personal possessions. Comparison of these sets with similar items from richly furnished and well-preserved burials found at sites such as Shanpula (Khotan) and Niya, located along the southern rim of the Tarim Basin in present day Xinjiang province, reveals notable similarities in type and style. This study explores the significance of toiletries and items of adornment to Han and non-Han burial practices, and the extent to which the Han’s presence near the arid Tarim basin impacted—and, perhaps more interestingly, had little effect on—even the more mundane dimensions of everyday life, such as beautification, adornment, and bodily maintenance.

Luna, Pilar [370] see Arroyo-Cabrales, Joaquin

Luna Erreguerena3, Pilar [370] see Chi, Julio

Luna Golya, Gregory (Penn State University) [180] Producers on the Lake: Late Aztec Lakebed Chinampa Communities of Lake Xochimilco

Recent historic imagery analysis combined with 1960-70s archaeological surface survey data in a geographic information system (GIS) has generated a detailed spatial model of chinampa beds, canals, and settlement mounds for a 1,010 hectare area of Lake Xochimilco distinct from remnant Xochimilco chinampas that persisted into historic and modern times. The delineated agricultural waterscape was characterized by an approximately 1:1 land to water ratio with narrow raised agricultural beds (3.75 x 49.4 meters). The estimated lakebed population for the study area was 2,525 (2.5 persons/hectare) including 2,000 full-time tenant farmers. In this paper, I continue my spatial analysis of the Xochimilco lakebed chinampa GIS focusing on lakebed settlement. Two types of settlement – chinampa households/hamlets and village wharves – have been identified. Using network and least cost path analyses I define lakebed chinampa communities associated with particular lakebed village wharves – hubs of social and economic activity for tenant chinampa farmers who existed outside the traditional calpolli system of shoreline chinampa communities with pre-Aztec origins. Additionally, transport routes from fields, to lakebed wharves, to the docks of Tenochtitlan-Tlatelolco and other shoreline centers will be modeled. This project creates the first detailed spatially referenced system of lakebed chinampas and producers.

Luna Golya, Gregory [364] see Stewart, Carlyn

Luna-Erreguerena, Pilar [370] see Chatters, James

Lundin, Deil [272] see Brodbeck, Mark

Lupo, Karen (Southern Methodist University) [406] On Why We Still Need Ethnoarchaeology

Although ethnoarchaeology is viewed as an important tool of analogy for the archaeological record, it
has been criticized as being too descriptive, context bound, and limited by the generation of cautionary tales. These and other criticisms have inadvertently led to a sharp decline in ethnoarchaeological research in recent times. In this paper I argue that ethnoarchaeology is an underutilized methodology that can be expanded with new technologies to test and shed light on the nature of important factors that are often identified as prime catalysts of sociocultural change. Here I demonstrate this potential by presenting ethnoarchaeological data on the changes the nature of food sharing— an often cited "leveling mechanism" that sustains egalitarianism in small scale societies. Disruption of sharing and egalitarian ideals is often viewed as one of the pressures giving rise to social inequalities. Comparative analyses of these data show when and how food sharing dissolves in response to different external pressures, including ecological degradation.

[296] Chair

Lupo, Karen [296] see Schmitt, Dave

Lustig, Eileen [286] see Klassen, Sarah

Luzzadder-Beach, Sheryl [176] see Cook, Duncan

Luzzadder-Beach, Sheryl [350] see Hanratty, Colleen

Lyall, Victoria
[303] Painting Ourselves out of a Corner: Considerations on the Medium
While the connections between ancient mural paintings and twentieth-century urban mural programs may seem tenuous, certain technical, structural and physical considerations of the medium itself link exemplars from past and present. The inextricable relationship between murals and their architectural supports, as well as its scale, can compel a type of viewing and visceral engagement different from that of other types of two-dimensional media; it forces a relatedness that must be unpacked. In this paper, I will consider the medium of painting in both ancient and contemporary contexts and frame the other papers in the session.

[303] Chair

Lyman, R. (University of Missouri Co)
[397] The History of "Laundry Lists" in North American Zooarchaeology
North American zooarchaeologists believe that prior to 1970, most zooarchaeological reports were laundry lists—lists of taxa identified, perhaps with abundance data. Laundry lists make up 68 percent of titles published between 1900 and 1959; 24 percent of titles published between 1960 and 1979 are laundry lists. Some laundry lists concern samples so small that one should not expect more than a list of identified species; other laundry lists were produced by zoologists who had no knowledge of archaeological research. Ironically, the originator of the term laundry list and its derogatory implications (Stanley J. Olsen) produced only laundry lists.

Lynch, Sally (McMaster University)
[60] A Study of Fineline Iconographic Depictions at the Late Moche Site of Huaca Colorada, in the Jequetepeque Valley, Peru
The Late Moche Period (A.D. 500-800) of the North Coast of Peru is marked by significant alterations to the iconography of elite fineline ceramics. In particular, the earlier imagery, depicting conventionalized narratives of ritual performances and exploits of male Moche diviniites or their mortal avatars disappears in certain locales. In southern valleys, at sites such as Galindo, Late Moche elite ceramics largely depicted abstract geometrical imagery including the widespread step-and-mountain motif that overlapped chronologically with the earlier Moche IV style at Huacas de Moche. Scholars have argued this abandonment of established iconographic themes and re-invigoration of Pan-Andean abstract motifs signifies a rejection of a discredited ideology in specific
sites and zones of the North Coast. However, prominent sites in the Jequetepeque Valley, including Huaca Colorada and San Jose de Moro, witnessed a continuation of narrative depictions alongside the abstract imagery so prominent in the south and at Pampa Grande to the north. In this study, I explore the social and political significance of the coexistence of these two styles at Huaca Colorada, to question whether they index disparate ideologies to argue the southern Jequetepeque was a place of less stringent political centralization, where ideas, people, and things, were more freely exchanged.

[60]  Chair

Lynch, Kerry (UMass Archaeological Services)

[192]  New England’s Submerged Pre-Contact History: Identifying an Intact Archaic Site in Salem, Massachusetts

A portion of Salem Harbor in Massachusetts was investigated during a cultural resource management project in 2009/2010. The underwater reconnaissance included a remote sensing survey using a Klein 3.5 kHz sub-bottom profiler. An acoustic basement was recognized at approximately two meters below the sea bed, and was hypothesized to be an organic layer potentially representative of a buried land surface below marine sediment. Vibratory cores were used to ground truth the potential buried land surface. Interestingly, the testing identified three different horizons representing unique micro-environments around the two meter mark. One horizon was an intact, buried land surface that had been aerially exposed prior to post-glacial sea level rise. The stratigraphic profile of the land surface showed a layer of salt marsh peat with underlying terrestrial A and B horizons. Two horizons were AMS dated, the overlying peat and a B deposit containing lithic debitage, charcoal, and botanicals. The peat was dated to 4490 +/- 40 rc B.P. and charcoal from the B horizon was dated to 5750 +/- 40 rc B.P. This presentation will include an analysis of the intact site and the surrounding micro-environments. Additional work is planned, and schedule permitting, the preliminary results will be discussed.

Lynch, Elizabeth

[261]  #arrowheads: Instagram as a Creative, Social Media-Based Approach to Public Archaeology

Social media is a hot topic of discussion and innovation among archaeologists. Although we’ve improved our ability to digitally reach wider audiences, “social media” is not a single entity. Each platform is different: purposes, user bases, and means of connection vary widely. As archaeologists, we must be proactive about fully understanding these differences, in order to find the most effective ways use each platform and reach a greater public. This paper provides an example of one way to accomplish these goals. Instagram is a mobile device-based image sharing social media platform; users connect with hashtags: pound signs followed by a word or phrase of interest. I surveyed American Instagram users who self-identify as “artifact collectors” to understand their demographics, how they use Instagram, how and why they collect, and their thoughts on archaeologists, collaboration, and cultural resources. This allows me to holistically understand the community that I hope to interact and collaborate with, and how best to reach them. By conducting similar surveys of users on other social media platforms, professionals and groups working in public archaeology can expand the depth and breadth of their outreach efforts, and be more aware of the needs and interests of their audiences.

Lynch, Elizabeth (University of Wyoming)

[342]  Socialized Landscapes of the Southern Plains: Bedrock Ground Stone Surfaces on the Chaquaqua Plateau, Colorado

Prehistoric peoples of the Southern Plains created bedrock ground stone surfaces in rockshelters along upper canyon rims on exposed Dakota Sandstone. These bedrock milling features became centers for the reproduction of food and other resources but also developed into anchored places that facilitated the reproduction of socio-cultural values and norms. The socialization of the Southern Plains prehistoric landscape is most visible in the material culture remains of bedrock milling features that are ubiquitous in the canyon systems of the Purgatoire watershed in southeastern Colorado. Analysis of the milling surface morphology, differences in their organization on bedrock features, and
their distribution across the landscape suggest that site activities vary from quotidian and seasonal group milling of local food resources (pinon, oak, juniper and other berries and grasses) to specialized grinding for ceremonial or ritual events. Bedrock milling surfaces were divided into sub-features based on surface proximity and abrasion between ground stone surfaces on each boulder feature. This paper uses 3D modeling called close range photogrammetry to test whether the recognition of group milling activities, through the sub-division of bedrock milling features into sub-features, is a viable method to understand how prehistoric peoples organized and socialized their milling material culture.

[342] Chair

Lynnerup, Niels [299] see Nystrom, Kenneth

Lyons, James (University of California, Berkeley)

[12] Iron Grinding Technology in the Kofun Period: New Evidence and Research Techniques

Due to both a lack of direct evidence and lack of well-defined investigative methods, iron polishing and grinding technologies in the prehistoric Japanese archipelago remain poorly understood. Following the recent foundational research by Lyons, Kawano, and Suzuki, this project seeks to clarify the tools and gestures used to finish iron objects during the Kofun period. Photogrammetric techniques and 3D laser scanning were used to record and analyze striations left by original grinding on iron objects unearthed from Omuro Tsumi-ish Kofun 165 and Marozuka Kofun in comparison to measurements similarly collected from bronze objects from Omuro Tsumi-ish Kofun 200, Nukudani Minamizuka Kofun and a recently polished 6th century sword of unknown provenance. Based on these analyses, the use of metal files as well as multiple grinding stones of differing grit is postulated in the manufacture of a single object. Additionally, these analyses find elements of continuity in technique with extant traditional polishing practices in Japan.

Lyons, Michael (University of Bonn and the German Archaeological Institute) and Jennifer von Schwerin (Germany Archaeological Institute)

[100] A Transparent 3D Model of Temple 18 at Copán for Visualization and Research

The development of a clear approach to creating highly “transparent” (effectively displaying the argument behind a reconstruction) 3D models for visualization and research in archaeology is an ongoing process. The goal of this presentation is to address this problem with a use-case example of a 3D model of Structure 10L-18 (Temple 18, ca. A.D. 800) on the acropolis at Copán in Honduras. How can data be structured and applied to this 3D model in order to provide a user with a clear understanding of where this data is coming from, and thus provide a 3D model with greater uses and applications in academic research? In discussing this question, an overview of the process will be explored covering the topics of data collection, storage and processing, the implementation and finalization of data into a usable platform, and questions about future management of this data.

Lyons, Mike [100] see Von Schwerin, Jennifer

Lyons, Patrick (Arizona State Museum) and Deborah Huntley (Archaeology Southwest)

[278] Temporal and Spatial Variability in Roosevelt Red Ware Painted Decoration

Recent research in the southern US Southwest has revealed patterns useful in refining ceramic chronology and investigating communities of practice among 14th and 15th century potters producing Roosevelt Red Ware (Salado polychromes). Analyses of whole and partially reconstructible vessels recovered from stratified contexts in the San Pedro Valley of southeastern Arizona confirm the Roosevelt Red Ware stylistic seriation presented by Patricia Crown in 1994. Combining these results with recent typological revisions leads to refined dating at the regional, settlement cluster, and intrasite level. A related study of geographical variability in the bands of painted decoration on the rims of late Roosevelt Red Ware bowls (Cliff Polychrome and Nine Mile Polychrome) illuminates stylistic trends bearing on models of the spread, the persistence, and the eventual disappearance of the Roosevelt Red Ware tradition. These data, juxtaposed with
typological patterns related to geography, in turn, allow us to address the evolution, operation, and decline of social networks born of the Kayenta diaspora.

[343] Discussant

Lyons, Natasha (Ursus Heritage Consulting), Anna Marie Prentiss (University of Montana), Naoko Endo (Simon Fraser University), Dana Lepofsky (Simon Fraser University) and Kristen Barnett (University of Montana)

[312] Plant Use Practices of an Ancient St’át’ímc Household, Bridge River, British Columbia
This poster focuses on the interpretation of archaeobotanical macroremains from Housepit 54 occupations at the Bridge River site, on the British Columbia Plateau, dating 1100-1500 cal. B.P. Recent excavations have revealed living floors spanning a critical period when this village reached peak size and then began to decline during a period of climate transition. Previous research at Bridge River suggests that access to salmon and deer may have declined after ca. 1200-1300 cal. B.P., triggering heightened socioeconomic competition between households. Very little is known, by corollary, regarding the role of plant foods in the site economy during this time. This poster draws on paleoethnobotanical studies which investigate what the plant remains can tell us about harvesting, subsistence, consumption and cooking practices by Housepit 54’s residents. The analysis allows us to determine which plant resources were being utilized in which seasons and at what distance from the site, as well as diet breadth, technological activities, and spatial use of the pithouse. The plant data also allow us to consider the relative involvement of Housepit 54 residents in local and regional networks of trade and interaction, and patterns of continuity and change amongst ancient St’át’ímc communities.

Lytle, Whitney

[24] Same Space Different Face: Recent Investigations at Xunantunich, Group D
Xunantunich Group D, an elite residential unit, has a fascinating history of construction and reuse between two temporally separated occupations. The group is set apart from other Xunantunich residential units by a sacbe connecting it to the site core and a large ancestor shrine acting as the architectural focal point of the group. The past three years of research at Group D has focused on the Late Classic ancestor shrine and the open courtyard directly in front of the structure with the goal of gaining insight to the earliest construction and changing use of this ritual space. Recent investigations have revealed Late/Terminal Preclassic constructions including a large courtyard platform and an early structure beneath the later ancestor shrine. This paper will discuss Group D’s reoccupation, the drastic alteration of the courtyard construction which took place during Xunantunich’s fluorescence in the Late Classic, and how this reuse and modification potentially served sociopolitical functions at Xunantunich.

Ma, Minmin (Institute for the history of natural sciences Chinese academy of sciences), Guanghui Dong (Key Laboratory of Western China’s Environmental Sy), Hui Wang (Gansu Province Institute of Cultural Relics and Ar) and Fahu Chen (Key Laboratory of Western China’s Environmental Sy)

[37] Dietary Shift and Cultural Evolution Relation to Intercontinental Cultural Exchanges and Climate Change in the Hehuang and Contiguous Regions, Northwest China ~3600 Years Ago: Evidence from Carbon and Nitrogen Stable Isotopic Analysis
This study traces the extent to which dietary change coincides with intercontinental cultural exchanges in Eurasia and to enhance understanding of the effects of long-distance exchanges on the human diets. Through stable carbon and nitrogen isotope analysis of late Neolithic and early Bronze Age human and animal bone collagen, we find that intercontinental cultural exchanges in Eurasia led to significant changes in diet in the Hehuang and contiguous regions of northwest China. The isotopic evidence indicates that human diets mainly consisted of C4 foodstuffs (most probably millet) pre-3600 Cal yr BP. With the increasing intensity of long-distance exchange, enough C3 foods (probably wheat and barley) were added to human diets post-3600 Cal yr BP, which strongly influenced isotopic value of bone collagen. The dietary shift speaks to a transition to more complete cultures in the Bronze Age, around 3600 Cal yr BP in Gansu and Qinghai provinces. This occurred