THE ANNUAL MEETING of the Society for American Archaeology provides a forum for the dissemination of knowledge and discussion. The views expressed at the sessions are solely those of the speakers and the society does not endorse, organizers, not the society.

ABSTRACTS OF THE SAA 79TH ANNUAL MEETING

ABSTRACTS OF INDIVIDUAL PRESENTATIONS

Ma, Sai [51]  
Analysis of the Economic Structure of the Zhouyuan Site in the Shang and Western Zhou Periods  
This paper discussed the economic structure of the Zhouyuan Site in the Shang and Western Zhou Periods. Through the analysis of agriculture tools in different periods and at different sites, this paper suggests the economic structure might have changed significantly from the Proto-Zhou period to Western Zhou period. The percentage of agriculture tools declined obviously in the Western Zhou period, and at the same time, a large number of handicraft workshops appeared. Meanwhile, the percentage of agriculture tools in the Western Zhou period is also much lower than that from other sites in the same period, such as the Tianma-Qucun site, which indicates that the people living in Zhouyuan site might have other sources of food supply. Nevertheless, the data that could be analyzed is quite limited, so it’s still a preliminary conclusion.

Ma, Xiaolin [126] see Pechenkina, Ekaterina

Maas, Lauren [169] see Moreno, Meredith

Macadaeg, Gary [266] see Wilson, Jeremy

MacDonald, Kevin (UCL Institute of Archaeology) [108]  
Sorotomo (AD 1200-1500): Excavations at a Malian Center of Power  
Sorotomo, at 72ha, is one of Mali’s largest known settlement mounds. More importantly, unlike most other Malian urban tell complexes, its historical associations are emphatically political and military - not commercial. This makes it an important exception to the rule that West African cities were primarily heterarchical trade entrepots. Historical sources on Sorotomo are scarce – but tantalising. In the Tarikh es-Soudan, it is recorded that in the Empire of Mali’s principality of Jenné, an area between the Niger and Bani rivers, there was the ‘sultanate of Zorra.’ Likewise, the German anthropologist Leo Frobenius collected oral traditions early in the 20th century which named ‘Soro’ as a major center of political authority for the Empire of Mali. We (re-)located Sorotomo (“the ruins of Soro”) in 2005 during a broader oral historical and archaeological survey of the Segou region. In 2006/2007 and 2009/2010 we undertook excavations, including a large exposure. The results of this fieldwork, C14 dates and subsequent analyses of artifacts, fauna and flora are summarised in this paper.

Macdonald, Danielle [149] see Jones, Matthew

MacDonald, Sarah (Northern Arizona University) and Jack Broughton (University of Utah) [316]  
Late Holocene Resource Depression in San Francisco Bay: New Mammalian Indices from the Yerba Buena Shellmound  
Resource depression has become a key issue in human foraging ecology in archaeology. As high-ranked prey decrease in abundance due to predator (in this case human) activity, people begin to exploit smaller, lower-ranked prey. This transition can be measured using abundance indices, with relative values decreasing over time. In this study, artiodactyl abundance indices were created for the terrestrial faunal material at the Yerba Buena Shellmound site, located on the tip of the San Francisco Bay Peninsula. Relative abundances of artiodactyls and large mammals (due to the relatively high amount of long bone shaft fragments) in relation to lagomorphs and rodents were measured over time. This poster presents the results of zooarchaeological analysis at the site. While it was expected that the relative
abundance of artiodactyls and large mammals would decrease over time if resource depression was occurring, the indices instead exhibited an increase over time. There are likely a number of factors influencing these results, including NISP inflation due to increased fragmentation or a shift in foraging patch use. Exploration of ethnographic literature can elucidate these factors and identify others contributing to these results.

Macdonald, Danielle (Centre national de la recherche scientifique)

[335] Micro-topographies and Human Action: Interpreting Behaviour through Surface Traces
Surfaces act as a barrier between objects and it is these surfaces which ultimately interact when two objects come into contact. Traces of these interactions are often left on surfaces, allowing us to interpret past actions. Lithic use-wear analysis is based on the concept that different materials and motions will produce distinct traces on the surfaces of stone tools. Recent developments in the field have applied microscopy techniques developed for the field of surface metrology to lithic assemblages, creating microscopic three-dimensional 'landscapes' of tool surfaces. This presentation focuses on how we make interpretations from these traces and the epistemological challenges faced when asking questions related to human behaviour from microscopic data.

MacEachern, Scott (Bowdoin College)

[198] (Un)becoming States: Their Neighbors and the Wandala South of Lake Chad
Expansionistic states like Wandala came to occupy the plains around the northern Mandara Mountains of Cameroon and Nigeria in the middle of the second millennium AD. This is conventionally seen as generating a set of core-periphery relations with 'marginal' societies, especially diverse and decentralized Mandara montagnard communities. Archaeological and other data indicate that this image of sociopolitical relations is incorrect: 'state' and 'marginal' identities interpenetrated and mutually constituted each other in the area. Mandara societies did not exist 'against' the state as much as beside, within and around it. Such perspectives may also be useful in understanding modern frontier phenomena in the area.

MacFarland, Kathryn (School of Anthropology, University of Arizona) [92]

The Tengri's Home: A Deer Stone
The Scythian, Saka, and Xiongnu religious landscape is differentially expressed across Central Eurasia, throughout the Iron Age (ca. 1,000-100 BCE). This is demonstrated archaeologically by the concentration of architectural features (i.e., kurgans, khirigsuurs, deer stones) and ritualized locations throughout Central Eurasia. Additionally, artifacts and iconography depicted on variably anthropomorphized Deer Stones are predictive of burial assemblages found within kurgan burials throughout Central Eurasia. The closest analog to this religious belief system is Tngriism, a belief system documented by the Secret History of the Mongols (ca. 1227 CE) and in ethnographic accounts of Mongolian prayers documented by Western travelers (Heissig 1970). Tngriism is associated with the pantheon of 99 gods or heavenly beings (Tngri) which are geographically grouped; each grouping is variously worshipped by prayers and sacrifices. Deer stones mark significant locations within the Iron Age Central Eurasian religious landscape. This paper proposes that deer stone sites mark particular spots in which rituals and prayers were devoted to a particular Tngri; deer stone locations are potential "homes" for Tngri. It is also possible that deer stones themselves are physical representations of iconography and other aspects of material culture, such as tattoos, for the Tngri associated with a location and/or region.

Chair

Machado, Lisa [168] see Cowie, Sarah

Macias, Juan Ignacio (Instituto de Investigaciones Antropológicas UNAM/UNICACH) and Citlaliitl Villagrana Prieto (Universidad Autónoma de Zacatecas/Colegio de Cerva)

[60] Shrines on High Places: An Analysis of Settlements on Hilltops in North Central Mexico During the Epiclassic (600-900 A.D.)
For a long time, settlements on hilltops in the north central region of Mexico have been interpreted as a defensive response to risk and confrontation between village societies that inhabited the northern frontier of Mesoamerica. Although such confrontation is evident in some cases, these generalizations about the archaeological record have obscured our understanding of other meanings related to the construction of structures in prominent points in the landscape. This paper aims to make contributions to the discussion on the symbolic and ceremonial nature of some settlements located on the north side of the El Río Verde- San Pedro and Los Altos de Jalisco. Through an analysis of the landscape where these sites are located, as well as other key indicators such as rock art, caves, petroglyphs and altars, we propose two ideas: in the first place, the location of sites on hilltops is not a regional settlement pattern trend, and consequently a situation of confrontation and conflict is doubtful; and second, some of these sites, instead of serving as defensive locations, could have been shrines related to the cult of caves and mountains.

MacIntosh, Sarah (University of Nevada, Las Vegas) and Levent Atici (University of Nevada, Las Vegas)

[84] An Experimental Approach to Antler Working at Körtik Tepe (SE Turkey) during Pre-Pottery Neolithic A (PPNA)
The recent archaeological projects in southeastern Anatolia (Turkey) have shed new light on the revolutionary socioeconomic transformation of human lifeways during the Terminal Pleistocene and Early Holocene. Körtik Tepe is an important Pre-Pottery Neolithic A (PPNA; 10th millennium BP) site excavated in the region due to its fascinating mortuary practices that contain rich and diverse grave goods and sophisticated symbolism as well as round architectural structures. This paper presents an experimental work on antler technology to add new data to ongoing zooarchaeological and archaeological research at Körtik Tepe. The experiments specifically probe blank production, antler reduction sequencing, and manufacturing strategies to gain insight into antler working. First, we replicated antler tools to test the validity of our previous morphological and functional categories for the Körtik Tepe antler assemblage. Second, we documented and investigated various manufacturing techniques more closely. Lastly, we contextualize antler work and technology during a period of rapid social, ideological, and economic change at the end of the Pleistocene.

Mack, Stephanie (University of New Mexico)

[10] Sizing Up: Chert Cobble Bed Sourcing within the Petrified Forest National Park
Petrified Forest National Park is rich in raw material sources: in addition to petrified wood, beds of secondary chert cobbles from the Triassic period (250-200 myr) are an abundant lithic raw material source. Although petrified wood is by far the most exploited lithic raw material in the park’s history of human occupation, it is not the best material for flake stone production because while it yields and retains a sharp edge, it still fractures along imperfections caused by crystallization of the original tree ring structure. The cryptocrystalline fracture properties of local chert however are more conducive to lithic reduction (Wandler 2011 et al.). This poster analyzes the availability and average size of chert cobbles within the park in order to identify why chert appears less often than petrified wood in archaeological assemblages throughout the history of occupation of Petrified Forest National Park.

Mack, Jennifer [155] see Lillie, Robin

Mack, Jennifer (University of Iowa, Dept. of Anthropology, Office of the State Archaeologist), Katina Lillios (University of Iowa), Anna Waterman (Mount Mercy University), Joe Alan Artz (Earth View Environmental) and Ana-Monica Racila (University of Iowa)

[241] Osteological Landmark Quantification and the Taphonomy of the Late Neolithic Rock-Cut Tomb of Bolores, Portugal
Five seasons of excavation at Bolores, a Late Neolithic (2800-2600 cal B.C.) collective burial in a rock-cut tomb in the Portuguese Estremadura, yielded thousands of human bone fragments. Because few articulated segments were recovered from the commingled remains at the site, standard human osteological data collection protocols developed primarily for recording complete individuals found in discrete contexts were found to be difficult to apply. Zooarchaeological methods for recording disordered
and fragmentary animal remains yielded more precise information on the site’s population and taphonomy. Our methodology, which builds upon the previous work of Christopher Knüsel and Alan Outram, has helped to refine the MNI (minimum number of individuals) and has helped to define use areas within this ritual space.

Mackay, Alexander (University of Wollongong)

[255] The Iceberg’s Fundament: The Role of Bipolar Technology in the Later Pleistocene Archaeology of the Western Cape, South Africa

Descriptions of technological change in late Pleistocene southern Africa have often focused on the outstanding elements of technological systems – those which allow the development of contrasts between periods. To an extent this has led through-time similarities in some technological components to be overlooked. Bipolar reduction is one element of technology that persists through the late Pleistocene, fluctuating in frequency but rarely if ever absent. Using data from several sites in the Western Cape of South Africa this paper documents the role of bipolar as a critical strategy facilitating changes in material selection and flake production that likely underwrote adaptation to diverse sets of conditions from >75 ka through to the Holocene.

Mackenzie, Simon [273] see Davis, Terressa

Mackie, Madeline (University of Wyoming)

[90] Determining the Age and Sex of Rock Art Hand Spray Artists, Johnson County, Wyoming

The opportunity to determine information about the artists behind rock art rarely occurs, however hand sprays make this possible. A series of sites within Johnson County, Wyoming contain an unusual amount of hand sprays which were analyzed to learn more about the creators of prehistoric rock art in Wyoming. Rock art panels were recorded through use of stereo photography from which three-dimensional computer models were produced. A comparative collection of hand sprays from individuals of known age and sex were collected and digitally measured. This collection was used to determine a set of measurements which best represented relative and morphologically changes with are related to age and sex. The measurements from the comparative collection were applied to the rock art hand sprays in order to determine the age and sex of individuals who created the site. This study shows the potential of using three-dimensional computer modeling for rock art research and offers a large database of known hand sprays which could be utilized for future research.

Mackie, Quentin (University of Victoria)

[282] The Middle of Somewhere: Periphery as Centre on the Northwest Coast of North America

Southern Haida Gwaii lies on the westernmost margin of the North American continental shelf. To the east, it is over 100 kilometers of open water to the British Columbia mainland, while to the west the abyssal depths of the NE Pacific are only a few kilometers offshore. Nonetheless, over 100 terminal Pleistocene or earliest Holocene sites are recorded from its shores, one of the densest known concentrations on the Pacific Coast. These include the 10,700 year old Kilgii Gwaay wet site, which shows a logarithmically-organized and fluently maritime economy. Its location on a small island near the southern end of Haida Gwaii encourages us to characterize it as “remote”, perhaps because it is far from a viable terrestrial homeland. In this paper I explore how archaeologists and anthropologists have described and characterized the apparent remoteness of Haida Gwaii. I then offer a commentary based around place, environmental shape, maritime landscape theory, and locational centrality within complex coastlines.

MacLellan, Jessica (University of Arizona), Takeshi Inomata (University of Arizona) and Daniela Triadan (University of Arizona)

[61] The Foundation of a Very Early Maya Ceremonial Center: Investigations at Ceibal, Guatemala, Since the Harvard Seibal Project

The lowland Maya center of Ceibal was first investigated in the 1960s, by the Harvard Seibal Project, which showed that Ceibal was founded surprisingly early, by 900 B.C. Building on Harvard’s work, the
Ceibal-Petexbatún Archaeological Project has conducted further excavations at Ceibal, focusing on the site’s earliest components. Takeshi Inomata and colleagues discovered that a formal public plaza was constructed at the site’s foundation, around 1000 BC, and that Ceibal’s founders were influenced by non-Maya settlements to the west, in Chiapas. The E-group complex at Ceibal is one of the earliest known in Mesoamerica. Early domestic areas have also been uncovered. In addition, Inomata has refined Jeremy Sabloff’s original ceramic chronology using new carbon dates. Ceibal’s initial ceremonial space and public rituals – including Olmec-style greenstone axe caches – set it apart from the majority of early Maya sites, such as Cuello, which began with small domestic structures and developed public spaces over time. New data from Ceibal have dramatically changed our understanding of interregional interactions within Mesoamerica during the Middle Preclassic period.

Macrae, Scott [302] see Demarte, Pete

Macrae, Scott (University of Florida), Pete Demarte (Trent University) and Gyles Iannone (Trent University)
[335] Changes in Scale and Survey in the Maya Subarea
The scale of archaeological survey has significantly changed over the past few decades. It is imperative to understand how these changes of scale and methodology have influenced research. The primary motivation for changes is the development of new technologies and techniques. Surveyors in the Maya subarea have often been at the forefront of these changes. This paper addresses the historical development of survey in Belize, identifying important developments and consequent changes in the research questions. To address recent advances, the ancient Maya center of Waybil located within dense tropical forest of western Belize provides an excellent case study. Over several years Waybil has been subjected to a variety of different survey methods, progressively increasing the scale of analysis. Survey methods utilized at Waybil include tape and compass, theodolite, total station, and recently LiDAR imagery. Examining how survey progressed at Waybil provides insight into how different methodologies facilitated different research questions and ultimately influenced the interpretation of both settlement and agricultural strategies. Archaeologists today have access to powerful survey techniques increasing the scale of analysis. This makes it ever more important to understand how changes in scale affect not only what questions are asked but also what interpretations are made.

Macri, Martha [193] see Munson, Jessica

MacWilliams, A. C. [47] see Hard, Robert

Madden, Michael [152] see Barber, Michael

Madsen, Christian (The National Museum of Denmark) and Jette Arneborg (National Museum of Denmark)
[29] The Farms of Hunters in Norse Greenland
The settlements of the Greenland Norse lasted from c.980-1450 A.D., throughout their existence constituting the ultimate geographical and environmental frontier of Northern Europe. Through the Vatnahverfi-Project, research on settlement and dietary patterns of the Norse has shown how they were quick to adapt to local conditions and resource availability, resulting in settlement and economic patterns quite distinct from elsewhere in the North Atlantic. Our research suggests that these transformations were partly driven by climatic deterioration, but primarily as these exacerbated other already existing societal structures: low population densities and increased isolation from the European networks on which the Norse depended could have left them increasingly vulnerable to change in spite of their apparent economic adaptability.

In our new ongoing research project Diet, Health, and Social Status in Norse Greenland - Human Securities in a Changing World we investigate new and detailed combined evidence of dietary,
organizational, and economic developments in the Norse settlements to explore what ‘here and now’ solutions were available to the Norse, the responsive range of their cultural toolbox and societal setup to change, or even transformation, and how human strategies and solutions impact the individuals and society, in one way or the other.

Madsen, Christian [29] see Simpson, Ian

Madsen, Mark (University of Washington) and Carl Lipo (California State University at Long Beach)

[193] Cultural Transmission of Structured Knowledge and Technological Complexity: Axelrod’s Model Extended

Cultural transmission models are coming to the fore in explaining increases in the Paleolithic toolkit richness and diversity. Analyses suggest that diversity increased due to relaxation of conformism, due to the effects of demographic expansion on cultural diversity, and the effects of extinction and recolonization in metapopulations. During the Paleolithic, however, technologies increase not only in terms of diversity but also in their complexity and interdependence. As Mesoudi and O'Brien (2008) have shown selection broadly favors social learning that is hierarchical and structured, rather than information which is piecemeal and independent. The addition of structured information acquisition potentially explains how the complexity of technology changes along with diversity. Here, we introduce a variant of Axelrod’s model of cultural differentiation, modified such that homophily and conformism refers to the content or "semantics" of traits, instead of simply their frequencies. We examine the conditions under which structured suites of traits develop and differentiate in the model, which can represent the chains of prerequisites, "background" information, and local specializations characteristic of real technology traditions. Our results point to ways in which we can build more comprehensive explanations of the archaeological record of the Paleolithic as well as other cases of technological change.

Magargal, Kate

[207] Fetching Firewood: Exploring the Relationship between Site Locations and Fuel Sources

Access to environmental resources is an important factor in determining prehistoric settlement decisions. The location of wood resources, for example, was important to societies with wood-based architecture. Access to woody fuels should also be a constraint for populations subsisting on cooked foods. A more detailed understanding of the distribution of temporary camps and habitation sites relating to the probable distribution of plant communities drawn from historic maps may provide important insight into site location factors relative to fuel sources. This study examines archaeological site distributions as a function of historic vegetation. The results provide insights into the ecological constraints individuals face within variable environmental landscapes.

Magdalena, Matczak (University of Poznan)


In my paper I present a view on emotions from a social bioarchaeological perspective. I present skeletons with markers associated with diseases from the sites of the early medieval (10th–13th century) Kaldus in Poland. The research questions are: 1) How to find emotions which are hidden in the skeletons? Such emotions might include: fear of the ill, empathy and compassion for them, sadness and sorrow after the bereavement, aggression toward outcasts, hope for healing, respect for the deceased, anxiety etc. 2) How to investigate social relationships between the ill and the healthy? Understanding the emotions of the healthy towards the ill might help clarify the social status of the ill in past communities. In terms of archaeological research, cultural analysis of the so-called anti-vampire or atypical graves might examine the relationship between illness and emotions. Specifically, the setting of the body in the grave might show hidden or explicit emotions of the living toward the dead.

Magee, Peter (Bryn Mawr College, Department of Archaeology)

[67] Discussant
Magennis, Ann

[292] Dietary Implications of Exchange from Kichpanha, Belize

This paper reports the results of analysis of skeletal and dental pathological conditions and stable carbon isotope ratios derived from collagen and tooth enamel from Kichpanha, Belize. The site was occupied from the Middle Preclassic through the early Postclassic, but the greatest number of skeletons are associated with the Late Preclassic and Late Classic. Maize was an obvious part of the diet throughout the occupation, but protein sources are derived from meat and aquatic sources. Exchange or trade must have occurred for residents of Kichpanha to acquire the aquatic protein sources.

Magoon, Dane (JPAC-CIL), Brianna Maguire (New Mexico State University) and Stephanie King (Virginia Commonwealth University)

[306] A Bioarchaeological Analysis of Late Prehistoric Health and Diet at the Hatch (44PG51) and Claremont (44SY5) Sites

The Coastal Plain of Virginia provides a highly dynamic environmental context that contains a diverse array of potential dietary resources. This study provides a bioarchaeological assessment of overall health and diet for two sites located on the south side of the James River: the Hatch (44PG51) and Claremont (44SY5) sites. The assemblages provide a unique opportunity for comparative study, representing different portions of the Late Woodland period with marked differences in mortuary patterning. The Hatch site (MNI = 36) dates to the first half of the Late Woodland period (A.D. 900 to 1250) and the burials were mostly single, primary interments. Claremont Ossuary 1, a secondary burial deposit (MNI = 14), likely dates to the second half of the Late Woodland period (A.D. 1250 to 1607). Both sites had ready access to a variety of marine, riverine, and terrestrial foods, and span the period when maize is assumed to have become a dietary staple throughout Virginia. This study focuses upon the analysis of carious lesions, linear enamel hypoplasias, cribra orbitalia, and porotic hyperostosis to develop a more refined understanding of the potential introduction and impacts of maize agriculture within the Middle Atlantic region.

Maguire, Brianna [306] see Magoon, Dane

Mahan, Shannon [13] see Lail, Warren

Maher, Lisa [149] see Jones, Matthew

Maher, Lisa (University of California Berkeley)

[236] Occupying Wide Open Spaces? Late Pleistocene Hunter-Gatherer Activities in the Eastern Levant

With a specific focus on eastern Jordan, the Epipalaeolithic Foragers in Azraq Project explores changing hunter-gatherer strategies, behaviors and adaptations to this vast area throughout the Late Pleistocene. In particular, we examine how lifeways here (may have) differed from those in surrounding areas and what circumstances drew human and animal populations to the region. Integrating multiple material cultural and environmental datasets, we explore some of the strategies of these eastern Jordanian groups that resulted in changes in settlement, subsistence and interaction and, in some areas, the occupation of substantial aggregation sites. Four years of excavation at the aggregation site of Kharaneh IV suggest some very intriguing technological and social on-site activities, as well as adaptations to a dynamic landscape unlike that of today. Here we discuss particular aspects of the Kharaneh IV material record within the context of ongoing palaeoenvironmental reconstructions and place these findings in the wider spatial and temporal narratives of the Azraq Basin.

[236] Chair
Mahoney, Shannon (ASM Affiliates)

[125]  *Post-Emancipation Community Building at Charles’ Corner in Tidewater Virginia From 1862-1922*  In 1918, nearly 11,000 acres of land on Virginia’s lower peninsula were commandeered in order to create the Yorktown Mine Depot, now known as the Yorktown Naval Weapons Station (NWSY). Charles’ Corner was one of three neighborhoods on property appropriated by the U.S. Navy and had been a majority African American settlement established during the Peninsula Campaign of the Civil War. Superstructures were razed soon after residents left; however, the homesteads were left relatively undisturbed for the last ninety years. As a result, the archaeological sites encapsulate a critical period of African American history during the socially and economically difficult transition following Emancipation. Phase II archaeological assessments conducted in 2008 focused on four sites representing thirteen different households at Charles’ Corner. Recovered artifacts and recorded features, including brick-lined wells and a modified spring, serve as a testament to the African American families who were able to build a community and become economically self-sufficient in the Jim Crow South.

Majewski, Teresita (Statistical Research, Inc.)

[151]  *The Business of CRM: Achieving Sustainability and Sustaining Professionalism*  The development of cultural resource management (CRM) as a profession/industry intensified in the United States after key federal legislation was passed in 1974. After several decades, practitioners realized that already established professional organizations, with more scholarly roots, could not fully serve the complex needs of a "profession" that was intimately tied to both heritage advocacy and business. The American Cultural Resources Association (ACRA) was formed in 1995, and today, with over 150 firms as members, is a hybrid between a professional organization and a trade association. ACRA’s goal is to be the voice of the billion dollar CRM industry. The association’s efforts to provide members with the tools to professionalize and sustain the industry are exemplified by the services it provides: e.g., building a solid image for the industry; supporting and promoting CRM at the national level by "educating" legislators about preservation and the industry; disseminating information via conferences, networking opportunities, workshops, newsletters and updates, printed materials, and the Internet and the World Wide Web; establishing and maintaining relationships with organizations having common or overlapping purposes; collecting metrics on the industry and its practitioners; and establishing and encouraging best practices.

[100]  *Discussant*

Makarewicz, Cheryl [149] see Contreras, Daniel

Makowski, Krzysztof, Iván Ghezzi (Instituto de Investigaciones Arqueológicas, Perú), Hector Neff (California State University at Long Beach) and Gabriela Oré (Pontificia Universidad Católica del Perú)

[19]  *Networks of Ceramic Production and Exchange in the Late Horizon: Characterization of Ceramic Styles and Clays on the Central Coast of Peru*  

Our goal is to reconstruct networks of ceramic production and exchange during the Late Horizon through LA-TOF-ICP-MS, INAA, and petrographic characterization of ceramic styles and clay sources from the central coast of Peru. The Inca empire created the conditions of a mini world system. The products and networks of exchange connected heterogeneous populations, and thus the identities of producers, traders, and builders of public and domestic spaces did not coincide. Imperial ideology materialized in official architecture and paraphernalia, but not always in vernacular versions. Its producers followed local and regional styles and technologies. We believe the pottery styles preceding the Inca conquest were not that affected by the new scenario. Besides, the empire’s political complexity was reflected in a variety of styles, due to the co-existence of local traditions, with production that imitated foreign styles, and the forced displacement of potters. Our research identifies such scenario on the central coast. Focusing on technological traditions, which are more resistant to change, we evaluate hypotheses about multi-ethnic communities and multi-stylistic ceramic production by contrasting compositional groups with clay sources and pottery pastes, wares, and styles previously defined by
Malainey, Mary (Brandon University), James Skibo (Illinois State University) and Timothy Figol (Brandon University)


The analysis of archaeological pottery has long been recognized as a valuable endeavor because the combination of functional and stylistic attributes provides a wealth of information about the vessel and its maker. Intra- and inter-site comparisons are essential; however, grayscale images of pot fragments may not convey the salient features of vessels. Access to institutional pottery collections can be difficult, expensive and time-consuming. We are addressing these issues by performing morphological, use-alteration and stylistic analyses of individual vessels and creating precise three-dimensional vessel models using computer-assisted design (CAD) software. “Whole vessel” morphological analysis is then performed on the models using the CAD program. We are developing a web-based, interactive searchable pottery database to share our results with others. Each record will include high resolution digital images and detailed descriptions of vessel morphology, decoration and evidence of function obtained through residue analysis and use-wear analysis. Relevant published sources about the site and pottery typology will be included. Our training materials showing how to conduct the detailed analyses and generate accurate CAD models of whole or partially reconstructed vessels using software that is free-of-charge to students and educators are available to interested researchers.

[322] Chair

Maldonado, Ronald (Navajo Nation Historic Preservation Dept)

[18] The Navajo-Gallup Water Supply Project as seen from the Navajo Nation Historic Preservation Department

The Bureau of Reclamation’s Navajo-Gallup Water Supply Project (NGWSP) will bring domestic water to the eastern portion of the Navajo Nation as part of the New Mexico Water Settlement. Construction of the pipeline will directly impact hundreds of ancient and modern cultural resources within the San Juan Basin, a landscape that figures prominently in Navajo clan origin and ceremonial histories. Unlike many previous archaeological projects that have examined a relatively small area, construction of NGWSP will cross the western, southern, and eastern portions of the San Juan Basin. This will allow for a broader examination of the cultural resources across the entire basin. The success of the project in avoiding damage to sites important to Navajo traditions will rely on planning through consultation with the Historic Preservation Department. Perhaps the greater value of the project to the Navajo Nation is that it will provide the Historic Preservation Department with the means to develop a digital database for cultural resource information. In this way, the project will have a long term effect that will benefit the whole reservation.

Maldonado, Blanca (El Colegio de Michoacan, A.C.), Diego Salazar (Universidad de Chile) and Thilo Rehren (UCL Qatar)

[211] Precolumbian Mining in the Atacama Region of Northern Chile: Present Knowledge and Future Research

The second-highest mountain range in the world, the Andes are particularly rich in mineral resources and have given origin to a long tradition of mining and metallurgy, which has led to one of the most important metal industries in the world. While a variety of minerals for gold, silver, and tin occur in the region, copper was and has continued to be the most important metal produced in the south central Andes to this day. Richest veins of copper ore are found throughout the Atacama Desert, where they are broadly distributed as a product of ancient hydrothermal actions. Pre-Columbian populations made various uses of these and a wealth of other minerals, as early as the second millennium BC. The evidence for ancient mining in the Atacama region of northern Chile is reviewed, and directions for future research in the area are discussed.
Malischke, LisaMarie (University of Alabama, Tuscaloosa)

[221] The Short-Lived Site of Fort St. Pierre (1719-1729) in Comparison to Other Early Colonial Louisiane Locales throughout the Mississippi River Corridor.

Fort St. Pierre (1719-1729), located near present-day Vicksburg, Mississippi, was a short-lived and lightly manned frontier fort. Absent were an accompanying French settlement and mission. The site was excavated in the mid-1970s, and the whole assemblage was recently re-evaluated using correspondence analysis. Though correspondence analysis is an interesting tool for examining and comparing whole assemblages, it is best used as a starting point for the discussion of the uniqueness of each site, the forms of adaptation and adjustment adopted by the inhabitants, and how material culture both shaped their lives and was shaped by their individual stories. Several defining artifact classes characterize the site of Fort St. Pierre in comparison to the assemblages from other early Mississippi River corridor locales such as: French forts with civilian settlements, private French plantations, French entrepôts, and contemporaneous Native village sites. Each of these site types have artifact classes that characterize their overall artifact assemblages. Correspondence analysis compares similarities and differences among all of the sites while simultaneously comparing the artifact classes. The results of this process were confirmed by both cluster analysis and seriation analysis, and will be discussed in this presentation.

[221] Chair

Malloy, Maureen (Society for American Arch)

[96] Archaeology Education in the U.S.: Past, Present, and Future

Archaeology education has been a part of archaeological practice in the U.S. for the past 30 years and is firmly rooted in the discipline's widely shared belief that public education about archaeology is key to protecting and preserving sites. But to be truly effective, archaeology education efforts must look beyond our own discipline's needs and focus on meeting the needs of educators and other publics. It must be situated in, informed by, and evolve with theory and practice in the emerging subdiscipline of public archaeology. As a shared endeavor designed to meet common goals, archaeology education today can both inform and help solve contemporary problems beyond the looting and destruction of archaeological sites. This paper provides an overview of the history of archaeology education as it has been practiced in the U.S. since the 1980's. The development of the award-winning curriculum guide "Project Archaeology: Investigating Shelter," serves as a model of best practice in creating formal archaeology education materials today.

Malloy, Kevin (University of Wyoming) and Derek Hall

[201] Conspicuous Consumption as Conservation??: The Effects of Climatic and Environmental Change on Park Landscape Design in Medieval Scotland, AD 1100–1600

Unlike their English counterparts, research into the emergence, function, and symbolism of medieval parks in Scotland has been woefully neglected. Parks emerge in the late twelfth century during the height of the Medieval Climate Anomaly, remain popular through the Little Ice Age, and continue to be used in some form up to the present day. Until recently, descriptions of these sites tended to present parks as one-dimensional, expensive, aristocratic deer hunting arenas, rarely taking into account the wider environmental, climatic, and social context of the period, or any additional site functions. Through a series of archaeological excavations, archival research, and environmental examinations, this ongoing study attempts to demonstrate that parks were complex in design by exploring the link between their emergence and functions and the environmental and climatic conditions of the medieval period. This study has found evidence that changing climate and environment played a role in the social issues that led to deforestation and timber depletion, leading some parks to become an avenue for conspicuous consumption through the limiting of resource access, while simultaneously becoming a means of
woodland conservation.

**Maloney, Tim (Australian National University, School of Archaeology and Natural History)**

[217] *Detecting Changing Technological Investment in Bifacial Point Technologies from Northern Australia*

Analyses of Australian stone tool assemblages frequently depict a two phase industrial sequence, where major change in technological investment is represented only by the appearance of new artefact morphologies in the Holocene, such as bifacial points. Archaeologists working in the Kimberley region of northern Australia have focused lithic artefact studies on the production of pressure flaked points or Kimberley Points. The manufacturing process of Kimberley Points, involving a staged sequence of preform production and different methods of pressure flaking to the margins, was observed ethnographically. Reduction sequences and morphological variability of these aesthetically amazing bifacial points have seldom been contrasted with the morphological range of direct percussion point and retouched flake technologies. Temporal and technological associations between Kimberley Points and direct percussion points are poorly understood. New data from surface and excavated assemblages offers a robust explanation of bifacial point variability within a framework of technological organisation and reduction thesis data. New radiocarbon dates suggest a major shift in technological investment, from an emphasis on maintainable and flexible direct percussion points from around 5000 BP, to a later development of a specialised, staged, and teleological production process of Kimberley Point manufacture beginning around 1000 years ago.

Maloney, Tim [298] see Marwick, Ben

**Maloof, George (Centro de Investigación Arqueológica-PH El Diquís)**

[288] *Long-Term Social Stability in Precolombian Costa Rica*

Costa Rican archaeology has long been characterized by very prolonged cultural phases with relatively subtle changes in the ceramic complexes which represent each phase. There have been two general explanations for this; first, that there still has been too little research with too few radiometric dates to be able to divide these phases further, and, second, that these long phases are actually representative of the Pre-Colombian societies. Gradual changes in some ceramic types as well as temporal differences in the appearance of these changes between types point to relatively stable societies that existed over the course of 3000 years of permanent settlement. However, as evidenced by changes in architectural practices and the increase in the presence of sumptuary goods, these societies gradually grew more complex, evolving from egalitarian horticulturalists into complex chiefdoms that most probably boasted the existence of a warrior class. Nevertheless, even these seemingly major changes were very gradual. This paper will present data from recent excavations as well as bibliographical research that supports this model and demonstrates social stability in Pre-Columbian Costa Rica.

**Malpass, Michael (Ithaca College)**

[38] *Sonay: A Reassessment of Its Age and Implications for Coastal Wari Sites*

Sonay is considered to be a small Wari center in southern Peru. It consists of an orthogonal compound with very few artifacts. It was dated to the late Middle Horizon by two calibrated dates in the tenth century and architectural similarities to other Wari sites. However, the late dates and absence of good Wari ceramics are an issue. Colleagues have suggested the site represents an attempt by a later local lord to copy Wari material culture in order to improve her or his status. This paper will review the evidence for Wari affiliation and consider the alternative hypothesis. The broader issue to be addressed is how much and what kind of data are needed to establish cultural affiliations. Are some data types given preference over others? Other late coastal or near coastal sites will be discussed for comparison.

Manahan, T. Kam [305] see Munro-Stasiuk, Mandy

**Mandel, Rolfe (Kansas Geological Survey)**

A strong case is made in this paper that the most important factor contributing to the rapid development of geoarchaeology over the past 35 years has been the growth of federally mandated cultural resource management (CRM), and that the Great Plains has been at the epicenter of this development. More than 95% of the archaeological investigations conducted in the Plains since the late 1960s have been tied to CRM projects. During the first decade of CRM, geoscientists were often limited to describing soil profiles at sites and/or providing terrain analysis for survey areas. However, by the 1980s geoarchaeology moved beyond the descriptive stage: geoscientists were providing archaeologists with insights about the nature of the archaeological record. Today, earth-science specialists involved with CRM often are called upon to map landform sediment assemblages and determine the potential for buried cultural resources. At individual sites, they are usually expected to interpret depositional environments and site-formation processes, and to reconstruct paleoenvironments. Hence, as the needs of CRM evolved, geoarchaeology evolved from something done by a specialist at an old and/or deeply buried site to a cooperative effort among archaeologists and earth-science specialists in a wide variety of archaeological contexts.

Chair

Mandel, Rolfe [24] see Dempsey, Erin

Maniery, Andrea (University of Nevada, Reno)

[262] The Alluvial Geochronology of Pharo Village and Implications for Cycles of Site Occupation and Abandonment

The results of geoarchaeological investigations at Pharo Village, a Fremont hamlet situated on a large alluvial fan in central Utah, are discussed in order to reveal ways in which changes in alluvial dynamics contributed to the rise of Fremont farming there as well as the site’s eventual abandonment. Cutbanks along Pharo Creek, the meandering stream adjacent to Pharo Village, were mapped and sampled during fieldwork in 2013. Field and subsequent laboratory analysis allowed reconstruction of the alluvial geochronology at the site. Carbon samples from mapped sections and buried paleosols were radiocarbon dated and correlated to additional dates generated from the site’s archaeological collection housed at the Natural History Museum of Utah. Buried soils examined in mapped sections indicate a period of stability on the landform where Pharo Village is located, and could explain when and why the Fremont utilized this location. The relationship of high energy flood deposits above the buried soil contributes to discussion of site abandonment. From these data, interpretations are made concerning the contributions of local alluvial shifts to the overall termination of Pharo Village occupations and by association, the larger Fremont Complex around 600 BP.

Manion, Jessica (University of Calgary)

[153] Memory and Manipulation in the Greater Nicoya

Ceramic vessels from the Greater Nicoya region of Central America are characterised by great variation occurring throughout several periods. The form and decoration of these vessels are related to their cultural associations, and the examination of the materialization of social memory presented in these vessels helps to elucidate the political landscape presented by different factions and agents. Migrations into the area are cited as the impetus behind changes in iconography and other vessel characteristics between time periods, and these cultural differences are visible through changing aspects of memorialisation, and even erasure, as evident in the material record. Analysis of a collection of vessels from the region reveals how the social memory was presented and manipulated over time, and can give clues as to the identities of the people controlling the formation of social memory within the Greater Nicoya region.

Manne, Tiina (University of Queensland) and Kane Ditchfield (University of Western Australia)
Barrow Island Arid Coastal Economies of the Pleistocene and Early Holocene

Barrow Island archaeofaunas provide unique insight into understanding long-term arid coastal economies of Australia's northwestern coast. The island's limestone geology, coupled with its large well-protected caverns, is highly unusual in northern Australia, which is dominated by acidic sandstones creating poor preservational environments for bone. The exceptional preservation of skeletal material at Barrow is evidenced by the recovery of delicate bird tracheal rings and fish cranial elements. The Barrow Island Archaeology Project thus provides an exciting opportunity to explore a range of questions regarding human behavior, including responses to eventual island adaptation. Preliminary findings from the 2013 excavation season indicate that early Holocene economies consisted of mixed marine-terrestrial faunas, while the Pleistocene assemblage was markedly more terrestrial in nature, as the area became part of the coastal hinterland ranges. However, despite significant environmental shifts and increased distance to the coastline during the Pleistocene, people continued to utilize marine resources both as dietary and utilitarian items.

Mannheim, Bruce (University of Michigan) and Alison R. Davis (Isaacson, Miller)

Cranial Modification in the Central Andes: Person, Language, Political Economy

Our goal is to interpret the practice of cranial modification in terms of what we know archaeologically, historically, and ethnographically about the relationships between developing personhood, place, language and social differentiation (some which have endured until now). We will track this practice in the south central Andes along a diachronic axis from the Formative period until the time of the European invasion, tracing changes in a child care practice that became an index in an ideological complex that connected personhood to place and language within an "organization of diversity".

During the Formative period in Cusco, a single ubiquitous child care practice produced a variety of non-standardized head shapes that can neither be categorized by form nor used by archaeologists as proxies for cultural or linguistic difference. In contrast, in Inka and early colonial contexts, varied techniques crafted standardized and distinct head shapes that provide one of the few forms of material evidence for the ways in which cultural and linguistic differentiation played out in everyday settings. Our goal, then, is to understand cranial modification as the outcome of social processes differentiated by locality, gender, and age rather than simply as a classificatory device.

Manning, Katie (UCL, Institute of Archaeology)

Cycles of Change in Neolithic Animal Exploitation Strategies

The domestication of plants and animals facilitated major changes in human ecology, demography, and social organization. Despite the seeming advantages of domestication, however, it is clear the process was not a linear one. This paper explores the stability of early domestic economies in Neolithic Europe from the perspective of animal resource exploitation. We focus on a number of regional case studies, using over 400,000 animal remains to assess changing cycles in domestic vs wild animal resource exploitation. We present our results in relation to regional climatic events and explore potential links between animal exploitation strategies on the one hand, and human population dynamics on the other.

Manning, Sturt [200] see Turkon, Paula

Manning, Nikki (University of Montana), Kelly Dixon (University of Montana, Missoula), Pei-Lin Yu (National Park Service Rocky Mountains Cooperative), Mary Bobbitt (University of Montana, Missoula) and Ayme Swartz (University of Montana, Missoula)

What Lies Beneath? The Missoula Historic Underground Project

The American West's urban undergrounds are laced with mystique and lore. Well-known historic undergrounds exist in cities such as Portland, Seattle, and Sacramento. Tales exist of secret underground passages to houses of prostitution, Chinese opium dens, and Prohibition-era alcohol
smuggling operations. In some cases, archaeological evidence supports these stories, but it appears that many underground spaces were less nefarious than imagination might suggest. In Missoula, Montana, an urban archaeological survey was conducted to investigate subterranean archaeological features including steam tunnels, sidewalk voids, and a mix of mundane and clandestine basement spaces. Archival, architectural, and archaeological evidence, along with local collective memories were integrated to document extant physical remains of Missoula’s urban underground landscape and to explore how the political and social climate of early Missoula may have affected the use of space and the built environment. The results of this research is being utilized to understand how local cultural heritage can be used to develop preservation plans for the remaining physical features of urban planning and urban ecosystem transformations in the American West.

Mannino, Marcello A. (Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany), Sahra Talamo (Max Planck Institute for Evolutionary Anthropology), Renata Grifoni Cremonesi (Università degli Studi di Pisa, Pisa, Italy), Francesco Mallegni (Università degli Studi di Pisa, Pisa, Italy) and Michael P. Richards (University of British Columbia, Vancouver, Canada)

[241] Plenty More Fish in the Sea! An Isotopic Investigation of Hunting and Gathering at Grotta Continenza (Italy) during the Pleistocene/Holocene Transition

Hunter-gatherers increase nutritional yields per land unit by raising predation pressure on specific mammalian herbivores, and extracting more food from their carcasses, and/or by consuming a wider breadth of progressively harder-to-obtain plant and animal resources. To investigate the levels of specialization, diversification and intensification attained by Mediterranean foragers at the Pleistocene/Holocene transition, we undertook carbon and nitrogen isotope analyses on human and faunal bone collagen from Grotta Continenza. The isotopic data show that hunter-gatherers in central Italy acquired their dietary protein mainly from terrestrial herbivores feeding on C3 plants. Mesolithic individuals, however, have higher carbon and nitrogen isotope values than Upper Palaeolithic ones, due to high levels of fish consumption by the former. The most likely sources of fish protein were trout of the species Salmo trutta, introduced by the thousands to Grotta Continenza by its human occupants. Numerous specimens of S. trutta yielded carbon isotope ratios significantly higher than those of fish living exclusively in freshwater habitats, indicating that this trout was anadromous in the Mediterranean during the Pleistocene/Holocene transition. Our findings have implications for understanding the productivity of non-analogue Mediterranean environments for prehistoric foragers, as well as their potential for intensification and diversification in resource exploitation.

Mansilla, Josefina [25] see Pijoan, Carmen

Mansilla, Josefina, Carmen Pijoan (Instituto Nacional de Antropología e Historia Méxi) and Pedro Bosch (Universidad Nacional Autónoma de México)

[164] Huesos humanos del México antiguo con diferentes pigmentos: análisis e interpretación cultural

En el México antiguo, se han encontrado huesos humanos con pigmentos rojos, azules, negros y amarillos. El objetivo de este estudio es analizar, comparar y discutir los resultados de muestras óseas preispánicas con distintos colores de Jaina, Campeche; Cueva de Los Frailes, Baja California Sur; Chupicuaro, Guanajuato; Tlatelolco, ciudad de México y Tlapacoya, Estado de México. Es importante conocer si los colores, analizando el contexto de los entierros, se deben a diagénesis por reacción del pigmento original con otros elementos (compuestos) del entorno, si son producto de una coloración como parte de un tratamiento mortuorio intencional, o también es posible que la coloración sea parte de un proceso accidental. Las técnicas utilizadas para el análisis fueron: fluorescencia y difracción de rayos X, microscopio electrónico de transmisión, de barrido y de fuerza atómica. Se demuestra que el pigmento rojo en las muestras es hematina, sólo en Jaina el pigmento rojo resultó ser cinabrio. El amarillo de Jaina fue originalmente rojo y las condiciones de su entorno lo transformaron a amarillo. El color negro en los huesos de Tlatelolco es bitumen. Con base en estos resultados se proponen posibles explicaciones de cómo los diferentes colores quedaron plasmados en los esqueletos.

Manthi, Fredrick [209] see Ferraro, Joseph
Manzanilla, Linda (U Nacional Autonoma de Mexico) [21]  

Mobility and Multiethnic Neighborhoods in Teotihuacan: The Teopancazco Case  

Teotihuacan in Central Mexico was a huge planned settlement that housed a multiethnic population. In ethnic neighborhoods in the periphery archaeologists have detected people and behaviors that refer to Oaxaca, Michoacan and Veracruz. Nevertheless, another pattern is emerging where Teotihuacan intermediate elites interact closely with people from Tlaxcala, Hidalgo, Puebla, Veracruz and other areas in a way that suggests the presence of foreign elite individuals, specialized foreign craftsmen, foreign carriers and porters, particularly in the Teopancazco neighborhood center excavated by Linda R. Manzanilla and her team (1997-2005). In this neighborhood population, some stable isotope and paleopathological results suggest that some of these individuals displayed dietary stresses when they were young, and some may have come to the city with caravans moving between Teotihuacan and the Gulf Coast, in order to have a better diet and more opportunities to work. The city needed labor and presented itself as a land of opportunities and abundance. Nevertheless, some of these workers were based in the neighborhood center perhaps as full-time craft workers, who often stood many hours in a squatting position, sometimes with no exposure to the sun. Nevertheless, most of them did not return to their homeland.

[63]  Discussant  

Manzanilla Naim, Linda R. [25] see Alvarado Viñas, Luis  

Marabea, Christina [332] see Gilstrap, William  

Maran, Joseph [5] see Day, Peter  

Marchand, Grégor (Centre National de la Recherche Scientifique (CNRS)) and Thomas Perrin (Centre National de la Recherche Scientifique (CNRS)) [201]  

Why This revolution? Explaining the Technical Shift of the Late Mesolithic in Western Europe (7th millennium cal B.C.)  

During the 7th millennium cal B.C., a major change affected the composition of Mesolithic lithic industries throughout Western Europe (except the British Isles) and North Africa. This change took place rapidly 1500 years before neolithization and is one of the major mysteries of Old World prehistory. A wide range of archaeological analyses has shown the spread of a combination of new techniques, new types of tools, and new functions. In this paper we examine the links between these large-scale phenomena and the climatic events of the Holocene, as revealed by recent international research programs.

Marek-Martinez, Ora (Navajo Nation) [97]  Discussant  

Marie, Shelby [285]  

Architectural Characteristics of the Public and Private Sphere of Panquilma  

This paper will examine the architectural aspects of the public and private sectors at the Panquilma excavation site. It is based upon the findings of recent excavations as well as maps to illustrate the possible similarities and differences of the two sectors by analyzing the construction materials and techniques, the use of space, and the inhabitants which occupied the structures.

Marin-Arroyo, Ana Belen [246] see Straus, Lawrence  

Marinkovich, Erik (Humboldt State University), Sarah Boudreaux (University of Texas at San Antonio), Nicole Chenault (Humboldt State University), Robert Gustas (University of Alberta) and Ty Swavely (SWCA Environmental Consultants)
A Preliminary Analysis of a Sacbe System in Northwestern Belize

The scope of this research is to provide a preliminary geospatial and comparative analysis of an ancient Maya sacbe system associated with the Dos Hombres to Gran Cacao Archaeology Project (DH2GC) led by Dr. Cortes-Rincon in northwestern Belize. A small section of this linear feature was discovered at the end of the 2012 field season. During the 2013 field season, extensive survey and geospatial data collection was conducted on the sacbe system and the surrounding environment. Post-processed data analysis displays spatial relationships between the sacbe system, neighboring archaeological sites, and nearby natural resources. Interpretations of spatial relationships and labor estimates are hypothesized using statistical labor equations based on volumetric measurements for this linear feature. This data is compared to the current population estimates of the immediate vicinity in order to determine the size and availability of the required work force. This report also provides a regional comparative analysis of construction methods, raw materials, significance, and the use of these features by communities in the northwestern Belize.

Marino, Marc (University of Central Florida), Lucas Martindale Johnson (University of Florida) and Nathan Meissner (Southern Illinois University Carbondale)

'Producer-Consumer' Revisited: A Postclassic View of Stone Tool Production from Santa Rita Corozal, Belize

The ‘producer-consumer’ model of lithic tools between sites outside of the Belizean Chert Bearing Zone and the site of Colha has been well established for the Maya Preclassic to Terminal Classic Periods (C.A. 1000 B.C - A.D. 800). Unfortunately, published lithic research on this region during the Postclassic Period (A.D. 900-1539) is scarce, and it is increasingly clear that producer-consumer models may be inappropriate for this time. A recent examination of 71 chert and chalcedony small side-notched points, point preforms, and 1,060 pieces of associated manufacturing debitage from one household residence at the Postclassic site of Santa Rita Corozal, Belize, reveals the presence of cortical flakes, prepared cores, flake blanks, and bifacial thinning flakes. Such information does not coincide with earlier producer-consumer models of Northern Belize that emphasize production occurring outside of site centers. The analysis of the complete Postclassic lithic assemblage from Santa Rita Corozal, including an additional 151 projectile points and associated reduction debris located throughout the site, demonstrates the need to generate new models of stone tool production for the Postclassic Period at this Northern Belizean locale.

Marino, Matt (Washington State University) and Justin Hopt (Washington State University)

Sacred or Secular? Two Perspectives from a Northwest Coast Shell Midden at Dionisio Point Locality, Galiano Island, B.C.

Studies of shell accumulations tend to focus on themes of subsistence practices and local ecologies or ceremonial activities and deposition, but rarely do archaeologists give both ideas proper treatment. However, many middens in the Northwest Coast should be viewed as a conglomerate of different activities, both subsistence-based as well as ritual. This study examines midden deposits at Dionisio Point (DgRv-oo6) on Galiano Island, B.C., Canada, which contain both subsistence based features, seen in the thousands of intact and fragmentary fish and mammal bones, as well as ritual deposits seen in the form of human and dog burials. We consider multiple perspectives to examine this midden as both an area of refuse as well as an important ritualistic landmark. In this manner, we can gain information on local economics as well as ritual practices and how they articulate within the same depositional environment. This study thus presents us with an opportunity to reevaluate how archaeologists view middens on the Northwest Coast.

Mark, Robert [156] see Bates, Lennon

Marklein, Kathryn (The Ohio State University) and Sherry Fox (American School of Classical Studies at Athens)

A Family Affair? Contextualizing Biological Relatedness within Roman-Period Mass Graves at Oymaagac-Nerik, Turkey
During the second and third centuries CE, multiple mass graves were incorporated into the hoyOk at Oymaagar;-Nerik, adjacent to the nearby Roman town, Neocladiopolis (modern day VezirkoprO). Bioarchaeological investigations of skeletal remains from two mass graves have thus far precluded interpersonal conflict as the cause of this sudden mass death, while ancient DNA studies are being undertaken to incriminate or eliminate possible pathogenic agents. Despite the commingled state of human remains, physiological profiles have been constructed from preserved skeletal elements. Additionally, biological relatedness has been inferred from non-morphological traits (e.g., os naviculare). Current research of the Oymaagar; skeletal remains endeavors to illuminate the historical circumstances surrounding (and following) this population decline. For this study, specifically, the demographic and palaeoepidemiological profiles of two mass graves, 7384:009 and 7484:021, are compared within the scope of the [biological] family. The family unit is considered and interpreted within the sociobiological, sociocultural, and sociopolitical environs of Roman Oymaagar;-Nerik and the wider Roman world.

Marks, Anthony [26] see Rose, Jeffrey

Marks, Theodore (The University of Iowa), Grant McCall (Tulane University), James Enloe (University of Iowa) and Jordan Krummel

Preliminary Report on New Excavations at Mirabib, a Middle and Later Stone Age Rockshelter in the Central Namib Desert, Namibia

This paper provides a preliminary report on new excavations at Mirabib rockshelter, a Middle and Later Stone Age site in Central Namib Desert in west-central Namibia. This site was first excavated by Beatrice Sandelowsky in the late 1960s, providing important evidence of prehistoric human occupation of the hyper-arid regions of western Namibia. These early excavations focused on the LSA remains and succeeded in demonstrating surprisingly early and complex patterns of pastoralist economy prior to 1500BP. Our excavations offer some new perspectives on these findings, providing additional chronological information through AMS and OSL dating. We also consider both cultural and geological processes of site formation, as well as the changing nature of site use activities over time. Finally, we discuss the Upper Pleistocene MSA archaeological remains, which were only analyzed ephemerally during the original fieldwork activities due to limitation in terms of available dating techniques. Our findings confirm a substantial presence of humans with MSA technologies in the late Upper Pleistocene with unique forms of foraging behavior, representing adaptations to extreme regional environmental conditions.

Marlowe, Frank [16] see Raichlen, David

Marlowe, Frank (Lecturer, University of Cambridge, Biological Anthropology)

Hadzaland

The Hadza, hunter-gatherers of Tanzania, occupy an area of 4,000 km². There are about 1,000 Hadza who move several times a year. We researchers have asked individuals where the boundaries of Hadzaland are, a question which some can and do answer with ease and accuracy. One common feature is a lower elevation (< 1,700m), lower than that of surrounding tribes, where the Hadza say it is too cold. One location that is special has giant rocks that when slapped with the hand sound a bit like timpani drums. The most puzzling thing is that there are several places in Hadzaland with rock art, which is no longer created. When asked if the art was made by their Hadza ancestors, some say yes, many others say they have no idea. One thing Hadza do sometimes mark is bee hives. When the hive is almost ready to raid, a man often finds a good rock to place in the entrance of the hive to block entry by other animals until the honey is ready. They appear to make a claim of ownership, but other men will usually simply remove the rock and take the honey without any qualms.

Marquardt, William (New Mexico Highlands University)

Domestic Violence in the Ancient Puebloan World

Conflict, whether interpersonal or intergroup, often leaves its clear and dramatic imprint in the archaeological record, often visible in the form of burned structures, hastily abandoned sites, and
traumatic damage to skeletal remains. Violence in the pre-Hispanic Southwest has drawn the attention of a number of archaeologists over the years. However, among many Ancestral Puebloan cultures, the context of violence is poorly understood. Recent studies have begun to refute the notion of “the peaceful Puebloans” that was popular among archaeologists in the 1930s. However, little research has been devoted to the cultural context of violence among these peoples. Perhaps the least studied aspect of prehistoric violence is that directed toward women. At a number of Ancestral Puebloan sites throughout the Southwest – such as the La Plata Valley of northwestern New Mexico – there is a high incidence of traumatic skeletal injuries among women. Why or how these women came to be the victims of such violence is unknown. The purpose of this research is to investigate the incidences of violence through time and across space and to better describe explain the context of violence against women in the Ancestral Puebloan world of A.D. 750 to 1350.

Marreiros, Joao (NAP.FCHS. Universidade do Algarve (Portugal)), Eduardo Paixao (NAP. FCHS. Universidade do Algarve (Portugal)), Nuno Bicho (NAP. FCHS. Universidade do Algarve (Portugal)) and Juan Gibaja (Consejo Superior de Investigaciones Cientificas, I)

[116] Living and Hunting during the Mesolithic. Lithic Functional Analysis from the Cabeço da Amoreira Shellmidden (Muge, Portugal)
During the last decades, the Mesolithic shellmiddles of Muge (Central of Portugal) have been seen as the result of an intensive human ecological exploitation associated with the onset of the Holocene climatic shifts ca. 8200 ka cal B.P. Based on techno-typological patterns and artifact density from archaeological deposits, each shellmidden was linked to specific functionality, in a residential and logistic land-use strategy. Recently, new data from the site of Caber;o da Amoreira seems to show evidences of different diachronic functionalities and spatial organization, within and between sites.
One of the most interesting novelties is the presence of several archaeological horizons adjacent to the shellmidden deposit characterized by abundant lithic remains. In this paper we present preliminary lithic use-wear analysis from two loci: (1) shell mound and (2) one excavation area outside the midden, characterized by a rich archaeological horizon. Despite the initial idea that all human activities were conducted in the midden, this new data shows that surrounding occupation areas have been used as shellmidden support spaces. This data lead to new interpretations for shellmidden diachronic construction phases and intra-site settlement organization.

Marreiros, João [116] see Pereira, Telmo

Marsh, Laura (Stanford University), Isabelle Druc (University of Wisconsin) and Cesar Sara Repetto (Proyecto Arqueologico Chavin de Huantar)

Thin-section analysis yields information about the manufacture and origin of archaeological ceramic material. However, due to associated costs and destructiveness to samples, it is not feasible for overly extensive amounts of ceramic fragments. Therefore, careful selection of sherds plays a large role in determining the quality of the following analysis. In the case of the monumental center of Chavin de Huántar, Peru, the process of selecting samples for thin-section analysis to investigate ceramic origin and contact with contemporaneous sites began with choosing sherds for the preliminary macroscopic analysis. Key contexts were chosen based on the presence of Chavin-phase ceramics, diagnostic fragments, and various morphological and decorative traits that suggested significant styles or patterns of use or purpose. Sherds were analyzed for form, decoration, treatment, and other basic attributes. A digital USB microscope was then used to examine and photograph the pastes, which were then grouped by similarities in matrix and inclusions. From within these groupings, samples with sufficient diagnostic information from the macroscopic analysis, large enough size, and enough plain area to allow for cutting without too much loss, were chosen for thin-sectioning, in order to achieve the most representative sampling of pastes possible from the contexts under study.

Marsh, Ben [41] see Johnson, Peri
Marsh, Anke (Institute of Archaeology, UCL) and Mark Altaweel (Institute of Archaeology, UCL) [257]  

**Palaeoenvironmental Investigations in the Shahrizor Plain, Iraqi Kurdistan**

In 2011, University College London initiated a project focusing on palaeoenvironmental research in the Shahrizor plain of Iraq, with University of Munich and University of Heidelberg, who are leading the archaeological survey and excavations of a large multi-period site respectively. The primary research goal of the project is to apply a multidisciplinary approach to bring forth new information on the region's palaeoenvironment, history, and archaeology, in order to better understand how these three components interrelated and influenced the region's social and socioecological development in the past. Before 2011, little palaeoenvironmental research had been done in Iraqi Kurdistan, and nothing regarding change during the Holocene in the Shahrizor plain. The Shahrizor stretches from the northwest to the southeast along the western edge of the Zagros and southeast of Sulaymaniyah between Arbat and Halabja. In order to better understand Holocene climate and vegetation change in the region, several programs were initiated, including trenching and coring, speleothem collection and analysis, and sampling and analysis of sediments and microfossils (particularly phytoliths). Preliminary findings are presented here, mainly derived from sedimentary and phytolith analysis of onsite and offsite contexts from the area north of Halabja, which formed part of a PhD research project.

Marshall, Maureen [20] see Chazin, Hannah

Marsh, Charla (ISAS-UIUC), Cris Hughes (Department of Anthropology, UIUC), Timothy Pugh (Department of Anthropology, Queens College CUNY) and Ripan S. Malhi (Department of Anthropology, UIUC) [147]  

**Mitochondrial Genetic Variation among Burials from the San Bernabé Mission, Tayasal: Preliminary Results from an Ancient DNA Feasibility Study**

The 2010-2012 excavations of Tayasal's San Bernabé Mission uncovered 28 graves, or sepulchers, buried beneath the church floor. Discovered in nine or more rows, these graves contained the remains of one or more individuals, and were possibly organized by kinship ties. Given the paucity of Spanish artifacts recovered from the San Bernabé excavations, it is likely that Colonial period Maya were the primary grave occupants, although persons with Spanish, African, and non-Maya indigenous ancestry might have been included among the burials as well. To assess the feasibility of ancient DNA (aDNA) research that may lead to insights into ancestry, identity and health during the Colonial period at Tayasal, we attempted to extract DNA from teeth from seven San Bernabé burials. We successfully recovered mitochondrial DNA from five individuals, which were assigned to Native American haplogroups A and C. A sixth individual yielded a mitochondrial haplotype indicative of European ancestry, although additional data are needed to confirm this result. Furthermore, our preliminary analysis shows that co-buried persons did not always share the same mitochondrial DNA. The larger implications of this study are presented, and future goals for the aDNA project are discussed.

Marshall, Maureen (University of Chicago) [291]  

**“Sharing Death”: Double Interments in the Late Bronze Age South Caucasus**

The Late Bronze Age (1500-1150 B.C.) appears to be a period of dramatic restructuring of political society in the South Caucasus with the sudden appearance of hilltop fortresses that demonstrate evidence of administration and ritual activity. Mortuary practices seem to be dominated by individual interments and examples of ‘warriors’ and ‘metalworkers’ that point to emergent socio-political complexity. Double and multiple interments have also been recorded, but are most commonly interpreted as “couple burials” or “mother and child” burials. Such interpretations imply a kinship system understood in terms of ‘marriage’ and birth. Yet, there are numerous examples of individuals with the same skeletal sex buried together as well as multiple interments varying in both age and sex. Drawing on anthropological perspectives that view kinship as transpersonal relations as well as the bioarchaeological emphasis on practice and lived experience, this paper discusses the double interment of two adult individuals in the Tsaghkakahovit Plain, Armenia. Using an osteobiographic approach, I explore how subjects ‘shared death’ and life in Late Bronze Age society.
Martin, Debra (University of Nevada/Las Vegas)

The Tomb at Tell Abraq (2200-2000 BC): Demographic Structure and Mortuary Complexity

The tomb at Tell Abraq (c. 2200-2000 BC) was the repository for over 400 individuals of all ages and both sexes. Situated on the Persian Gulf near Sharjah and Um al-Qaiwain in the United Arab Emirates, the tomb contained the commingled remains of at least 276 adults and 127 subadults. Of the subadults, there was a relatively high frequency of premature (28%) and newborn (9%) infants in the tomb. This overview provides the demographic structure of the tomb population based on a detailed MNI study, and the complex nature of the mortuary program. Based on the overall MNI determined by the talus bone, observed versus expected ratios show that many long bones as well as hands and feet are underrepresented. We propose these can be accounted for by excavation and retrieval strategies. The mortuary program appears to be what Boz and Hager have described as being “primary disturbed”. Grossly underrepresented elements such as the cranium could have been removed and used in other contexts. This late Bronze Age tomb is unusual in many ways and does not fit any Umm an Nar patterns. [28] Discussant

Martin, Terrance (Illinois State Museum) and Dennis Lawler (Illinois State Museum)

Animal Pathologies at French Colonial Sites in the Midwest: Case studies of White-tailed Deer at Forts St. Joseph and Ouiatenon

Investigations of large archaeological faunal assemblages often reveal unique incidences of animal pathology. Although interesting as curiosities, pathological specimens can disclose insights on past animal populations and the human groups that were exploiting these populations. Four specimens from the Fort St. Joseph (20BE23) and Fort Ouiatenon (12T9) sites illustrate incidences of trauma suffered by white-tailed deer (Odocoileus virginianus) at eighteenth-century trading posts that were inhabited by French settlers and their Native American wives and trading partners. Gross examination and application of micro-computed tomography shows a pattern of severely broken front legs on individual deer that survived their initial injuries long enough to permit bone healing and remodeling before the deer ultimately became the victims of Native American or French hunters. Specifically, environmental sheltering from predation, food and water availability in immediate surroundings, and fractured bone ends in reasonable apposition could accomplish functional healing through the downward pull of gravity, heavy limb weight, and limited movement. Individual diagnoses can reveal details about the traumatic injury, malnutrition, and/or infections, and the resiliency of the animal in surviving injuries that initially might be considered to be fatal.

Martin, Debra [64] see Hammond, Krystal

Martin, Erik (University of Utah)

The Evaluation of Costly Signaling as a Motivator in Human Subsistence Behavior

The application of optimal foraging theory to the analysis of human subsistence remains provides valuable insights into variability in behavior over time. Analyses utilizing this theoretical framework often cite the caloric return rates of resource types as predicting prey choice. However, a body of literature within anthropology, biology, and economics known as costly signaling theory predicts that there are social benefits to individuals who communicate their fitness to an audience through the production of honest signals. If the acquisition and distribution of difficult to acquire resources meet these criteria, the fitness benefits of costly signaling via subsistence activities may also be an important consideration in understanding prey choice. Here I construct a formal signaling model and evaluate its predictions using ethnographic accounts of feasting. I then examine the archaeological implications to assess whether ecological conditions during particular periods of North American prehistory would have favored the signaling benefits of prey acquisition as an alternative to caloric return rates in motivating subsistence behavior.

Martin, Lana (University of California Los Angeles), Richard Lesure (University of California Los Angeles) and Katelyn Bishop (University of California Los Angeles)
The Neolithic Demographic Transition in Mesoamerica and Its Implications for Early Farming Dispersals

In the Near East and elsewhere, the Neolithic Demographic Transition (NDT) refers to the relatively rapid increase in population and population growth rate following a shift in subsistence economy from one based on foraging to one based on farming. In Mesoamerica, the NDT was a more gradual process that unfolded over the entire Formative period (1800 BC–A.D. 200). An analysis of published records of over 6700 prehispanic burials, focusing on changing proportions of juveniles 5 to 19 years of age, suggests that fertility rates rose steadily over the second and first millennia BC. The gradual pace of the demographic transition was likely related to the low initial productivity of maize. Comparison of our results with NDT patterns observed in other regions provides insight into the large-scale picture of the transition to agriculture in Mesoamerica, specifically models of early farming dispersals.

Martin, Paul (University of Mississippi)

Evaluation of Geophysical Methods in the Detection of Toddler Sized Burials within the First Six Months of Burial

Geophysical survey has become a major tool in the search for clandestine graves associated with missing persons cases. However, relatively little effort has been made in evaluating different instruments. GPR, magnetometry, resistivity, conductivity and susceptibility survey data were collected every 30 days for two research plots: an open grassy area and a wooded area. Each area contained five pig burials representing toddler-size (less than 50 pounds) remains and two areas of disturbance or false burials. The resultant imagery is evaluated in terms of relative utility in burial detection.

Martindale, Andrew [173] see Letham, Bryn

Cans of Worms: Explanation in Tsimshian Archaeology

The distance between the fragmented and imperfectly sampled archaeological record and the grandeur of history can be spanned, as Ken Ames suggests, by rope bridges of entwined logical cables, including general and specific analogies. In Tsimshian archaeology the weakest of these are ethnographic analogies, although the weakness emerges from the archaeological analogy rather than the ethnography. In many ways, the ethnographic analogy is a chimera as the ethnographic subject is contemporary rather than historic. The archaeological expectation that the ancient can be understood in terms of the modern is, as many have noted, teleological. The deeper error, however, is the lack of explanation in archaeology for cultural continuity beyond the parameters of adaptation (both homeostatic and evolutionary). In contrast, the source of ethnographic data on history, the oral records of Tsimshian people themselves, provide clear scholarship on both the nature and causes of historical change. In this paper I outline the Tsimshian explanation for the emergence of their own ‘complexity’ and compare this to extant causal explanations in archaeology. The data are a best fit to the former, suggesting that orthodox archaeological explanations of these developments are, as many ethnographers have argued, vulnerable to ethnocentrism.

Martindale Johnson, Lucas [123] see Marino, Marc

Radiocarbon Chronology of the Humid Pampa Subregion of Argentina: Archaeological Signal, Demographic Processes and Population Dynamics

The Humid Pampa subregion of Argentina has been inhabited by hunter-gatherer populations since ca. 12,200 14C years BP. Archaeological research indicates that during the Final Late Pleistocene and the Holocene the areas that composed the subregion show differences in chronological trends as well as intensity of occupation. Also, models that proposed population continuity and/or discontinuity implying expansion, contraction, replacement or even extinction have been suggested. The discussion of these
issues has been focused on specific lapses such as the early mid-Holocene and the early late-Holocene. In this work, a complete data base of all radiocarbon data available for the subregion is compiled, and temporal frequency distributions are used to assess the variations in the intensity of human occupation through time. Within this framework the above mentioned hunter-gatherer demographic processes and population dynamics are discussed.

Martinez, Valentina and Carmen Sanchez (Florida Atlantic University)


The southern coast of Manabí province, Ecuador, has been the scenario of a long term research project focused on the complex interactions between humans and nature; in particular we are interested in the exploitation of resources through time in this highly environmentally diverse region. Our survey has identified more than 300 sites distributed in at least 4 broad environmental zones. For the later periods, domestic settlements have a tendency to concentrate alongside the coastal line and to spread throughout the riverine ecotones. Salango site 40, located in the riverine ecotone yielded, approximately 20 clay ovens, between complete and incomplete. From the site, a sample was selected to analyze ceramic technological traditions and food preparation traditions. A variety of approaches were used to recognize cultural dynamics: ethnoarchaeology, ethnography and material culture analysis. The results were surprising. Although, ancient technological traditions of pottery making have disappeared in the area, food preparation traditions have persisted throughout the centuries. Furthermore, food preparation traditions have undergone changes (as suggested by the ethnographic data) but they have been continuous for at least the last 2000 years (as suggested by the archaeological data).

Martinez, Marco (Archaeologist) and Dolores Davalos (MA Student at Tulsa University)

[47] Today’s Understanding of Casas Grandes’ Architectural Variety

Recent investigations in the Casas Grandes area have led us to a new perspective regarding its architectural variety. In the past, the Paquime construction type was accepted as a norm for other types of pueblo construction inside the region. Now we can find other types outside Paquime; among its closest neighbors.

The first one is comprised by Paquime's thick-walled architecture described by Di Peso, the second one is a thin-walled construction type found in several sites inside the core area, like site 231; and the simplest architecture, a third type characterized by really thin walls. The former being found inside plazas, needs minimal construction. Using visual, descriptive and statistical comparisons to divide recently excavated Casas Grandes sites by their architectural differences, we will try to demonstrate the relationship between the three architectural types first described. Also, current chronological data and associated materials help us to point out chronological similarities and the short or long term use of such construction types.

As a result, we expect to find out that the region of Casas Grandes had a significant population growth in where the addition of temporal edifications in the sites involved was used in a time period.

Martinez, Valentina [103] see Van Voorhis, Laura

Martinez, Silvia and SERGIO SUAREZ (INAH-PUEBLA, MEXICO)

[112] Cholula y Cacaxtla; ciudades hermanas?

Cholula ciudad milenaria, con una ocupación casi ininterrumpida que supera los dos milenios, tiene una etapa compartida con la vecina Cacaxtla y por ende, esperaríamos encontrar similitudes en su arquitectura, cerámica y costumbres funerarias. Ya las fuentes tlaxcaltecas, entre ellos Muñoz Camargo,
citan con frecuencia la relación existente entre Tlaxcala y Cholula en los años previos a la conquista. Así por ejemplo menciona el caso de diversos individuos que siendo de Tlaxcala, se fueron a vivir a Cholula, como una muestra de la relación que existía entre ambas ciudades. La etapa de interés corresponde al Posclásico Temprano, momento en que Cholula empieza a repoblar luego del abandono que sufrió al final del Clásico, representada en la ciudad por pequeños altares localizados encima de La Gran Pirámide y en su entorno inmediato, asociados a una cerámica que por sus formas y acabados resulta diferente a la del Clásico que le antecede y a la policroma que trajeron los grupos tolteca chichimeca que arribaron en el siglo XII y que se atribuye a los Olmecas Xicalancas, grupo que también pobló Cacaxtla; siendo a partir de estos elementos que trataremos de mostrar la similitud o discrepancia que existió entre ambas entidades.

Martínez, Desiree (Cogstone & Harvard University)
[142] The Ramifications of the Historical Romanticism of the Catalina Island Tongva

From giants to white Indians to Indian princess clutching the sides of a large stone bowl, explorer's journals, historical newspaper accounts, "scholarly reports," and popular literature provide interesting depictions of the Catalina Island Tongva. Since 2007, the Pimu Catalina Island Archaeology Project has been collecting provenance and provenience information about Catalina Island's archaeological collections. This research has uncovered some accounts that often paint an unrealistic and romantiziced image of the Catalina Island Tongva. This paper will describe some of these fanciful images and stories from a variety of sources and discuss how these representations have influenced the public's perception of the Island Tongva and how they have derailed the expansion of scientific research surrounding the Tongva on Catalina and the mainland.

Martínez, Eva
[197] Trajectories of Social Change in Prehispanic Honduras

This paper deals with evidence derived from the comparison of different social trajectories in regions of western, central, and eastern Honduras, which points to three common factors that stand out as crucial elements for understanding the development of social hierarchies in those regions: access to prime agricultural land, craft production and local exchange and interregional interactions. Each of these factors can be understood as components of two basic political strategies: economically or prestige-based ones. The articulation or combination of these factors, and the ability to connect economic and prestige strategies to each other, enabled the consolidation of permanent forms of social inequality in many regions of prehispanic Honduras.

Martínez, Jupiter (INAH-Sonora)

In this paper I discuss architecture and organic artifacts as material culture indicators that help us understand the Serrana communities of the Casas Grandes Culture in the State of Sonora, México. The data come from two sites: the cliff dwelling Cueva de Ochoa and the Bavispe site, both located in the municipality of Bavispe in Sonora. Our results lead us to reconsider previous perspectives that placed the state of Sonora as a peripheral area and to support an earlier model that sees major social complexity and interaction in the region. This research also leads to a greater understanding of the Casas Grandes ethnic identity and concludes that this ethnic group could be ancestral to the Opata people.

Martínez, Gustavo [69] see Gutierrez, Maria

Martínez, Pablo (Universidad Veracruzana), Janeth Castillo (Escuela Nacional de Antropología e Historia), Victor H. Valdovinos (Escuela Nacional de Antropología e Historia) and Daniela Rodríguez (Escuela Nacional de Antropología e Historia)
[200] Archaeology of Batacosa and Onavas valley in southeastern Sonora, Mexico
We intend to present the results obtained by the Proyecto Arqueológico Sur de Sonora, over six years of research in southeastern Sonora, Mexico, specifically in the Batacosa and Onavas valleys between the Mayo and Yaqui rivers.

We propose that Batacosa emerged as a local development resulting from the diversification of the Huatabampo and Serrana traditions at the beginning of the Middle Ceramic period, around 500 AD, and suggest that Batacosa continued to be active during the branching of the Serrana tradition into the Serrana Baja and Alta around 700 AD, keeping features from both traditions.

At Onavas, we have focused our work on the Casa Pima and El Cementerio sites, dating between 1474 and 1644 AD, and 943 and 1481 AD, respectively. While Casa Pima is a residential area, El Cementerio is a burial site where we have recovered more than 50 burials, some exhibiting cranial deformation and dental mutilation, characteristics which support our argument that this population had greater cultural affinity with coastal populations of northern Sinaloa and Nayarit. In this paper, we present an analysis of the material culture at Casa Pima and El Cementerio.

Martínez, Estela (Estela M. Mora)
[253] The Blue Stones Funerary Contexts in Prehispanic burials from Chalchihuites region, Zacatecas, Mexico
Agricultural groups settled the Chalchihuites region since the first millennium AD; these societies developed an intense lapidary production, crafted mainly on blue-green stones, motivated by the appreciation of these objects, always associated to a high symbolic meaning. The economic activities, such as lapidary and the exchange networks for these and other products influenced deeply in the social complexity processes of these people. In my work, I will present the funerary contexts of individuals buried with such objects and analyze its transformation over time as evidence for social change.

Martínez Galicia, Marco Antonio [144] see Dávalos Navarro, Dolores

Martínez Lara, Mario (Mario Martínez)
[293] Análisis iconográfico de los Once Señores de Cacaxtla
Esta ponencia se deriva de un análisis iconográfico realizado a once esculturas que se encontraron en las inmediaciones del sitio arqueológico de Cacaxtla en el estado de Tlaxcala, Mexico de manera fortuita en el año de 1998. La poca difusión y los escasos estudios sobre estas fue el principal motivo para llevar a cabo este trabajo y contribuir a las investigaciones arqueológicas que se realizan en este estado.

Las esculturas presentan una serie de elementos iconográficos que aluden a la propiciación de fuerzas fecundadoras y que ademas tienen similitudes estilísticas con otros sitios del periodo Clasico y Epiclasico mesoamericano como son Tajín, Teotenango, Monte Alban y particularmente Tetotihuacan. Los resultados del análisis permitieron la identificación de deidades y personajes asociados a un ritual cuya practica pudo ser comun en diferentes sitios contemporaneos a Cacaxtla.

Por otro lado, se pudo inferir el posible uso y desacralización de las once esculturas resultado de los movimientos sociales importantes que se suscitaron en consecuencia de la caída de Teotihuacan. Este panorama sociohistórico pretende explicarse brevemente en esta ponencia, además de dar a conocer las esculturas, su importancia y significado a fin de abrir nuevas líneas de estudio enfocadas a esculturas de este tipo.

Martínez-Muñiz, Isabelle [305] see Plank, Shannon

Martinez-Yrizar, Diana (IIA-UNAM) and Emily McClung de Tapia (IIA-UNAM)
[63] The Potential of Paleoethnobotanical Evidence in the Study of Teotihuacan Foodways
Macro- and microscopic plant remains recovered from excavations at Teotihuacan over several
decades contribute to an understanding of the subsistence resources available to the city’s inhabitants. However, associated contextual evidence may be inconclusive regarding the specific uses of the plants in question and, particularly, whether their presence or relative abundance indicates processing and consumption or the consequence of depositional processes. While the analysis of archaeological plant remains is necessarily an interdisciplinary endeavor, involving aspects of botany, ecology, ethnography and history among other disciplines, contextual archaeological evidence provides the matrix for interpretation. This presentation explores the significance of appropriate contextual evidence (e.g. activity areas, associated ceramics, lithics, etc.) and the potential complementary role of analytical techniques such as residue analyses, and isotopic signatures in faunal and human osteological remains as well as stratigraphic sediments.

Martirosyan - Olshansky, Kristine
[20]  
*Masis Blur, a Neolithic Settlement in the Ararat Plain, Armenia*

The advent of the Neolithic period marks the beginning of one of the most significant changes in socio-economic and political development, yet this period is the least studied cultural phase in the archaeological sequence of Armenia. Until recently, the Neolithic period in Armenian was known only through sites discovered in the 1960s and 1980s, though the material from these excavations remains largely unstudied and unpublished. The fragmentary nature of archaeological investigations has not allowed us to construct a chronological sequence for the Neolithic period or to characterize the trajectory in the development of early settled communities in this part of the Armenian Highlands.

The Neolithic settlement of Masis Blur is a mound site located some 13 km to the south-west of the capital of Yerevan, in the Ararat plain. The first season of excavations uncovered 3 undisturbed architectural layers, complete with houses, hearths, fire pits, and an abundance of lithic, bone tool, and faunal assemblages. These layers date to the early 6th millennium cal. B.C. and are contemporaneous with two other recently excavated Neolithic settlements in the Ararat plain. This talk will present some preliminary results, with a focus on geochemical analysis of the obsidian artifacts.

Marwan, Norbert [201] see Aquino, Valorie

Marwick, Ben [214] see Kretzler, Ian

Marwick, Ben (University of Washington) and Tim Maloney (The Australian National University)
[298]  
*Identification and Visualization of Lithic Reduction Pathways Using Elliptical Fourier Analysis*

Ethnographic and archaeological research into stone artifacts in the Kimberley region of northern Australia has been dominated by investigation of the numerous reduction pathways that result in pressure flaked points. However, this focus on pressure flaked points has neglected to detect a range of other point reduction pathways in the archaeological record. Typically, sites in this region lack evidence of pressure flaked point production and so it is important to understand the processes that generate assemblages at sites without pressure flaked points. We analysed seven surface assemblages from southern Kimberley to determine if there are multiple reduction trajectories producing a wide range of retouched morphologies. We processed digital images to obtain outlines of their plan views. We applied elliptical Fourier analysis to the outlines of artifacts as a tool for discriminating between different morphologies and showing how they are related. This method does not require landmarks and therefore can accommodate significantly more complex and irregular shapes than other morphometry methods. The results show staged sequences of point production, resulting in pressure-flaked points as well as a wider range of direct percussion point morphologies and demonstrate the potential of surface assemblages for reduction sequence analysis.

Maschner, Herbert (Idaho State University)
[246]  
*Band, Tribe, Chiefdom, State: Who Do We Appreciate?*

Social complexity, intensification, group size, economy, hierarchy: terms used to measure and evaluate
social evolution at all levels of society. Mike Jochim and I had many conversations on these topics and reflecting on them for the last 25 years returns one simple conclusion; that there is only one major transition in the history of human cultural evolution. The transition from mobile foragers to villagers, where people had a permanent place to keep their things and cohabitated full-time with unrelated neighbors, set in motion all of the social interactions that would eventually lead to states and empires – just at a larger scale. At this time social change took off at a rate that could not be tracked by biological evolution, and maintaining sociopolitical efficiency often trumped any attempts at subsistence / economic efficiency because we are simply not biologically adapted to live full-time with a large number of unrelated people. It was at this time that some of our deepest and oldest biological adaptations such as in-group out-group behavior, within-group cooperation, status competition, and territoriality were morphed into the social and ethnic dynamics of larger scale organizations.

Masini, Nicola [295] see Giardino, Marco

Masinton, Anthony (University of York)  
[107]  It’s Junk Until It Matters: Building Meaning from Visualization  
One of the most important benefits of 3d computer modelling of archaeological and historical data is that it forces the researcher to interpret all of the available evidence in a concrete and systematic way. This frequently yields new insights and opens up new questions. The process of creating a visualization of the past is also, fundamentally, an imaginative one where meaning and subjective interpretation are key. Many archaeologists find this daunting, even risky. But, without this engagement with our visions of the past, our evidence and, perhaps, our interpretations will remain a disconnected assemblage. Drawing on a range of recent and ongoing visualization projects focused on medieval and post-medieval English buildings, the dangerous, provocative and valuable process of visualization will be explored.

Mason, Ashley  
[137]  What’s in a Chultun? Identifying Formation Processes at La Milpa, Belize: A Comparative Life History Approach  
In the Maya region, subterranean chultun features are most commonly associated with storage despite variability in form, context, and assemblages. To discern patterns among the variability, I examined the formation processes acting upon chultuns in the region, and identified three unique life history trajectories. These trajectories acted as comparative tools for the results of work performed in Chultun 2 at La Milpa, Belize. The formal attributes, context, and assemblage associated with Chultun 2, align it with a unique group of chultuns hypothesized to have served as symbolic features within the Maya cultural landscape.

Masson, Marilyn [52] see Russell, Bradley

Masson, Marilyn (University at Albany SUNY)  
[113]  Shell Money through Time in the Maya Area  
Multiple Contact Period accounts are clear about the use of shell beads as an all-purpose marketplace currency in the Maya area. This paper explores the archaeological evidence for shell money in the deeper past (Classic and Postclassic Periods). Identifying currency units from objects used purely for decorative or social purposes is aided by tracking variables such as standardization, relative scarcity, renewability, and long term continuity as these criteria are useful elsewhere in world history. The “bead” monies of the Colonial era probably referred to a limited range of suspended objects, particularly, olive shells and morphologically similar marine gastropods. I argue against classifying Maya shell monies as “primitive” as their use context is a poor fit for the explicit anthropological meanings of that term. Probable shell monies from Postclassic era Mayapan bridge the temporal gap of Classic Period objects and Colonial sources and facilitate the use of the direct historical approach.

[113]  Chair
Masucci, Maria (Drew University)

[19] Discussant

Mata-Miguez, Jaime (University of Texas at Austin), Lisa Overholtzer (Wichita State University), Enrique Rodriguez-Alegría (University of Texas at Austin), Brian Kemp (Washington State University) and Deborah Bolnick (University of Texas at Austin)

[291] Using Household Bioarchaeology to Assess the Demographic Effects of Aztec Imperialism: A Kinship Study Based on Ancient Mitochondrial and Nuclear DNA from Xaltocan, Mexico

Between AD 1428 and 1521, the Aztec empire conquered numerous polities in the Basin of Mexico. At Xaltocan, an influential Otomi town, historical and archaeological evidence provide conflicting accounts of the demographic effects of Aztec imperialism. While colonial documents state that the Aztec conquest led to a replacement of the Otomi population, archaeological finds suggest a substantial degree of population and cultural continuity. To better understand the demographic consequences of Aztec imperialism, we extracted ancient DNA from 42 individuals unearthed during bioarchaeological research at Xaltocan. These individuals belonged to six households and included pre-Aztec and Aztec residents. We analyzed mitochondrial DNA sequences, 15 autosomal short tandem repeats (STRs), and 23 Y-chromosome STRs to help assess kinship relationships among individuals. We identified kin groups in pre-Aztec and Aztec burials, but no close biological relationships when comparing pre-Aztec individuals with Aztec individuals. Additionally, we found that the Aztec conquest was associated with a replacement of matrilines. These results indicate that a genetic shift occurred at these households across the Aztec transition, suggesting that Aztec imperialism might have led to important demographic changes yet substantial cultural continuity. This research illustrates how studies of kinship in household bioarchaeology can help address broader anthropological questions.

Mata-Míguez, Jaime [93] see Bolnick, Deborah

Mathers, Clay (The Coronado Institute)

[276] 'Missing Links' and the War of the Worlds in Tiguex (1540-1542)

Although the link between conflict and sixteenth-century entradas has never been remote or ambiguous, Native-European combat in North America remains poorly documented archaeologically. Ironically, material evidence of major encounters in the American Southwest has been extant for nearly a century, but until recently went largely unrecognized. Our focus is on sites of conflict associated with the 1540-1542 entrada of Vázquez de Coronado and the Tiguex War in New Mexico – a sustained period of armed conflict between Southern Tiwa Pueblos and a large combined force of Spaniards and their Native Mexican auxiliaries. A new battle-related assemblage connected with this conflict is reported and arguments are presented to suggest it may be Moho - the site of a historically documented two-month siege in the winter of 1540-1541. We compare this assemblage with contemporary sites and entrada activities to better define conflict and other assemblage types. By examining new sites and older collections, we focus on how small components of the archaeological record contribute to understanding Native-European interactions at a broader regional and inter-regional scale. Furthermore, we suggest how early, large-scale conflicts reoriented Native-Spanish relations with regard to warfare, defense, and settlement throughout New Spain during the later sixteenth century.

[276] Chair

Mathews, Darcy (University of Victoria)

[160] Ancestral Presence and the Public Secret: Hiding the Dead in Plain Sight

The Straits Salish peoples of southern Vancouver Island built distinctive funerary petroforms for their ancestral dead. Based on the results of a spatial and visibility analysis of 420 funerary petroforms distributed in two neighbouring cemeteries, these monumental burials were often built at the threshold of perception. While notions of materiality and monumentality rely on the visibility of things, the unseen and
the intangible have a power of their own. Secrecy magnifies reality and the concealing or controlling of access to forbidden places or things heightens their potency. These burials were active and powerful agents and shielding them from the day-to-day enhanced their power. Building these burials, as multi-layered ritualized acts of concealing the dead, was a process that produced a monument and memories retained by the living, even if they were associated with private knowledge or space. Secrets held in public trust entail knowing what not to know, and as something outside of regular discourse, they were invested with social power. As such, this act of concealment is also revealing. The dichotomous dead were both a source of fear and danger, yet retained a posthumous social, economic, and political life central to the process of history and place making.

Mathews, Ruth [169] see Everett, Mark

Mathews, Jennifer (Trinity University)
[330] Cosmopolitan Living? Examining the Sugar and Rum Industry of the Costa Escondida, Quintana Roo Mexico
This paper examines our research into the history of the development of the sugar and rum industry in a remote region of northern Quintana Roo known as the “Costa Escondida” from the 1870s to the mid-twentieth century. Since 2009, we have been conducting archival and archaeological research at the site of Xuxub and several nearby plantations to acquire material evidence of what daily life was like for the people who lived at these sites and worked in the industry. Foreigners often managed these small-scale businesses with regional laborers on small ranches using relatively primitive technology and producing small yields. Despite the remote locations of these sites and small production amounts of sugar and rum, we have recovered a surprising number of artifacts imported from the U.S. and other countries, including luxury goods and construction materials. This paper will examine how the value placed on the crude commodities of sugar and rum combined with the benefit of coastal access may have allowed for access to cosmopolitan goods within the swampy mangroves of the north coast.
[330] Chair

Mathiowetz, Michael (CSU Dominguez Hills)
[339] The Origin of Mitote Ceremonialism in Postclassic West Mexico
Mitotes are a widespread and central element of indigenous ceremonialism in the Gran Nayar, a region encompassing parts of the modern Mexican states of Nayarit, Jalisco, Durango and Zacatecas. These round dances, known among such groups as the Cora, Huichol, Tepehuan, and Mexicaneros, are a part of ceremonial cycles that are closely tied to agriculture and the cultivation of maize. In examining the origins of present-day indigenous religion and ritual in West Mexico, many studies tend to examine archaeological data from the Formative and Classic period, such as art from Shaft Tomb cultures and the Teuchitlán tradition. While these earlier eras certainly are relevant, data from the Postclassic period (AD 900-1521) has been largely bypassed, undoubtedly due to the paucity of archaeological work conducted in the last 50 years, especially in the core Aztatlán heartland of Nayarit, southern Sinaloa, and northern Jalisco. This presentation explores some of the core ritual elements of contemporary mitote ceremonialism in the ethnographic and ethnohistoric literature, including Sun and Morning Star worship, and traces evidence of these elements in the archaeological record. This effort seeks to discern the historical origin of core indigenous religious practices associated with mitotes in the Aztatlán region during the Postclassic.
[339] Chair

Mathwich, Nicole (University of Arizona)
[119] Ranching in Native Cultural Landscapes: Preliminary Faunal Analysis from Mission Guevavi
The colonial period in the Southwest has been framed and romanticized by Anglo-American Western expansion and the colonized/colonizer binary. While documentary and oral histories have helped to up-end this Eurocentric paradigm, Southwestern archaeological and material studies have only recently begun to view missions through the lens of indigenous cultural landscapes inclusive of multiple and conflicting viewpoints. The Pimería Alta, a colonial geo-political region constituting
southern Arizona and northern Sonora, was a complex cultural landscape; domesticated animals and their products were an important aspect in the economic relationship of indigenous groups and various colonial actors. Recent excavations at Mission Los Santos Ángeles de Guevavi, located near Nogales, Arizona, investigate the early period of the Spanish mission enterprise in the greater Southwest. This paper presents preliminary faunal data from the materials collected during the 2013 NPS and University of Arizona field school excavations of a midden associated with the mission complex. Initial interpretation of the faunal remains, with a focus on the O’Odham at Guevavi as the primary consumers and laborers negotiating regional demands, better reflects the reality of weak and intermittent European control of the mission and the power continuum of economic relationships between various indigenous groups and settlers.

Chair

Matisoo-Smith, Lisa (University of Otago)

Ancient DNA of Pacific Commensals– New Methods New Questions

New methods in DNA analyses, particularly the development of Next Generation Sequencing has opened up new opportunities for aDNA studies in general and provide new possibilities for zooarchaeological studies. However, regardless of the data that can be obtained from faunal samples, archaeological context and geographic sampling remains a critical issue. This paper will discuss how new methods and better sampling of Pacific commensals particularly when combined with other genetic and archaeological data can be used to tease out complex histories of Pacific settlement and interactions.

Matsumoto, Go (Southern Illinois University Carbondale)

Creation of Political Subjectivity in the Middle Sicán Great Plaza

Recent discoveries at the capital of the Middle Sicán state in the mid-La Leche Valley have led archaeologists to suspect that the state might have been governed and maintained by a federation of multiple elite lineages in competition or alliance. Underlying this new explanatory model are the documentations of the same architectural configuration and associated ceremonial activities among multiple ceremonial mounds (coined as “Pomac Mortuary Complex”). This architectural complex is characterized by a tripartite, concentric organization of (1) a platform mound, (2) an immediately associated cemetery ground, and (3) an open space for large-scale ceremonial activities. The last is a non-walled space in contrast to the Late Sicán walled plazas, and the complexes of Huaca Loro and Huaca Las Ventanas seem to be coterminous within what is known as the Great Plaza. This presentation focuses on the documented activities around Huaca Loro and discusses the sociopolitical significance of the Great Plaza.

Chair

Matternes, Hugh B. [155] see Graham, Lain

Mauldin, Raymond P. [103] see Jones, Ashley

Mauldin, Raymond (UT San Antonio), Cynthia Munoz (UT San Antonio), Robert Hard (UT San Antonio), Jennifer Rice (UT San Antonio) and Kirsten Verostick (UT San Antonio)

Stable Carbon (δ13Ccollagen, δ13Ccarbonate) and Nitrogen (δ15N) Isotopic Shifts in Central Texas Hunter-Gatherers over the last 7,000 Years

The prehistory of Central Texas reflects hunter-gatherer occupations. Direct information on resource use, increasingly available through stable isotope analysis of interments, allows researchers in this area to investigate long-term processes of stability, change, and intensification. We present carbon and nitrogen stable isotope results from roughly 80 individuals, most of whom are adults. This sample spans roughly 7,000 years from multiple sites. At around 7,000 BP (Early Archaic), isotopic data show a mix of CAM/C4 and C3 plant and animal use. While sample size is variable, data show a gradual decline in CAM/C4 resource use over the next 4,000 years. Around 950 BP (Initial Late Prehistoric),
little CAM/C4 resource use is indicated. This trend changes in the Terminal Late Prehistoric period (700-300 BP) with isotopes indicating a dramatic diversification of diet. Isotopes from some individuals continue to have a C3 focus. Others show a mix of C3 and CAM/C4 resource use, and still others have a pattern consistent with a CAM/C4 coastal-based diet. This sudden diversity may indicate dietary change. However, as turnover rates for bone in adults are slow, it may also reflect changes in mobility and alliance structures at this time, with increased movement of individuals between regions.

Mauricio, Ana (University of Maine)
[245] Los Morteros: Geoarchaeological Investigations and Environmental Reconstruction of an Early Mound and Its Milieu
Los Morteros is a mound-shaped archaeological site, located on the Pampa de las Salinas, lower Chao Valley, north coast of Peru. Despite the aridity and apparent isolation of this milieu, Pampa de las Salinas seems to have been a very different environment in the past, judging from the evidence of an ancient and long history of human occupation. Just in the area of Pampa Las Salinas (~3 km x 6 km), 21 archaeological sites have been reported, most of which seem to be pre-pottery settlements. Previous investigations considered Los Morteros as a “stabilized dune” whose top was used as cemetery during Preceramic times. However, geo-radar explorations carried out in 2006 and 2010 by a team of the University of Maine indicated the existence of architecture covered by thick layers of sand. Within this context, a comprehensive investigation carried out by the Los Morteros-Pampa de Las Salinas project in 2012 has revealed a complex history of formation of this site, which includes the existence of mud-brick architecture with monumental characteristics. Geo-archaeological and environmental approaches have produced data that allow a general reconstruction of the transformation processes of the environment that hosted this early social development.

Maus, Mathew [139] see Riley, Jenny

Mavko, Jonathan (PIARA), Rebecca Bria (PIARA and Vanderbilt University) and Rachel Shea (PIARA and Purdue University)
[105] Middle Horizon Mortuary Architecture and Social Organization at Hualcayán, Ancash, Peru
This poster presents the architectural and spatial analyses of Middle Horizon (ca. 600 –1000 CE) Chullpa-type mortuary structures at the site of Hualcayán in highland Ancash, Peru. This research reveals how the construction and modification of clustered chullpas and their exterior patios indicate changes in inter- and intra-group membership at Hualcayán during the Middle Horizon. A total of eight Chullpas—above-ground, free-standing stone ossuaries—clustered in two distinct groups were analyzed, noting several characteristics including entryway size and orientation, interior chamber layout, interior and exterior surface area, construction sequences, and construction quality, as well as their spatial relationships to one another and to other architectural features (walls, plazas, etc). Both chullpa groups indicate different phases of use and modification, and this evidence points to how people in the Middle Horizon restructured space in and around these chullpas to both accommodate new social relationships and mark difference between themselves and other lineage or sub-lineage groups. Furthermore, measures of architectural sophistication and investment within each chullpa group point to existing and changing social hierarchies in the ancient Hualcayán community. In this way, this research on mortuary architecture reveals new insights on changing social relationships during the Middle Horizon in the Ancash highlands.

Mavroudas, Sophia [103] see Springs, Lauren

Mawk, E. Joe [156] see Cole, Sally

Maxwell, David (Simon Fraser University)
[192] Stings and Puffers: Ritual Fish Use at Tikal
The "cult of the sea" resulted in the inclusion of fish remains in dozens of votive caches at Tikal and
other sites. Context suggests that these were more than simple offerings; rather, it appears that these may have been utilized as blood letters, for ritual envenomation, and possibly for other types of activities. The spatial and temporal patterning of these remains is discussed for the North Acropolis at Tikal. Stings show strong temporal and behavioral patterning, with bone imitation stings predominant during the politically strong era of the Early Classic, replaced by real stings during the Hiatus Period; further, bone replicas and real stings are rarely found together, suggesting a strong behavioral division between these two artifact types.

Puffer fish remains are largely restricted to the political downturn of the Hiatus Period, suggesting that these remains played a very different role in ritual, although their actual use is unclear.

May, Keith [36] see Wright, Holly

May, J. (Schiele Museum of Natural History)  
[232]  Holly Bend, Mecklenburg County, North Carolina: Two Centuries of Piedmont Architectural and Cultural History  
Recent excavations at this historic, National Register property have uncovered traces of the dependencies that surrounded this standing structure until recently. From the federal five bay frame construction to the exterior end fireplaces, Holly Bend was and continues to be an example of vernacular architecture. Changes in the economic status and agricultural practices of the Davidson and subsequent families are reflected in the construction and abandonment of outbuildings formerly surrounding the house. Elements of these changes are exhibited in the poster along with images of recovered domestic material culture.

Mayfield, Tracie (University of Arizona), David Pendergast (University College London) and Elizabeth Graham (University College London)  
[72]  Consumerism, Industrialism, and Agriculture: Consumption and Productive Practices at Lamanai, Belize, During the Nineteenth Century  
Very few historical-period studies have focused on the Mesoamerican lowlands and to this end, the relationships between people, material culture, space, and technology in this region are poorly understood. Clearly, archaeological and historiographical investigations are needed in order to add perspectives inaccessible by any other means, such as the make-up and internal nature of small-scale, colonial-administered enterprises, which appear to have dotted the landscape in an attempt to extract or produce raw materials such as logwood and sugar. Much like the history that came before European contact, colonialism in Belize was not a uniform movement. Maya, Europeans, and other groups such as Chinese immigrants and emancipated slaves of African descent were incorporating or rejecting objects, technologies, and spatial practices differently, depending on time and place. This presentation will explore the material, social, and technological dialectics active at Lamanai, Belize, during the nineteenth century when British colonists established a short-lived sugar plantation at the site. Previous archaeological investigations recovered data that clearly indicated the presence of materials associated with day-to-day behaviors generally linked to late-colonial industrial and residential activities such as cooking and eating, building maintenance and construction, health and hygiene, and sugar agriculture and production.

Mayo Torne, Julia  
[197]  La Necrópolis de El Caño. Nuevos aportes al conocimiento de las sociedades del istmo centroamericano.  
Recentemente se han descubierto en El Caño, valle de Río Grande de Coclé, región cultural "Gran Coclé", en Panamá, una necrópolis con tumbas de personas de alto rango fechadas entre el 700 y el 1000 d. C. Éstas son coetáneas a las halladas en el cercano Sitio Conte, cementerio en el cual Samuel K. Lothrop del Museo Peabody de la Universidad de Harvard y John A. Mason del Museo de Antropología de la Universidad de Pennsylvania descubrieron, hace ochenta años, la primera evidencia arqueológica de la complejidad de las jefaturas panameñas. La existencia en Sitio Conte y El Caño de elementos semejantes –basaltos columnares dispuestos en hileras, calzadas de cantos rodados y ricas tumbas- organizados espacialmente de forma similar a lo observado en Sitio Conte indica la existencia
de un patrón funerario en el valle de Río Grande. Además de esta multiplicidad de sitios que entran muy probablemente en una dinámica regional de rivalidad competitiva entre grupos, la presencia de niños con ricos ajuares indica que entre el año 700 y el 1000 d.C. se encuentra el momento de máximo desarrollo, en lo que a complejidad se refiere, de las jefaturas del istmo centroamericano.

Mayro, Linda (Pima County Administration) and William Doelle (Archaeology Southwest)

 Conservation Archaeology in Action: Using CRM Results for Long-term Research Programs, Land Conservation, and Outreach

As the new field of cultural resource management was taking shape in the early 1970s, Bill Lipe in his foundational statement, "A Conservation Model for American Archaeology," rightly challenged archaeologists to understand that "all sites are rather immediately threatened..." not only from development and construction, but also by the profession itself, especially as the business of doing archaeology became a growth industry. It soon became apparent that there was a need to balance the exploitative aspects of cultural resources management with a conservation ethic, where entire archaeological sites and even communities and cultural landscapes could be preserved in-place. Throughout our respective careers, we have embraced this ethic in the practice of cultural resources management, resulting in public policy for the protection of cultural resources, the creation and implementation of the regional Sonoran Desert Conservation Plan, nearly $30 million in public bond funding for archaeological site protection and historic preservation, and an innovative approach that we call Preservation Archaeology, which seeks to balance research, site protection, and public outreach.

Mazin, Anna (The College of Wooster), Olivia Navarro-Farr (The College of Wooster) and P. Nick Kardulias (The College of Wooster)

 Gendering Ceramic Production in Hohokam Society

The Hohokam culture thrived in the Sonoran Desert of Arizona from roughly 300 BCE to 1450 CE. Hohokam pottery is divided into four general types: plainware, redware, buffware, and Salado polychrome. In this study I seek to identify who would have been responsible for ceramic production and consider how the organization of production reflects the structure of Hohokam society. I argue that the continuation and evolution of ceramic designs reflects the transmission of the craft from teacher to student. One may theoretically follow these lines of transmission by studying similarities and differences of design, and then use transmission as a proxy to trace larger social concepts, such as matrilocality or the political, social, and economic relationship between communities. Expanding on previous work in which I discussed Hohokam production sites and materials, I examine ceramic samples and ethnographic data for evidence of generational design transmission, and then utilize ceramic designs as a proxy to infer social patterns such as matrilineal descent.

McAnany, Patricia [31] see Dedrick, Maia

McAnany, Patricia (University of North Carolina, Chapel Hill), Adolfo Ivan Batun Alpuche (Universidad del Oriente, Yucatan, Mexico), Sarah Rowe (University of Illinois) and Maia Dedrick (University of North Carolina, Chapel Hill)

 What Lies Beneath the Basketball Court? Community Archaeology and Managing the Dead

Sixteenth-to-eighteenth century missionization in Yucatan often included forced relocation of Maya peoples, construction of monumental church complexes, and burial of converts around the perimeters of churches. Mission churches are still highly visible today and the adjacent burial grounds provide a focus for studies of colonial disease/health, but little is known of the dwellings in which relocated Maya peoples lived. Archaeologists from UNC-Chapel Hill and Universidad del Oriente (UNO) formed PACOY (Proyecto Arqueologico Colaborativo del Oriente de Yucatan) to find and investigate colonial Maya dwellings. One locale that holds significant potential for this investigation is Tahcabo—an eastern Yucatec town founded in 1549 and still occupied today. During the summer of 2013, the mission complex and associated town features—such as rejolladas—were scanned, mapped and limited surface collection conducted. Town meetings and dialogue with community members revealed the layer of colonial burials beneath the town plaza to be a source of concern in trying to balance a respect for the
dead with civic improvements (such as a basketball court). PACOY researchers and the community have now joined together to pursue techniques of mapping the perimeter of the burials to assist in managing the dead and to conserve cultural heritage in situ.

**Mcardle, Angela**

[167] *Finding Meaning in a Postclassic Obsidian Core Cache*

This Paper examines an obsidian cache offering excavated from underneath the foundation of the southeastern corner of a Postclassic Maya structure in Flores, Guatemala. The cache consists of approximately 200 exhausted prismatic cores, 100 prismatic blades, and 10 flakes, all of various types of obsidian. The components of this offering were found arranged in a radiating circle underneath the structure floor in a concentrated area measuring 30 cm in depth. Post-excavation data collection consisted of sourcing the obsidian and documenting the measurements, degree and type of rejuvenation, presence and type of use-wear, and the number and variation of platforms, blade terminations, and blade scars for each artifact. This information is used to examine the core-blade technology responsible for creating this assemblage as well as to comment on procurement practices and the role of trade and polity interaction in the Postclassic Maya period. This paper will also explore the relationship these cores, blades, and flakes have with the structure they were found underneath and the kind of caching behavior at play that resulted in this offering's deposition. Analysis of this cache provides information on lithic technology, trade networks, and cache-structure behavior of the Maya inhabiting the southern lowlands during the Postclassic.

McBrearty, Sally [209] see Melville-Mant, Alison

McBride, Pamela [18] see Moore, James

**McBride, Alexis**

[84] *Parks, Piazzas, or Abandoned Lots? Archaeology of Outdoor Spaces in the Near Eastern Neolithic*

Exploration of communities and community interaction in prehistoric settlements has traditionally focussed on architecture and buildings; however, a lot of activity would have taken place outside. People would have been cooking, talking, building, tending animals, weaving, sewing, and a million other daily tasks in the spaces between buildings and around the fringes of the village. These spaces have been largely ignored by archaeologists, however, and this means missing a big proportion of daily life. I look at the physical reality of the outdoor spaces at a number of Near Eastern Neolithic settlements and present a methodology for modelling the way people could have occupied and moved through these spaces. I also examine the evidence for activities that might have been taking place outdoors. This elucidates how people might have been interacting in these early villages and whether they functioned as parks, piazzas, or simply as abandoned space, and demonstrates how explorations of exterior space contribute to our understandings of the past.

McBride, Pamela (Museum of New Mexico, Office of Archaeological Studies)

[294] *Chuska Archaeobotany: From Rooffall to Floorfill, Plant Remains from Late Archaic to Ancestral Pueblo Contexts*

More than 200 flotation samples were analyzed from data recovery conducted along U. S. Highway 491, documenting Late Archaic, Basketmaker, and Puebloan subsistence in the southern Chuska Valley. This data set offers opportunities for comparison to others in the region, including Chaco Canyon, Mexican Springs, and Twin Lakes, to name only a few. The maize assemblage, consisting of over 100 cobs and about 80 kernels, has the potential to provide especially intriguing comparative results.

McBrinn, Maxine (Museum of Indian Arts and Culture, Santa Fe) [202] *Linda Cordell: Her Life and Legacy*

Linda Cordell's primary research focus remained where she began, on understanding life in the late, large
pueblos of the northern Rio Grande. Her range of interests, however, was broad and deep and her influence equaled her interests. Over the course of a long career, she examined a wide range of archaeological research topics from landscape use and trade patterns to the possibility of priestly power at Chaco Canyon. Her long tenure as museum curator and then museum director led to an interest in museology. Her thoughtfulness about the lives of Native Americans, past and present, informed her involvement in questions of traditional territory, affiliation, and justice. Cordell’s understanding of the history of the profession in the Southwest influenced her actions and views. She energetically mentored young scholars in archaeology and anthropology, including many who were not officially her students. This presentation sketches Linda Cordell’s life and continuing legacy.

McCafferty, Geoffrey (University of Calgary)

Sonzapote, Power and Authority at an Early Urban Center in Nicaragua

The Sonzapote site on Zapatera Island (Nicaragua) is well-known for dozens of monumental stone statues representing human figures, many of which are seated on thrones. Yet little attention has been paid to the archaeological context of the site, including the statues and associated architectural features. In 2013, a joint archaeological project involving the University of Calgary, Mi Museo (Granada), and the Universidad Nacional Autonoma de Nicaragua conducted preliminary investigations at the site. The objectives of the project were to map the architecture, inventory the existing mounds and monuments, and establish the archaeological context of the occupation. This paper presents the results of excavations at Mound 14, including both the construction history as well as post-abandonment use as a mortuary site. The revised chronology results in major changes to interpretation of Sonzapote within the regional politico-religious network.

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

Monumentality at Sonzapote, Nicaragua

Since its initial discovery in the late 19th century, Sonzapote on Zapatera Island has been famous for its monumental statuary. Published in 1886 by Carl Bovallius in Nicaraguan Antiquities, the many huge statues representing standing and seated figures have inspired diverse interpretations. Little, however, has been done in terms of archaeological research at the site to determine the cultural context of these monuments, resulting in more wild speculation than rigorous empirical understanding. In 2013 a National Geographic-funded project began preliminary investigations at Sonzapote that included a topographic map of the site center, an inventory of extant monuments, and excavations around Mound 14 which uncovered numerous burial urns as well as contextual evidence that tentatively dates construction to the Late Tempisque period (ca. 100-300 CE). This paper summarizes the monuments at the site, consisting of statues, petroglyphs, and utilized boulder work areas.

McCaffrey, Tara [148] see Dexter, Jaime

McCall, Grant [109] see Marks, Theodore

McCall, Grant (Tulane University), Theodore Marks (University of Iowa) and James Enloe (University of Iowa)

Update on the Middle and Later Stone Age Excavations at Erb Tanks, Namibia

This paper reports on our further fieldwork at Erb Tanks, a Middle and Later Stone Age rockshelter in west-central Namibia. Specifically, we offer updates on the dating of site through optically stimulated luminescence (OSL), the analysis of lithic and faunal remains, and studies of the site’s geological
taphonomy. We also provide some further context for the terminal MSA painted stone plaque discovered during the 2011 field season, as well as other artifacts bearing traces of pigment. We briefly discuss the implications of these objects for other similar phenomena known from the region, especially the MSA painted plaques from Apollo 11 in southern Namibia. Finally, we close by considering the nature of cultural changes in terms of the organization of foraging and pastoralist economic systems over the course of the late Upper Pleistocene and Holocene. Our excavations to date offer some surprising insights concerning relationships between patterns of technological organization, mobility and settlement systems, and subsistence intensification. Specifically, we show several adaptive trajectories in terms of site use and mobility patterns that are consistent with increasingly specialized strategies for dealing with the hyper-arid environmental conditions of the Central Namib Desert gravel plains.

Chair

McCane, Carmen [302] see Demarte, Pete

McCarthy, Elizabeth (University of Missouri), Christine VanPool (University of Missouri) and Andrew Fernandez
[44] A Comparative Study of Turkey Burials in the American Southwest
During the 2013 field season at the 76 Draw site in southwestern New Mexico, a single bird burial was discovered and excavated. Large quantities of photographs were taken during excavation in order to construct a detailed map of the orientation of the remains. From these photographs and maps, the sealed context burial can be compared to bird burials from other American Southwestern cultures. Tentatively identified as an individual adult turkey (Meleagris gallopavo), a comparative study of Turkey use in the region was undertaken to place the remains in context of the site’s complex cultural history, which includes influence from Casas Grandes culture to the south and the Jornada-Mogollon culture to the north and east.

McCarthy, Elizabeth [44] see Rakita, Gordon

McCarty, Rose [340] see Enloe, James

McClain, Maggie (Texas State University)
This research examines the frequency of coalesced porosity on the articular surface of the patella among prehistoric Native Americans. The five groups (n=180 individuals) examined in this study varied temporally (Archaic–Late Prehistoric) and geographically (Tennessee, South Dakota, and Texas), and practiced hunter-gatherer, horticultural, and agricultural subsistence regimes. This analysis found that coalesced porosity occurs at a high frequency among agriculturalists (41%), but at a low frequency among horticulturalists and hunter-gatherers (7–18%). Different subsistence regimes require certain repetitive physical activities, some of which leave particular signatures on the skeleton. Although previously considered an indicator of arthritis, coalesced porosity on the patella results from prolonged hyperflexion while kneeling, which places the patella in direct contact with the femur. Friction from the femur and localized pressure from kneeling on a hard surface causes destruction and pitting of the articular surface of the patella. The posture required to create this articular surface change is identical to the corn-grinding posture that is well documented ethnographically. This research indicates that subsistence activities involving long hours grinding corn or other grain results in coalesced porosity on the patella, and that a high frequency of coalesced porosity is a clear skeletal marker of agricultural populations.

McCleary, Alexandra (University of California, Berkeley)
[215] Affective and Effective Objects: the Museological Odyssey of a New Mexican Accession
In March of 1897, artifacts ranging from samples of potter’s clay to local renditions of Catholic iconography from New Mexican Rio Grande pueblos were accessioned into the Smithsonian National
Museum’s ethnographic collections. The perfunctory designations first ascribed to these artifacts have had an enduring and profound effect on their fate as objects of study, display, and cultural mediation. Using this accession as a guiding framework, I will assess how the construction of historical narratives and nominal cultural designations have come to shape the Institution’s ethnographic collections, and how they in turn are made to perpetuate such narratives. The Smithsonian Institution, whose age, depth, and breadth of material culture is unparalleled in the United States, provides a natural environment to study historical disciplinary trends and practices within the United States. While there is increased sensitivity to simplistic distillations of complex social relationships in contemporary archaeological study, museum collections are still influenced and structured by previously employed curatorial methods. A greater sensitivity to the potential biases associated with previous curatorial strategies will increase the effectiveness of museum-based research, leading to more accurate portrayals of daily life in post-contact New Mexico.

McClelland, John (Arizona State Museum)

[247] Revisiting Hohokam Paleodemography
Archaeological evidence documents an apparent depopulation of the Hohokam region of Southern Arizona at the end of the Late Classic Period (A.D. 1350-1450). It is clear that major population centers were no longer occupied and many of the distinctive material culture traits associated with the Hohokam tradition seem to disappear. Possible explanations include migration, dispersion of the population into less archaeologically visible settlements, and wholesale population decline. The latter hypothesis gained currency partly because of a seminal study of paleodemography and health at the Classic Period site of Pueblo Grande in the Phoenix Basin (Van Gerven and Sheridan 1994). The authors reported very low life expectancy, a very high dependency ratio of juveniles to adults, and other indicators of biological stress, suggesting that the population was not sustainable. Reevaluation of the original demographic data, combined with new data from subsequent excavations suggests that overall life expectancy was in the expected range for prehistoric populations and that there is no evidence of a dependency crisis. Comparing Late Classic and Early Classic samples shows no evidence of a sharp decline, suggesting that we should look beyond health factors in trying to account for the disappearance of Hohokam traditions.

McClung de Tapia, Emily [63] see Martinez-Yrizar, Diana

McClung De Tapia, Emily (IIA-UNAM MEXICO)

[149] Landscape and Paleoenvironment in the Teotihuacan Valley, México: Questions, Data, Interpretations
The analysis of archaeological plant remains together with macro- and microbotanical materials from off-site stratigraphic profiles, contributes significantly to attempts to detect changes through time in past landscapes. Material evidence for past vegetation (groups of plants characteristic of a specific landscape) at different moments in time provide indicators for paleoenvironmental change related to anthropogenic factors, natural climate events, and the interaction of both. Recent research in the Teotihuacan region attempts to sort out the combined influences of human and natural events and processes as they were manifest in the landscape over a period of three millennia. However, no single technique alone offers sufficient evidence, nor is change easily understood within a strictly local or regional framework. It is argued that complementary suites of data offer better hypotheses and more satisfactory interpretations.

McClure, Sarah (Penn State) and Douglas Kennett (Penn State)

[246] Agricultural Origins and the Behavioral Ecology of Niche Construction
Niche construction has become an important organizing concept in the study of agricultural origins worldwide. The concept brings focus to the intentional and unintentional manipulation of plant/animal species and their environments (e.g., terracing) within an evolutionary perspective. In this paper we consider the concept of niche construction within the framework of the Ideal Free Distribution (IFD), a model adapted from population ecology. We use this integrated framework to develop a dynamic model
for the spread of agricultural economies, the subsequent intensification of farming systems and the construction of increasingly sophisticated ecological niches to feed growing populations.

McClure, Sarah B. [300] see Zavodny, Emily

McCool, Weston (University of California at Santa Barbara) and Bradley Parker (University of Utah) [6]  
*Household Maize Beer Production in the Andes: An Ethnoarchaeological Investigation*  
Recent literature on the role of alcohol in the ancient world has shown that the production and consumption of fermented beverages played a key role in the organization of many prehistoric political and household economies. The study of alcohol as a lubricant in social dynamics is especially pertinent in the Andes where reciprocity is the primary form of traditional economic transactions. In spite of the fact that scholars studying ancient Peru have long acknowledged the central role that the production and consumption of chicha played in traditional Andean societies, surprisingly little information is currently available about how to recognize the loci of small-scale chicha production and consumption in the archaeological record. The premise of this paper is that the modern production and consumption of chicha in traditional settings can provide valuable interpretive information for archaeologists working in the Andes. In this article, we develop fifteen independent indices of household chicha production to construct a methodology capable of aiding archaeologists in the recognition of domestic chicha production and consumption in the archaeological record.

McCormick, Sarah (New Mexico State University), Kayla Hurd (Grand Valley State University) and Elizabeth Arnold (Grand Valley State University) [208]  
*An Ethnoarchaeological Examination of the Utility of Tool Preparation Methods for the Production and Use of Bone and Antler Needles*  
Previous ethnoarchaeological research evaluated the ease and expedience of various preparation techniques of bone and antler for tool manufacture. Using both fresh and dry bone, specimens were soaked, frozen and boiled as preparation methods prior to fashioning into a variety of needles. Control samples were selected and exposed to no additional processing. The same was repeated for antler in both fresh and dry condition. No preparation method yielded a clear choice for ease of manufacture as it was possible to create usable tools in a timely manner in all cases. However, boiling and/or soaking as a means of preparation does not enhance (and may impede) manufacture of bone and antler tools. The new research presented here examines questions of use and utility of the artifacts produced. How well would each tool hold up to use over time? Which material would need or tolerate reshaping? Each bone and antler needle produced in the first phase of research has been utilized for leather working and single needle knitting (naalbinding). Size and shape of the needles were significant factors on duration of use (until breakage). Both qualitative and quantitative measures are used to evaluate and test the utility and durability of the tools.

McCorvie, Mary [248] see Simek, Jan

McCoy, Mark D. [242] see Mulrooney, Mara

McCray, Brian (Vanderbilt University) [104]  
*Publicity, Pathways, and Production: Evaluating Regional Diversity in Settlement Patterning and Architecture in Northeastern Peru*  
Posic B, an archaeological complex in the cloud forest ceja de selva in the Department of San Martín, Peru, includes mound structures, raised pathways, and an extensive array of terraces laid out on an alluvial fan. Early colonial documents indicate that the inhabitants of Posic B were Chachapoya, a loosely defined ethnic group that inhabited the region in the Late Intermediate Period (A.D. 1000-1450). Chachapoya sites are characterized by ridge or mountaintop locations, elaborate houses, and lack of public space. Posic B is located in a valley, has few house foundations, and does have evidence of public space. There are 3 suggested explanations for the different settlement strategy: (1) it could be a region- specific adaptation by a Chachapoya sub-group (2) it could have been imposed by Inka imperial
administration, or (3) it could be evidence that Posic B was inhabited by a third ethnic group, the Oramo. Each possibility assumes unique sociopolitical organization of the site. This poster integrates excavation and survey results from Posic B with a consideration of the regional networks in which site inhabitants participated, in order to evaluate the sociopolitical organization and social identity of Posic B society.

McCurdy, Leah (University of Texas at San Antonio)
[107] Virtual Architectural Energetics: An Innovative Digital Analysis

Digital archaeology and virtual reconstruction, in particular, are sometimes pigeon-holed as practices that merely result in the creation of presentation images or displays with little value for archaeological research. Virtual reconstruction is a specific digital methodology that has and will continue to move beyond labels of superficiality and offer innovative means to analyze and interpret archaeological data. As an example, I will discuss my current research on ancient Maya architectural construction practices and how I plan to use virtual reconstruction to analyze the energetics of construction labor. While founded in the established literature on architectural energetics, this methodology transforms the analytical techniques for producing energetic estimates and allows for both synchronic and diachronic labor analysis. Virtual architectural energetics and other innovative digital methodologies are concrete examples of the great value digital archaeology offers modern research.

[107] Chair

McCutcheon, Patrick [10] see Parfitt, Anne

McDavid, Carol (University of Houston)
[152] Discussant

McDonald, Josephine (University of Western Australia)
[156] The Art of Science and the Science of Art

A hallmark of Marvin Rowe’s contribution to rock art dating has been the demonstrated importance of collaboration between chronographer and archaeologist. For science to be successfully deployed to understand how old rock art might be, the scientist must understand how the art “fits” culturally into the archaeological record. This paper explores the interface between science and art at a rock shelter site called Pinpi 5. One of the largest recorded assemblages in the Jilakurru Ranges, this site has numerous phases of art production with changing style(s), subject matter and superimpositions. There is also a suite of motifs here that could be part of a composition: a large snake interweaves itself across the panel, with numerous headdress figures and other unusual anthropomorphs. Thirty paint samples were collected from this site (including several replicates), making it one of the most intensively sampled painting sites in the world. This paper discusses the interplay of science and art – and details the highs and lows of AMS radiocarbon dating of a rock art assemblage in this detailed case study from Australia’s Western Desert.

McDonald, Erin (University at Buffalo)
[300] Social and Political Organization in Late Bronze Age and Iron Age Ireland: Application of the Dual-Processual Approach to Settlement and Pollen Evidence

Traditionally, cultural complexity was viewed as a linear, forward-moving evolution from band to tribe to chiefdom to state. In more recent decades however, archaeologists have begun to recognize cyclical patterns of socio-political organization in prehistoric societies, and the processes that influence change. Theories on political and social organization and complexity in pre-state societies, such as Blanton et al’s dual-processual theory (1996) and Johnson’s scalar stress theory (1982) may be applied to the evidence for socio-political and settlement organization in Ireland during the Late Bronze Age and Early Iron Age transition. Land-use patterns, as determined through pollen samples, can be linked with changes in economic, political and social organization (Plunkett 2007; Plunkett et al 2008: 182). Through Plunkett’s interpretation of pollen data, this paper explores the economic, social and political factors that
may have influenced changes in the socio-political organization of communities during the Late Bronze Age – Early Iron Age transition in Ireland. The ultimate goal of this paper is to apply Blanton et al.’s dual-processual theory to Plunkett’s interpretation of the Irish pollen data.

McElhoes, Jennifer (CSULB), Carl Lipo (CSULB), Sherri Gust (Cogstone), Joe Cocke and Jeanette Harlow (CSULB)

[315] Pleistocene Butchering of Bison Antiquus: Evidence from Palos Verde, California
In 2012, a Bison antiquus pelvis bone was found in a Pleistocene aged deposit of the Palos Verdes region of Southern California. In one location of the bone there is evidence of linear surface modifications that may be the result of prehistoric butchering. Here, we present the results of a project that sought to determine if these indentations were the result of human activities or from naturally occurring processes. Through high-resolution surface reconstruction, SEM analyses and replicas, our results suggest that these marks are best explained as cut marks made on the bone while it was fresh and with a stone tool. The results of this investigation contribute to our understanding of the subsistence of Pleistocene human populations of Southern California.

McElrath, Dale [74] see Emerson, Thomas

McEwan, Colin (Dumbarton Oaks)

[27] The Liquid Plaza: Haucaypata, Cuzco
This paper opens up a new dimension on Inca plazas by considering how liquids flowed through, into and under these public spaces. The vertical conduit known as the ushnu played a key role in maintaining the circulation of liquid offerings. I take as a case study the Haucaypata Plaza in Cuzco where we have more direct, eyewitness descriptions available through the ethnohistoric documents than for any other comparable public plaza in the Andes. These accounts highlight not only the importance of moving revered objects from the Coricancha, but also the reciprocal flow of liquid libations via the ushnu into an underground channel leading back to the Coricancha. I will discuss when and why these ritual events took place in the agricultural calendar.

McFarlane, William (Johnson Co. Community College, KS) and Miranda Stockett Suri (Queens College)

[161] Reconsidering the Reality of Southeastern Mesoamerica: Continuity, Diversity, and Inter-Valley Interaction in Western Honduras
The late fifth century AD was a time of rapid transformation in non-Maya Southeastern Mesoamerica. From this time forward, the landscape of western Honduras would become filled with increasingly complex polities and rising populations. So too is there evidence for a distinctive change in material culture, such as the development of widely shared regional polychrome ceramic traditions and the stabilization of obsidian exchange networks. Arguably, more than any other period in prehistory, it is during the Late Classic that a unique cultural identity emerges from this part of Southeastern Mesoamerica. In this paper we seek to answer the question, can we characterize the diverse peoples and communities of Late Classic western Honduras as belonging to a culture area of shared affiliation and concordant identities, or is "Southeastern Mesoamerica" nothing more than a geographic designation, which encompasses a diversity of strategies just different enough to defy uniform classification? To address this question we place the findings of our own research in the broader context of the long-term research projects conducted by our colleagues since the 1980s. In particular, we emphasize the inter-valley interactions among these polities to illuminate the shared and divergent paths taken by these communities during this period.

McGarry, Ashley (Department of Anthropology, University of Auckland) and Judith Littleton (Department of Anthropology, University of Auckland)

[67] An Unusual Case of Burned Remains from Bahrain: A Violent Incursion?
Burned human remains dating to the Dilmun period are a rare occurrence in Bahrain. One such instance are the burned remains, found at the Qala’at al-Bahrain site in the 1960’s. Due to the unusual nature of
the remains and their association with an extraordinary number of seals predating the Mature Dilmun style, the Qala’at al-Bahrain remains are thought to signify a confrontation between the immigrating Amorite tribes and the local population. In this paper we reanalyse the skeletal material in order to determine whether the remains were burned while in a fleshed, green or dry state. The results provide insight into whether the deaths of the individuals were contemporaneous with the fire event, indicating that the remains had been intentionally burned during or soon after conflict; or whether the remains were burned sometime after death, possibly indicating unrelated events. Two burned control samples, a modern cremation sample and an archaeological sample representing varying states of decomposition, are examined to evaluate burning characteristics specific to dry, green and fleshed remains. The resulting methods are applied to the Bahrain assemblage, allowing a more accurate and precise investigation of the burning event and the processes that act on skeletal assemblages following inhumation.

McGee, Ben (230) see Beck, Colleen

McGill, Kendall

[42]  *Modern Environmental Datasets and the Reanalysis of Cedar Mesa (Utah) Settlement Patterns* Modern geographic information systems and web-accessible environmental datasets have created an opportunity to supplement earlier settlement models and provide additional insight into Ancestral Pueblo occupation of the Cedar Mesa area of southeast Utah. The settlement pattern analysis published by Matson, Lipe, and Haase (1988) contributed basic understandings of the distribution of the many small dispersed sites on Cedar Mesa, and of the environmental factors that influenced these settlement behaviors. Unable to access the surplus of environmental data available today, the initial analysis tested only a small number of environmental variables and employed an environmental proxy if the desired variable data was unavailable. This project will compile geospatial data from the archived site survey records and a collection of geological, botanical and hydrological datasets to test site location relationships with an expanded set of environmental variables. Leveraging the temporal and site type classifications from the prior study, further analysis will assess occupational period trends and variation among site types.

McGill, Dru (Indiana University)

[327]  *Big Pots for Big Shots Revisited: Mound and Village Pottery from the Mississippian Site of Angel Mounds*  In 1993, John Blitz authored an important article on the power of “big pots” in efforts by “big shots” to create and augment social ranking, elite control, and elite hegemony in Mississippian societies. Specifically, Blitz discussed episodes of feasting on mound surfaces at Lubub Creek, evidenced by the overabundance of “big pots” when compared to pottery found in village contexts. As part of a larger dissertation project examining culturally-meaningful variability within plainware assemblages from the Mississippian site of Angel Mounds, Indiana (12Vg1), I revisited Blitz’s arguments by comparing pottery samples from village contexts and the surface of the second largest platform mound at Angel (Mound F). Compared to samples from the village, the archaeological record at Mound F was found to contain greater proportions of plain jars and decorated plates, fewer craft production artifacts, and a restricted range of vessel forms and sizes skewed towards large vessels (and missing small ones). While these findings are similar to those found by Blitz, my interpretation somewhat differs and focuses on the unique technological styles of pottery production found in Mound F samples, highlighting the roles diverse individual pottery and food producers played in building community-identity through collective action at Angel Mounds.

McGovern, Thomas

[75]  *The GHEA Vision: Connecting Communities and Promoting Collaboration*  The Global Human Ecodynamics Alliance (GHEA, www.gheahome.org) grew from an NSF sponsored meeting at Eagle Hill Maine in 2009. The Eagle Hill meeting was aimed at connecting research teams active in different world areas who were working to make the long term record of past human
ecodynamics relevant and accessible to policy makers and the public. This was a high energy gathering, and produced Surviving Sudden Environmental Change: Lessons from Archaeology edited by Cooper and Sheets. This volume is aimed at practitioners and the wider public and is available as an inexpensive paperback or can be freely downloaded. This embodies the spirit of open scholarship, effective use of cyberinfrastructure, and community engagement in sustainability science and education at the core of the GHEA effort. GHEA is open access, web-based, participant structured, and has no governing structure. It has grown rapidly and GHEA projects have attracted external funding, including an NSF Research Coordination Network 2012-16 that has sponsored a series of workshops promoting cross-regional comparisons of our completed long term human ecodynamics experiments of the past, developing models and visualization tools, and going beyond outreach to engage local communities in heritage rescue and education for sustainability. Join the Alliance and contribute!

[29] Discussant

McGovern, Thomas [29] see Brewington, Seth

McGrath, James [66] see Hegmon, Michelle

McGraw, Matt

[232] Sweet Misery: Labor and Power at the Chatsworth Plantation Sugar Mill
The LSU Rural Life Museum conducted Phase III data recovery excavations at the sugar mill portion of the Chatsworth Plantation site (16EBR192) now in Baton Rouge, Louisiana from January to June 2013. Chatsworth Plantation existed as a sugar producer along the banks of the Mississippi River from the 1840s until the property was sold at a Sheriff’s sale in 1928. The purpose of this poster is to explore the question of whether the highly technical nature of sugar mill machinery, as well as the temporal constraints of sugar cultivation in Louisiana, provided the workers with a degree of power. Research is still ongoing and all results are preliminary.

McGuire, Randall (Binghamton University)

[237] The Cult of Quetzalcoatl and Late Prehispanic Religion in the Southwest US and Northwest México
One of the things that distinguishes James Neely’s career is that he has done research in both the Southwest/Northwest and in Mesoamerica. As an undergraduate student at the University of Texas, he taught me not to regard the two regions as clearly bounded separate entities. The late Prehispanic period (CE 1300 to 1450) in the southwest of the United States and the northwest of México witnessed the spread of Quetzalcoatl iconography across the region in several related but distinctive religious movements. These movements embraced Mesoamerican iconography and presumably cosmology but realized it in distinctive ways. We see this iconography on polychrome ceramics, wall murals and rock art. Southwest/Northwest peoples clearly expressed the symbols of the Cult of Quetzalcoatl in these media but they executed them in a style distinct from Mesoamerica. This comparison of shared symbols realized in a distinctive style becomes a metaphor for understanding the relationship between the two regions. By the time of the Spanish conquista in the 16th century, only one of these religions, the Pueblo Katsina Religion, survived. This paper will examine the relationship of these religions to Mesoamerica and how differences in this relationship might account for why one survived and the others disappeared.

[57] Discussant

McGuire, Kelly (Far Western Anthropological) and Nathan Stevens (Far Western Anthropological Research Group)

[166] Following the Cat-tail Highway: Geophytes, Digging Sticks, Formed Flake Tools, and Paleoarchaic Expansion in the New World
Most scholars view the earliest inhabitants of the New World as either specialized hunters or generalized foragers, both perspectives subject to an often strained and incoherent framework of subsistence, technology, gender, work organization, and land-use. A much more parsimonious
approach recognizes the energetic potential of geophytes, particular cat-tail (Typha latifolia), and allows us to re-imagine how these early populations organized their flaked stone technologies with regard to the subsistence efforts of both men and women; how these groups might have gained a toe-hold in the New World; and how they may have expanded so quickly in such an unfamiliar environment.

McIntosh, Brandon

[113] The Archaeofauna of Isla Cilvituk: Socioeconomic Niche Construction in a Lowland Maya Lacustrine Environment

The archaeofauna of Isla Cilvituk, a Postclassic (A.D. 900-1520) Maya site in the state of Campeche, Mexico, offers a unique opportunity to understand differential subsistence and economic strategies across the Postclassic Yucatan. With significant ecological diversity found throughout the peninsula, the production of empirical data from the zooarchaeological record can provide a solution to what Kitty Emery has referred to as the "ill-defined Maya diet." It can also provide a contextual framework through which the evolution of prehistoric human behavioral ecology may be interpreted in terms of resilience following the so called "Maya Collapse." In this paper, the archaeofauna assemblage of the inland lacustrine site of Isla Cilvituk is compared to sites closely connected geographically to the macro-economic core near coastal regions during the Postclassic Period. An account of differential faunal biodiversity across sites from various ecological regions will provide context for how people at Isla Cilvituk utilized their local environment to sustain daily life and participate in market exchange. Such comparison should highlight differential niche construction strategies across the Maya landscape. It is possible that the Maya at Isla Cilvituk extracted commodities specific to their local ecosystem to remain socially, politically, and economically relevant during the Postclassic Period.

McKaig, Rachael (University of Wisconsin-Whitewater, Instituto de Estudios Peruanos)

[285] Material Wealth and Socioeconomic Connections in the Lurin valley – Panquilma and Pachacamac as a Case Study

This paper will focus on comparing the different interpretations proposed not only for Panquilma itself, but also for other Late Intermediate and Late Horizon Period sites in the Lurin Valley. Through the analysis and interpretation of the material goods and other artifacts found at Panquilma and Pachacamac, along with consideration of existing hypotheses of Lurin Valley life, a hypothesis for a material wealth connection will be made. If such a connection between Panquilma and Pachacamac did exist, it will be determined if it is also possible that there existed a material wealth inequality that favored Pachacamac, which could have helped form a socioeconomic hierarchy that strengthened Pachacamac’s role as being central to Lurin Valley life during the LI-LH periods. In addition, an analysis and comparison of the materials found in both central and peripheral household compounds at Panquilma will be done to determine whether or not there were material wealth inequalities in the domestic sector which might have created a complex social hierarchy within the community itself, mimicking the previously posited larger socioeconomic organization. This work will resume the debate on issues such as chronological sequences, social organization and power relationships in the Lurin Valley during the LI-LH periods.

McKeand, Peggy [117] see Gilliland, Krista

McKechnie, Iain (University of British Columbia), Dana Lepofsky (Simon Fraser University) and Madonna Moss (University of Oregon)

[160] Move Over Salmon: New Perspectives on Indigenous Fisheries along the Northwest Coast

For many Indigenous peoples, the right and ability to fish is inseparably linked to their history, social relations, economy, and physical well-being. On the Pacific Northwest Coast, salmon are an iconic genera that have greatly enriched archaeological perspectives on the importance and antiquity of these linkages. However, the emphasis on salmon has been disproportionate relative to the rich mosaic of other species, particularly small fish that pass through conventional screens. Here, we report on zooarchaeological data compiled using fine
mesh screening from over 170 sites from Alaska, British Columbia, and Washington to provide proxy measures of Northwest Coast fisheries over the Holocene. We observe that herring (not salmon) are the most ubiquitous and abundant fish in the majority of zooarchaeological assemblages (NISP) indicating an under-recognized importance to ecosystems and Indigenous peoples on the Northwest Coast. Analyses of temporal variability in 50 well-sampled sites reveals that herring exhibits consistently high abundance and consistently low variance within the majority of sites. We conclude this archaeological dataset reflects a higher and less variable mean abundance of herring prior to the onset of industrial fisheries and provides a new ability to explore regional and temporal variability in Indigenous fisheries on the Northwest Coast.

McKee, Arlo and Charles Frederick

[264] Site Formation Processes at the Murvaul Creek Caddo Site
Archaeological sites situated in the upland sandy mantle of East Texas often show complex postdepositional alteration. Buried site components are commonly identified and attributed to bioturbation or eolian processes. The Murvaul Creek site (41PN175) is a small Middle-to-Late Caddo settlement located on an upland ridge above a broad stream valley in Panola County. Although the ground surface is relatively flat, a portion of the site has been buried by sandy sediments. The geoarchaeological studies, sponsored by the Texas Department of Transportation, focused on understanding the causes and timing of site burial. Multiple dating techniques were employed that suggest that site burial occurred immediately following the abandonment of the site and continued through the early historic period.

McKillop, Heather (Louisiana State University)

[85] The Role of the Sea in the Rise of Maya Civilization
The sea was integrated into the social and economic lives of the inland dynastic Maya as a supplier of coastal salt and other less critical marine resources, as a platform for transportation of goods and resources across various distances, and as a source of stingray spines and other ritual paraphernalia and symbolism basic to Maya ideology. Sea-level rise has submerged many coastal sites on the mainland, offshore islands, and underwater in the Maya area, leaving them invisible to research. The expertise of the maritime Maya in navigation provided a degree of autonomy from the hierarchical organization of nearby inland city-states, leading to heterarchical organization. I evaluate the importance of the sea for trade during the Preclassic, the role of inland trade of coastal salt during the urban expansion of Classic period Maya city-states in the southern Maya lowlands, and the flexibility of the coastal Maya to re-orient their allegiances with the rise of northern polities during the Postclassic. Case studies from the trading ports of Moho Cay and Wild Cane Cay and the Paynes Creek salt works in Belize are used as a platform to examine broader patterns for the Maya region.

[123] Discussant

McKillop, Heather [138] see Vines, Patrick

McKinnon, Duncan P. [157] see Watters, Margaret

McMahon, Kate (Howard University)

[111] “A Sufficient Number”: The Historic African American Community of Peterborough in Warren, Maine
Warren, Maine is located in the midcoast region of southeastern Maine. The small town has a long history that is intrinsically linked to the maritime activities of the region, which began in the mid-seventeenth century. Sometime around 1782, Sarah Peters was brought to Warren as a slave on a ship owned by Captain James McIntyre. After slavery was outlawed in Massachusetts in 1783/1784, Sarah successfully sued for her freedom and married a man named Amos Peters. Together, they raised a large, mixed-racial family, and settled near South Pond, a good distance away from the main village. By the 1820s, they had their own school district, were part of the Baptist church, and had a
good deal of land. Their population peaked in the 1850s and 1860s, with as many as eighty-two mixed-race people living in Peterborough. This paper focuses on how African American and mixed-racial communities were able to establish themselves in maritime northern New England in the years prior to the Civil War, particularly during the antebellum period. Peterborough is a case study toward understanding African American communities outside of the plantation setting, and their relationships between agriculture and the sea.

[111] Chair

McManamon, Francis (Center for Digital Antiquity)

[239] RBS to CRM (1974-2014)–Continuing and New Challenges and Opportunities

CRM (Cultural Resource Management) was a new term in the early 1970s, but its foundation is in the concerns about the protection of archaeological sites that developed in the late 19th/early 20th century and continued with the development of emergency/salvage archaeology in the mid-20th century. CRM continued (and expanded) the conservationist approach to archaeological resources, as well as some methodological and technical approaches. One substantial change with CRM has been the focus on project planning. Most of the contemporary archaeological investigations in the US are tied to some aspect of CRM. Topics related to CRM, e.g., professionalism, quality of results, sharing and preservation of information, costs, etc. are important to all American archaeologists. Most, professional archeologists support conservation as the appropriate treatment of the in situ archaeological record. Operationally this approach has the goal of managing archaeological resources for long term preservation, yet allowing prudent, justifiable use of the resource for research. There is general agreement that the network of professional archaeologists in the various sectors of the discipline, e.g., public agencies, CRM firms, and academic settings, and the statutes, policies, regulations, and guidelines that protect archaeological resources are important to maintain and, preferably, strengthen.

[30] Discussant
[151] Chair

McNatt, Logan

[70] Composite Three-Prong Censers From Caves in the Maya Lowlands

Initial investigations of the Chiquibul River cave system in southwestern Belize in 1984 and 1986 included an archaeological reconnaissance. One area in Actun Kabal was named the Ledge of Offerings because it contained a large quantity and variety of artifacts. The assemblage included elements of the lowland Maya variety of composite three-prong incense burners first described by Stephan F. Borhegyi in 1959. He recognized that separate elements recovered in the 1930s from San Jose, Belize were actually components of a single vessel. This paper discusses the distribution of these censers in caves in the lowland Maya area.

McNeil, Cameron L [161] see Barrios, Edy

McNeil, Cameron (Lehman College, CUNY)

[191] Negotiating Identity at Río Amarillo: Preservation and Resilience from the Late Classic to the Postclassic Period

Investigations at Río Amarillo, located in the eastern section of the Copan Valley, have documented changes over time in architectural forms, settlement choices, and the origin of trade items. Within its ceremonial core Late Classic structures and artifacts demonstrate the influence of Copan while a residential group to the north embodies a mixture of influences including those of the interior of Honduras. The site’s Classic period inhabitants embraced important aspects of the ideology and identity of the great Maya city, including the ritual use of a censer lid in the form of K’inich Yax K’uk’ Mo’, the first Copan king. Late Classic contexts contain Ulua polychrome and Copador ceramics echoing patterns found in Copan’s center. A wall, likely built during the Terminal Classic, demonstrates a distinctive change at the site, where inhabitants went from a town with few defenses to a more fortified center. Some scholars have suggested that the Valley was completely abandoned between the Classic and Postclassic periods, however it is unclear if this occurred at Río Amarillo, or whether the loss of Copan’s
influence instead brought about a change in settlement choices for the inhabitants and a return to practices found in the Early Classic period.

Chair

McNeill, James (Geonics Limited (retired)), Jonathan Fowler (St. Mary's University, Halifax, NS), Robert Ferguson (Parks Canada (retired)), Rebecca Duggan (Parks Canada, Fortress Louisbourg, Louisbourg, NS) and Sara Beanlands (Boreas Heritage, Halifax, NS)


A gradient magnetometer detects archaeological anomalies by measuring perturbations in the earth’s magnetic field caused by variations in terrain magnetic susceptibility. However, many years ago, Tabbagh suggested that short-spacing, dipole-dipole electromagnetic instrumentation that directly measures near-surface susceptibility should offer some interesting advantages. These include: 1) Excellent spatial resolution combined with reasonable depth of exploration (instrumentation with one-meter intercoil spacing provides both spatial resolution and exploration depth of the order of one-half meter). 2) Simultaneous measurement of terrain magnetic susceptibility and electrical conductivity (the conductivity has two useful components, normal DC conductivity and a component arising from soil magnetic relaxation effects). 3) Ability to directly detect changes in susceptibility of a horizontally-layered earth (approximate layered earth-response calculations are simple and a two-layered earth can be identified either by using either a single-spacing instrument in both vertical and horizontal dipole modes of operation or using a dual-spaced instrument). 4) Survey speed is comparable to that of a single-unit gradient magnetometer. 5) Direct susceptibility measurement provides improved survey interpretability due to freedom from response from remnant magnetism and independence from geomagnetic latitude effects. Several case-histories illustrate use of this technique to identify archaeological features associated with early French and Acadian settlements.

McNeill, Casey (Cultural Landscapes of the Irish Coast Project) and Ian Kuijt (University of Notre Dame)

[259] Breathing Life into the Village: Microhistories and Residential Genealogies of Domestic Life on Inishark, Co. Galway

Although widely recognized as an important topic in Historic Archaeology, surprisingly little research has examined the evolution of coastal villages after the Irish Famine. Drawing upon archaeological excavations, archival research, and historical documentation, this presentation explores the spatial interweaving of human action that reshaped the early 19th to mid-20th century village of Inishark, Co. Galway, a historic fishing village off Western Ireland that was abandoned in 1960. Integrating historical ordnance survey maps dating to 1838 and 1898, a 2008 village map, and LiDAR imaging with archaeological survey, we are able to reconstruct shifts in village patterns, residential densities, and land use.

McNeill, Casey [259] see Couey, Lauren

McNiven, Ian (Monash University, Australia)

[85] Kulkalgal and Tudulgal: Geopolitical Manipulation and Domination of Torres Strait Islander Social Networks

The tropical waters of Torres Strait abound in marine resources but terrestrial resources are less pervasive. The Kulkalgal people occupied the relatively infertile and drought-prone sandy cays of the Central Islands in contrast to fellow Torres Strait Islanders who inhabited the resource rich Western and Eastern Islands. High investment survival for the Kulkalgal centred upon water conservation, inter-island mobility, importation of garden produce, and social network development and domination. To help mitigate terrestrial resource vulnerability, the Kulkalgal orchestrated a regional polity and cemented a vast and complex web of social alliances and trade relationships spread across 700km of seaspace. To obviate political vulnerability, a sub-group of the Kulkalgal, the Tudulgal, manipulated the regional exchange system by capitalizing upon their privileged access to marine resources and manufacturing shell valuables that became the primary means of purchasing imported and highly prized sea-going...
canoes which underpinned Torres Strait Islander society. Economic, social and political control and security was further enhanced by introduction of a headhunting ritual cult across the Central Islands and ascendancy of the Tudugal as the most feared warriors across Torres Strait.

McPeek, Kirstie

An Analysis of Ammunition Found at SCAI-39, Santa Catalina Island

The coast of Los Angeles Pimu/Catalina Island has been occupied for more than 8,000 years. Early European explorers dropped anchor in the beautiful Isthmus Cove and forged trade relationships with its inhabitants. While always portrayed as peaceful encounters, one object type that would logically reveal the unabridged nature of this trade relationship is spent and unspent ammunition. This presentation provides a discussion and analysis of the metal ammunition found at the village of Nājququar (SCAI-39) on the Catalina Isthmus based on material from excavations by Schumacher (1876) and UCLA (1969). Both spatial and chronological considerations aid in understanding the nature and extent of the relationships with European explorers from 1602 through the 1800s.

McTavish, Rachel (University of Wisconsin-Milwaukee)

Upper Mississippian Large Mammal Butchering Practices: A Case Study from Langford Sites in Northern Illinois

The focus of this paper is an analysis of how people use a diverse subsistence economy, engaging in agriculture, hunting, gathering, and fishing practices. Choices relating to large game hunting may hold important implications for understanding group interactions within the same ecological region, and relates to culinary preferences and environmental adaptations. People using Langford ceramics occupied the northern Illinois region for 300 years (circa A.D. 1150-1450) before disappearing from the archaeological record. However, the full nature of their subsistence economy remains in doubt. This analysis focus upon the utilization of deer and elk by these groups using data recovered from the several Langford sites located in the Upper Illinois River Valley and its tributaries in northeastern Illinois.

Means, Bernard (Virtual Curation Laboratory)

Promoting a More Interactive Public Archaeology: Archaeological Visualization and Reflexivity through Virtual Artifact Curation

The Virtual Curation Laboratory at Virginia Commonwealth University was established in August 2011 with funding from the Department of Defense’s Legacy Program. Since its establishment, the Virtual Curation Laboratory has created hundreds of 3D digital artifact models from a wide range of archaeological sites located in the eastern United States, as well as printed plastic replicas of many 3D digital models. Some have questioned whether our efforts and those of similar projects are curiosities or novelties with little to contribute meaningfully to scholarly research or public engagement. In this paper, I will argue that 3D digital models and printed replicas allow for new ways of visualizing the past, while preserving the actual artifacts themselves. These forms of archaeological visualization enable the broader public and not just a narrow band of researchers to dynamically and meaningfully interact with rare and fragile objects in ways that would otherwise not be possible, empowering their own contributions to interpreting and understanding the past.

Medeiros, Melanie (William Self Associates) and Jocelyn Bernatchez (William Self Associates)

Exploring Virgin Anasazi Settlement Patterns and Community Structure in the St. George Basin, Southwestern Utah

Archaeological research on the Virgin Anasazi has expanded tremendously during the last 30 years. However, the vast majority of this research has been primarily concerned with answering basic cultural-historical questions, including those related to chronology, the basic characteristics of material culture,
and subsistence strategies. As a result, our knowledge about more complex aspects of the Virgin
Anasazi culture, such as social organization and integration, community structure, and interaction and
exchange, lacks the depth and resolution available for most of the Puebloan region, and the Greater
Southwest in general. Despite these caveats, there is a vast amount of data available documenting the
Virgin Anasazi cultural sequence capable of addressing the more nuanced complexities of the Virgin
occupation and greatly advancing our understanding of the Virgin Anasazi and their place in the history
of the Southwest. Using a GIS-based model, we explore settlement pattern(s), landscape use, and
community organization from Basketmaker II (300 B.C.–A.D. 400) through the end of the Virgin
sequence in late Pueblo II/early Pueblo III (A.D. 1150/1250) based primarily on survey-level data from
the many compliance projects from the Virgin Anasazi region, and specifically from the St. George
Basin.

Medeiros, Melanie [141] see Bernatchez, Jocelyn

Medina, Paulo (Boston University) and Mario Giron-Ábrego (Boston
University)

[70] Mesoamerican Caves: Supernatural Ideas, Real Places
In their 1979 publication, “Pathways Into Darkness” MacLeod and Puleston formulated the first model for
the cosmological significance of caves. They applied the widely accepted model of a three level universe
onto the Popol Vuh. Then they equated their work in Petroglyph Cave directly to Xibalba and the
underworld. In recent years, many of the fundamental premises of the model have come under attack.
Recently, Nielsen and Sellner Reunert have argued that the layer model of the universe was introduced
by the Spanish and is not a Pre-Columbian indigenous concept. In addition, advances in cave
archaeology by James Brady and others have suggested that caves are far more closely associated with
an animate earth rather than the underworld. This paper challenges the very concept of caves as
“portals.” Instead it argues that the notion of a portal is a Western concept based on the idea that god
exists in a different dimension. Thus, the way to connect with the supernatural is through a portal. For the
Maya, on the other hand, supernatural figures are much more immediate and real. The cave is the Earth
Lord’s stone house. The Maya enter and are in his presence.

Medina, C. Lorena

[309] The Importance of the Secular Clergy during the Sixteenth Century in Guerrero State,
Mexico
At the beginning of the sixteenth century, the American continent and its inhabitants were immersed, as
it has been called by Miguel Leon-Portilla, in a encounter of two worlds; two worlds with a vast cultural
differences, differences that at the same time found analogies in the historical process among them.
Thus, the territory called Mesoamerica was conquered by the Spanish in both military and religious
terms. In the religious aspect is important to note that while much of the evangelization was the
responsibility of the regular clergy, it is also important to mention that the secular clergy reinforced and
formed an important part of that process. Thus, the present disclosure denotes different aspects
involving the evangelization process by the secular clergy in the state of Guerrero. The evangelization
procedures by the secular clergy as well as their interactions with indigenous groups will be raised.
Foregoing, within the policies of the government of New Spain, the rules establishes by the Archdiocese
of Mexico and the entrenched relations with the regular clergy.

Meehan, Pascale [341] see Egan, Rachel

Mehta, Jayur (Tulane University) and Scott Johnson (Washington University in St.
Louis)

[177] A Preliminary Analysis of Surface Soils at Emal, Yucatan, Mexico
Surficial sediments, local depositional environments, and inter-and-intra-site variations in soil profiles
were evaluated in the field at Emal between June 17th and July 10th, 2013. Emal is located at the very
northern edge of the Yucatan Peninsula. The site was constructed on a promontory that extends into an
inland estuary, Rio Lagartos, that is delimited from the Gulf of Mexico by a Quaternary barrier island. Surface soils were sampled to a depth of 80 cmb across the Ema landform using an AMS split-tube auger and taken from a broad range of contexts. Sediments were described in the field according to USGS and NRCS guidelines. Soil salinity was measured using an electrical conductivity meter and preliminary analysis of salinity and surface soils indicates potential areas for salt production at Ema. Furthermore, spatial analysis of surface sediments indicates three main soil classes were present; beachhead (Bh), Lower Platform (Lp) and Upper Platform (Up). Lp and Up soils presented darkened organic horizons with charcoal and sherds to depths of 80 cmbs and may potentially indicate the presence of a hortic horizon or mollic epipedon. These data help inform our understanding of salt production and subsistence at this long-occupied coastal site.

Meierhoff, James (University of Illinois at Chicago), Philip Millhouse (Illinois State Archaeological Survey) and Edward Jakaitis III (Illinois State Archaeological Survey)

[176] Locating Kellogg’s Tavern; Prairie Way Station and Frontier Battlefield during the Black Hawk War 1832
This presentation will discuss the recent attempt to locate “Old Kellogg’s Place”; a pioneer settlement and frontier tavern located on the edge of America’s old Northwest frontier. Functioning as an early frontier institution for decades, this stop over on the Peoria-Galena trail would host two separate engagements between Illinois militia and native forces during the Black Hawk War of 1832. This presentation will discuss the conflicting images of the Black Hawk War, past and present, and its importance to the establishment of Midwest Statehood and further national territorial expansion. Contextualized at the Kellogg’s Grove settlement, the investigation for this frontier settlement elucidates the nature of Native-Anglo relations in 1830’s Illinois. Despite documentary evidence, as well as local knowledge and lore (including the graves of American combatants and a stone monument commemorating the battles), the true location of Kellogg’s tavern and the accompanying battlefield may still be unidentified.

Meiggs, David (Rochester Institute of Technology)

[124] Chair

Meiggs, David [124] see Chase, Brad

Meissner, Nathan [123] see Marino, Marc

Meissner, Nathan (Southern Illinois University Carbondale)

[147] The Economics of Point Manufacture and Factionalism in the Postclassic/Contact Period Petén Lakes Region, Guatemala
The Late Postclassic (A.D. 1400 - 1525) and Early Contact Periods (A.D. 1525 - 1697) of the Petén Lakes region are marked by intensified political restructurings including hostilities, alliances, and factional competition among local polities. This paper examines the role of political geography and its impacts on lithic production through a technological systems approach to chert and obsidian small projectile weaponry. New research that includes resampling techniques and Social Network Analysis (SNA) indicates that the Chak’an Itza of Nixtun-Ch’ich’, the Itza of Tayasal and Quecil, and the Kowoj of Zacpetén had complex methods of raw material procurement for points that brought certain ethnopolitical groups into exchange networks with one another while pushing others apart. A macroscopic analysis of the technological styles of arrow points among Petén polities reveals interesting patterns in manufacturing design, including the invasiveness of flaking, blank selection, blank orientation, and preferred morphology. Distant connections to the Xiu, Itza, Chetumal, Dzulunicob, and Chuj polities are also explored in terms of point production and their potential interactions with Petén.
groups. Such information adds to anthropological literature by focusing on the complex intersection of technological systems, micro/macro-regional exchange, and ethnopolitical factions.

Melgar, Emilian [103] see Edgar, Heather

Melgar, Emilian (Posgrado UNAM)

[253] The Technological Analysis of the Turquoise Objects from the Great Temple of Tenochtitlan
In the offerings of the Great Temple of Tenochtitlan in the Basin of Mexico, the Aztecs buried thousands of turquoise pieces at different constructive stages of this building beginning AD 1325 until AD 1520. The majority of them were inlays assembled in complex mosaics, like disks, ornaments of certain Nahua gods, and parts of chert knives and scepters. With the compositional analysis with UVF, XRF, FTIR, and PIXE, we know that almost all of the bluish-stones were chemical or real turquoise from Northwestern Mexico and perhaps the American Southwest. But, where these objects were produced and with which tools and techniques? The aim of this paper is to show the technological analysis applied on the turquoise pieces from Tenochtitlan, using experimental archaeology and the characterization of the manufacturing traces with SEM. As results, we identified three lapidary traditions at Tenochtitlan: one is related with the Mixtecs, another is non-Mesoamerican, and the last one shares the tools and techniques of the Tenochcan Imperial Style. Finally, we will compare them with turquoise objects from Mixtec and Huastec sites, the Chalchihuites region, Sonoran settlements, and the American Southwest, in order to confirm and discuss their places or workshops of origin.

[253] Chair

Mellars, Paul

[71] Discussant

Meltzer, David (Southern Methodist University)

[24] The Last Time This Happened: The 1930s Carnegie Program of Funding Paleoindian Research
The Cramer endowments, targeting as they do a specific scientific problem and supporting the archaeological and interdisciplinary work of more than half a dozen institutions, are both extraordinarily generous and virtually unique in the annals of archaeological research in North America. But not entirely unique: in the 1930s the Carnegie Institution of Washington invested several tens of thousands of dollars into research at Late Pleistocene archaeological sites, support that was vital at a time when the country was in the depths of the Great Depression. The Carnegie funding fueled a decade-long explosion of research and knowledge that formed the basis of our understanding of North American Paleoindians in the second half of the 20th century. The success of that program owed much to the vision of John Merriam, then President of the Carnegie Institution, and to E.B. Howard, whose seminal work at Clovis convinced Merriam of the benefit to supporting interdisciplinary research in this arena.

Melville-Mant, Alison (University of Connecticut) and Sally McBrearty (University of Connecticut)

[209] Testing Projectile Performance and Diagnostic Impact Fractures on Replica MSA Basalt Points
This experiment aims to establish whether: 1) basalt points record diagnostic impact fractures when used
as weapon tips, 2) impact fracture patterns on basalt differ to those on "high quality" raw materials, and 3) if large, triangular points similar to those from the early MSA can function as arrow tips. Despite the wide occurrence of basalt in East African MSA assemblages, basalt has not been experimentally tested for impact fracture preservation. We compare macro-fractures on basalt arrow tips with impact damage patterns that have been consistently demonstrated in experiments on flint, chert, and quartzite. We also test assumptions that MSA points cannot function as projectiles and whether commonly used size categories for spears, darts, and arrows (derived from ethnographic collections of known function) actually correspond to functional limits. Our experimental points have tip cross-sectional areas and tip cross-sectional perimeters larger than known arrows, but comparable to MSA assemblages. We assess their projectile performance using penetration rate, penetration ratio, and durability. Our experimental points were found to function as projectile armatures and to exhibit impact damage. Although basalt is often neglected in functional studies, we suggest it can contribute important data for understanding early MSA behavioral innovations.

Menchaca, Victoria (University of Central Florida) and Sarah Barber (University of Central Florida)

[8] Ballcourts, Ceremonial Centers, and Trade Routes in the Manialtepec Basin of Oaxaca’s Central Coast

This paper reports on the results of a recent survey of the Manialtepec Basin, located on the Central Pacific coast of Oaxaca, Mexico. The Manialtepec Basin is a small coastal pocket surrounding the 1640 ha Laguna Manialtepec. The basin has only limited arable land, but it is the endpoint of the permanent Manialtepec and Chila rivers, both of which may have been important inland-coastal transportation corridors during the Pre-Columbian era. A brief reconnaissance and one rescue excavation in the 1970s identified several sites with mounded architecture and carved stone monuments. The Proyecto Arqueológico Laguna de Manialtepec (PALM) was designed to re-identify sites from the earlier study and provide greater detail on regional settlement patterns in the Precolumbian era. The results demonstrated the Manialtepec Basin had relatively dense settlement from the Late Classic period through the arrival of the Spanish. Several sites with modest monumental architecture—including ballcourts—were identified. The site of Bajos de Chila, site of the 1970s rescue excavations, was relocated, and further information was recovered about this important Formative period coastal site. Finally, the region may have corresponded to an ethnic or economic boundary, based on variability in the ceramics across the survey area.

Méndez Melgar, César (Universidad de Chile), Omar Reyes (Centro de Estudios del Hombre Austral, Instituto d), Amalia Nuevo Delaunay (Instituto Nacional de Antropología y Pensamiento L), Juan Luis García (Instituto de Geografía, Pontificia Universidad Cat) and Antonio Maldonado (CEAZA)

[69] The Initial Peopling of Continental Aisén: Problems Faced, Recent Results and Research projections

This paper summarizes recent research conducted to elucidate the characteristics of the initial occupation of central northern Aisén; framed within the early settlement of Central Patagonia. Essential to this endeavor was modeling the environmental conditions during the last 19,000 years through integrating palaeoecological (sedimentary cores) evidence, geomorphological analysis, and the archaeological record of Cisnes and Nirehuao basins (44°30'-45°30'S). These activities focused on contextualizing previous archaeological evidence gathered at Baño Nuevo 1 (10700 cal yr BP onwards) and El Chueco 1 (11500 cal yr BP onwards) with new information gathered through a search program at stratigraphic and surface locations. Lake Shaman and El Embudo sediment cores provide detailed records of major changes in effective moisture and temperature throughout the Holocene. Comprehensive maps and field measures of the extent of major geofoms (proglacial lake shores, moraines, erratics) provide indicators for areas available for human occupation at the Pleistocene Holocene transition. Surface findings at Pampa Coichel and stratigraphic excavations at Baño Nuevo 15 offer new archaeological datasets with material evidence for human occupations starting at 10650 cal yr BP and allow characterizing an intermittent, though recurrent initial occupation of northern Aisén.
Mendha, Muhammad Ali (Texas A&M University)

Fauna and Identity at Goat Springs Pueblo

Only limited research has been conducted in the Rio Abajo region regarding the social dynamics of its people. In this project I hope to further our understanding of the Rio Abajo region using data from Goat Springs Pueblo (LA 285), a site consisting of 250 rooms near Magdalena, New Mexico, overlooking the southern Rio Grande valley. This pueblo, located on a trail connecting Zuni and Rio Abajo villages, was occupied at least two times during the late Pueblo period (A.D. 1300 - 1680). This project examines the mammalian and avian remains found within the middens and room blocks of Goat Springs Pueblo during the 2011 and 2013 excavations to help understand the identity, economy, and ritual practices of the inhabitants of the pueblo, including their response to Spanish occupation at the village. I will address questions regarding changes in diet and activity involving the use of faunal remains by identifying species and by using a variety of methods of analysis.

Mendoza, Zoila (Native American Studies Department, University of California, Davis)

Contemporary Indigenous Pilgrimage: An Approach to the Andean Sensory Model

Using the example of pilgrimage among Quechua-speaking inhabitants of Cuzco, Peru, I explore the role of the senses in the predominant form of knowledge and memory in Andean culture. I hypothesize that the keystone of such a form of knowledge and memory is the intrinsic relationship between the visual, auditory, and the kinesthetic sensory experiences. Understanding this allows us to explain why Andeans have chosen music, dance, festivals, and other kinds of public performances as privileged forms of social action throughout history. I look closely at the dance troupes that walk for three days and two nights to the sanctuary of the Lord of Qoyllorit'i (Lord of the Shining Snow) accompanied by the incessant music of flutes and drums.

Mendoza, Rubén (CSU Monterey Bay)


The recent publication of Robert Carneiro’s “The Circumscription Theory: A Clarification, Amplification, and Reformulation” provides an essential point of departure for assessing the role of resource concentration in prompting social complexity. Like Carneiro’s 1970 treatment of the classic concept of environmental circumscription, in which demography and conflict are construed as fundamental to that panoply of processes culminating in the rise of the state, the monopolization of circumscribed and critically vital resource deposits is deemed central to the formulation of the compound chiefdom, and by extension, the incipient state. Such a model provides a particularly cogent framework for understanding those socioeconomic and political dynamics that underlie the rise of the ancient state of Teotihuacan, México. By extension, this study proposes that that modicum of “environmental redundancy” characterizing the ecology of Mesoamerica’s Gulf lowlands prompted resource strategies culminating in the politico-genesis of dispersed Gulf lowland compound chiefdoms, and segmentary states or heterarchies. Ultimately, the heterarchical configuration of the Gulf lowland “states” was born of a reciprocal pattern of highland-lowland interdependence (mediated by way of the formation of pan-regional export alliances or Gulf lowland cartels identified with transacting strategic ventures) with the burgeoning populations of the hierarchically-organized paramount highland polity of Teotihuacan.

Mentzer, Susan M. [14] see Vasquez, J. Javi

Menze, Bjoern [65] see Ur, Jason
Mercado-Allinger, Patricia

[151] Reflections on the Development of and Future Directions for State CRM Programs

Passage of historic preservation and environmental protection laws in the 1960s and 1970s, coupled with the Cultural Resource Management and Airlie House conferences in 1974, all contributed to the creation and recognition of what is now commonly referred to as cultural resource management (CRM), an important and applied facet of archaeological research. Each SHPO (State Historic Preservation Officer) is tasked with carrying out the management and preservation of the state’s archaeological resources. These goals present significant challenges to each SHPO program. This paper will review a selection of strategies that programs have employed in order to achieve such critical management goals as protection, preservation and public interpretation of archaeological resources; forming good working relationships with archaeological practitioners; and forging support from the archaeological community and decision makers. There will also be some consideration of “Where we go from here?” with ongoing, as well as new, issues and challenges facing state CRM programs.

Mercier, Simon [191] see Costa, Philippe

Meredith, Clayton (Idaho State University), Willa Trask (Texas A&M University), Jillian Jordan (University of New Mexico) and Shannon Lucernoni (University of New Mexico)

[137] Analysis of a Classic Period Multi-Use Tomb Assemblage in Southern Belize

Southern Belize is typically considered geographically and culturally peripheral in Classic Maya prehistory. Although researchers have documented the development of a "southern Belize style" in terms of architecture and material culture, to date very little systematic work has been undertaken to better understand mortuary behavior in the region. In 2012, excavations at Uxbenka documented two tombs with stepped entryways in the site's L group, located adjacent to the Stela Plaza. Although looting destroyed most of Tomb L1, systematic excavations of the intact Tomb L2 yielded a large skeletal and artifact assemblage, comprised of over 10 individuals and approximately 30 ceramic vessels.

The present research utilizes skeletal and dental data, ceramic analyses, isotopic data, architecture, and contextual data from Tomb L2. We suggest that Tomb L2 was deliberately constructed to be easily accessed, and was repeatedly used for both primary and secondary burials throughout the Classic period. It may have functioned as an important location for ancestor veneration at Uxbenka. Although tombs with multiple individuals are not unknown in the Maya area, tombs with stairs for entryways are far rarer both in the region and the greater Maya area.

Meredith, Steven (Panamerican Consultants, Inc.) and Christopher L. Mickwee (Panamerican Consultants, Inc.)

[165] Investigation of Stone Features in Context of Past Interpretations

The investigation of archaeological features constructed of stone in the Southeastern United States has a history that can be traced almost to the beginning of archaeology in the region. Current interpretation of the wide range of stone feature types has been informed through excavation, ethnographic record, as well as speculation. Because some stone features are the result of ritual activity, and may contain human remains, interpretation of these features for regulatory purposes requires careful assessment. The results of investigations into stone features and subsequent regulatory application have varied across state lines in the past. Because of this, field methods and interpretations of stone features deviate from state to state. This paper presents case studies on how the history of stone feature interpretation affected interpretation of sites for Cultural Resource Management work in Alabama and Georgia, and how it may affect archaeological interpretation and preservation.

Merewether, Jamie

[68] Working with the Public at Crow Canyon Archaeological Center in Southwestern Colorado

Crow Canyon Archaeological Center was established in 1983, as a non-profit center for long term archaeological research that involved the public in the study of the prehistoric sites. Children from 4th grade through high school and adult participants come from across the country to attend week
long programs, where they are taught about the archaeology of southwestern Colorado and the southwestern US through experiential education programs and participation in field excavations and lab work. We stress site preservation and archaeological ethics to all groups. American Indian involvement is also part of our mission. Our Native American Advisory Group advises and provides native perspectives on our programs and research projects. Our board provides financial support, advice and advocacy for archaeology and Crow Canyon in their home communities. Our president and leadership team meets with U.S. and state politicians to encourage governmental support of archaeological research, site preservation and curation. We collaborate on projects and grants with our local repositories, often borrowing artifacts for new or additional studies, thus highlighting the fact that curated artifacts and records continue to be valuable for future research.

Merewether, Jamie [333] see Schleher, Kari

**Merriman, Christopher (University of New Mexico), Keith Prufer (University of New Mexico) and Megan Walsh (Central Washington University)**

[C41] *Climatic and Anthropogenic Causes of Erosion at Uxbenká, Belize*

Uxbenká is a small Maya polity located in the Rio Blanco Basin of southern Belize. This paper outlines a landscape evolution model that incorporates geomorphology, pedology, paleoclimatology, and paleoecology to better understand variations in erosion rates to investigate human-climate-landscape interactions within the basin. Alluvial terraces on the lower Rio Blanco record 9000 years of stratified deposits and can be considered the inverse of fluctuation in basin-wide erosion rates. Accumulation rates in alluvial terrace deposits vary in relation to the availability of basin-wide hillslope sediment. Periods of landscape stability and pedogenesis result from relatively drier conditions and/or limited inputs from anthropogenic landscape modification. Conversely, greater precipitation and/or increased anthropogenic deforestation produce landscape instability. Fluctuating erosion rates and the consequent accumulation of over-bank flood deposits on the lower Rio Blanco are reflected in a series of buried soils in a 4 meter deep profile. The timing of these fluctuations is bracketed by a five radiocarbon dates. The results indicate that following Early Holocene stability, erosion rates were highest beginning in the Middle Holocene coinciding with human colonization of the region and continue through the historic period with a return to stable conditions in recent decades.

**Mesia, Christian (Museo Nacional de la Cultura Peruana)**

[C38] *Convincing the Local and the Foreign: Political Strategies at Chavin de Huántar*

Excavations at Chavin have determined that between 1200-500 B.C., the Wacheqsa sector was extensively used and occupied. The archaeological record in this sector bears evidence of two convincing strategies developed by the authorities of Chavin, one aimed towards gaining local support and the other aimed towards gaining the support of elites from outside of Chavin. Large feasting events were material manifestations of power and prestige, a symbol of labor organization and access to resources. Chavin offered different types of wealth to different classes of people. Elites from outside the Conchucos area came to Chavin in order to be initiated in the Chavin religious system and legitimize their authority; they obtained the wealth of authority, and authority became a commodity. On the other hand, inhabitants of the Wacheqsa sector worked for the ceremonial center, gaining access to resources most likely provided by the authorities of Chavin in exchange for their labor; in addition they obtained religious fulfillment by their participation in the maintenance of the temple.

Mesoudi, Alex [193] see Schillinger, Kerstin

**Messager, Erwan [201] see Naudinot, Nicolas**

**Messer, Andrea (Penn State)**

[C88] *Gaddafi to Post Gaddafi, the Changing Status of Libyan Archaeology in the Media*

Libya is the site of remains of at least Phoenician, Greek, Roman and Berber settlements however,
under the country's 43-year rule by Muammar Gaddafi, archaeological work by outsiders was often limited or curtailed. During the recent revolutionary activities in Libya, including the overthrow of Gaddafi, some archaeological sites were endangered by the conflict. Now, after the rise of a new government, archaeology can seemingly return to normal pathways. How did the media present the state of archaeology during Gaddafi's reign? How important were the archaeological sites considered during the conflict? And now, how do the media represent archaeology in Libya? Through an evaluation of newspaper and magazine articles covering all three time periods, a picture of how the media views archaeology in Libya will emerge.

Discussant

Messinger, David [124] see Middleton, William

Metcalfe, Sarah (University of Nottingham, UK), Sarah Davies (Aberystwyth University, UK) and John Barron (USGS, Menlo Park, USA)

Holocene Climate Variability across Mesoamerica: The Monsoon and Other Drivers of Change

Although dominated today by summer precipitation associated with the seasonal migration of the ITCZ and the North American (or Mexican) Monsoon (NAM), the area encompassed by the term Mesoamerica experiences very different climatic regimes that display differential responses to forcings such as the PDO and ENSO (originating in the Pacific) and the AMO and NAO (originating in the Atlantic). Over the Holocene, other forcings also come into play that might be expected to show regionally varying responses. By drawing together palaeoclimatic data from a wide range of sites and proxies, the spatial patterns of change over Mesoamerica during the Holocene can be explored and the changing role of different forcings considered. Over the last 4000 years, ENSO-type variability appears to have become increasingly important as summer insolation forcing declined in the northern hemisphere. Differential regional sensitivities to climatic variability, including seasonality, need to be considered, although resolving the latter is beyond the scope of most of our palaeoenvironmental proxies. Any exploration of the links between climate change and archaeology needs to take into account the complexity and inadequacies of our palaeoclimatic understanding based on both data and models.

Metcalfe, Duncan [317] see Springer, Corinnee

Metcalfe, Duncan (University of Utah), Corinne Springer (University of Utah) and Shannon Boomgarden (University of Utah)

Range Creek Field Station: The Advantage of “Place”

For archaeologists with strong quantitative and ecological orientations, field stations provide the opportunity for the long-term study of the past in a defined place. The Range Creek Field Station is one such place. It is a 3,000 acre field station in the heart of about 50,000 acres of very remote public lands in central Utah and is managed by the Natural History Museum of Utah at the University of Utah. This area is rich in well preserved archaeological sites related to the Fremont Complex. It also provides ongoing opportunities to collect data on the character of variation in modern fauna, flora, geomorphology, geology, hydrology and weather that contribute to the dynamic environmental landscape of the canyon today. It provides ongoing opportunities to study palaeoenvironmental proxy data to recast the modern data into reconstructions of past environments. And it allows for modern experimental studies of the costs and benefits of a variety of activities to inform anthropologists about how we might expect people to have adapted to those dynamic environments in the past. We review the status of our current efforts in this multi-year, multi-disciplinary research project.

Metz, Brent (University of Kansas)

An Ethnographic Approach to Exploring Indigenous Heritage and Identity in the Former Ch'orti’-Speaking Area

From 2004-2011 the author, who had lived among Ch'orti’-speakers for two years in eastern Guatemala, expanded his research to historical and embodied indigenous memory in the largest conceivable
extension of the former Ch’orti’-speaking region of Guatemala, Honduras, and El Salvador. He visited the most remote areas of 31 municipios, videorecording interviews with elders and others said to know the most about local history and tradition. Nearly all acquaintances were interested in indigenous heritage, although many did not recognize it in themselves. Certain distinguishing features came into focus as indicative of ethnic ancestry, but the larger lessons learned include: a) much folklore in the region, indigenous, Ch’orti’, nor not, is based in Nahua traditions, b) culture and identity are often incongruous, c) it is difficult to distinguish Ch’orti’, Lenca, and Nahua-Pipil heritage, d) indigeneity today is less about unadulterated continuities from the ancient past than creative cultural trajectories distinct from those of dominant populations, and e) a divide between urban and rural cultures and identities matches considerably with the Ladino/indigenous ethnic split. Something for certain is that more archeological, historical, and ethnohistorical research is needed to reveal the ancestry of today’s population.

Meyer, Regina (Missouri Army National Gaurd)

Meyer, William (University at Buffalo, SUNY)

Mars and Venus in retrograde? An analysis of gender patterns in the stories we tell about the past

It has been observed that, while the number and variety of their practitioners may be expanding, the overall practice and content of engendered archaeologies seem to have grown static in recent years. We continue to have similar conversations in session after session, meeting after meeting. At the same time, another critique of engendered archaeologies holds that our interpretations are peopled with individuals too like modern subjects, performing modern (Western) gender roles. In a pair of 2010 presentations, I considered why this might be the case. I concluded that our material-gender relationships with non-human things in the present (relations that each of us has developed since birth) interfere as we try to understand the material culture of the past. At the time, I took the critique of how we gender subjects at face value. In this paper, I present a qualitative analysis of a corpus of recent scholarship in feminist and gender archaeologies. My goal is to demonstrate the variety (or lack thereof) in our casting of gender roles in the cultures that we study. Challenging the patterns that have crept into our engendered narratives of the past might provide an escape from the “holding pattern” in which we find ourselves.

Meyers, Katy (Michigan State University)

Linking the Spaces of Resting Places: GIS, Anglo-Saxon Archaeology and Linked Open Data

Placing the dead in space, both within the broader landscape and in relationship to one another, has important cultural and social implications. Spatial placement can denote broader social status,
aspirational goals of the individual and mourners, religious or ancestral beliefs, or may be indicative of the community’s relationship to the deceased. The importance of space within mortuary archaeology has been recognized for the past half century, and geographic information systems (GIS) has become an integral part of contemporary mortuary research projects. Despite this, primary spatial data from GIS are rarely shared, published, or stored in shareable formats, which inhibits the growth of mortuary spatial studies by forcing constant re-creation of spatial data. Linked open data (LOD) provides a much needed approach for archaeological studies of the deceased. Access and standardization would decrease redundancies, sharing would improve sample size, and linking would allow for creation of more efficient connections between data sets. However, there are numerous challenges of sharing spatial LOD from mortuary sites that need to be addressed. Using Anglo-Saxon burial practices as a case study, I argue that mortuary archaeology and spatial analysis of cemeteries would benefit greatly from the implementation of a LOD plan.

Meyers, Maureen (University of Mississippi) and Richard Jefferies (University of Kentucky)

C.G. Holland: Archaeological Survey in a Cultural Crossroads
An important post-World War II archaeologist in Virginia, C.G. Holland is best known for his work on projectile point typology for Virginia and his survey of southwestern Virginia. He was also a long-time editor of the Archaeological Society of Virginia Quarterly Bulletin, and worked on many other sites across the state. This paper reviews his archaeological career, and focuses on important sites, including the Trigg site and the Carter Robinson Mound site, which he identified in his southwestern Virginia survey. In addition, it highlights more recent work on these sites, and assess Holland’s theory of southwestern Virginia as a cultural crossroads in light of these more recent studies.

Pre-Revolutionary Henequen Landscapes of Northwestern Yucatan
The countryside of northwestern Yucatan was transformed during the late nineteenth century in response to the international demand for henequen, a native agave yielding fiber for the cordage industry. Drawing on the bonded labor of Maya-descent and immigrant populations, landowning elites developed an infrastructure of haciendas, railways, and ports that steadily expanded until the Mexican Revolution irrevocably changed the terms under which the henequen export economy operated. The reordering of rural settlements during this Henequen Episode (1860-1915) has strongly influenced the human geography of modern Yucatan, and scholarly interest in the material basis of haciendas and related sites is accelerating. Recent research highlights multiscalar explorations into a variety of historical landscapes that, while enabling the propagation of an agricultural commodity, served as forums for human-environment interaction, cultural heterogeneity, and class conflict. Case examples shed light on the material conditions that shaped the experiences of rural laborers in the run-up to revolution. Moreover, these studies underscore the prospects and challenges of spatial frameworks for investigating the social dynamics of the henequen boom in Yucatan.

Understanding Violence: Ritual, Conflict, and Sacrifice in the Basin of Mexico
This paper presents results from recent archaeological excavations of a site of mass human sacrifice in the northern Basin of Mexico. During a time of demographic change and political transformation, a small spot where a series of freshwater springs fed a brackish lagoon became the site of ritual violence. Excavations in 2007 and in 2012 uncovered the decapitated crania of over 180 individuals—more than
the estimated populations of villages during this time. Lines and mounds of human skulls, most with articulated cervical vertebrae, constitute the assemblage of human remains. Finger bones, some recovered from eye sockets and cranial cavities, are the only other major represented sub-cranial remains. These characteristics suggest sacrificial offerings but also illustrate the detailed ways in which violence was integrated ritual practice. Furthermore, although taphonomic and depositional processes have affected the site, our analysis suggests that all the victims were male adults, possibly from different social classes and biological populations. Patterns in these data elucidate past rituals, conflicts, and specific historical events. They also force us to question our biases and assumptions about male violence, offering a unique opportunity to carefully interrogate our understandings of past gender relations.

M’Hamdi, Mondher [22] see Anderson, Patricia

Michael, Amy [70] see Burbank, Joshua

Michael, Daniel (UCDenver) and Julien Riel-Salvatore

Assessing Late Pleistocene Hunter-gatherer Mobility in SE Asia through Lithic Technology

Terminal Pleistocene hunter-gatherers of tropical SE Asia employed mixed-subsistence economies that articulated with philopatric mobility to counter resource scarcity in those environments. The peculiar constraints this may have imposed on their mobility suggests that their land-use strategies may have significantly differed from those of contemporary population in Western Eurasia. Stone tool technologies across the region are unspecialized, a reflection of both locally available workable stone and the abundance of organic tool-making materials. This limits what can be inferred about forager mobility on techno-typological grounds. Here, we use an alternative approach focusing on whole assemblages to see whether SE Asian forager land-use strategies fall along a curated-expedient axis documented in other parts of the world at that time. Data from 42 assemblages conform to the expected negative relationship between retouch frequency and artifact density, indicating that, in spite of tropical SE Asia’s ecological distinctiveness, Pleistocene foragers in that region alternated between residential and logistical land-use strategies. Additionally, these data provide a baseline against which to assess the mobility strategies of the Liang Bua hominins, which display a distinctive form of organization that is at odds with that documented throughout the region, with implications for the taxonomy of Homo floresiensis.

Michael, Amy (Michigan State University)

Exploring the Relationship between Sampling Loci and Developmental Age in Isotopic Studies of Human Teeth: A Pilot Study from Kamenica, Albania

Strontium isotope signatures in human teeth are widely employed to explore human migration through time and across space. This study utilizes technical principles outlined in previous studies, but further explores the methodological practice of strontium isotope research as it relates to sampling location on the enamel surface. Due to discrepancies in results from a preliminary study carried out by one of the authors, we hypothesize here that different isotopic signatures may be exhibited over the extent of the enamel surface on a single tooth, as a function of age. If our hypothesis is supported, this study begins to address possible limitations to strontium research, specifically the subject of multiple movements (Price et al. 2002) and appropriate sampling protocol. First, second, and third molars from two Albanian Iron Age (ca. 3000 BC) individuals were sectioned into thirds and enamel from each section was submitted for strontium isotope analysis at MIT’s Laboratory of Earth, Atmospheric and Planetary Sciences. The sections sampled correspond with known developmental ages (Reid and Dean 2006), a powerful source of data for bioarchaeologists concerned with sociocultural aspects of prehistoric migration. We present results of the analysis and discuss implications for further research in central and northern Albania.

[303] Chair

Michel, Robin [125] see Clay, Vickie
Traces of Trowels: Assembling Oral Histories of Excavations in the Middle East

Much has been written about the problem of grey literature-- or worse, excavations that have never been published. But even when excavations are published, the perspectives presented are extremely partial. They generally do not include accounts, analysis, or interpretations from hired workers. Often, these workers have worked on many excavations, and have special expertise regarding local archaeological materials that goes unrecorded because of the conditions of documentation in archaeology. I have been conducting ethnographic research at two sites-- Petra in Jordan and Catalhoyuk in Turkey-- in order to assemble oral histories of the longterm excavations at these two places. I have been identifying the men and women hired to work at these sites, and recording their memories of their work and the projects-- along with the stories still circulating in the wider community. Through this research, I will compare the oral histories of these excavations with the conventionally recorded archival data about them, and will make some generalizations about the impact archaeologists have on the communities they work with. How are archaeological projects remembered, and why are they remembered this way? These questions are significant for understanding archaeological as a research endeavor, a social sphere, and an economic practice.

Satellite Paleoecology in Oaxaca, Mexico: Assessing Potential Productivity of the Prehispanic Landscape

Hyperspectral Satellite Imagery (HSI) from the Hyperion Imaging Spectrometer aboard the Earth Observing One satellite has proven to be a powerful tool for the rapid analysis and assessment of large areas. The richness of hyperspectral data (~240 spectral channels) allows fine-grained distinctions between different classes of materials and material states that are indistinguishable to the naked eye. Applications include the analysis of landscape diversity, the identification of specific plant communities and land uses in contemporary landscapes, assessment of urban sprawl and it’s impact on cultural resources, and so on. In this example, we measure the difference in vegetation between dry- and wet-season land cover in Oaxaca, Mexico in order to assess the potential productivity of the landscape in prehispanic times. The Normalized Difference Water Index (NDWI) measures water in plant tissue. Comparison between scenes captured in the wet- and dry-season respectively allows us to assess both the extent of land which can be utilized for rainfall agriculture and the extent of land which can be cultivated year-round. Measures of prehispanic agricultural productivity can then be applied and the potential agricultural yield of the landscape calculated. These measures can be undertaken rapidly, over large areas and over multiple seasons.

Water Management and Agricultural Risk Mitigation in Southwest Coastal Ecuador

This paper discusses recent survey of previously unstudied areas of the El Azucar and Zapotal River valleys in southwest Ecuador. It focuses on the ways in which agricultural communities from the pre-Columbian Late Formative period to the present used water management in agricultural production in high-risk and unstable environments of the littoral region. Previous studies have shown that water management is linked to periods of agricultural expansion and contraction. The paper explores the use of water management features, known as albarradas, as one strategy in a possible suite of agricultural
risk management approaches beginning in the Late Formative-Engoroy period and continuing through the present. Documented agricultural booms and busts and these survey results draw attention to: the lack of paleoenvironmental research in which to ground the study of Late Formative adaptation, the development of agricultural communities in the Late Formative, and adaptations to high risk littoral regions. These new data and possible explanations are presented.

Mihailovic, Dusan [278] see Boric, Dusan

Mihok, Lorena (University of South Florida) and E. Christian Wells (University of South Florida)

[190] The Royalization of Northern Honduras, 1502-1788: Trajectories of the Pech, Miskitu, and Tolupan

The processes that Spain and England deployed to engender the loyalty of indigenous groups in southern Mesoamerica to their burgeoning empires resulted in significantly different sociopolitical and economic trajectories for today's populations. Drawing from archaeological and historical research over the past decade, including our own investigations of Pech and English/Miskitu settlements on Roatan Island, we analyze macro- and microdemographic trends in northern Honduras from 1502 to 1788. We argue that the different processes of royalization early in the colonial histories of indigenous groups have significant consequences for descendent populations, including issues pertaining to political access and economic development, among others.

Milbrath, Susan (Florida Museum of Natural History), Debra Walker and Ron Bishop

[123] Workshops for Postclassic Effigy Censers in the Chetumal Bay area

Stylistic analysis and neutron activation analysis indicates that effigy censers from Santa Rita, Champoton, and Mayapan are separate traditions. Censers from Chetumal Bay and coastal Campeche are clearly different workshops from Mayapan (Chen Mul Modeled type). Censers from Cerros are stylistically similar to the Kol Modeled type at Santa Rita, a resemblance confirmed by neutron activation studies. Indeed, censer fragments from Santa Rita, Cerros and Colha constitute a single compositional group that is distinct from other Maya pottery. Both stylistic traits and clay sources confirm a localized workshop, probably centered at Santa Rita, the largest Postclassic site in the area.

Milideo, Lauren (Penn State University Department of Geosciences) and Russell Graham (Penn State University Department of Geosciences)

[208] Wolf Dens as Pseudo-Sites: Identifying the Influence of Wolves on Bone Assemblages

The scattered bones of carnivore dens, including those of wolves, may superficially mimic archaeological sites, particularly if only a portion of the bone scatter is excavated; it is therefore useful to establish modern taphonomic models to which possible zooarchaeological assemblages may be compared. An analysis of a bone assemblage, consisting almost exclusively of caribou bone, from a modern wolf den in Nunavut, Canada, is used as an example. Analyses of the types of elements present, bone weathering patterns, and the taphonomic markings on the bones, reflecting carnivore processing, were included; we also present spatial analyses of the bone scatter itself. Bones were mapped in place before collection, similar to elements plotted in an archaeological excavation. By examining taphonomic data in conjunction with spatial patterning, we gain new insight into the nature of these sites, and how they differ from archaeological contexts. Toothmarks and fractures are common, and diverse weathering stages are present, indicating extended or repeated occupation; the bones' distribution over a large area is also distinctive. We identify taphonomic and spatial indicators of this assemblage's origin as a wolf den, and suggest potential means of distinguishing such assemblages from those of archaeological origin.

Miljour, Heather (Statistical Research, Inc.)

[210] Archaic Period Subsistence and Resource Use in a lower-Bajada Environment
Recent excavations for the Luke Solar Project in the western Phoenix Basin revealed one of the largest Archaic sites known to date, situated on a lower-bajada environment. The Middle and Late Archaic Periods were a time of transition in southern Arizona, as foragers became farmers, ceramics were adopted, and other aspects of life changed. Over the last few decades, new data on the Late Archaic/Early Agricultural period has increased our knowledge of this time period, particularly in riparian areas, but the Middle Archaic is still poorly understood. Middle Archaic sites are scarce and are often small, consisting largely of flaked and ground stone artifacts, faunal collections tend to be scanty if present, and floral remains only infrequently recovered. The Middle and Late Archaic occupations uncovered as part of the Luke Solar project include thousands of features, a large faunal collection, numerous identifiable plant remains, and a high frequency of ground stone tools. The Luke Solar project provides an excellent opportunity to examine the ways in which Archaic groups interacted with their environment, the available resources, and the subsistence practices of Middle and Late Archaic groups in a lower-bajada environment.

Millaire, Jean-Francois [113] see Szpak, Paul

Miller, Kye [18] see Hedquist, Saul

Miller, Virginia (University of Illinois at Chicago)
[25] The Representation of Hair in the Art of Chichén Itzá
For Mesoamerican peoples, human hair was considered to be a receptacle for power, and its treatment a marker of gender, status, and social role. Usually depicted as neatly cut or tightly bound and often covered by an elaborate headdress, in Maya imagery loose or tangled hair signals loss of control, whether through emotional release, intoxication, or death. The reliefs and murals of Chichén Itzá, crowded with multiple human figures, provide a particularly rich environment for the study of costume, adornment, body decoration, and hair. A wide variety of hairstyles is represented here, including carefully-groomed long and short styles typical of the Terminal Classic, "mohawks", pony-tails, and occasionally completely disheveled hair. Unique to the site are figures sporting very long blond hair, studded with jade beads. This paper will examine the varied treatments of hair at Chichén Itzá within the context of Late and Terminal Classic conventions, with particular attention to captives and others whose hair is displayed with minimal or no head covering, in order to establish how hairstyles expressed identity and status.

Miller, Melanie (University of California, Berkeley), Sabrina Agarwal (University of California, Berkeley) and Carl Langebaek Rueda (Universidad de los Andes, Colombia)
[103] Tracing Dietary Histories through Stable Isotope Analysis: A Case Study from the Muisca of Colombia, 1200-1550 A.D.
The ancient Muisca culture of the Colombian Andes provide a unique opportunity to study human health and diet during an important period of agricultural subsistence and early period of Spanish contact. Stable isotope analysis of human teeth and bone were analyzed from the Muisca archaeological sample from Tibanica, in the Sabana de Bogotá, Colombia (1200 A.D. – 1550 A.D.). Both collagen and apatite were analyzed from both tissues for carbon, nitrogen, and oxygen stable isotopes to provide a robust analysis of the dietary components of both childhood and adult diet. Dietary continuity or change from different periods of childhood to adulthood may be linked to complex social relationships that vary over the lifetime and may be linked to age, sex/gender, and social status. In a complex culture such as the Muisca, food may offer important insights into changing social roles.

Miller, D. Shane (University of Arizona) and Stephen Carmody (University of Tennessee)
[132] The Ideal Free Distribution and the Early Holocene Expansion in the Lower Mid-South
The Clovis culture likely represents an early, widespread colonization episode at the end of the Pleistocene. However, parts of North America were not intensively occupied until well
after the disappearance of the Clovis culture. Here, we use a sample of published site distribution and frequency studies in conjunction with the Ideal Free Distribution from Behavioral Ecology to argue that parts of the Cumberland Plateau and Appalachian Summit did not have a sustained human presence until the latter parts of the Younger Dryas and the Early Holocene. This pattern is consistent with a global trend of delayed colonization of highland regions.

Chair

Miller, Sarah, Jeff Moates (Florida Public Archaeology Network) and Michelle Williams (Florida Public Archaeology Network)

Co-Creation and the Cemetery Resource Protection Training (CRPT) Program across Florida

The Cemetery Resource Protection Training (CRPT) program offered by the Florida Public Archaeology Network (FPAN) began in 2011 as a reaction to the rapid deterioration of historic cemeteries in Florida. During the first year the Northeast Regional Center of FPAN collaborated with community partners to conduct CRPT workshops in each of its seven counties. CRPT has now expanded to over 20 cities across the state. Workshop participants learn to view cemeteries as outdoor museums in their community through morning and afternoon sessions. The morning session focuses on: cemeteries as archaeological sites, laws that protect cemeteries as well as the people who care for cemeteries, the importance of survey and recording, and examples of cemetery projects within the community. The second session puts theory to practice with hands-on landscape assessment, headstone cleaning, and recording in a local cemetery. This paper will assess CRPT as a co-creative public archaeology program and discuss its relevance to the participating communities.

Co-Chair

Miller, Kevin and Kenneth Lawrence (SWCA Environmental Consultants)

To Drill or Not to Drill: Investigations at the Turkey Terrace Site (41FR70), Frio County, Texas

The Turkey Terrace site (41FR70) is a prehistoric open campsite and procurement area situated along the Todos Santos Creek in Frio County, southwestern Texas. Positioned on an alluvial terrace, between the creek and gravel uplands, Turkey Terrace is composed of broadly dispersed surficial artifacts and substantial subsurface cultural deposits associated with Middle–Transitional Archaic to Late Prehistoric occupations. The site’s large size and potential importance posed challenges for an associated pipeline project, where directional drilling to avoid sites was the modus operandi. Significance testing served as an effective tool to both narrow the area requiring avoidance drilling and provide important information on the site and prehistory of the area. Unique findings from the testing included stratified cultural deposits within a remnant creek channel and thermal features composed of clay balls. This paper discusses the results of these investigations and the analyses performed, and, in particular, reviews the collaboration between archaeologists and clients in finding a project solution that was beneficial to all.

Miller, Naomi (Univ of Pennsylvania Museum-ISAW)

The Ethnobiology of the Warka Vase (Mesopotamia)

Ethnobiological study of antiquity is usually constrained by the limitations of the archaeological remains of plants and animals. Sometimes, ongoing tradition, images, and texts add a symbolic dimension. Such a study has been done of the Warka Vase, an iconic artifact of Mesopotamia. The lowest of three registers appears to represent the basis of Mesopotamian life: water, plants, and animals. Identification of the water and animals is relatively straightforward. In the absence of serious botanical study, the plants depicted are usually thought to be grain and flax. Analysis of the plant imagery in concert with that of archaic signs, botanical characteristics, and our understanding of Mesopotamian agriculture and tradition shows that the ‘grain’ is date palm and confirms the other plant as flax.

Miller, Katherine (Arizona State University)

Creating Community at Copan: The Intersection of Kinship and Migration at the Maya Frontier

The role of kinship in social organization can be explored within the nexus of a social group, the
residential unit, through a careful analysis of archaeologically contextualized human remains thus highlighting the internal structure of ancient societies. The neighborhoods that surround the core of Copan, a major sociopolitical center nestled at the southeastern frontier of the Maya region and western edge of culturally diverse central Honduras, serve as an ideal case to explore the construction of community within an ancient city. This paper considers two competing theoretical models of ancient Maya social organization (House vs. Lineage) and considers multiple possibilities of fictive and biological kinship, short or long-term co-residence, and long-distance kin affiliation in a densely populated dynamic urban environment. The Copan human skeletal collection, the largest in Mesoamerica, provides an ideal context for exploring the lives of Late Classic (AD 600-820) Copanecos. New biogeochemical and biodistance data, drawn from those who directly participated in the creation and maintenance of social organization and were subsequently interred at Copan, provide insight into the complex relationships of Copan’s inhabitants to each other, to their neighbors, and beyond.

Miller, Myles (GMI) and Roger Anyon (Pima County Cultural Resources and Historic Preser)


Burning domestic and communal structures as a means of ritual retirement and transformation from structures to ancestral landscape markers is documented throughout the prehispanic Southwest. In this paper, we examine two temporally distinct episodes of communal architecture burnings in southern New Mexico: great kivas in Mimbres Mogollon pithouse villages during the mid AD 900s and communal rooms in Jornada pueblos during the AD 1300s. Both involved dramatic and public ritual events that marked social change. In the case of Mimbres great kivas the succeeding social transformations occurred in situ; the population continued to live at the same place on the landscape and burned kivas became important ritual spaces within the village. For Jornada pueblos, in contrast, the succeeding social transformations occurred elsewhere and communal rooms became important places in a much larger cultural landscape. We evaluate these transformational episodes with respect to the complex continuum of societal disintegration and integration.

Miller, G. Logan (Ohio State University)

[B340] Variation in the Organization of Ritually Motivated Production at Ohio Hopewell Earthworks

In this presentation, I examine the organization of production at monumental earthworks through the lens of ritual economy. Specifically, I examine the production of socially-valued goods at two Ohio Hopewell earthworks (Fort Ancient and Stubbs) by studying the function of stone bladelets through microwear analysis. Previous research demonstrated that bladelets were important elements in the production of socially-valued goods by inhabitants of Fort Ancient. However, Fort Ancient is often cited as an anomaly among Hopewell earthworks. I will compare and contrast microwear and other contextual evidence from Fort Ancient and Stubbs in order to understand variation in the organization of production. Ultimately, I will present evidence that, despite the lack of a centralized political hierarchy, Hopewell craft production was a complex, multi-faceted process largely organized by the social/ceremonial gatherings at these earthworks.

Miller-Sisson, Misha (University of California San Diego) and Beniamino Volta (University of California San Diego)

[B319] Changes in Sub-royal Elite Culture at the Maya Site of Uxul: Before and After the Incursion of the Kaan Polity

Archaeological models for ancient Maya political organization oscillate between highly centralized regional “superstates” and weakly integrated segmentary polities. Epigraphic evidence suggests that, during the Late Classic period (A.D. 600 – 900), the Kaan dynasty of Calakmul controlled one of the largest and most powerful regional states of the central Maya lowlands. The site of Uxul, Campeche, Mexico, has been proposed as a secondary center within this regional hierarchy. This talk presents preliminary research on the effects of the integration of Uxul within the Kaan state. Specifically, we examine evidence for the presence and social function of sub-royal elite groups at the site. Extensive mapping by members of the Uxul Project has defined a site core with a royal palace and large public architecture. We have also identified a number of possible elite household groups of varying degrees of
size and complexity outside of the central area of the site. Excavations in some of these groups, combined with comparative settlement pattern analysis, allow us to make some preliminary observations on the changing nature and political role of sub-royal elites at Uxul throughout the site’s history.

Millhauser, John [124] see Morehart, Christopher

Millhauser, John (North Carolina State University) and Christopher Morehart (Arizona State University) [205]  
**Hiding in Plain Sight: The Significance of Small Sites in the Northern Basin of Mexico**

Conducting fieldwork away from large settlements enhances our reconstructions of the past and our theory building. Simultaneously, locating small sites that are well-preserved, collecting data from a representative sample, and confronting the mindset of “if you’ve seen one you’ve seen them all” are persistent challenges. In this paper, we present ongoing research from the northern Basin of Mexico’s lake zone that documents small sites’ historical significance during times of demographic growth and political economic change. Our examples target different kinds of small sites—settlements, work areas, and places of worship located beyond the boundaries of cities, towns, and villages. These cases demonstrate that the smallest and seemingly least significant sites were key places of social reproduction and transformation. In this region, as with others, many of these places are rapidly being destroyed by population growth and infrastructural development, reinforcing the urgency to invest serious research in them. Their documentation and intensive study enriches our understandings of multiple dimensions of past settlements, landscapes, economies, and sociopolitical systems, offering a unique vantage from which to contribute to existing models of central Mexico’s past.

Millhouse, Philip [176] see Meierhoff, James

Millones, Mario (Universidad Católica Santo Toribio de Mogrovejo - Chiclayo-Perú) [25]  
**Facial Expression among The Moche**

Phases III and IV of the Moche culture in the Northern coast of Peru developed ceramic vessels with realistic portrait heads that were quite distinct among all other head representation in the Andean world. Despite the generic denomination of “portrait” these vessels offer a great variety of anthropomorphic motives. I am interested in those representations of human faces that would allow one to establish facial expressions using the Facial Action Coding System and to explore the relationship between emotions and power in time and spatial contexts during the period of Moche expansion.

Mills, Blair (Texas State University) and Christina Conlee (Texas State University) [146]  
**Patterns of Structure: The Fiber Artifacts of La Tiza**

La Tiza is an ancient Andean site located close to the modern town of Nasca along the southern coast of Peru. Hundreds of fiber artifact specimens (including yarns, cords, knots, braids, and woven textiles) have been recovered from contexts from the Archaic through to the Late Intermediate Period and possibly Late Horizon. The majority of the textiles have Middle Horizon (A.D. 650 – 1000) and Late Intermediate Period (A.D. 1000 – 1476) associations, and come from both domestic and mortuary contexts. This study analyzed the fiber content (mostly cotton and wool, but human hair and other vegetal fibers were observed), structure, and decoration from a sample of those fiber artifact specimens. This data was compared to similar studies of Andean fiber craft and the identified patterns utilized in a discussion of technology, identity and cultural affiliation. To the ancient Andean people, the characteristics of fiber artifacts, even those that seem more utilitarian, were likely of greater importance in the communication of identity and affiliation than those of us from the industrialized world are accustomed to.

Mills, Barbara (University of Arizona)
**Cuisines as Networks of Situated Practice in Scalar Perspective**

The “communities of practice” concept has been effectively used to understand the transmission of technological practices during production. In this paper I do two things. First, I argue that another fruitful way of looking at communities of practice is through consumption. For ceramics, these patterns of consumption revolve around cuisines as situated practices: the choices that people made in how and what food was prepared, the containers they were served in, and to whom. Second, I look at how these container choices by communities of consumption accumulated at large temporal and spatial scales to produce distinctive regional networks of practices. I draw on research by the Southwest Social Networks Project on late prehispanic period ceramics from the western Southwest to show how networks were produced through the accumulation of choices within communities of consumption. Such a relational perspective requires that we consider networks that are built on shared ideologies and identities in and through consumption, especially those taking place in the most visible and power laden settings. Decorated ceramics, especially polychromes, were one medium through which different communities were constructed. The growth and dissipation of these networks reveals social relations that spanned generations and regions during this dynamic period.

**Discussant**

Mills, Barbara [202] see Bellorado, Benjamin

**Novice Flint Knapping, Seasonal Mobility, and Palaeo-Eskimo Lithic Raw Material Acquisition in the Interior of Southern Baffin Island, Nunavut, Canada**

The identification of novice skill in the archaeological record has been used successfully to infer the presence of children when examining certain technological mediums. However, among lithic toolmakers, replicative experiments demonstrate that to successfully knap stone one needs sufficient upper body strength and hand-eye coordination, which arguably develop later in adolescence meaning that the identification of novice skill among lithics may not directly reflect the presence of children per se. On southern Baffin Island, several early Palaeo-Eskimo sites located in the deep interior exhibit evidence of novice skill suggesting that physical endurance may have been another criterion needed to become an apprentice in this region. Novice reduction episodes are consumptive of raw material and on southern Baffin Island, chert is abundant in the interior yet restricted on the coast; therefore, it makes sense that novices would travel long distances to the interior to learn to break rocks. In 2013, we identified two toolstone source areas in the interior that further exhibit evidence of novice skill. In this paper, we describe these sites and speculate on the pivotal role they played in enculturating Palaeo-Eskimo novice flintknappers through long-distance seasonal travels between southern Baffin Island’s inland and coastal areas.

**Trace-Element Analyses of Near Eastern Ceramics: Overview and Introduction**

In spite of the critical insights which chemical analyses can provide for studies of inter-regional exchange, relatively few characterization studies have been carried out on Near Eastern ceramics, and these represent a limited number of ceramic wares, sites, and chronological periods. To address this sparsity, the OSU Archaeometry Lab initiated a series of collaborative studies aimed at rapidly building-up a comparative data base of ceramic pastes for the Near East. Our goals were to dramatically expand the spatial scope of ceramic trace-element data for the region to include major sites and culture areas, and to begin using these data to directly address models of regional economic organization and inter-regional interaction. With the support of NSF and participating museums, we have now completed trace-element analyses of nearly 1700 ceramic samples, from key sites stretching across Syria, Iraq, and Iran. These analyses provide physical evidence allowing researchers to monitor whether ceramic vessels and containers were moving between the lowlands of greater Mesopotamia and the surrounding highlands, and to reexamine the significance of the shared ceramic styles marking the “Uruk Expansion”.

**Minc, Leah**

**Trace-Element Analyses of Near Eastern Ceramics: Overview and Introduction**

In spite of the critical insights which chemical analyses can provide for studies of inter-regional exchange, relatively few characterization studies have been carried out on Near Eastern ceramics, and these represent a limited number of ceramic wares, sites, and chronological periods. To address this sparsity, the OSU Archaeometry Lab initiated a series of collaborative studies aimed at rapidly building-up a comparative data base of ceramic pastes for the Near East. Our goals were to dramatically expand the spatial scope of ceramic trace-element data for the region to include major sites and culture areas, and to begin using these data to directly address models of regional economic organization and inter-regional interaction. With the support of NSF and participating museums, we have now completed trace-element analyses of nearly 1700 ceramic samples, from key sites stretching across Syria, Iraq, and Iran. These analyses provide physical evidence allowing researchers to monitor whether ceramic vessels and containers were moving between the lowlands of greater Mesopotamia and the surrounding highlands, and to reexamine the significance of the shared ceramic styles marking the “Uruk Expansion”.

**Minc, Leah**

**Trace-Element Analyses of Near Eastern Ceramics: Overview and Introduction**

In spite of the critical insights which chemical analyses can provide for studies of inter-regional exchange, relatively few characterization studies have been carried out on Near Eastern ceramics, and these represent a limited number of ceramic wares, sites, and chronological periods. To address this sparsity, the OSU Archaeometry Lab initiated a series of collaborative studies aimed at rapidly building-up a comparative data base of ceramic pastes for the Near East. Our goals were to dramatically expand the spatial scope of ceramic trace-element data for the region to include major sites and culture areas, and to begin using these data to directly address models of regional economic organization and inter-regional interaction. With the support of NSF and participating museums, we have now completed trace-element analyses of nearly 1700 ceramic samples, from key sites stretching across Syria, Iraq, and Iran. These analyses provide physical evidence allowing researchers to monitor whether ceramic vessels and containers were moving between the lowlands of greater Mesopotamia and the surrounding highlands, and to reexamine the significance of the shared ceramic styles marking the “Uruk Expansion”.

**Minc, Leah**
This paper presents an overview of significant past ceramic characterization studies and introduces the collaborative projects presented in this session.

**Chair**

Minc, Leah [329] see Alizadeh, Abbas

Minerbi, Joanne [298] see Horneman, Rennie

**Mink, Philip (University of Kentucky) and David Pollack (Kentucky Archaeological Survey)**

[268] *Down the River without a Shovel: Investigating the Usefulness of Archaeogeophysical Survey along the Colorado River through the Grand Canyon*

The terraces and deltas along the Colorado River through the Grand Canyon National Park contain hundreds of archaeological sites. Because access to most of these sites is restricted to rafts, through some of the most challenging whitewater in the world, it is one of the most demanding locations for conducting fieldwork in the continental United States. This paper presents the results of a cooperative project between the National Park Service and University of Kentucky, designed to evaluate the usefulness of geophysical survey in this rugged terrain. In addition to access, other challenges had to be overcome, including limiting disturbance to the archaeological sites and vegetation, protecting and maintaining the geophysical equipment in a wilderness environment, and the logistical coordination of a 226-mile one-way trip down the river. In the end, with some modifications to our typical field methodologies, geophysical techniques proved to be an effective tool for managing archaeological resources along the River. Park Service cultural resource managers now have a new set of tools to help them manage these heritage resources.

**Chair**

Minnis, Paul [66] see Nelson, Ben

**Miracle, Rebekah (Ancient Egypt Research Associates) and Freya Sadarangani (Ancient Egypt Research Associates)**

[322] *Something Old, Something New: Integrating Legacy Data and Preparing for the Open Access Future*

Long-term archaeological research projects generate vast amounts of heterogeneous data recorded over the years by teams with differing and evolving recording standards and methodologies. This legacy data can be difficult to integrate with newer excavation datasets, incomprehensible to outside researchers, and incompatible with modern technologies, such as GIS and relational databases. At Ancient Egypt Research Associates, we have twenty-five years of data from our own excavations at three large Old Kingdom sites in Giza, Egypt - the settlement of Heit el-Ghurab, Khentkawes Town, and the Menkaure Valley Temple - as well as the published excavation data from archaeologists George Reisner’s and Selim Hassan’s previous work in the area. We have undertaken a “Data Curation Project” to reassess, standardize and fully digitize all of our excavation data so that it will be internally consistent, compatible with modern recording techniques and technologies, integrated into our GIS, and, ultimately, online, open access, and available to the public. This is a long process but has already resulted in a more complete dataset that will enable both current team members and outside researchers to better utilize and contextualize the entirety of the work done on our sites.

**Mires, Ann Marie**

[283] *Standing the Test of Time: Forensic Archaeology on Trial*

Forensic Anthropologists assist in the recovery of skeletalized remains from crime scenes, profile human remains, assess the circumstances of death, and evaluate traumatic injury. The analyst documents cases without knowing whether they will be prosecuted in the legal system. The work must stand in perpetuity, until the case proceeds to trial. The analyst is bound to the duties and responsibilities of an expert witness. In 2000, four graves containing six individuals were exhumed in Massachusetts. As the Forensic Anthropologist at the OCME, I directed the excavations and analysis of
the material. Standard archaeological procedures were implemented to locate and excavate the graves, which had been revealed by an informant. At the time of the excavations, the alleged perpetrator of the crimes, Whitey Bulger, had fled. It was not until his eventual capture in 2012, that the prosecution proceeded. In June of 2013, the U.S. Attorney’s office prepared for trial on thirty-two counts including murder, racketeering, and extortion. The exhumations constituted six of the nineteen murders, the bulk of the forensic evidence presented at trial. The archaeological documentation was incumbent with creating the forensic record and was done properly thus allowing the forensic record to stand in perpetuity.

Miss, Christian [315] see Kopperl, Robert

Missal, Kele [217] see Heffter, Eric

Miszaniec, Jason (Memorial University of Newfoundland), M.A.P Renouf (Memorial University of Newfoundland), Frédéric Dussault (Memorial University of Newfoundland), Trevor Bell (Memorial University of Newfoundland) and Christopher B. Wolff (State University of New York at Plattsburgh) [325]  
Comparison of Fuelwood Use at Two Dorset Palaeoeskimo Sites in Newfoundland

This paper presents the results from an ongoing analysis of Dorset Palaeoeskimo use of fuelwood from two different forested ecoregions in Newfoundland. The aim is to understand the relationship between tree species available in a region and those selected for fuelwood. The Dorset were largely an arctic people who depended heavily on seal fat for fuel and lived in an environment where wood availability was mainly restricted to driftwood and shrubs. This study will contribute to an understanding of Dorset use of wood as a fuel source in their occupation of a boreal forest environment. The methodology involved the genus identification of 2000 charcoal fragments from the Middle Dorset (2000-1500 BP) sites of Phillip's Garden (EeBi-01) and Stock Cove (CkAl-3). Phillip's Garden on the Northern Peninsula is situated in a subarctic climate and is occupied by a forest largely composed of softwoods, whereas Stock Cove on the Isthmus of Avalon is characterized by a more temperate climate and a mixed forest of both softwoods and hardwoods. A comparison of fuelwood use at these two sites will reveal preferences where multiple species were readily available and thus contribute to an understanding of Dorset practices associated with wood use.

Mitchell, Spencer (Humboldt State University) [140]  
Experimental Observations and Archaeological Implications: The Ancient Maya Codex Manufacturing Process

Experimental archaeology has an important role to play in our understanding of the formation processes in the archaeological record. For the scope of this research, experimental archaeology enables targeted examination of codex manufacturing by the ancient Maya. Although the majority of surviving written material is found on ceramics, monuments, and altars, it is believed that the ancient Maya primarily documented their information on codices made from fig-tree bark paper. However, due to adverse environmental conditions in the Maya Lowlands and the devastation caused by Bishop Diego de Landa very little evidence of the codices has survived. This poster details ongoing experimental research focusing on the tools, raw material, and painting techniques utilized by ancient Maya scribes. I replicated pages twenty-four to twenty-seven of the Dresden Codex. The data in this experiment has revealed that codex production is a long and difficult process, which can leave the individual with lasting physical ailments.

Mitchell, Mark [333] see Ward, Christine

Mitchem, Jeffrey (Arkansas Archeological Survey) [276]  
Archaeological Evidence for the Hernando de Soto Expedition West of the Mississippi River

After traveling around the Southeast for two years, the Hernando de Soto expedition crossed the Mississippi River in June of 1541. At this point, the expedition was in what is now Arkansas, and
traveled in the state for nearly a year until Soto's death in May of 1542. The remaining members of the expedition eventually made their way to Mexico. Archaeological evidence of the expedition is rare west of the Mississippi, largely because they had lost or given away most of the trade goods and other identifiable Spanish material. The best information to date comes from the Parkin site, thought to be the village of Casqui described in the narratives. Finds of halberds and Clarksdale bells provide additional hints of the route, but determining the expedition's pathway after leaving Casqui is frustratingly difficult.

Chair

Mixter, David W. [137] see Fulton, Kara

Mixter, David (Washington University in St. Louis)

[137] Community Politics Following the Maya Collapse: Preliminary Results from Actuncan, Belize In contrast to the longstanding focus on the 9th century political and demographic collapse of the southern Maya Lowlands, little attention has focused on the strategies of remnant communities that survived in place in the immediate aftermath of this collapse. In the absence of failed divine kings, groups that remained were forced to negotiate new forms of political authority. These negotiations happened first at the local level, where individual communities freed of the constraints of divine kingship developed varied solutions to fill the power void and legitimize the authority of new leaders. One such community was located at the site of Actuncan in the lower Mopan River Valley of western Belize. The collapse of nearby Xunantunich marks the end of divine kings in the region and follows the general depopulation of the valley. In contrast, the population of Actuncan’s site core remains steady throughout the Terminal Classic period (A.D. 780 to 1000). The re-initiation of political life at the site is marked by the construction of a large public platform placed in the middle of the site’s Classic period core. Here, I report on investigations into the civic and ritual architecture associated with this revival.

Miyar, Kathryn (Southeast Archeological Center, National Park Service)

[291] The Reconstruction of Kin Relations and Cultural Identity at Bull Creek (9ME1) This study investigates kin relations within the Mississippi Period cemetery of Bull Creek (9ME1). The Bull Creek site is located in Georgia and contains examples of unique southeastern cultural practices including intentional cranial modification and effigy burial objects. The application of bioarchaeological techniques to kinship reconstruction has distinct potential to expound upon concepts of relatedness. However, metric and non-metric data collection from skeletal remains is commonly limited by poor preservation and obscured by the lifestyle and ontogeny of the individual (e.g., dental attrition from masticatory and non-masticatory use). Alternatively, certain biological markers, such as cultural modification to the crania and dentition, can provide information to reconstruct past kinship and social identity when used in conjunction with mortuary and ethnographic data. This research employs a cross-disciplinary approach to assess kinship, cultural affiliation, and social identity frameworks at Bull Creek. Different methodologies and lines of evidence are synthesized to assess relations in this previously unidentifiable cultural group, including- geometric morphometric shape analysis of crania, ethnohistoric data, demographics, and spatial patterning of variables such as funerary objects, cranial shape, and burial orientation. This research employs techniques that move beyond identification of genetic affiliation to evaluate socially constructed kinship and identity.

Mizoguchi, Koji (Kyushu University, Japan)

[214] How can We Be “Responsible” Archaeologically? This paper examines how we can be ‘responsible’ in the current archaeological discursive space. How the notion of responsibility is used is examined, and it is revealed that the use increasingly focuses on ‘social responsibility’, which is defined to do things to enhance the well-being of human individuals or communities. It is pointed out that the stakeholders of archaeological data/information include the ‘dead’ who left behind material differences which we study, and they cannot have their say over the way their well-being is enhanced/destroyed. Some of us argue that this ‘voice of the dead’ can be represented by
those who do not differentiate themselves from their ancestors in their life-world. However, the other stakeholders live their own life-worlds, and they also have their ways of categorizing and perceiving things. This paper concludes by arguing the following: 1) we can be responsible to one another archaeologically by agreeing that we have to make an effort to create a condition in which we can dispute each other’s rights as smooth as possible; and 2) we have to create a condition in which we can do so on equal terms.

Moates, Jeff [152] see Miller, Sarah

Mock, Cary and Elizabeth Rushton (University of Nottingham)

[158] Historical Climate of Belize

Historical data provide a longer perspective of climate variability well before the temporal coverage of modern instrumental records. These records possess sub-daily temporal resolution, providing a means of independent verification and calibration for other high-resolution paleoclimatic proxy data and assessing human impacts. This study utilizes the best high-quality sub-daily precipitation data from Belize, dating back to the 1820s and being located in a sensitive area concerning the trade winds, winter cold-air outbreaks, and teleconnections such as the El Nino-Southern Oscillation. Data were extracted from numerous United States and UK archives, including meteorological registers, ship logbooks, newspapers, and colonial records. All data were critically evaluated concerning quality. Corrections included dealing with different fixed observation times, various instrumental exposures, and assessing qualitative weather information. Several climate indices, indicative of dryness and precipitation, were formulated to closely reflect societal responses of the mahogany trade. Results indicate generally increased rainfall during the 19th century at decadal time frames during busier activity of the mahogany trade, but extreme years of wetness and drought likely played prominent societal impacts as well. The role of hurricanes and El Nino on extreme years is limited to a few events, such as in 1864 and 1877–1878, respectively.

Moe, Jeanne (Project Archaeology-BLM)

[96] Archaeology and the Common Core State Standards: All Hands on Deck

The Common Core State Standards, scheduled for implementation in the 2014-2015 academic year, provide an unprecedented opportunity to introduce archaeology education in classrooms nationwide. The Common Core calls for inquiry-based instruction, integration of knowledge, cultural understanding and practical cultural literacy, high-level reading in science and social studies, and performance-based assessments. The hallmarks of the Common Core fit well with archaeology education and archaeologists can provide teachers with some of the tools they need to implement the new national standards. Well-designed archaeology education curricula can supply teachers with classroom-ready ways to teach many of the new requirements in science and social studies literacy. This paper will explore the alignment of existing archaeology education materials with the Common Core, the essential role of professional archaeologists in delivering these materials to teachers throughout the nation, and our next steps for better serving teachers, students, and the general public with the results of archaeological research.

Moe, Jeanne [96] see King, Robert

Moffat, Ian (Department of Archaeology, Flinders University), Lawrence Conyers (Department of Anthropology, University of Denver), Mary-Jean Sutton (University of Queensland), William Busch (Mapoon Land and Sea) and Chester Walker (Archeo-Geophysical Associates)

[157] Geophysical and Geomatic Investigations of the Mapoon Mission Cemeteries, North Queensland, Australia

Two cemeteries associated with the former Mapoon Aboriginal Mission, founded in 1891 and located on western Cape York in North Queensland, were the subject of geophysical and geomatic investigations. These investigations aimed to locate individual graves, identify the presence of coffins or other burial
accoutrements and to define the extent of these cemeteries. Ground penetrating radar investigations located more than 100 unmarked graves across both cemeteries. Magnetometry was unable to resolve graves, but did identify a large amount of subsurface metal, including the remains of a house formerly located within the area of investigation of the larger cemetery. Photogrammetric investigations undertaken allowed for the development of a high-resolution digital elevation model, which enabled topographic correction of the GPR slice maps. These results are important to Mapoon people to look after the remains of their ‘old people’ and show respect for their ancestry by fencing the larger cemetery, demarcating identified graves and the future construction of a memorial and garden in this important cultural place.

Mohanty, Sudarsana
[146] **Engendered Mortuary Rituals: A Study of Gender Identity in Ychma Society**

The Ychma site of Panquilma in the Lurin Valley of central coastal Peru dates from the 13th to 15th centuries A.D. The site provides an interesting case study for the development of ideologies, including mortuary rituals, due to the close proximity and relationship this Ychma community maintained with the important Andean religious center of Pachacamac. Significantly, the burials recovered were found in the domestic sector indicating a blurring of lines within the organization of the Ychma community, while the contextual information also does not support an interpretation of ancestor worship. By focusing on the form of the graves and their association with domestic structures, it is the goal of this paper to analyze the development of gender identities in the Ychma community as they were manifested in mortuary rituals. More broadly, this analysis engages in a dialogue about the social and political role of men, women and children within Peruvian communities at this time.

Mohlenhoff, Kathryn (University of Utah) and Virginia Butler (Portland State University)
[173] **Identifying Marine Fish Vertebrae in Archaeological Sites: A Guide Based on Remains from the Northwest Coast of North America**

Archaeologists have relied on artifact typologies since the discipline emerged. Established typologies help expedite the analytic process by formalizing rules of assignment and facilitating assemblage comparisons. Zooarchaeological identification, however, does not typically use typologies. As a result, most faunal identifications are based on a set of unspecified rules, which can lead to inter-observer variation in taxonomic assignment. This problem is especially pronounced with regard to marine fish taxa; identification criteria are rarely described in site reports, making comparison to other fish assemblages challenging. In addition, each faunal analyst or lab has to develop their own rules, impeding research progress. To help address these concerns, we developed criteria for identifying marine fish vertebrae based on ongoing work on the Olympic Peninsula, Washington state. Our criteria serve as an aid in distinguishing vertebrae between families of marine fish, as well as within families and genera when appropriate. Our study includes criteria for vertebrae identification within a variety of common marine taxa, including large orders such as Scorpaeniformes (scorpionfishes) and Pleuronectiformes (flatfish). These rules help address the dearth of information on how identifications can be made and will help future analysts by providing formal rules for testing and applying to other fish assemblages.

Molano, Shaina (PIARA) and Rebecca Bria (Vanderbuilt University, PIARA)
[105] **Exploring Variation in Cranial Modification at Hualcayán, Ancash highlands, Peru**

Sustained excavations between 2011 and 2013 at the archaeological complex of Hualcayán in highland Ancash, Peru have provided a great number of skeletal materials with cranial modification from several tomb types, dating between the Early Intermediate Period and Middle Horizon (1-600 CE). As a cultural practice that preserves in the skeletal record, cranial modification is a form of permanent body alteration that provides a powerful tool for understanding group identity, social structure, and status in a given society. We recovered 53 complete crania and 43 partial crania with modifications from three tomb types at Hualcayán: free standing square chullpa structures, machay structures below boulders, and semi-subterranean tombs. Preliminary analysis of these modified crania show different types of cranial modification including annular, fronto-occipital, frontal, and bi-lobate modification in varying degrees. The distribution of these modified crania across tomb types allows us to question why certain
modifications are associated with particular burial types, locations, and periods. Further analysis of these crania will allow us to learn more about the local customs, lineage groups, and social identity of the ancient population of Hualcayán.

Molinar, Marissa Selena (University of Florida)
[90] Drawing the Hunt: Female Agency in the Age of Hunting in the Coso Range
The Middle Archaic period in California is characterized by population growth and movement, resource intensification, technological innovation and a flourishing of artistic traditions. It is also characterized by an increase in large-game hunting, a practice that would seem to contradict general assumptions of subsistence in such a scenario. One model explaining these developments posits that intensification of big-game hunting was not linked to common provisioning, but, rather, it may have been an arena for individual male achievement resulting in cultural elaboration, including the proliferation of bighorn sheep petroglyphs. It has been asserted that women would have participated and benefited from this system, yet the types of female participation have not been investigated. My aim in this paper is to assess this model and to broaden its scope by identifying evidence of female participation, linked particularly to the simultaneous proliferation of patterned-body anthropomorphic petroglyphs in the area. The model's explanatory potential and the extensive body of ethnographic and historical data from the region are uniquely situated for considerations of female agency and practice, a subject of research that is nearly absent in the scholarship of the Coso Range and California Middle Archaic.

Mollenhauer, Jillian (Metropolitan State University of Denver)
[204] Olmec Sculpture and the Aesthetics of Rock Art
The development of freestanding stone sculpture by the Olmec culture of Mesoamerica's Gulf lowlands has long been identified by scholars as one of the defining hallmarks of emerging civilization during the Preclassic period. In this same period outside of the Gulf lowlands, freestanding sculpture appeared and was in some case eclipsed by various forms of rock art. However, the influence of rock art as an artistic practice, which may intersect or overlap with freestanding sculpture, has been almost entirely absent from discussions of Preclassic art in general and Olmec sculpture in particular. Rather, these works are more often integrated into iconographic discussions that ignore or minimize the unique contributions of rock art to the development of Preclassic visual culture. This paper will argue that although Olmec societies were largely forced to develop freestanding sculpture as a response to the geography of the Gulf lowlands, many of these works display elements that may be relatable to the aesthetics and functions of rock art. By reconsidering the current conceptual divide between rock art and sculpture, scholars may attain new insights into the Olmec artistic tradition and the ideological construction of Olmec sites and landscapes.

Moloney, Mike (University of Calgary)
[107] Modelling Shipboard Societies: An Examination of the Applicability of socio-Spatial Modelling to Shipwrecks
The study of shipboard societies relies heavily on the integration of data from a variety of sources (e.g., historic records, archaeology, literature, etc.). Each piece of the puzzle is used to inform and re-inform the others in a dialectic, which produces a strong image of life aboard ship. In much the same way computer-based models begin with a set of variables and are slowly calibrated through testing and reinterpretation to produce a working model. The use of computer-based modelling, in archaeology, is often criticized for it's seemingly generalist approach. An unfair critique as models require comparative data that can take years to assemble archaeologically, and therefore only appear to generalize. The modelling of shipboard societies can benefit from hundreds of years of documentation that can help build a strong model before it is ever applied to archaeological sites. This paper examines the benefits of combining computer-based spatial modelling with existing strategies for understanding shipboard culture in an effort to exploit the benefits of computer modelling in the investigation of shipwrecks.

Molton, Jada (Jada Molton)
[175] Lithic Artifact Distributions and Social Organization in Housepit 54, Bridge River Site,
British Columbia
The past occupants of the Bridge River pithouse village (EeRl4) located in south-central British Columbia left a remarkable record of stratified occupation floors. Housepit 54, which has been the focus of the latest excavations starting in 2012, contains at least 15 superimposed anthropogenic floors, dating ca. 1100-1500 B.P. and during the Fur Trade period. This poster presents an analysis of variation in lithic artifacts to determine whether space on several floors was organized by multifamily domestic activity zones or activity-specific areas. The study explores socio-economic and political changes over time by comparing artifact distributions on multiple floors. This study will lead to an enhanced understanding of residential social organization and the use of space within pithouses in the interior Pacific Northwest.

Monaghan, George [111] see Baumann, Timothy

Monaghan, George, Timothy Schilling (Midwest Regional Center, National Park Service), Anthony Krus (SUERC Radiocarbon Dating Laboratory, University of), Jeremy Wilson (Department of Anthropology, Indiana University-Pur) and Timothy Baumann (McClung Museum of Natural History & Culture, Unive)

[266] Late Prehistoric Paleodemographic Trends in the Midcontinent North America Reconstructed through Multiple Proxies from Angel Mounds

Angel Mounds, one of the largest Mississippian towns in the lower Ohio Valley, was established prior to AD 1100, grew in prominence, and was abandoned by AD 1450. Over sixty radiocarbon ages derived from earthworks, palisades, structures, and other features between 1952 and 2013 provide a very detailed chronology of the town’s construction and development. Using this record, Bayesian chronological models tracing changes in the numbers of structures and episodes of palisade and mound construction were developed using OXCAL. The results of these models indicate that Angel Mounds underwent two main developmental phases. The first, ~AD 1100-1300, included significant mound construction and use but few structures and no palisades were built. During the second, AD 1300-1450, the majority of structures and at least three palisades were built. Mounds constructed earlier continued to be used and expanded upon after AD 1300. Based the chronological models, sizes of structures, construction energetics for palisades and earthworks, and the archaeological record, local and regional demography were traced to provide a record of changing population trends within Angel Mounds and the surrounding region. These results are also compared to other estimates of population at European contact.

Moncel, Marie-helene

[26] Emergence of Levallois Core Technology in Southern Europe

Our aim is to investigate the oldest evidence of Levallois core technology in Southern Europe to estimate the age, to describe its technological diversity, relationships with raw materials, location of sites, nature of activities and association with other core technologies and types of tools. Some sites will be chosen to illustrate the discourse in France, Italy and Spain. Their characteristics will be compared with data from Northern Europe and Central Europe sites in order to establish its specificity in this part of Europe in term of technological behavior and age of emergence.

Recognition of establishment phases into Late Acheulean assemblages derives from the way these industries are interpreted by adopting either a stricter or a broader concept. Discussion of the origin will be highlighted by a discussion on the definition and the diverse hypotheses: origin of Levallois technology in Europe and the Near East as an in situ evolution from handaxe technology, existence of continuous or discontinuous contacts among human groups distributed across the Mediterranean during MIS 9 due to higher mobility, other land-use or demographical increase involving exchanges of technological skills and complex social interactions, introduction of prepared-core technologies in Europe from Africa by a dispersal event.

Mongeló, Guilherme [129] see Pugliese, Francisco Antonio
Monnier, Gilliane (University of Minnesota)

[26] Is There a “Real” Levallois?

An interesting paradox has emerged within recent years. On the one hand, researchers carrying out flintknapping experiments have worked hard to demonstrate that Levallois technology is a superior strategy that reduces waste and produces thinner and more standardized flakes with more cutting edge. The capacity for shaping these cores is argued to require special, advanced cognitive and cultural abilities. Significantly, the basis for these experiments is always an idealized, ‘classic’ model of Levallois technology (“preferential”). On the other hand, researchers working directly with Upper Pleistocene lithic assemblages in Europe and utilizing a predominantly chaîne opératoire approach to describe technology, are documenting increasing varieties of Levallois technology. This raises two questions: 1) How common is classic Levallois technology (of the type modeled in the experiments) in the archaeological record? 2) Do the many Levallois variants fit the experiments’ conclusions regarding economy, standardization, and shape? This paper addresses these questions and explores their implications for our understanding of human cognitive and cultural development during the later Pleistocene.

Monroe, J. Cameron (University of California, Santa Cruz)

[205] Landscapes of Power and Ambivalence in Precolonial Dahomey, West Africa

Archaeologies of social complexity and the state in West Africa have long focused on major urban centers associated with a handful of expansive kingdoms dating to the last millennium. In recent decades, archaeologists have turned to the countryside to provide an alternative view on the nature of urbanism and power relations across regions. This intellectual turn, however, has been bedeviled by the methodological problem of identifying smaller sites, the result of poor site visibility across the region. Recently completed regional analysis initiated on the Abomey Plateau of the Republic of Benin adopted a feature-based approach to regional survey to circumvent this issue. Based on these data, I argue in this paper that rather than being politically insignificant, the “small sites” identified across the countryside were active determinants in driving state political policy in the precolonial Kingdom of Dahomey.

Monteiro, Patrícia (NAP - Universidade do Algarve), Lydia Zapata (University of the Basque Country, Euskal Herriko U) and Nuno Bicho (NAP - Universidade do Algarve)

[116] Gathering and Wood Exploitation in Cabeço da Amoreira (Muge shellmiddens): New Methods and Data from Charcoal Analyses

Woodland exploitation and gathering activities are important matters of economic and subsistence organization of past human societies. Cabeço da Amoreira, a Muge Mesolithic site, is located in an appropriate area for exploitation of both estuarine and woodland resources. Wood charcoal analyses have been carried out in Cabeço da Amoreira. Botanical samples taken from different areas of excavation have been processed and over 2800 charcoal fragments have been observed. This paper will present results of this study including the identification of species as well as the range of taphonomic processes occurring during the gathering, processing, and burning of wood. This is essential to understanding the woodland management and resource handling practices within the site by Mesolithic societies of Cabeço da Amoreira.

Monteiro, Patrícia [116] see Goncalves, Celia

Monteleone, Kelly (Maxwell Museum, University of New Mexico) and E. James Dixon (Maxwell Museum and Department of Anthropology, University)

[131] GIS Modeling for Underwater Paleoindian Age Archaeology Sites in SE Alaska

The coastline of SE Alaska was submerged by post-Pleistocene sea level rise by at least 16,000 cal yrs BP and rose above modern sea level by approximately 10,600 cal yrs BP. The submerged continental shelf was modeled using bathymetry and other data to identify areas exhibiting high potential for the occurrence of archaeological sites (NSF OPP -#0703980 and 1108367). An archaeological settlement model employed ESRI ArcGIS and GRASS to identify survey areas. The
iterative model incorporated both inductive and deductive methods. It uses archaeological location data including slope; aspect; distance from stream, lakes, coastlines, and known archaeological sites; and, coastal sinuosity.

Chair

Monteleone, Kelly [160] see Williams, Mark

Montgomery, Janet [67] see Caine, Alyson

Montgomery, Lindsay [141] The Problems and Potential of Nomadic Archaeology in the American Southwest
The iconic image of the plains nomad has long been a part of American popular culture and academic research. Although the historical presence of plains nomads is well documented in the Southwest, the material traces of these groups have yet to be engaged with systematically. This paucity of archaeological interest can be attributed in part to the rich tradition of Puebloan research in the Southwest and the perceived absence and simplicity of nomadic material culture. Over the past several years, however, archaeological research in New Mexico has revealed the abundance and diversity of nomadic material culture. In this paper, I will use archaeological data from three nomadic sites in northern New Mexico to discuss the potential benefits and problems of using rock art, lithics, and ceramics to date and culturally affiliate mobile sites. Through a discussion of recent research I hope to complement the well-documented historical presence of plains people in New Mexico while highlighting the complexity of nomadic culture and interaction over time.

Moodie, Steven [302] Identity, Authority and Social Memory: Excavations at the Ixchel Ballcourt, 2011-2012
This paper presents the Social Archaeology Research Program's (SARP) excavations of a Middle-Late Classic (AD 650-750) ballcourt at the ancient Maya center of Ixchel, located in the North Vaca Plateau of the Cayo District, Belize. These excavations revealed that the ballcourt was deliberately positioned to use a simple, Terminal Preclassic-Early Classic (AD 100-300) cache to mark the central axis of its playing alley, highlighting that the ballcourt was the latest construction at a multi-generational locus for ritual action. The socio-political role of monumental architecture and caching practices can be explained by recognizing their interdependent and dynamic relationship with ritual performance. This paper explores how the ballcourt and ballgame were used to mediate interactions between the mortal and spiritual realms of ancient Maya ideology, the power relations between rulers and the ruled, and competitions for political dominance between ancient Maya elites.

Moody, John (The University of Western Ontario), Lisa Hodgetts (The University of Western Ontario) and Linda Howie (The University of Western Ontario) [261] Understanding the Social Context of Inuit Ceramic Production in the Canadian Arctic through Petrographic Analysis
Prior to European contact many Inuit groups produced pottery, largely in the form of cooking pots and oil-burning lamps. Much of the research on Inuit ceramics has focused on how their material characteristics reflect potters' technical strategies in an environment unconducive to ceramic manufacture. Recent theoretical approaches to the study of ceramic technology recognize that choices made by potters during the manufacturing process reflect not only functional considerations but also the knowledge and social context of potters. Ceramic petrography provides information on both provenance and human technical knowledge, and is also particularly suited to comparative characterization studies of coarse earthenwares, like Inuit ceramics, that contain a range of geological and biological compositional components. However, petrography has seen only limited application in arctic archaeological contexts. Here, we present the results of a systematic analysis of Inuit ceramic technology across the Canadian Arctic, which provides insight into the processes of the initial Inuit migration into the Canadian Arctic from Alaska, and subsequent social and historical developments in
Inuit culture.

Mooney, James, Todd Kristensen (Matrix Research Ltd. and Department of Anthropolog) and Keary Walde (Heritage North Consulting Services, Fort St. John,)


Historical records and archaeological finds indicate the Yukon experienced widespread and complex culture contact ranging from pre-contact trade between coastal and interior First Nations to an influx of diverse ethnic groups during historic-period gold rushes. Recent discoveries of Chinese coins minted in the early fifteenth, late seventeenth, and early eighteenth centuries have rekindled interest in their protohistoric and early historic modes of transport from China to the interior of the Yukon and northwestern British Columbia. Russian and British trading may have provided the link between China and coastal Tlingit peoples who carried or traded the coins into the interior. Historic Chinese placer miners in the late 1800s and early 1900s may have also carried these coins with them as lucky charms, amulets, or gaming pieces. While small components of site assemblages, the coins represent significant and expansive patterns of culture contact and movement in the North.

Mooney, Susan Moorhead

[326] Heritage and Culture Essential Skills (HACES) at Whitehorse Correctional Centre (WCC), Yukon Territory, Canada

Heritage and Culture Essential Skills (HACES) is a community-based program at Yukon College designed to build capacity in order to manage, interpret, and celebrate First Nations heritage resources in the Yukon. Over the past five years, this program’s unique approach has encouraged participants’ personal development and facilitated improved capacity to manage local heritage resources in seven different Yukon communities. During the fall 2013 semester, HACES was offered to students at the Whitehorse Correctional Centre for the first time since the program’s inception. The program delivery presented many challenges, but it also provided an opportunity to integrate community partnerships with hands-on learning for inmates prior to release. Students developed essential skills in the areas of reading, writing, document use, numeracy, and oral communication, while exploring culture and heritage resource management and completing a group project.

Moore, Roger [14] see Barrett, Jason

Moore, James, Nancy Akins (Office of Archaeological Studies, Museum of New Me), Dean Wilson (Office of Archaeological Studies, Museum of New Me), Pamela McBride (Office of Archaeological Studies, Museum of New Me) and Karen Wening (Office of Archaeological Studies, Museum of New Me)

[18] Artifacts and Assemblages from Reach 12A of the Navajo-Gallup Water Supply Project

The analyses of ceramic, chipped stone, faunal bone, floral remains, and ground stone artifacts from three sites along Reach 12A of the Navajo-Gallup Water Supply Project north of Gallup, New Mexico have been completed and provide a basis for examining those sites in more detail. Two of the sites are within a Pueblo II Chacoan community, and their artifact assemblages are considered within that context to assess whether they resemble those from other Chacoan communities, or are distinct in some ways. The third site dates to the Basketmaker III period, and materials from that site are compared to those from the Pueblo II sites to examine the effect of the Chacoan sphere of influence on this area.

Moore, Jerry (CSU Dominguez Hills)

[246] In the Desert between the Seas: Environmental, Social, and Ritual Factors in Hunting and Gathering Settlement Systems in Baja California.

Michael Jochim’s seminal 1976 book, Hunter-Gatherer Subsistence and Settlement: A Predictive Model, influenced several decades of archaeological studies of settlement strategies among foraging societies, including my archaeological surveys in northern Baja California. This paper summarizes results of archaeological investigations in a cross-peninsular research area from the Pacific coast across the
Moore, Christopher (University of Indianapolis) and Christopher Schmidt (University of Indianapolis)

[194] Dwelling on Abundance in the Ohio Valley Archaic

Archaic period studies in Eastern North America typically address resource availability and abundance in environmental terms. Patches or ecotones are considered resource rich if they exhibit a high diversity of available resources or relatively high yields of particularly productive resources. Explanations of Archaic settlement patterns often juxtapose these ‘rich’ zones with areas characterized by fewer or less diverse (i.e., scarcer) resources, arguing that hunter-gatherers were either pushed out of these zones or pulled toward the resource rich zones by changing climatic conditions. In this paper we examine hunter-gatherer sites in and around the lower Ohio River valley and argue that the material and biocultural records of Archaic peoples in this region indicate healthy populations and little to no evidence of scarcity in either subsistence resources or material goods. Rather, hunter-gatherers appear to be well stocked with abundant foodstuffs, raw materials, and tools. Contrasting the assumption of scarcity common in many Archaic period studies, this paper adopts a dwelling perspective and examines the degree to which Archaic hunter-gatherers in the lower Ohio valley experienced a ‘giving environment’ and how this interpretation of the Archaic lifeworld contributes to more nuanced understandings of site use, health, and artifact distribution patterns.

Moore, Katherine (University of Pennsylvania)

[250] Coevolution of Animals and Plants in Early Andean Agriculture

Domesticated plant taxa in the Andes include a suite of plants from tropical lowlands and hardy tubers and pseudocereals from cooler zones. Domesticated llamas and alpacas arose from wild camelids in cold montane grasslands. How did these elements come together into an economic powerhouse during the Late Preceramic? Work at Panaulauca (Junin, Peru) at the high-altitude margin of this process, suggests aspects of intensification upon plants and animals that led to the domestication of local species. Using zooarchaeological data, I examine the role of plant selection and harvesting on grazing ecology, water availability, and nutrient cycling of the early domestic herds. These inferences are based on herd composition, body size changes, tooth wear rates, and stable isotope ratios from bone collagen. These zooarchaeological measures, in turn, relate to Deborah Pearsall’s paleoethnobotanical evidence from the same deposits, including the diversity of wild plant taxa and foraging locations, the use of dung and sod fuel, the selection for larger tuber size, and the introduction of tropical crops in later periods.

Moore, Michael (Tennessee Division of Archaeology), Kevin Smith (Middle Tennessee State University), Aaron Deter-Wolf (Tennessee Division of Archaeology) and Emily Beahm (University of Georgia)

[251] Crystal Artifacts and Production in the Middle Cumberland Region of Tennessee

Artifacts made from fluorite and calcite crystals represent an extremely small percentage of items recovered by antiquarian and modern excavations within the Middle Cumberland region of Tennessee. The six specimens documented to date include four earplugs, one bird effigy pendant, and one bead from four different Mississippian period sites. Mineral vein deposits across the study area contain fluorite and calcite. There is no evidence these crystals were available from surface exposures, but the karst topography of the Central Basin and surrounding Highland Rim physiographic provinces results in numerous caves and sinkholes potentially mined for suitable crystals. Source studies are needed to assess whether these local crystals were used to make the Middle Cumberland artifacts. The recent recovery of crystal earplugs and raw calcite crystals while processing soil samples from 2005-2011 MTSU excavations at the Castalian Springs mound center represents the first evidence for crystal
production as an activity within the Middle Cumberland region. Evidence of crystal production has been identified at mound centers in the adjacent lower Ohio River Valley, including Kincaid and Angel. As laboratory work is on-going, it is premature to characterize the Castalian Springs crystal production until all soil samples have been processed and artifacts tabulated.

Moots, Hannah (Southern Methodist University), Christopher Roos (Southern Methodist University), Julie Field (Ohio State University) and John Dudgeon (Idaho State University)

Spatially Explicit Fire and Erosion Histories from Tributaries to the Sigatoka River, Viti Levu, Fiji: Preliminary Evidence from the 2013 Field Season

The transformation of terrestrial ecosystems on Pacific Islands after settlement has intrigued scholars for decades. Although sediment cores from lakes, ponds, peats, and lagoons have yielded long, continuous, and well-preserved pollen records of past vegetation communities, the locations suitable for continuous pollen records do not always allow for testing spatial variability in human-environmental impacts. Such spatially explicit evidence is necessary to test human behavioral ecology models about the transition from low-level food production and foraging in coastal settings to intensive, inland agriculture. We are assembling multi-proxy records of fire and erosion histories from low order tributaries to the Sigatoka River that allow us to connect the dynamic histories of agricultural clearance and maintenance with archaeologically known occupation histories in different parts of the valley. We present preliminary evidence from a systematic alluvial coring program and laboratory analysis designed to evaluate the spatial consequences of social and economic transformations in the millennia following the Lapita occupation of southwestern Viti Levu.

Moragne, Steve [172] see Nadeau, Jaclyn

Moragne, Steven

Extremely Small Things Forgotten: Microartifact Analysis at the Pethick Site

Microartifacts are a seldom sampled but very useful class of data for the interpretation of spatial patterning at archaeological sites. Due to their small size they often exist beneath human notice and are affected by both cultural and natural formation processes differently than larger artifacts. When used in conjunction with traditional data they can lead to new and more robust interpretations. This paper presents microartifact data from the Pethick Site, a multi-component Native American site near Albany, NY. It analyzes microartifact data from both features and the non-feature space surrounding them. Microartifact distributional patterns will be discussed individually and in concert with each other, with the features, and with the macroartifact assemblage. Combined, the multiple classes of data provide a more complete reconstruction and interpretation of the spatial patterning of artifacts at the site.

Morales, Pedro [63] see Casar, Isabel

Morales, Reinaldo (University of Central Arkansas)

The Oldest Rock Art in Brazil?

Debate over the earliest peopling of the Americas tends to resurface periodically as new lines of evidence appear. Recently, paintings at the site of Serrote da Bastiana (Serra da Capivara National Park, Brazil) have emerged as possible evidence of South American rock art as ancient as the famous cave art of Europe, more than 30,000 BP. Very different estimates for the age of this "Serra da Capivara style" rock art have been published, some estimates in disagreement by an order of magnitude. Using multiple lines of evidence and traditional art-historical methodology, this paper reconciles those differences with significant results. The analysis of paintings from 130 local sites indicates there are many "Serra da Capivara" styles. One of these sites, Baixão da Perna I, includes the oldest securely dated rock paintings in the Americas (at the cusp of the Holocene; c. 10,000 BP). Another Serra da Capivara "style" is represented at Serrote da Bastiana (at the cusp of the Formative; c. 3700 BP, millennia later than expected for this "style"). Effective style analysis -- with reasonable expectations of "style" -- can
reconcile seemingly contradictory chronometric data and better inform our understanding of culture and its fickle connection to art.

Morales-Aguilar, Carlos (Université Paris 1 - Panthéon Sorbonne), Alejandro Patiño (University of Calgary, Canada), Philippe Nondédéo (ArchAm UMR8096/CNRS) and Richard D. Hansen (Idaho State University)

[227] Cultural Change and Continuity in the Maya Lowlands: Understanding the Transition from the Late Preclassic to Early Classic at Mirador Basin

By the end of the Preclassic period a series of social, economic, and political transformations took place in the Mirador Basin. In particular, the populations of the region experienced processes of population decrease and migration, as well as interruption and renegotiations of cultural tradition and social practices accompanied by political change. These trends occur at a time when El Mirador polity was on decline and socio-economic re-adjustements were taking place in other places of the Maya lowlands. After this “crisis”, dubbed the “Preclassic Collapse”, several Maya centers such as Naachtun, Río Azul, Tikal, Dzibanché and Calakmul, among others emerged. Changes in sociopolitical order of the Mirador Basin communities can be documented in the archaeological (architecture and pottery) and the limnological record. This presentation will discuss patterns of socio-cultural adjustment in the Mirador Basin during the end of the Late Preclassic, particularly processes of change and continuity and discontinuity based on recent archaeological investigations in the area. We argue that cultural and social changes which occurred in the transition period at Mirador Basin were very important and decisive in institutionalizing the new forms of political organization that appear during the Classic period in the Maya lowlands.

Morales-Arce, Ana (Archaeology) and Ana Cristina Aguilar (University of Costa Rica)

[93] Bioarchaeological Approaches to the Site “La Cascabel” in Bahía Culebra, Costa Rica (800 - 1550 A.D.)

The archaeological site “La Cascabel” belongs to the bigger archaeological area called Great Nicoya. This area comprised the regions of Guanacaste and Nicoya in the northwestern portion of the modern Latin American countries of Costa Rica and part of the Pacific region of Nicaragua. “La Cascabel” last excavation and posterior analysis between 2007 and 2011 revealed bioarchaeological characteristics like occupational stress with differences between men and woman in relation to economic activities. There was also auditory exostosis in some of the male individuals that indicates their fishing and diving as a part of subsistence strategy. On the other hand, three different moments of occupation were determined and their mortuary practices revealed inhumations. One important question around this site is about their ethnicity and the origin of the individuals that inhabited the area, for this reason we suggest that ancient DNA studies may be essential to understand their conformation.

Moran, Kimberlee (Forensic Outreach)

[283] Implementing the Weldon Spring Protocols in a Full-Scale Post-Blast Field Exercise

The Weldon Spring Protocols provide a methodical approach to tackling large-scale outdoor scenes such as those involving crashes and explosions. While based on archaeological field surveying techniques, the Protocols incorporate law enforcement documentation and chain of custody requirements. In October 2012, a team from the Center for Forensic Science Research and Education in collaboration with the Montgomery County, PA Bomb Squad conducted a full-scale field exercise that involved blowing up a transit bus carrying several "victims" and their personal affects. This presentation will provide an overview of the exercise, how the Weldon Springs Protocols were employed, and the results of the search and recovery effort.

[283] Chair

Morehart, Christopher [70] see Parker, Megan

Morehart, Christopher (Northwestern University) and John Millhauser (North Carolina State University)
[124] Evaluating Representational Perspectives of Landscape and Adjusting the Historical Gaze of the Basin of Mexico

In the past ten years, the science of remote sensing has exploded in archaeology. Reduced cost and increased accessibility through applications such as Google Earth has made even the least spatially savvy scholar seemingly a spatial guru. These data are updated at a rapid pace, shaping and, indeed, revolutionizing our understanding of how historical processes affect the temporal and spatial scales through which landscape change occurs. What effect does this insight have, however, for the ways in which we trace this transformational process back in time? How can archaeologists not only disentangle the rhythms of landscape but actually document this palimpsest? Focusing on the long-term history of the Basin of Mexico, we integrate different forms of data—aerial photographs; satellite images; historic texts, maps and photographs; oral histories; and archaeological data—to tackle this problem. Our analysis reveals a complex choreography as people, places, and things intersected, collided, replaced, or co-existed across time and space.

[331] Discussant

Moreheart, Christopher [143] see Meza-Peñaaloza, Abigail

Morell-Hart, Shanti (Stanford University)

[170] Tricks for Integrating Data from Multiple Types of Botanical Residues

When integrating paleoethnobotanical data, what are useful quantitative approaches appropriate to situations with highly variable data quantities, contexts, and sampling strategies? Moreover, in using various botanical proxies, a single aspect is potentially measurable in multiple ways. How can we interpret our findings without over-representing certain data or selling our results short? Archaeobotanical interpretation is particularly complicated by formation processes, clade identification issues, and representation by multiple proxies, even when standardized sampling occurs. The four sites of my study are located Northwestern Honduras, a region with poor preservation due to seasonal cycles of desiccation and inundation as well as generally acidic sediments. For this reason, I pursued several types of botanical residues to provide a more holistic picture of past ethnobotanical practices. In some cases these data proved to be complementary, while in others, corroborative. Drawing on the work of paleoethnobotanists, archaeologists, and statisticians, I describe my approaches to several major issues. I include tactics for integrating multiple and overlapping diagnostic elements, multiple and overlapping clade categories, multiple and overlapping cultural practices, and multiple and overlapping formation processes. For each, I describe the issue, my sampling strategies, my quantitative approach, and a few results from my study.

Moreno, Meredith (SWCA), Lauren Maas (SWCA) and Michael Crow (SWCA)


The John Sweeny Jr. Plantation represents a mid-sized, mixed-use plantation indicative of the sugar cane and cotton plantations of Antebellum Brazoria County, Texas. The site has been continually occupied since the 1837 construction of the house; however, the family perpetually sold off portions of the 2680-acre estate after the Civil War. Only 762 acres of the original plantation are located within the area available for study. Excavations at the plantation focused on areas within the immediate vicinity of the house in order to identify intact features that can be directly related to previously identified areas of high artifact density and discrete activity areas (i.e. cisterns, privies, kitchen/refuse middens). This paper presents the results of these investigations and an interpretation of the organization of domestic, service, or any industrial structures that were once present within the site area, comparisons between planter, overseer, and slave populations, and the variations between antebellum and postbellum deposits at the site. Additionally, the archaeological materials and features from the John Sweeny Jr. plantation site are compared with those from notable and well-studied plantations within the area.

[169] Chair

Moret-Ferguson, Celia [326] see Sharma Ogle, Mini
Morgan, Christopher (University of Nevada, Reno)

[23] Punctuated Occupational Trajectories at Altitude in Western Wyoming

When discovered in 2006, High Rise Village piqued substantial interest due to its elevation, the abundance of house features at the site, and its apparent similarities to the alpine villages of Nevada and eastern California. Recent research has revealed, however, quite different behavioral patterns. It has a longer and deeper period of use, was likely focused more on resource extraction in the immediate site area, and was characterized by much more sporadic, short term occupations than its Great Basin counterparts. This pattern consequently represents a previously-unrecognized subalpine component of a regional Late Holocene settlement pattern characterized by seasonal transhumance, residential feature construction, and increasing diet breadth that ultimately reflects the substantial diversity of hunter-gatherer adaptations to altitude. This pattern also appears to have manifested in several areas across mountain-intermountain western North America during the late Holocene.

[23] Chair

Morgan, Colleen

[258] Archaeological Blogging: Theory, Methods, and Future Directions

In the space of only a few years archaeological blogging has grown from a quiet conversation between friends to a sometimes fractious cacophony of organizations, companies, field schools, institutions and individuals, operating on several platforms, with varied media on an international stage. Alongside this growth is the increased requirement from funding agencies such as the NSF and Marie Curie for outreach activities related to research. What is the value of this kind of digital outreach to stakeholders and how does it compare to other types of publications and academic service? What does archaeological blogging contribute to the larger discourse in the field?

In this paper I provide a holistic view of blogging, with special attention to social networks and authority in digital media. I follow the trajectory of digital outreach in community archaeology, and offer both a current overview of the growing archaeological blogging community and productive future directions for the medium. As the previous organizer of the 2011 SAA session regarding Blogging Archaeology, I provide context and perspective regarding the state of digital media for public outreach in archaeology.

Morgan-Smith, Maggie (University of North Carolina at Chapel Hill)

[195] Creating Ties, Incurring Debts: Exploring the Role of Life Events through Archival Documents and Oral History from Rancho Kiúc, Yucatan, Mexico

Using archival and oral history data, this paper considers the role of events such as baptisms and burials as both debt maintenance and placemaking activities at Rancho Kiúc; an 18th-20th century Yucatec Maya landed estate, abandoned by its laboring population in the mid 20th century. The funding of life events by landowners has long been understood as essential to maintaining systems of debt on historical landed estates in the Puuc. In this paper, I suggest that the celebration of such events, evident in archival documents and oral history, also served to create ties to the Rancho for the laboring population that exist into the present. Although former residents and their descendants recall a history of oppressive labor conditions and marked inequality between themselves and the Maya-speaking landowning family, the population still actively connects with their old community through the use of its cemetery. The Rancho thus provides an alternative landed estate model for exploring the complexities of relationships to place and landowner in indebted contexts.

Moriarty, Ellen and Matthew Moriarty

[312] Assessing the Daily Economy of an Emergent Maya Polity: Ceramic and Obsidian Data from the Motul de San José Area, Guatemala

Detailed artifact analyses highlight a complex economy in the Late Classic Motul de San José area of lowland Guatemala. In this paper, we draw on ceramic (petrography and modal analysis) and obsidian (chemical sourcing, conservation indices, and core distribution) data to explore changes in local economic systems following the Tepeu 2 Late Classic emergence of Motul de San José as the area political capital. Data from five sites representing all levels of the local settlement hierarchy indicate both
changes and continuities to ceramic and obsidian production and distribution systems. In particular, area-wide shifts are noted in both the ceramic and obsidian data from subordinate sites between Tepeu 1 and Tepeu 2 times. These shifts are tied to the changes in the local political structure. The presence of distinct obsidian and ceramic assemblages at the political capital, however, suggests that the economy of the Late Classic Motul polity was heterarchically structured, with potentially disarticulated distribution systems servicing, on the one hand, the emergent Motul elites and, on the other, the residents of smaller subordinate settlements.

Moriarty, Matthew [312] see Moriarty, Ellen

Morris, Stacy [317] see Hart, Isaac

Morrison, Kathleen (University of Chicago) [35] Discussant

Morrison, Alex E. [242] see Rieth, Timothy

Morrison, Mick (Flinders University) [271] Shell Mounds and Niche Production Strategies

Shell mound sites constructed by Aboriginal peoples are a common feature of Australia's tropical coastal landscapes. Recent research indicates that these sites represent new economic strategies linked to social, demographic, environmental, and economic changes in some parts of northern Australia during the last 4 kyr. Previous research highlights the economic significance of r-selected shellfish species—often represented in extremely large proportions in mound sites—because of their ability to rapidly form a large biomass within preferred habitats. Here, I argue that shell mounds near Weipa represent a new production strategy targeting ecological niches, in this case intertidal mudflat ecosystems. This strategy was highly dynamic, varying in intensity on a sub-decadal basis in response to seasonal and spatial variability in shellfish biomass within local estuaries, and as such, was dependent upon quite detailed knowledge of the character of local ecosystems. These strategies were also reliant upon social networks and the ability to mobilize larger gatherings of people to coincide with localized resource gluts, while spatial and temporal variations in the distribution of resources became a geopolitical factor within local political economies. These socially constituted economic strategies are potentially emblematic of broader economies in the region during the late Holocene.

Morrow, Juliet (Arkansas Archeological Survey) [30] Evidence for Spirituality during and after the Clovis Diaspora

For this study, the term "spirituality" refers to a dimension of human experience wherein an individual imagines the self within a broader context of being. Spirituality implies separation between the body and the soul, as well as between the mundane and the sacred. This presentation is a survey of the available evidence for spirituality expressed by Late Ice Age hunter-gatherers during and after the Clovis Diaspora, from circa 14,000 to 10,000 years ago. Key sites discussed include Anzick (Montana), Buhl (Idaho), Sloan (Arkansas), Caradoc and Crowfield (Ontario), Charlie Lake Cave (British Columbia), and Wilson-Leonard and Arch Lake (Texas), among others.

Morrow, Juliet [211] see Ciccone, Jason

Morton, Shawn (University of Calgary) [107] Chair
Moses, Victoria (University of Arizona)

[332] Interpreting Ritual Practice through Zooarchaeology at Sant’Omobono, Rome

The religious significance of the Area Sacra di Sant’Omobono in Rome, Italy is evident in the continuous use of the site for sacred purposes from the 6th century BCE construction of the Archaic temple through the use of the modern church that stands at the site. Despite its long history of excavation, the faunal remains at S. Omobono have been extremely understudied. To interpret the religious beliefs and ritual practices of the early phases of use, this research focuses on faunal remains and other associated artifacts, such as votive vessels. Fauna is ideal for understanding religion and ritual as it not only leave ample archaeological evidence of the ritual practice but aids in understanding the important relationship between human, animal, and supernatural. The systematic analysis of fauna recovered in previous excavations of the archaic temple as well as from current excavations of The Sant’Omobono Project indicate that animals played a significant role in communion between human and supernatural forces. While current excavations suggest a reinterpretation of previously identified sacrificial animals as animal remains likely used for construction fill, the taxa and age demographics present, in conjunction with other artifacts, indicate the ritualistic nature of these remains.

Moss, Madonna (University of Oregon), Antonia Rodrigues (Simon Fraser University), Camilla Speller (University of York) and Dongya Yang (Simon Fraser University)

[160] The Archaeology of Pacific Herring in Alaska

We aim to develop a more complete understanding of the ancient Alaska Native use of Pacific herring (Clupea pallasi) to better assess the historical abundance, biogeography and genetic diversity of herring in the past. The ultimate goal is to improve herring fisheries management to benefit a wide range of stakeholders in the Arctic, Subarctic and beyond. Ninety herring bone samples from 17 archaeological sites in Alaska spanning 9000 radiocarbon years have been tested. Ancient DNA recovery has been high, and study of SNPs (single nucleotide polymorphisms) appears to be the most effective way to assess genetic population structure from ancient remains. Preliminary evaluation as to how the Alaska samples relate to others in British Columbia, Washington State, and the northwestern Pacific will be presented. The results should have implications for fisheries policy and practices, Alaska Native subsistence rights, and herring conservation.

Motsinger, Thomas [18] see Thompson, Kevin

Motsinger, Thomas

[98] Discussant

Mountjoy, Joseph (Universidad de Guadalajara, México)

[189] It’s Complicated: 1,250 Years of Shaft and Chamber Tombs in Northwestern Jalisco

Eighteen years of archaeological investigations in the northwestern part of Jalisco have resulted in the excavation of some 33 un-looted and 11 partially-looted shaft and chamber tombs that span the period of at least 820 B.C. to A.D. 430. During this 1,250 year span there is notable variation in the form of the tombs, the kind and quantity of offerings deposited in the tombs, as well as the number of deceased included and the condition of their remains at the time of burial. Suggestions are offered regarding the significance of this variation.

Mouralis, Damase (Université de Rouen - CNRS (France)), Ebru Akköprü (Van University (Turkey)), Laurence Astruc (ArScAn (CNRS, France)), Korhan Erturaç (Sakarya University (Turkey)) and Catherine Kuzucuoğlu (L.G.P. (CNRS, France))
An Integrated Study of the Eastern Anatolian Obsidians (Sources and Diffusion): The GeObs Program

The GeObs project proposes an integrated and multi-disciplinary approach to study the exploitation of the Eastern Anatolian obsidian by ancient groups for the manufacture of tools and prestige objects, and its spatial diffusion through exchange networks among communities across the ancient Near-East (including Anatolia and Caucasus). Because of the imprecision and/or the lack of data, it is, until now, impossible to properly understand obsidian diffusion from its origin to its discard; i.e. from the geological sources to the archaeological sites. The aim of the project is to establish a detailed database and geographical information system of the obsidian sources in eastern Anatolia. We thus propose an integrated and pluridisciplinary approach for obsidian sourcing based on:

- Intensive field research in order to precisely identify the morphological and volcanic settings of the studied obsidian sources.
- Multi-methods characterization of obsidian associating chemical (using LA-ICP-MS, XRF methods) as well as physical properties (magnetic properties, petrography, mineralogy). All the results will be interpreted in link with the results of the field investigation.
- Using the methods of spatial analysis we will try to understand the diffusion of the obsidian during prehistoric times, from its geological origin to its deposition in archaeological sites.

Moyer, Teresa (National Park Service)

Building Capacity for Co-Created Digital Moviemaking through Youth Programs

The Urban Archaeology Corps is a work experience program conducted through a partnership between the National Park Service and a community-based partner, Groundwork Anacostia River DC. It draws on archaeology as a tool of civic engagement to offer youth from diverse backgrounds an opportunity to learn about national parks and their untold – or little known – stories. Each UAC participant creates a short digital film to “speak back” to the NPS and reflect on something particularly meaningful to them, be it a facet of the park’s history, a park stewardship concern, or a wakeup call to the communities surrounding parks. Training in and use of digital media is thus an essential component of the co-creation process. This paper is a case study in building capacity in youth programs for co-created digital products that help the NPS, its partners, and their communities to share in the stewardship of archeological resources and public lands.

Moyes, Holley (University of California, Merced)

The Dark Side of Las Cuevas: A Ritual Journey

Archaeologists have paid little attention to architecture in ancient Maya cave sites, though many, if not most caves exhibit some degree of modification. Nowhere is this better exemplified than at the site of Las Cuevas. On the surface Las Cuevas appears to be a typical Late Classic, medium-sized, administrative/ceremonial center. But, this site has something that most others do not—a large cave system that runs beneath the main plaza. The massive entrance to the cave sits in a sinkhole directly below the eastern pyramid of Plaza A. Formal architectural modifications including platforms with plastered surfaces, stairs, and terraces surround a natural spring in the Entrance Chamber. The cave’s tunnels begin at the rear of the chamber, twist and turn, and eventually circle back into the entrance culminating at a high window that overlooks the spring. Throughout the tunnel system blockages and walls restrict access to deeper areas. In this paper I suggest that architectural modifications to the tunnel system were designed to create a performative space that guided participants through an Underworld journey.

Discussant

Chair

Moyes, Holley [277] see Arksey, Marieka

Mraz, Veronica (University of Tulsa)

Across the Landscape: An Examination of Environmental and Cultural Changes through
Analysis of Late Prehistoric Lithic Assemblages from north-central Oklahoma
The area of north-central Oklahoma is an under studied part of the Southern Plains, especially during the Plains Woodland and Village periods. A model proposed for the mobility and settlement practices of the prehistoric groups of the area was evaluated through analyses of lithic assemblages from four sites. The sites were selected from adjacent, but contrastive biomes thought to have been occupied by groups that followed a seasonal round in which grassland and woodland resources were exploited through an embedded procurement strategy during peaks in resource availability. These included the Daniels and Von Elm sites from the Bluestem Prairie and Big Hawk Shelter and Copperhead Cave from the Cross Timbers. The lithic analysis focused primarily on the identification of chert varieties and locations, the amount of cortex present, and the size/weight of lithic elements. These attributes were presented as proxies in evaluating the mobility and procurement practices of people in the study area. The results from the analysis suggest that Late Prehistoric groups in north-central Oklahoma were living in temporary, seasonal sites relying on an imbedded rather than logistical procurement strategy. This was a time-transgressive pattern present during both Plains Woodland and Village periods.

Mt. Joy, Kristen (Texas Army National Guard)

Cultural Resource programs in public agencies face a constantly changing funding and policy environment. Most programs primarily focus on regulatory compliance, which often limits exploring the myriad of ways archaeology gets done. Advances in the applications of geophysical and geospatial methods and techniques often outpace the ability for agencies to incorporate them into their planning and programming. A larger obstacle comes when misunderstanding of the normal trial and error in scientific advances leads to agencies limiting approaches to traditional cultural resource management. The end result is agencies may be missing out on valuable tools to identify and provide information on historic resources that may allow application of more efficient and effective management strategies. In addition to their uses for guiding and focusing investigations before shovels touch the ground, non-invasive techniques are desirable to many communities that prefer to avoid disturbance to sensitive sites or burials. This paper looks at how agencies can adapt modern technology into their programs and demonstrate to non-professionals their power and value as management tools.

Mueller, Melissa (Texas A&M University, Center for the Study of the First Americans)

Taphonomic Interpretations of Burned Bones from the Susitna River Basin, Alaska
This presentation provides a report on the zooarchaeological and taphonomic analysis conducted on faunal material from the archaeological sites HEA-455 and HEA-499, located in the upper Susitna River basin, central Alaska Range. Faunal remains include approximately 11,323 faunal specimens; however, only 16 were minimally identifiable to element and taxon. Specimens were each less than 7 mm in size due to heavy fragmentation. The high degree of fragmentation limited attempts to identify these faunal remains, yet a taphonomic analysis on the degree of burning seen in these faunal remains indicates possible human activities and behaviors related to subsistence and site maintenance. Based on interpretations from experimental studies in the literature on the effects of burning bones in fires, the bone fragments from these two archaeological sites appear to be burned directly from human site activities. The results presented here provide insight into prehistoric subsistence and site activities in the mountainous Alaska Range, as well as a better understanding of taphonomic processes in play in this environment.

Mueller, Natalie

Developing Domestication Criteria for Crops with Knotty Morphologies: Polygonum in the Eastern Woodlands
By developing morphological criteria for recognizing domesticated plants, archaeologists are able to find direct, datable evidence of past agricultural practices. Annual seed crops often exhibit a straightforward domestication syndrome in response to human selection that includes larger seeds, reduced germination inhibitors (seed and fruit coats), synchronized fruiting, decrease in mechanisms for seed
dispersal, and a more erect growth habit. Despite these well-established indicators, some crops continue to elude our efforts to develop criteria for domestication. I present preliminary results from my attempts to establish morphological criteria for domestication for one such crop, knotweed (Polygonum sp.) that was cultivated for at least 2000 years in Eastern North America. In order to establish domestication criteria for this extinct crop with complicated seed morphology, I am employing morphometrics and texture analysis coupled with experimental cultivation and observations of modern plants. This study also has the potential to enrich our understanding of the dynamics of domestication through agricultural practice in general.

Mueller, Raymond, Jason Cesta (Geology, University of Cincinnati, Ohio), Matthew Severs (Geology, Richard Stockton College of New Jersey), Arthur Joyce (Anthropology, University of Colorado, Boulder) and Michelle Goman (Geography, Sonoma State University, California)

Further Research on Floodplain Evolution Associated with the Site of Rio Viejo, Lower Rio Verde, Oaxaca, Mexico

The Río Verde is one of the largest rivers on Mexico’s west coast with its upper drainage containing the important archaeological site, Monte Albán. The lower portion of the drainage contains the important Río Viejo site along with others. Previous geoarchaeological research showed that the river shifted course and altered the environment over the last few millennia due to an influx of sediment from the highlands. The Río Verde has shifted from the west to its present location but did not appear to have ever shifted to the east. A recent rise in the water table caused by an irrigation project revealed, on Google Earth imagery, many buried meanders east of the river. Sourcing the origin of sediments from these abandoned meanders provides insights into the geomorphic evolution of the region and possible effects on regional archaeology. Sand samples were collected from both the abandoned meanders and from modern depositional environments. Observation and measurement of sand mineralogy provides answers to the origin of the meanders. Sediment mineralogy suggests that these meanders represent either former courses of local streams or an amalgamation of coastal plain fluvial systems. The sediments do not appear to be associated with the Río Verde.

Chair

Muller, Jennifer (Ithaca College)

Born into Poverty: The Short Lives of the Destitute, Diseased, and Starving Infants of the Erie County Poorhouse

In the summer of 2012, a salvage excavation at the South Campus of the University at Buffalo resulted in the recovery of the human remains of over 380 individuals, fifty-four of who are infants. These children are associated with the Erie County Poorhouse Cemetery (1851-1909). Initially developed to address the growing issues of poverty, the poorhouse failed to meet its goals. While poorhouses varied, policies regarding work therapy, abuse of inmates, placement in orphanages and separation of the familial unit may have served to further already discriminatory practices against the "other," including the impoverished, mentally and physically disabled, and those with immigrant-status. In recent decades, the lives and deaths of children have received significant attention in the anthropological literature. As it relates to the health of past populations, much of this research has focused on the recognition that children are among the most biologically sensitive to cultural change. Born into poverty, the vulnerability of poorhouse infants may be evidenced in their early deaths. Using structural violence as a framework, this research integrates data from the archaeological, historical, and skeletal records to determine age-at-death patterning among the poorhouse infants and to address the ultimate causes of their morbidity and mortality.

Müller, Romy [241] see Brown, Terry

Mullins, Patrick (University of Pittsburgh)

LIP Fortifications in the Moche Valley of Peru: New Perspectives

The Late Intermediate Period (A.D. 800-1470) in the Moche Valley of Peru witnessed the political consolidation and expansion of the powerful Chimú Empire centered nearby at Chan Chan. Roughly
coinciding with the Chimú florescence on the coast, a variety of specialized defensive sites and fortified settlements were constructed and occupied in the middle and upper reaches of the Moche Valley and some of its tributaries. These fortified sites have been used in previous scholarship to describe the Chimú conquest and consolidation of the Moche Valley as well as the structure of its frontier with the highlands. In the 2010 and 2011 field seasons, the author mapped and conducted surface collections at a middle valley Chimú fortress called Fortaleza de Quirihuac. Using a synthesis of this original data, preliminary survey done in 2013, and previous scholarship, the author aims to present a reassessment of Chimú expansion and consolidation in the Moche Valley as well as the varied nature of imperial interactions with valley and highland communities.

Mullins, Meghan (Miami University) and Mary Jane Berman (Miami University)

[269] Intersite Rim Sherd Analysis of Three Lucayan Sites, Bahamas

Two Lucayan rim sherd assemblages from the central Bahamas and one assemblage from the northern Bahamas will be compared. First we establish the nature of inter-site variability and vessel function to establish site activities. We also look at regional and temporal stylistic and functional differences between the sites and compare these to contemporaneous sites in Cuba and Hispaniola. The Lucayan rim sherd data will be combined with previously studied body sherd data to address the following questions: to what degree was Palmetto Ware (Lucayan-produced ceramics) independent from surrounding traditions, how does this reflect different colonization histories, and does it reveal unique communities of practice?

Mullins, Paul [338] Discussant

Mulrooney, Mara (Bishop Museum) and Mark D. McCoy (University of Otago)

[242] Ho‘omaka hou (To Begin Again): Re-Dating Early Hawaiian Settlement Sites of Southern Hawai‘i Island

Beginning in the 1950s, archaeologists working in the Hawaiian Islands initiated major research projects directed at identifying the initial settlement of the archipelago. Southern Hawai‘i Island was central in this effort because sites there provided the archipelago’s first material culture-based chronology, which was based on changing frequencies of fishhook types anchored in time by radiocarbon dates. But, these initial efforts have been sidelined in more recent discussions about early Hawai‘i due to serious problems with chronometric hygiene that have invalidated previously reported dates. In this paper, we present the results of the re-dating of key early sites in southern Hawai‘i Island excavated by Bishop Museum archaeologists that include layers initially bracketed to within the colonization period of the Hawaiian Islands. Acquiring these new dates on carefully selected samples, along with a re-examination of the material culture collected, gives us the opportunity ‘to begin again’ and investigate not just when people arrived, but what life was like for Hawai‘i’s founding communities.

Mulville, Jacqui [84] see Wolfhagen, Jesse

Muniz, Ad (San Diego Archaeological Center), Margie Burton (San Diego Archaeological Center) and Cindy Stankowski (San Diego Archaeological Center)

[68] #Archaeology#Makingitrelevant

Since opening our doors in 1998, the San Diego Archaeological Center has become a nationally recognized leader in the curation of archaeological collections. Our goal is to sustain an archaeological center where artifacts will not only be cared for, but where scientific research can be facilitated and the public can enjoy learning about the prehistory and history of the San Diego region through educational programs and museum quality exhibits. Today, through benefits provided through social media, archaeology is the ideal tool for teaching global awareness, civic and environmental literacy and adaptability, as well as cross-disciplinary thinking and social and cross-cultural skills.

Munoz, Olivia (Université de Paris 1 (France))

[67] The Collective Burials in the Oman Peninsula during the Early Bronze Age (3rd
Millennium. B.C.): The Social Implications of Increasing Complexity in Funerary Practices
This paper aims to highlight recurring patterns in the 'management' of 3rd millennium BC collective graves from the Oman Peninsula. Data from the recent excavations of several collective tombs and analysis of skeletal material recovered will be compared to sites and material found elsewhere on the Oman Peninsula. The evidence of mortuary rituals identified in these collective tombs reflect an increasing complexity of burial practices throughout the 3rd millennium, especially during the second half of the 3rd millennium BC. Evidence will include the manipulation and removal of human remains to adjacent pits, cremation, and to a lesser extent, defleshing. These practices may stem from the need for more space in the tombs where a growing number of individuals were placed, but they also contribute to melt individuals into the community of the ancestors and strengthen social cohesion among the living. Furthermore, the widespread prevalence of common solutions adopted for the maintenance of the collective graves throughout the Oman Peninsula show that the ideology underlying these practices was probably shared by groups with different economic orientations, attesting of a strong cultural homogeneity.

Munoz, Cynthia M. [103] see Jones, Ashley

Munoz, Victoria (Shumla Archaeological Research and Education Center) and Jeremy Freeman (Shumla Archaeological Research and Education Center)
[199] A New Dimension in the Study of the Lower Pecos Canyonlands Rock Art
Shumla Archaeological Research and Education Center has been engaged in an intensive rock art documentation project in the Lower Pecos Canyonlands of Texas since 2009. It is a daunting task to not only preserve the imagery and its context for future generations, but to capture data in a way that is useful for detecting patterns in the archaeological record. To meet this challenge, Shumla’s research team collects extensive attribute data on each pictographic figure, documenting and entering information into our searchable rock art database. This database is capable of running complex queries to identify patterns in the rock art assemblage. We map the precise location of each figure using a Total Data Station and GPS, integrating this information with our figure attribute data. Using ArcGIS we will begin examining spatial relationships among figures and identify patterns in motif association and their distribution across the landscape. GIS and spatial analysis opens the door to exploring possible associations between individual rock art elements and the "dirt" archaeology. This information provides greater insight into the meaning and function of the art and the lifeways of the people who produced it.

Munoz, Lizette (University of Pittsburgh), Karen Durand (Haciendas of Nasca Archaeological Project (PAHN)) and Brendan Weaver (Vanderbilt University)
[256] “Eat this Bread, Drink this Cup”: Preliminary Discourse on Foodways at the Jesuit Wine Estates of Nasca, Peru
Using archaeological datasets that relate directly to foodways is an extremely useful prism to assess the impact of religious taboos, the expansion of global markets, and the emergence of new ethnic identities in multi-cultural settings. The preliminary results of the 2012-2013 excavation season of the Haciendas of Nasca Archaeological Project offers the prospect of branching our understanding of colonial foodways beyond the Native Andean/European dichotomy – an opportunity to understand, through material correlates of domestic production, consumption, and discard, how power was brokered on coastal haciendas, where the majority of the labor was enslaved and of African descent. Enslaved Afro-Andeans may have adopted foodways which share common traits with other groups in the Andean region: creole, mestizo, and native Andeans, but were themselves distinct due to the special power dynamics present on an estate where slavery was the dominant productive paradigm. Using data from ethnohistorical sources and the preliminary results of our ceramic, paleoethnobotanical, and zooarchaeological analyses we examine the way administrators provisioned enslaved laborers with daily sustenance, as well as the potential ways that enslaved individuals and families may have supplemented their diets, perhaps through the hunting and husbandry of small animals and the planting of personal gardens.

Munoz, Samuel (University of Wisconsin-Madison), Sissel Schroeder (Department of Anthropology, University of Wisconsin), David Fike (Department of Earth & Planetary Sciences,
A Paleoenvironmental Record of Prehistoric and Historic Land Use from the Cahokia Region

Cahokia emerged as a major agricultural and political center in the central Mississippi River valley at 1050 CE, but the entire region was almost completely abandoned by 1350 CE. Environmental changes, namely resource depletion, flooding, and/or drought, have previously been invoked as important factors in Cahokia's emergence and decline, although few paleoenvironmental records exist from this region. Here, we present a multi-proxy paleoenvironmental record (pollen, δ13Corg) from Horseshoe Lake, an oxbow lake adjacent to Cahokia. The Horseshoe Lake record tracks the abrupt removal of floodplain and upland forests and the expansion of indigenous seed crop production beginning in 450 CE, followed by the gradual intensification of maize agriculture through to the abandonment of Cahokia at 1350 CE. Reestablishment of forests followed regional abandonment by Mississippian peoples, with Euro-American settlement generating another episode of deforestation and agricultural activity beginning in the 17th century. Widespread deforestation of the region centuries before Cahokia's emergence shaped resource availability for Woodland and Mississippian groups, but we find no palynological evidence of abrupt resource depletion during the Mississippian period. We also find no evidence of drought associated with Cahokia's abandonment, but do find evidence of a large flood at 1200 CE that surely affected Mississippian communities.

Laser Scanning as an Analytical Tool Applied to 3D Digital Imagery in Maya Archaeology: La Blanca and Chilónche (Guatemala)

Laser scanning is a powerful tool for archaeological and architectural data collection that is opening new horizons in the analysis and interpretation of archaeological excavations, especially in the field of metrically accurate 3D digital imagery. Scanning and the digital models it creates not only contribute to answer questions asked of the archaeological record but also facilitate cultural heritage documentation and preservation. In this sense, La Blanca project, which has been conducting archaeological research and promoting cultural heritage in La Blanca and other neighbouring archaeological Maya sites of the Mopan valley region, as Chilónche since 2004, has employed laser scanning technology with the purpose of obtaining a more meticulous and careful record of Maya architecture for archaeological interpretations. The models obtained in La Blanca and Chilónche are also useful instruments for planning future excavations and can be used in exhibitions and multimedia.

The Application of Forensic Archeology in Mexico: Methodological Proposal for Excavating, Recording and Recovering Cadavers and Evidence Related Within Mass Graves Associated to the Drug Cartels

This research aims to develop a methodology to properly excavate, register, exhume and recover circumstantial evidence, material and biological, interrelated within mass graves that are directly or indirectly associated with the increase of disappearances and murders carried out by the drug cartels and organized crime syndicates in Mexico. The study attempts to emphasize the importance of regional studies and the continuous consideration of the delicate social issues that every region retains. Through archaeology and its application in the forensic field, it seeks to optimize and facilitate police investigations, but above all, to understand the criminal behavior imprinted in the evidence we find and the message this specific type of context delivers.

Beyond Chavín: The Balkanization of Early Horizon Societies in Coastal Ancash, Peru

This paper explores regional developments after the demise of the Chavin phenomenon in coastal Ancash, north-central Peru, during the second half of the first millennium B.C. At that time, complex societies along the coast of Peru experienced profound reorganizations including the emergence of a
series of communities integrated through multi-scalar social, economic, and political networks. We focus on the Nepeña Valley of coastal Ancash, a region traditionally associated with the hegemony of Chavín. Here, recent research has brought significant data to assess the sociopolitical climate after the loss of Chavín religio-political influence. We are particularly interested in exploring the diversity of human strategies in response to the reorganization of inter-regional interactions. Within the past decade, work at the sites of Huambacho, Caylán, Samanco, Kushipampa and the surrounding Moro pocket have pointed to two distinct political traditions occupying the upper and lower valley, respectively. These differing traditions are illustrated by distinct settlement patterns, and spatial distributions of sites, as well as differing architectural techniques and ceramic styles. We explore how these two cultural spheres negotiated the processes of balkanization following the demise of Chavín, and compare their strategies to other regions in Peru.

Munro, Natalie (University of Connecticut), Michael Kennerty (Independent Researcher), Jacqueline Meier (University of Connecticut) and Siavash Samei (University of Connecticut)

[236] Human Hunting and Landscape use in the Jordanian Eastern Highlands during the Early Epipaleolithic

We investigate the effects of the Last Glacial Maximum (~25-18,500 cal. BP) on Early Epipaleolithic human adaptations in the eastern Levant (Jordan) through the study of faunal remains from four Early Epipaleolithic sites excavated as part of the Western Highlands Early Epipaleolithic Project. Landscape use is monitored by examining site occupation intensity using measures of dietary breadth, prey mortality and carcass exploitation. Our data reveal a mobile human adaptation focused on the hunting of high-ranked adult game, and intensive carcass use. Comparisons with Epipaleolithic sites across the southern Levant reflect significant variation related to local environmental and geographic conditions.

Munro, Natalie [236] see Samei, Siavash

Munro-Stasiuk, Mandy, T. Kam Manahan (Kent State University), Christopher Balzotti (Brigham Young University), Richard Terry (Brigham Young University) and Nisao Ogata (Universidad Veracruzana)

[305] Chasing Chocolate: Recent Investigation of Collapse Sinkholes (Rejolladas) as Loci of Cacao Production in the Northern Maya Lowlands

Rejolladas are collapse sinkholes with bases above the local water table that are densely distributed over portions of the Northern Lowlands of the Yucatan Peninsula. Typically they sustain moist microclimates in comparison to the surrounding terrain, as well as thicker soils allowing them to be used for more intensive agriculture. The paper presents a model of use and importance of the rejolladas based on archaeology, geomorphology, soils, botanical evidence, water table position, and geographic location in the Northern Lowlands. Specifically examples will be discussed from the sites of Uci-Cansahcab, Xuenkal, and near the modern city of Valladolid. Together these data strongly suggest that some of the sinkholes were utilized intensively by the ancient Maya for the production of cacao (Theobroma cacao) in an environment otherwise unsuitable for cultivation. In particular, deeper, steeper rejolladas were more likely to have been used for cacao production.

Munson, Cheryl Ann (Indiana University), Cheryl Ann Munson (Department of Anthropology, Indiana University-Blo) and April K. Sievert (Glenn A. Black Laboratory of Archaeology, Indiana)

[74] James Kellar, Indiana’s Mid-Century Modern Archaeologist

James Kellar (1922-2003) discovered anthropology while serving in the Navy during World War II. Educated at Indiana University, he turned to archaeology after Glenn Black’s field school at the Mississippian Angel site. His early research focused on county-wide surveys and Woodland stone mounds of the Ohio Valley. His most notable work was directed to Hopewell sites, Mandeville (Georgia) and Mann (Indiana), and an overview of the one million plus artifacts that Black had excavated at Angel. Wearing many hats – teacher, administrator, preservationist, museum visionary, scholar – Kellar saw
his greatest professional challenge to be saving the Mann site from industrial development.

Munson, Cheryl Ann [74] see Munson, Cheryl Ann

Munson, Jessica (Simon Fraser University), Martha Macri (University of California, Davis) and Mark Collard (Simon Fraser University)

[193] Classic Maya Bloodletting Rituals in Cultural Evolutionary Perspective
Recent cultural evolutionary approaches to religion offer novel ways to investigate the existence and proliferation of apparently maladaptive ritual behaviors. However, there are few archaeological studies that examine past religious behavior from this perspective. Classic Maya bloodletting rituals are a widely-discussed example of costly religious behavior, yet little is known about the distribution of these practices, the range of contexts in which they were performed, or the mechanisms and consequences of their spread. In this study, we use generalized linear modeling and social network analysis to characterize temporal, spatial, and contextual variation of bloodletting rituals recorded on Classic Maya hieroglyphic monuments. We show that epigraphic references to bloodletting were not evenly distributed in space and time. We also show that homophily accounts for the spatial distribution of these rituals across the southern Maya region, which implies that inter-polity connections strongly influenced the transmission of bloodletting rituals within Classic Maya society. Collectively, our findings suggest that bloodletting rituals were not uniformly practiced by Maya nobles, but were likely performed in connection with dynastic accession rituals that signaled royal commitments among polities with shared sociopolitical relations. More broadly, this study demonstrates the power of cultural evolutionary theory for investigating past religious behavior.

Murakami, Tatsuya [112] see Kabata, Shigeru

Murch, Loren (University of California, Berkeley) and Rob Q. Cuthrell (University of California, Berkeley)

[170] Effects of Archaeological Laboratory Extraction and Curation Procedures on Starch Granule Integrity and Morphology
Archaeological starch research has included considerable experimental work on peri-depositional taphonomic effects of food preparation methods on starch granule integrity and morphology. However, the effects of laboratory extraction procedures on starch granules have received less attention. There are several aspects of common laboratory procedures for which controlled experiments documenting the effects on starch integrity have yet to be conducted or reported. While procedures that negatively impact starch integrity should be modified to minimize negative impacts, those that do not affect starch integrity might be employed in new ways to enhance starch recovery. In this paper, we present the results of experiments quantitatively documenting the effects of particular starch granule extraction and curation procedures on granule integrity and morphology, including sonication, long-term storage in solutions, and others. In cases where results of experiments suggest starch extraction methods may be improved through modification of established protocols, we assess whether modification of procedures actually results in more effective extractions of starch granules from artifacts.

Murdoch, Matthieu [65] see Ur, Jason

Murguia Hernandez, Ana Iris (Universidad Juarez del Estado de Durango)

[200] Time and the History of Occupation in San Bernardo, Durango, Mexico
The archeology of the present state of Durango has been shaped by the work of several formal research projects, which have helped constitute the identity of this region. However, basic knowledge of the sequence of occupation from prehispanic times to the present is subject for debate. In this paper I discuss time and settlement in the area, presenting recent results from radiocarbon dates and new interpretations of the occupations by ancient dwellers of the northwest region of Durango, never studied before.
Murillo-Herrera, Mauricio (Universidad de Costa Rica)

[197] Understanding the Emergence of Community Specialization in San Ramón, Costa Rica
Previous research in San Ramón, Costa Rica, indicates that pre-Columbian monumental architecture in this region was not related to high population density, but to ceremonial and feasting activities, in addition to a higher frequency of exchange activities with the Guanacaste region. This paper further explores this issue by closing in on one community with monumental architecture in San Ramón: the Barranca site. This year Barranca was formally and functionally characterized by an intensive full-coverage survey with test pits spaced at an interval of 10 meters. Clay-burnt floors, wattle and daub walls, hearths, internal pathways, house foundation rings, and food remains are some of the features located. Artifactual evidence includes local and foreign objects, and both ceremonial and utilitarian pieces. The analysis and integration of all this information makes it possible to assess the kinds of activities that were most common in different sectors of Barranca, which is key for understanding the role Barranca played in the regional social dynamics of pre-Columbian San Ramón.

Muros, Vanessa [104] see Warmlander, Sebastian

Murphy, Nell [77] see Graham, Martha

Murphy, John

[214] Resilience in a Wider Sense: How Archaeology Might Benefit from and Contribute to New Approaches to ‘Resilient’ Systems
The term 'resilience' was introduced formally in ecological studies to describe a pattern of alternate regimes through which a natural system might move (the ‘adaptive cycle’). This was extended to socioecological systems, and archaeology, uniquely positioned to study long-term SES dynamics (especially, societal collapse and reorganization) adopted the term readily. Recently the term ‘resilience’ has become widely used in a broad range of other contexts, where it now generally refers to the capacity of a system to respond to challenges; this encompasses anticipation, avoidance, and recovery, possibly including novel advantageous changes to the original structure. Applications in national defense, disaster recovery, and business have pushed these ideas forward, so that now there is an emerging dialogue among these fields and a nascent framework for describing and quantifying ways that complex systems may be ‘resilient’ or vulnerable. This paper considers examples of these new approaches, and asks if they can usefully be applied in archaeological studies and whether archaeology can in return make contributions to these new definitions of resilience.

MURRAY, William

[248] Marking the Water: Iconography and Environment in Northeast Mexican Rock Art
Water is essential for human survival, but since it has no inherent shape or form, its iconic representation in any media requires graphic conventions which allow its translation via learned cultural codes. It is also evident that much rock art worldwide is closely linked or even directly related spatially to water sources. In desert environments, water is even more critical to survival and the probability that it might be represented in prehistoric rock art motifs is consequently higher. The question is: how might this relationship be marked iconographically? Are there water symbols in rock art? And if so, how can they be identified? Rock art sites in the southeastern fringe of the Chihuahuan desert in the Mexican states of Nuevo León and Coahuila provide an ample repertory of images for approaching these questions in varied environmental contexts. In particular, the sites in Icamole canyon, Nuevo León, Mexico will be analyzed in order to identify specific iconographic associations within this intermontane water course in the Sierra Madre Occidental. These associations may have a broader application on a regional and continental scale.

Murrell, Jesse and Cassandra Keyes (Tierra Right of Way Services, Ltd.)

Archaic sites of the Oshara Tradition are common on the Taos Plateau of northern New Mexico.
Recent field survey has expanded our knowledge of Archaic sites on the plateau. These sites along with previously recorded Archaic sites in the newly established Rio Grande del Norte National Monument are the subject of study. Raw material selection and lithic technology, in general, as well as site location and reoccupation are examined to explore aspects of Archaic land use including mobility, resource procurement, and continuity of strategies throughout the Early, Middle, and Late Archaic periods.

Murrell, Monica

From Great Kivas to Great Houses: Early Village Formation and Integrative Architecture in the Southern Chuska Valley

Aggregated communities appear throughout the Chuska Valley during the Basketmaker III period, with many of these early village sites continually reoccupied into the Pueblo II–III times. Isolated great kivas were often established in association within these communities representing early, large-scale, integrative architecture in the valley. Great houses containing great kivas and walled courtyards associated with the Chacoan system were later constructed in proximity to established Basketmaker III villages. These great houses were overwhelmingly constructed during the Pueblo II period, with only a few examples occupied during Pueblo I times. Although architectural traits distinguish the aggregated communities from great houses, they appear to be established as cooperative units with numerous examples of interaction and exchange apparent in both the Chuska Valley and Chaco Canyon proper.

Murtha, Timothy

The Agrarian Landscape of Tikal: A View from Above

Traditionally, archaeological approaches to remote sensing emphasize the identification of prehistoric and historic features sites, architecture or activity areas. Recent efforts in landscape archaeology have expanded the role of remote sensing. This paper describes our efforts to investigate, characterize and classify the agrarian landscape surrounding the largest Classic Maya site, Tikal, Guatemala. We introduce and compare data and techniques we have used in our study. We also introduce our field based approaches used to test and improve our techniques.

The key purpose of our paper is to demonstrate how we are integrating these data in a coupled modeling environment, investigating how changing patterns of land use, agrarian decision making and climate influenced availability and access to natural resources, i.e., soil and water. Importantly, our paper addresses previously unresolved issues about the sustaining area of Tikal, first raised nearly 50 years ago and offers a revised perspective about how the Maya made a living on the agrarian landscape of Tikal throughout the Classic Period.

Muschal, Marlis

Sedentism and Expedient Technology: Dismal River Aspect, Kansas

This study seeks to test the proposed link between sedentism and expedient lithic technology. Using collections from two Dismal River Aspect sites in western Kansas, this study will explore the extent to which these lithic assemblages exhibit expedient technological strategies. Explicit expectations regarding tool manufacture, reuse, and discard will enable a suite of testable hypotheses to emerge whereby the connection between sedentism and expedient technology can be clarified.

Musser-Lopez, Ruth (San Bernardino County Archaeological Heritage Association)
**[328] “Western Aggregate Row Mound” Type Site**

Sufficient evidence exists to identify provisionally an historic site type heretofore not recognized. Virtually identical characteristics are associated with “Western Aggregate Row Mounds” at three separate locations in the western United States including one, quite controversial, the “Mystic Maze.” Often confused with giant prehistoric earthen artwork or geoglyphs, Western Aggregate Row Mounds made in “relief” with mechanical scrapers are distinguished from “intaglio” style earthen art associated with prehistoric trails commonly found along the Lower Colorado River. The footprints of Western Aggregate Row Mounds represents historic preparation of aggregate materials for collection with intended use in nearby railroad ballast and bridge caissons.

**Mutin, Benjamin (Harvard University)**

**[329] Uruk presence at Tepe Yahya**

The site of Tepe Yahya is located in the southeastern Iranian province of Kerman. The excavated deposits and objects, including tablets, seals and sealing impressions, and ceramics, that are assigned to Yahya Period IVC provide much evidence that connects this period to the so-called Uruk/Proto-Elamite sphere. The site is practically the easternmost marker of this sphere and provides unique data for an investigation of distant exchange relations, not limited to the interaction with the West, throughout the Iranian Plateau and Mesopotamia in the period around 3000 BC. Several types of ceramics from Tepe Yahya that are traditionally affiliated with the Uruk/Proto-Elamite world were submitted for neutron activation analysis, which was conducted at Oregon State University. This paper reviews the material culture at Tepe Yahya in the Uruk/Proto-Elamite period and discusses the implications derived from the preliminary results of the analysis.

**Nadeau, Jaclyn (University at Albany), Jessica Watson (University at Albany), Steve Moragne (University at Albany, New York State Museum), Sean Rafferty (University at Albany) and Christina Rieth (New York State Museum)**


The Pethick archaeological site is located in Central Bridge, Schoharie County, New York. It is the result of a collaborative research project between the New York State Museum and the University at Albany and is still undergoing excavation. It is virtually undisturbed with numerous features from several well stratified components (Rieth et al. 2007; Rafferty et al. 2013). This study presents current research agendas and addresses ongoing analysis by graduate students and the principal investigators. Preliminary results on data from several artifact types, including ceramics, lithic debitage, and microartifacts are introduced. The preliminary results of x-ray fluorescence examinations and activity area analysis is also discussed.

**Nadel, Dani, Reuma Arav (Faculty of Civil and Environmental Engineering, th), Guy Bar-Oz (The Zinman Institute of Archaeology, The Universit), Uzi Avner (Arava Institute and the Dead Sea and Arava Science) and Sagi Filin (Faculty of Civil and Environmental Engineering, th)**

**[65] High-Resolution ‘Desert Kites’ Documentation and Analysis: The Use of LiDAR Scanner in a Visibly Complex Environment**

The Near East “Desert kites” are large-scale built features composed of funnel-like arms leading to a cliff or into a small deep structure, or into enclosure-like walls several hundred meters across. As the structures are usually low (1-3 courses high), built of local stones, and set in harsh arid environments, their construction details are commonly visibly limited and difficult to document. Thus, until recently the majority of the kites were only mapped via Google Earth data, with no 3D information about their structure and topographic settings. Isolated cases were mapped and photographed using old traditional archaeological techniques. For better characterization and study, we introduced a LiDAR scanner to record and analyze the Negev kites. We documented the architecture and immediate topography (centimeter level of resolution and accuracy) of eight structures in their natural ‘low-visibility’ settings, facilitating a wide array of analysis avenues, impossible by previously used techniques. Here we present the analytical results based on derived 3D models constructed for each kite: characterization and correlation of arms’ length, entrapped area, inclination, and head structure. We also address volume of stone construction to evaluate past efforts. Case-studies of intra-site and inter-site analyses are
Nadel, Dani [65] see Filin, Sagi

Nado, Kristin [291] see Seidel, Andrew

Nagaoka, Lisa [42] see Dombrosky, Jonathan

**Nagaoka, Lisa (University of North Texas), Feifei Pan (University of North Texas) and Steve Wolverton (University of North Texas)**

[42] **Modeling Hydrology and Plant Growth in Dryland Agriculture**

Dry farming was an important practice during prehistory and continues to be vital for small-scale farmers in many areas of the world today. Archaeologists have modeled factors affecting crop productivity to get at population size and growth, as well as societal collapse. It is acknowledged in studies of modern and prehistoric contexts that water is the most important limiting factor for plant production. Archaeological research on the relationship between water and plant growth has focused mainly on precipitation and surface water. However, contemporary agricultural hydrologists model water movement horizontally across space and vertically within a profile, which are also important factors for understanding long-term patterns in crop production. We are developing a model that incorporates hydrological processes across all three spatial dimensions to provide a more accurate portrayal of water availability, which is then related to plant growth so that we can determine the conditions for crop failure. The research is being conducted in the Mesa Verde region of the American Southwest.

**Nair, Stella (University of California, Los Angeles)**

[120] **Extraordinary Spaces: Thupa' Inka and the Architecture of Royal Theater**

For the Inca, architectural gestures were used to choreograph movement on both the large and small scale. Because of this, architectural remains provide critical evidence into the rituals and processions that once took place on Inca installations. This paper examines this material evidence in order to expose the complex spatial practices that defined rituals at a royal estate. These architectural gestures unmask the diverse players who participated in events and the distinct landscape features that were connected to the public stage. In addition, the evidence reveals the ways in which processional space changed when activities shifted from the public to the private.

[120] **Chair**

Najjar, Mohammad [127] see Jones, Ian

**Nakakubo, Tatsuo (Osaka University)**

[226] **Change in Patterns of Cultural Interaction in the Early State Formation in Japan**

This paper discusses temporal change in patterns of interactions with China and the Korean peninsula from the third to fifth centuries A.D. Before the fifth century, the dominant pattern of foreign interaction was of the “goods importation type,” i.e. to import material culture of advanced technology. In the fifth century, a new pattern of foreign interaction, named “technology adoption type,” became dominant. Korean specialist craftsmen, invited to settle in Japan, introduced new technologies. This shift strengthened the power of the central polity considerably. Before the fifth century, imported Chinese bronze mirrors were a symbol of authority. As it became difficult to import Chinese bronze objects in the fourth century due to the unstable political situations in East Asia, the central polity of Yamato sought for new material symbols of their authority. Such material symbols included stoneware fired in kilns at temperature above 1000 degrees and new types of iron tools, both made in Japan by Korean specialists. The central polity widely distributed these new material cultures to local regions, which contributed to the maintenance of the central power.
Nanavati, William (Washington State University), Kevin Lane (University of Cambridge), David Beresford-Jones (University of Cambridge) and Charles French (University of Cambridge)

[264] Agricultural Strategies and Long-Term Soil Fertility in the Southern Peruvian Andes
This study, part of the PIACI archaeological project, focuses on bulk soil fertility analyses of targeted samples from excavated profiles of a terrace system at the SAN1 Chocorvos-Inka-Colonial settlement site, near modern-day San Francisco de Sangayaco, along the Olaya highland tributary of the Ica River, in the Southern Peruvian Andes. Andean agriculturalists face a variety of challenges including seasonal water availability, steep slopes, variable soil depth and quality, and wide diurnal temperature fluctuations. The use of agricultural terracing in the Andes is evident wherever agriculturalists have turned to intensification in order to mitigate the effects of erosion related to slope cultivation. Such erosion leads to the loss of the mineral and organic-material rich A-horizon, and, in cases where erosion occurs faster than pedogenesis, exposes lower, non-arable soils leached of organic material. Given the regional and local-site chronology (AD 1000-1615), the terrace systems of SAN1 provides an ideal location to test how short-term adaptation of agricultural techniques (e.g., construction format, seasonal burning, fertilizer use, etc.) have affected long-term soil fertility. Also, by looking at the effects of terraced-land management strategies on soil fertility, over the Longue Duree, conclusions can lead to a more resilient approach to modern highland farming.

Napoli, Janna [270] see Owoc, Mary Ann

Napora, Katharine (University of Georgia)
[300] Among the Outsiders? Past, Present and (Uncertain) Future of the Coastal Cillini of Western Ireland
The cillín—a burial ground for unbaptized infants, suicides, and others considered unsuitable for interment in consecrated ground—is a commonplace and often completely inconspicuous feature of the Irish littoral archaeological landscape, yet it is this very lack of notability that may herald the disappearance of the sites in the face of today’s ever-increasing coastal change. Though much referenced in place-names and recently recognized as holy ground by the Catholic Church, comprehension of the role of the seaside cillín in its original context is lacking, as is a much-needed archaeological focus on a comprehensive plan for the continued existence of these at-risk sites. This poster will investigate the unique connection to the overseas Otherworld of those cilliní located along the island’s western shoreline as well as their significance in contemporary Ireland and will examine possible methods of preservation, balancing the desire for understanding of prehistoric and historic treatment of “the other” with the need for long-term site protection and the status of cilliní as sensitive and sanctified sites.

Naranjo, Tito [194] see Potter, James

Nareau, Lauren
[223] Comparative Attribute Analysis of Stone Tools from Tabun Cave
The goal of this study was to determine if Amudian blades from Tabun Cave, collected by Dorothy Garrod, are typologically and technologically comparable to Amudian blades collected by A. J. Jelinek. The blades in this study were analyzed using the same attribute analysis from a previous study performed on Jelinek’s blades in order to control for diacritical comparisons between the two assemblages. Attribute analysis was used in order to situate the blades into a chaîne opératoire in order to attain a conceptual and analytical perspective of the reduction sequence from the point of view of the agents who produced them. The comparisons resulted in similar numbers, indicating that the blades collected by Jelinek are Amudian based on their metric resemblance to the blades collected by Garrod. These characteristics include: thick, naturally backed, lateralized/débordant blades with prepared platforms and simple dorsal scar patterns. Based on the success of these diacritical attribute analyses, it is suggested that these qualitative and quantitative measurements be used as a preferred set of attribute characteristics for identifying Amudian blades in future analyses.
Nash, David (University of Brighton, UK), Sheila Coulson (University of Oslo, Norway), Sigrid Staurset (University of Oslo, Norway), Stewart Ullyott (University of Brighton, UK) and Mosarwa Babutsi (National Museum, Gaborone, Botswana)

[58] Provenancing of Silcrete Artifacts: New Insights into Middle Stone Age Human Behavior from Northwest Botswana

Recent research on lithic artifacts from the MSA layers of White Paintings Shelter (WPS; Tsodilo Hills, Botswana) has demonstrated that early humans chose to transport silcrete for tool-making to the site from Lake Ngami and the Boteti River, more than 220km distant. Here, we apply our geochemical provenancing approach to silcrete artifacts from the three remaining major excavated sites with MSA deposits in Botswana: Corner and Rhino Cave (Tsodilo Hills) and #:Gi (an open-air site near the Botswana/Namibia border). Results for Corner Cave are similar to WPS, with 23 of 26 sampled artifacts matching the chemical signature of outcrops at Lake Ngami and the Boteti. One sample was acquired from an outcrop on the Okavango River and two are from unknown locations. Results from Rhino Cave are different and indicate that silcrete used at the site was sourced almost exclusively from the Boteti; one sample of 18 matched the chemical signature of outcrops at Lake Ngami and two were from unknown locations. At the time of writing this abstract, results from #:Gi were incomplete. We discuss our findings with respect to arguments about human mobility during the MSA, and in relation to the likely use patterns at the three sites.

Nash, Carole (Geographic Science, James Madison University)

[80] Thinking like an Archaeologist: Undergraduate Experiential Learning in a Blue Ridge Compliance Setting

Archaeology has much to offer undergraduate education: its interdisciplinary approach; its focus on temporal and spatial cognition; and its emphasis on a broad skill-set oriented to the field sciences. Archaeologists who teach undergraduates commonly offer anecdotal evidence of the transformative power of the experiential pedagogies that are hallmarks of archaeological training, but our contributions to the scholarship of teaching and learning (SoTL) are limited. Falling under the rubric of active learning, experiential pedagogies encourage students to reflect on the learning process through ‘doing.’ Well-assessed and shown to encourage a higher level of understanding and integration for students and teachers alike, experiential learning results in the mastery of transferrable skills so sought after in undergraduate education. The application of foundational knowledge and technique in the field setting is presented here through a case study from a decade-long research program in Shenandoah National Park, where undergraduate students engaged in archaeological field schools and short-term surveys continue to receive training. Responsible not only for the college credit but also professional-level work that meets the Secretary of Interior and SHPO standards, the students’ assessments included contributions to CRM reports and conference papers.

Nash, Donna (UNCG)

[203] House Burials or Burying Houses: Elite Wari Mortuary Practices at Cerro Baúl, Peru

The Wari (600-1000 CE) practice of smashing pottery as a form of ritual is well documented, however such depozitions occur in a number of different contexts that may indicate that pot smashing was a component of several different types of ceremonies. Prominent among them is the association of pot smashes with residential burials. The tradition of residential burial in the Andes dates back to the Preceramic period, however burials in caves and cemeteries were also present among Wari affiliated groups. In this paper I describe patterns of pot smashing that correspond with residential burials and house abandonment to examine mortuary ritual at the Wari provincial center of Cerro Baúl in the southern sierra of Peru. Current data suggests a link between funerary events and closure rites and I compare the case of Cerro Baúl with other Wari affiliated sites to address this important connection and explore both its sociopolitical implications and potential symbolic meaning.

[110] Discussant

Nash, Carole [152] see Barber, Michael
Nash, Robert (Montgomery Archaeological Consultants)

The hypothesized Numic expansion into the eastern Great Basin remains a popular explanation for abandonment of Fremont lifeways. This study tests the notion of a population replacement in Utah Valley at about A.D. 1300 during the Promontory Phase through statistical analysis of side-notched arrow points. The expectation is that there should be measurable differences among arrow point types if a population replacement occurred. Results of the analysis not only support a population replacement ~A.D. 1300 but also suggest a population replacement occurred after the Promontory Period.

Nasu, Hiroo [158] see Aoyama, Kazuo

Nathan, Rebecca

[231] Placing Seventeenth Century Lakota and Dakota villages in Northern Minnesota: A Close Examination of Guillaume Delisle's 1697 Map of the upper Mississippi
In 1697 the French cartographer Guillaume Delisle produced a map of the upper Mississippi River system based upon the notes of the explorer Le Sueur. The locations of 22 contemporary Siouan villages are noted upon this map. This paper presents the results of an attempt to locate these villages using modern spatial references. The features on Delisle's seventeenth century map are cross referenced, broken down and reassembled based upon other historic maps of the Minnesota region. The results of this project suggest an accurate representation of Lakota and Dakota territories at the cusp of the fur trapping era. A further stage of the project attempts to correlate the results of historic research with the archaeological record.

Natoli, Amelia (Statistical Research), Cannon S. Daughtrey (University of Arizona), Rita Sukkosky (Statistical Research, Inc.), Z. Nahide Aydin (Statistical Research, Inc.) and Jesse A.M. Ballenger (University of Arizona)

From 2010 to 2013, Statistical Research, Inc. conducted excavations at Site AZ T:7:419 (ASM) for the Luke Solar-Power-Array Archaeological Data Recovery Project. Totaling about 3000 features spread across 44 acres, this is the largest Archaic site identified in the greater Phoenix Basin. The site is located on the lower-bajada of the White Tank Mountains near Phoenix, Arizona. Radiocarbon dates range from the Early Archaic to the Classic Period (ca. 7000 cal. B.C. – cal. A.D. 1200), with the most intensive occupation during the Middle to Late Archaic periods (ca. 3300–700 cal. B.C.). Over 2000 ground stone artifacts were recovered from the site, and nearly a third of those were found in an extramural context, believed to have been strategically cached or left in-place for future processing activities. Most of the extramural ground stone are represented by complete, formally shaped tools. In this study, we examine how the spatial and temporal distribution of various ground stone artifacts informs on the organization of wild plant processing before and after the appearance of maize in the U.S. Southwest, whether caching behavior can be identified at the site, and the evidence for task-specific tool associations (tool kits).

Naudinot, Nicolas (University of Nice)

[201] Environment Changes and Socio-economic Transformations in Western Europe during the Second Half of the Late Glacial: Confrontation of the Azilian/Post-Azilian and Epigravettian Techno-Complexes
During the LGM, Europe starts being split in two main large cultural entities: the Epigravettian complex and the Western Europe sequence. In this paper, we focus on the end of the Upper Palaeolithic and more precisely on the period between the Allerød and the beginning of the Holocene. This period is particularly marked by several climatic changes and is thus a perfect “laboratory” to study the interactions between societies and paleoenvironment. Our paper essentially focuses on lithics. This material allows to study the socio-economic system of a society by analyzing an assemblage in a global
perspective looking at all the elements of the chaine opératoire from the raw material procurement to the use and management of the tools, passing by the objectives and methods of production. We will explore the impacts of climate changes and especially the Younger Dryas event on the various environments of our research area (Atlantic and Mediterranean areas). Thanks to an active research in Western Europe these last years and a second wind in the study of the Epigravettian, it is possible to compare the responses of these two large entities to the different environmental changes from the Allerød warming to the beginning of the Holocene.

[201] Chair

Nauman, Alissa [76] see Prescott, Catherine

**Nauman, Alissa (Hamilton College) and Nathan Goodale (Hamilton College)**

**[290] Rethinking Conclusions from Large Housepits in the Interior Pacific Northwest**

In the interior Pacific Northwest, large housepits are often equated with complex social organization defined by affluent ownership or control over resource bases and their surpluses. As a result of excavating almost the entire floor of a housepit measuring 23 meters in diameter at the Slocan Narrows Pithouse Village, we suggest that this premise needs to be reexamined. The housepit dates to 2,750 cal BP, and apart from its size, the excavations yielded no material remains that are the hallmarks of an elite status house. However, it could be argued that the social mechanisms that held a large population together to build and use this house in an egalitarian manner were certainly complex. As we move into a 21st century of Pacific Northwest archaeology, several of the long held assumptions regarding house size as well as the notion of complex hunter-gatherers will need to be reexamined.

Nava, Sarah [142] see Knack, Jeni

**Nava, Sarah and Jeni Knack (UCLA)**

**[316] The Isthmus of Santa Catalina Island: Archaeology Reexamined through Historic and Modern Maps**

For years, extensive archaeological research has been conducted on the Santa Catalina Island isthmus, with a number of important prehistoric and historic sites having been identified. Here, I present maps showing archaeological research that has been conducted over the years overlaid with maps of newly recorded archaeological sites on, and near, the isthmus. Using Trimble GPS survey and ArcGIS software, I compared different maps and layers, showing how sites have changed spatially and temporally through time as a result of various cultural and natural phenomena.

Nava Blank, Alberto [114] see Chatters, James

**Navarro-Farr, Olivia (The College of Wooster), Griselda Perez Robles (Proyecto Arqueologico El Peru-Waka’), Stanley Guenter (Idaho State University), Erin Patterson (Tulane University) and Keith Eppich (Collin College)**

**[312] Royal Ritual and Public Memory at the City Shrine of Ancient El Peru-Waka’: The Archaeology of Burial 61**

During the 2012 field season at El Peru-Waka’, archaeologists discovered a royal Maya burial in the fronting platform of the city’s main civic-ceremonial shrine. A small alabaster jar in the chamber featured hieroglyphic texts which name its owner as Lady Waterlily Hand. This is another way of referencing Waka’s Royal Queen Lady K’abel who married K’inich Bahlam II. She also carried the title Kaloomte’ or “supreme warrior” and is most famously featured on Waka’s Stela 34 which dates to 692 AD and housed in the Cleveland Museum of Art. Preliminary analyses indicate the skeleton is middle-to-old aged. Poor preservation and ambiguous traits rendered definitive sexing of the individual impossible, though the robusticity of the remains is consistent with depictions of this warrior queen. Moreover, we argue the
associated artifacts not only support a seventh-century date for the interment but also cultural affiliations with the kingdom of Calakmul, the place of Lady K'abel's origins. Previous research demonstrates the enduring ritual engagement by 8th and 9th century Wakeños of this building. Determining this was the final resting place of an important royal figure therefore strengthens our understanding of how Wakeños performed social memory.

Navel, Jeffrey [216] see Dennison, Meagan

Ndanga, Alfred Jean-Paul [40] see Kiahtipes, Christopher

Ndiema, Emmanuel [249] see Dillian, Carolyn

Nealis, Stuart (University of Kentucky) and Barry Kidder (University of Kentucky)

A Multi-stage Geoarchaeological Analysis of an Undocumented Mound in Greenup, County, Kentucky

We present the results of some preliminary fieldwork conducted on a 6m tall mound located on Raccoon Creek, a tributary of the Little Sandy River in Greenup County, Kentucky. Gradiometric survey in the field surrounding the mound shows areas of potential feature locations for future fieldwork. Solid core and bucket auger samples were collected from four locations on and off the mound to determine construction sequence and potential cultural affiliation. Samples were subjected to particle size analysis, chemical characterization, magnetic susceptibility, and XRF testing. Results show that mound fill material was from surrounding hill slopes rather than the floodplain in which the mound stands, and that at least one buried A horizon is present. One piece of wood charcoal was collected from a core suspected to be near the edge of the original mound slope, returning a date of 600 BP. Another charcoal sample from the opposite side of the mound has been sent out for AMS dating and will be presented with the rest of our data in determining the construction sequence and timing of this large earthen mound. Ultimately, we believe using multiple geoarchaeological techniques can help source sediment origins and address the sociality of mound construction.

Neeley, Michael (Montana State University)

Changing Settlement Organization in the Late Pleistocene of the Southern Levant

Archaeologists have long recognized variation in settlement organization among hunter-gatherer societies. Typically, this has involved differentiating between patterns of residential based mobility and logistical organization using variables such as site size or artifact density. While these variables result in an impressionistic understanding of prehistoric settlement organization, a standardized approach advocated by Riel-Salvatore and Barton has the potential to separate the different elements of settlement behavior. A key component of their research is the distinction between curated and expedient technologies. In this paper, their approach is applied to selected lithic assemblages from the Late Pleistocene (Upper Paleolithic, Epipaleolithic, and Natufian) of the southern Levant. Traditional interpretations for these periods, spanning from 40,000-10,000 years ago, have emphasized residential based mobility for the Upper Paleolithic and Epipaleolithic with higher levels of logistical organization for the Natufian. An initial assessment of pattern indicates greater than expected internal variability in settlement organization within the different time ranges. The examination of late Pleistocene settlement trajectories provides greater understanding of different land-use strategies in the context of changing resource and environmental conditions.

[71] Chair

Neely, James (University of Texas at Austin) and Michael Aiualasit (Southern Methodist University)

New Light on the Prehistoric Purrón Dam Complex: Small Corporate Group Collaboration in the Tehuacán Valley, Puebla, México
Recent survey and test excavations at the Purrón Dam Complex (PDC) in the Barranca Lencho Diego in the Tehuacán Valley of Southern Puebla, México, demonstrate the value of resurveying previously studied areas. Additional habitation sites and water management features, a cave with pictographs, and a major canal were discovered, increasing the number of recorded sites from six to forty-four. Ceramic chronologies and the synthesis of twelve chronometric dates suggest that water management was initiated in the barranca by the Early Formative period at ca. 1100 B.C., and perhaps earlier, and that the Purrón Dam was completed and had its highest population levels by the Middle to Late Formative (ca. 650-150 B.C.), a time when settlements were small and decentralized. This challenges existing interpretations placing the PDC florescence during the Early Classic period (ca. 150 B.C. – A.D. 250), a time period with larger aggregated communities displaying clear signs of social ranking, and greater inter-regional interaction. The results have implications for understanding the causal links between political complexity and agricultural intensification, and support recent ethnographic and archaeological research discrediting the argument that increasing social complexity leads to the construction of large water management systems.

Neff, Hector [19] see Makowski, Krzysztof

Neff, Hector (California State University-Long Beach), John Jones (Archaeological Consulting SErvices, Ltd.) and Timothy Garfin (CSU-Northridge)

[250] Prehistoric Industries of the Mangrove Zone of eastern Soconosco, Pacific Coastal Chiapas, Mexico

Recent fieldwork in the mangrove zone of far-southern Chiapas, Mexico has included site identification via LiDAR, surface and subsurface testing, and sediment coring in off-site locations. Goals of the work are to understand how humans used the estuary zone at different times in the past and to generate a record of variation in the intensity of those activities. Pollen and charcoal from dated sediment cores provide a record of landscape changes that complements the evidence of archeological site density. Data generated so far indicate steady, uninterrupted growth during the Formative period together with a trend toward increasingly specialized production of salt, presumably for consumers at Izapa and other coastal plain and piedmont sites. This period of growth was truncated around AD 200, roughly coincident with the cessation of monument carving and a probable demographic collapse at Izapa. The zone was abandoned for 500 - 600 years, after which Terminal Classic Plumbate potters re-occupied many of the Formative period mounds.

Nehlich, Olaf [175] see Diaz, Alejandra

Neiman, Fraser (Monticello)

[232] Archaeological Evidence for Increasing Inequality within a Slave Settlement at Monticello in the Late 18th Century

This poster summarizes recent archaeological research into among-household variation at Site 8, a domestic site occupied by enslaved field laborers at Thomas Jefferson's Monticello plantation during the last quarter of the eighteenth century. Correspondence analysis of plow zone ceramic distributions reveals the existence of at least two residential groups and increase over time in the distance between them. Ceramics and architectural evidence indicate a more important role for storage and higher levels of conspicuous consumption among the northern group. Spatial patterns in artifact size indicate greater investments in yard maintenance for the north group as well.

Neitzel, Jill (University of Delaware), Ann Stodder (Museum of New Mexico) and Laurie Webster (University of Arizona)

[247] Embodied Identities in the Prehistoric Southwest

This paper summarizes the results of a collaborative research project on how the identities of prehistoric Southwesterners were encoded in various aspects of their appearance. Morphological features, clothing, jewelry, facial decorations, and hair styles conveyed information about a person's gender, status, other social roles, cultural affiliation, religious beliefs, heritage, and inter-group connections. The
archaeological record documents tremendous variation for each of these appearance characteristics both within and between cultural groups. While we tend to analyze these identity markers individually, that is not how they would have been perceived in their living contexts. Rather, a prehistoric Southwesterner would have seen the various aspects of a person’s appearance all together as a composite image. Thus, conclusions about the person’s various identities would have been drawn from multiple lines of evidence with the most visible and redundant messages having the greatest importance on that particular occasion. In this paper, we present composite images for several cultural groups and discuss the identity messages that these images conveyed.

Neivens, Mary [61] see Neivens De Estrada, Nina

Neivens De Estrada, Nina (Tulane University) and Mary Neivens (Holmul Archaeological Project)

[61] The First Maya Ceramics, and the Mother-Daughter Team Who Glue Them Together

In this paper we will share our experiences with Norman Hammond as a mentor and friend. Mary Neivens was a young scholar in Belize in the 1970s when she met Norman and began a lifelong friendship. Our journey continued in 2000 when Nina Neivens began studies on the Maya at Cuello. Norman has influenced our continued studies in Guatemala where we have researched the earliest Maya ceramics from Holmul and Tikal. This research has led to a re-evaluation of the interaction between early Maya villages and their connections to other Mesoamerican societies.

Nelson, Elizabeth (University of North Texas Health Science Center, Dept. Physiology and Anatomy) and Christine Halling (University of Indianapolis)

[12] Evidence for Skeletal Fluorosis at the Ray Site: a Pathological Assessment and Description of Community Health

In environments with naturally high or anthropogenically increased fluoride levels (>1.5mg/l), communities are at risk for toxic exposure to fluoride. Groups exposed to toxic levels of fluoride have higher incidence of maladies of the musculoskeletal, reproductive, and neurological systems. Individuals who experience continuous exposure will develop skeletal fluorosis, a condition characterized by hypersclerotic activity evidenced by the ossification of ligamentous and tendinous attachments, along with an increased incidence of fractures. Older adults are more commonly affected than younger individuals, and men more frequently than women. Archaeologically, skeletal fluorosis has been reported in Bahrain, Naples, and the UAE, but not in the Americas. In this study we evaluate the prevalence of symptoms consistent with skeletal fluorosis at the Ray Site, a Middle Woodland site in the Illinois River Valley with geologic conditions conducive to uptake of toxic levels of fluoride. Of the 117 individuals analyzed from the Ray Site, 12 display characteristics consistent with skeletal fluorosis. We describe sex differences in manifestation of skeletal fluorosis, possible implications for community health, and plans for future studies.

Nelson, Elizabeth [12] see Halling, Christine

Nelson, Ben (Arizona State University)

[66] Connectivity of Social Change in Mimbres and Points South

The work of the Mimbres Foundation showed that in comparison to earlier and later populations in the Mogollon region, the Classic Mimbres experienced anomalous population growth, aggregation, agricultural intensification, and artisanal production. Archaeologists interested in understanding these prehispanic changes in a wider framework have demonstrated connections and parallels to groups to the north and west, especially with Chaco Canyon and the Hohokam but also to a lesser extent Paquimé. Scholars have shown that these regional histories are related in some ways, based on both material connections and synchronicities of growth and reorganization. In this paper we extend these explorations to the south, particularly to the regions on either side of the Sierra Madre Occidental. What connects Classic Mimbres with Mesoamerica? Is Classic Mimbres part of a synchronous rise of polities in neighboring regions to the south, or does its development adhere more closely to US Southwestern temporal pattern? By reviewing evidence of connectivity with these southern regions we outline what is
known and what remains to be learned if we are to understand the place of the Classic Mimbres development in a macroregional framework.

Nelson, Shaun (Utah National Guard)

Nelson, Margaret (Arizona State University) and Michelle Hegmon (Arizona State University)

Mimbres Continuity and Change

Through his Mimbres Foundation research program, Steven LeBlanc mentored a generation of Southwest archaeologists, insisting that we think beyond popular perspectives. He challenged us to create new ideas and to evaluate those ideas with careful fieldwork and analysis. One of the big research questions of the 1970s in the Southwest was “what happened to the Mimbres people.” In this paper we reframe that question in terms of continuity and change in the Mimbres tradition through the 12th century. Challenging earlier explanations of abandonment and disappearance, we document the reorganization of people who created new traditions and reshaped their social landscape while remaining in the Mimbres region. This research builds on the strong contributions of LeBlanc without which these new understandings of the past would not be possible.

Nelson, Zachary (Cardno ENTRIX)

Indian Battlefields Meet the Press

Cowboys versus Indians are exciting topics for popular press. However, there are always additional viewpoints in each story and additional evidence. This paper examines Indian battlefields as they are presented in the press. Who is the real victor? (if any) How are complex life and death subjects administered in the media? This fact-finding paper centers on Rosebud and Little Bighorn but has broader application to other forms of violence.

Neme, Gustavo, Adolfo Gil (CONICET-Museo de Historia Natural de San Rafael), Miguel Giardina (CONICET-Museo de Historia Natural de San Rafael) and Clara Otaola (CONICET-Museo de Historia Natural de San Rafael)

The Use of High-Altitude Environments in the Southern Andes

The southern Andes between 34° and 35° SL are one of the highest mountainous regions in the Americas. Their highly seasonal variability increase with the altitude, diminishing their biomass productivity and those places apt for human occupation. In this paper we present archaeological data about human adaptations developed to exploit and lived in environments located above 3000 meters. The results show a strong focus on big game hunting, associated with the consumption of non-local vegetal resources. Subsistence and mobility are discussed in order to understand the importance of these high elevation sites in regional context.

Neme, Gustavo [206] see Wolverton, Steve

Neubauer, Fernanda (University of Wisconsin-Madison, CAPES Foundation) and Nam C. Kim (University of Wisconsin-Madison)

Tupinambá Practices of Warfare, Revenge, and Cannibalism in 16th Century Brazil

The Tupinambá were semi-sedentary agriculturalists inhabiting the Eastern Coast of Brazil. Sixteenth-
ABSTRACTS OF THE SAA 79TH ANNUAL MEETING

Neusius, Phillip [80] see Neusius, Sarah

Neusius, Sarah (Indiana University of PA), Beverly Chiarulli (Indiana University of Pennsylvania), Phillip Neusius (Indiana University of Pennsylvania) and Ben Ford (Indiana University of Pennsylvania)

[80] A Quarter Century of Training Undergraduate Archaeologists at IUP

Since 1989, when the Archaeology Track of our major was instituted, IUP archaeologists have been teaching our undergraduates about archaeology. While solidly grounding their study in four-field anthropology, our students emphasize hands-on experiences in the field and in the laboratory. Both an archaeological field school and an introduction to CRM archaeology are requirements for our Archaeology Track. Another requirement is a laboratory methods class, and many of our students have gained solid experience in the curation of artifacts through working for IUP Archaeological Services. We also encourage students to pursue internships and to participate in professional meetings while still undergraduates. The combination of academic study in anthropology and practical experiences has worked well both for graduates who go into the CRM industry as field technicians and for graduates who immediately pursue graduate work.

Neusius, Phillip (Indiana University of PA), Ben Ford (Indiana Univ. of PA), Sarah Neusius (Indiana Univ. of PA) and Beverly Chiarulli (Indiana Univ. of PA)

[304] Meeting the Needs of a Modern Archaeology Workforce

The IUP Anthropology Department's MA in Applied Archaeology Program and undergraduate archaeology track are focused on providing students with the skills necessary to become practicing archaeologists prepared to work as professionals in cultural resource management and related heritage fields. Both programs were designed with unique components to distinguish them from more general graduate and undergraduate anthropology degrees, yet still provide a broad enough background to insure their ability to deal with a variety of issues facing CRM today and in the future. Training is provided in both the basic skills necessary for doing archaeology and the latest technologies and methods within a developing discipline. Both programs also focus on developing writing and critical thinking skills through both writing intensive courses and seminars such as Cultural Resource Management, Laws and Ethics and Issues in Historic Preservation. Students are encouraged to work collaboratively with their peers, participate in both professional and amateur societies, and seek opportunities to work with private companies as well government agencies even before graduating. Our use of a professional advisory board helps with keeping curriculum up to date and providing a model of professionalism for our students.

Neves, Eduardo (University of São Paulo)

[243] Formal Stability and Technological Variation at the Polychrome Tradition of Western Amazonia

The Amazon Polychrome Tradition was defined in 1961. It comprises diversified vessel forms including anthropomorphic urns and plates decorated with polychrome painting on red, black, yellow and white, and modeling, incision and excision. The distribution of sites with polychrome ware, ca. 900 to 1600 AD, from the mouth of the Amazon to the foothills on the Andes, led to an early hypothesis that it reflected an
expansion of people from the Andes eastwards to the lowlands. Recent research shows that polychrome sites or occupations are earlier in the east than in the west, in a spread that lasted a few centuries which was associated with conflict, as seen by the construction of defensive structures on sites with previous occupations. This paper brings contextual and ceramic data to show that, although made with a rigid formal code, the technology of polychrome vessels varied in paste in samples from sites distributed along a 500 km stretch in the Central Amazon basin. This pattern suggests that the rigid grammar of formal and decorative patterning of ostentatiously decorated pots was structured to define the identity of pottery makers in a context of expansion associated with warfare into previously occupied areas.

[100] Discussant

Neves, Eduardo Góes [129] see Pugliese, Francisco Antonio

Nevins, Jason [13] see Lail, Warren

Newlander, Khori [10] see Lin, Ying

Newlander, Khori (Department of Anthropology, Hamilton College)

[10] Comparing Compositional Data Acquired by pXRF and LA-ICP-MS for Cherts in Eastern Nevada

Current models of Paleoindian lithic technological organization, mobility, and exchange in the North American Great Basin rely heavily on the provenance and technological analysis of obsidian and fine-grained volcanic (FGVs, e.g., andesite) artifacts, yet chert dominates many sites in the region. Here I present a comparative analysis of compositional data obtained using portable x-ray fluorescence spectrometry (pXRF) and laser ablation inductively-coupled plasma mass spectrometry (LA-ICP-MS) for several chert sources in eastern Nevada. Analysis of the compositional data acquired by these methods reveals comparable patterning that can be used to discriminate the chert sources. In turn, these data can be used to source chert artifacts in the region, ultimately building toward a model of Paleoindian lithic technological organization, mobility, and exchange that includes obsidian, FGVs, and cherts.

Newman, Elizabeth (Stony Brook University) and Karime Castillo Cárdenas (Independent Researcher)

[72] Cultural Continuity and Adaptation in Nineteenth-Century Ceramics in Atlixco, Mexico

Excavations in the worker’s quarters, or calpanería, of the Hacienda San Miguel Acocotla yielded a large ceramic collection dating primarily to the nineteenth century. The range of ceramic forms and types used by workers at Acocotla suggests continuity of certain Prehispanic ceramic traditions as late as the last decades of the nineteenth century, as well as the adaptation of local production to European technologies and preferences. This paper will provide an overview of the entire assemblage and will highlight a locally produced ceramic whose paste strongly resembles the Classic type known as Anaranjado Delgado Burdo, but whose form is that of a typical European vessel. The ceramic assemblage from the Hacienda Acocotla offers an opportunity to explore the degree to which traditional indigenous lifeways were (and were not) impacted when workers became residents at the Hacienda Acocotla.

Newman, Sarah (Brown University)

[162] Game, Prize, and Player: Deer Hunting among the Classic Maya

Bloodshed was an essential element of rulership among the Classic Maya. Whether through scenes of self-inflicted sacrificial wounds, the ritual battles of the ballgame, or brutal recreations of captive-taking and outright warfare, the king as victor was a common motif. It comes as no surprise, then, that the violent sport of the hunt held special meaning for members of ancient Maya royal courts. Hunting, especially deer hunting, served to recreate mythic events and engage supernatural beings. Not just a metaphorical conquest, the hunt also played an important role as a very real training
ground for the bloodier, riskier battles of actual warfare with caught, bound, and butchered deer often equated with human captives. Moreover, depictions of deer with women in both lascivious and maternal contexts reveal further underlying associations of the hunt with sexual dominance and the taming of the wild.

[162]  Chair

Newman, Daniella [228] see Giessler, Kalena

Newton, Anthony [29] see Brewington, Seth

Neyland, Robert and Alexis Catsambis

[125]  Management and Research of US Navy Sunken Military Craft by Naval History & Heritage Command

The US Navy is responsible for approximately 3,000 shipwrecks and 14,000 sunken aircraft. These are distributed worldwide and located in territorial, foreign, and international waters. Ranging in age from the ships of the Continental Navy to the present, the largest numbers are from the American Civil War and World War II. They are protected under US laws such as the Sunken Military Craft Act and National Historic Preservation Act, but also international principles of maritime law in regards to principles of sovereign immunity. Naval History and Heritage Command manages these wrecks for DoN in order to preserve and interpret the Navy's history. Considerations include archaeological research potential, recreational diving access, war graves, and environmental hazards, which can include ordnance and fuel oils. This paper discusses these broad issues as well as some specific archaeological investigations.

Ngandali, Yolona (University of Wisconsin La Crosse - McNair Scholars)

[326]  Public Archaeology: Visualizing Wisconsin’s Prehistory with Digital Media

Relevance and accessibility to the public are key issues in archaeology that need attention and applied practical applications. Sharing information via Internet through interactive website design can bridge the gap between archaeologists and people outside the profession. In this project technical data results are transformed into interactive elements to produce educational and public-friendly web content. Visual media can encourage the public to find a connection to the past that drives the way they think about the future. The web content is based on archaeological excavations and laboratory analyses conducted in the Upper Mississippi Valley. Established evidence about the function of sites, the range of tool production activities, subsistence activities, and evidence of trade from other regions are incorporated into a comprehensive digital exploration of the daily life of Wisconsin's prehistoric farmers. The website will showcase the archaeological methods from excavation to analysis emphasizing the interactions of culture and environment with text, 360° images, maps, interactive diagrams, 3d visualization tools, and animated video. Interactive digital media promotes public interest, participation, and comprehension of archaeological concepts. Incorporating social media and feedback options will instigate communicative discussions and build a stronger dialogue between archaeologists and the community.

Nials, Fred [117] see Fulkerson, Tiffany

Nicholas, George P. [206] see Royle, Thomas

Nichols, Kristi Miller (UTSA-Center for Archaeological Research)

[169]  Excavations Associated with the Stabilization of the Church at Mission San Juan de Capistrano, San Antonio, Bexar County, Texas

Archaeological investigations occurred at Mission San Juan de Capistrano in San Antonio, Texas in association with the stabilization and underpinning of the church’s walls. Due to the potential for collapse, the church walls needed to be reinforced. To assist with the stabilization, CAR archaeologists
excavated test units around the exterior of the church walls. Later, the removal of matrix around the base of the church was monitored and approximately 50% of the soil was screened for artifact collection. The artifact assemblages collected during the excavation and matrix removal consisted of Spanish Colonial and 19 Century material. High densities of glass, ceramics, and faunal remains were collected. In addition to the cultural material deposits encountered, burials were uncovered along the eastern wall of the church under the bell tower. All burials were removed and later re-interred at a location within the walls of the mission compound prior to the end of the project.

Nichols, Deborah (Dartmouth College), Wes Stoner (Missouri) and Destiny Crider (Luther College)


Dan Healan’s research has significantly advanced understanding Postclassic obsidian manufacturing and exchange in highland Mexico. In the late 1980s he assisted excavating an obsidian core-blade workshop at Otumba, an Aztec city-state capital and manufacturing and commercial center. Complementing studies of obsidian production and trade, we employ a newly developed geodatabase of ceramic chemical data to apply a spatial perspective on the development of market systems in the Basin of Mexico through time from the Epiclassic through Late Postclassic period.

Nichols, Deborah [311] see Quinn, Colin

Nicodemus, Amy (University of Michigan) and Ashley Lemke (University of Michigan)

[300] From the Bronze to Iron Age: Diachronic Faunal Investigations at Pecica Șantul Mare, Romania

Pecica Șantul Mare, a large tell in western Romania, has a complex archaeological sequence dating from the Early Bronze Age to the Iron Age. New investigations reveal Pecica to be a complex center of Bronze Age trade and craft production with striking social differentiation. In addition to the large assemblage of ceramic and metallurgical remains, animal bones are well preserved in fill layers, domestic contexts, and various features. This paper presents the results of faunal analysis across the Bronze and Iron Age occupation at Pecica and demonstrates that the use of animals for subsistence, secondary products, and trade changed remarkably through time, although the species remain largely consistent. In addition, a detailed analysis of cutmarks is used to demonstrate how food preparation and butchering behavior changed in the context of evolving technology.

Nicolaides Ramsey, Monica (University of Texas at Austin), Monica Nicolaides Ramsey (University of Texas at Austin) and Arlene Rosen (University of Texas at Austin)

[236] Wedded to Wetlands: Exploring Late Pleistocene Plant-Use in the Eastern Levant

The mosaic ecology of the Late Pleistocene Levant has been referred to by many authors investigating Epipaleolithic use of wild cereals as a prelude to cultivation, but until recently it has rarely been the focus of studies investigating hunter-gatherer adaptations and diverse wild plant collection strategies. Partly, this was due to poor preservation of macro-botanical remains at Epipaleolithic sites with the exception of Ohalo II. Our analyses of phytoliths from sites in the eastern Levant, compared with phytoliths from Ohalo II, reveal evidence for how foragers used the highly diverse ecological zones in these regions. Abundant phytoliths from reeds and sedges indicate the critical importance of wetlands in hunter-gatherer subsistence strategies, especially during arid phases. Wild cereals and small-seeded grasses point to steppe and parkland exploitation, and woody plants indicate use of woodlands. From the LGM through the Early Holocene, wetland, steppe and woodland zones formed an integrated resilient system of plant-use, with wetlands providing an especially important focal point. The option of tethering subsistence foci to reliable wetland zones provided a dependable natural food-storage repository and may have allowed greater risk-taking strategies for other types of plant and animal exploitation beyond the wetland zones.

Nicolaides Ramsey, Monica [236] see Nicolaides Ramsey, Monica
Nie, Zhongzhi [297] see Zhang, Xu

Nielsen, Axel (CONICET Argentina)
[27] The Destruction of South Andean Plazas at the Time of Inca Expansion
The Late Intermediate Period (1200-1450 CE) was a time of population aggregation and supra-community political integration throughout the Southern Andes (SW Bolivia, N Chile, and NW Argentina). Many of the large residential conglomerates that formed during this period show clearly defined plazas, frequently associated with representations of ancestors (chullpas, towers, monoliths) which attest to the central role played by genealogy and collective memory in the reproduction of the social order of the time. Research conducted during the past three decades in several of these public spaces has revealed their violent destruction during the 15th century, a phenomenon that correlates with the introduction of Inca material culture and with significant changes in regional landscapes, including rapid site abandonment and community relocation, the establishment of imperial centers and landmarks organized according to different cosmological principles and vast projects of agricultural reclamation and mining. Combining data from different regions we outline some of the principles of this domination strategy developed by the Incas in the Southern Andes, a strategy that, by manipulating plazas and other public settings, transformed local memories and established new principles of political legitimacy.
[27] Chair

Nielsen, Michael [29] see Simpson, Ian

Nielsen, Jesper (University of Copenhagen) and Toke Reunert
[33] The View from Chalcatzingo: Studying Mesoamerican Iconography in Natural Settings
While researchers working with Palaeolithic cave art and rock art in Europe have long recognized the importance of specific location and context of the imagery, there is still a tendency in Mesoamerica to focus mainly on the motives and regard cave walls or cliffs merely as "pages" made available by nature. In this paper, we discuss the need to integrate the surrounding landscape, sightlines, and specific features of the cliff/wall in any kind of iconographic analysis and interpretation. In this paper we focus on two Middle Preclassic sites in central Mexico, Chalcatzingo and Oxtotitlan, both of which offers excellent examples of the meaningful interplay between natural features and various iconographic representations. Additional sites and monuments we consider are the Xoc cliff carving in Chiapas, the stela from the Nevada de Toluca and the newly discovered Condoy Cave in Oaxaca. To understand these and similar examples of elite Mesoamerican iconography situated outside an architectural context, an "arm chair" art historical approach will rarely suffice, and we thus encourage iconographers to do more "boots"-on fieldwork - much in line with the work of Jim Brady.

Niespolo, Elizabeth [11] see Harlow, Jeanette

Niespolo, Elizabeth (CSU Long Beach), Gregory Holk (CSU Long Beach), Neff Hector (CSU Long Beach) and Brigitte Kovacevich (Southern Methodist University)
[140] Using Stable Isotopes to Link Maya Jade Artifacts and Geologic Sources in the Motagua Valley, Guatemala: A Refined Method to Determine Artifact Provenance
The only known jadeitite source region in Central America lies along the Motagua River in Guatemala. Jadeitite from north of the Motagua Fault Zone (MFZ) differs petrologically from that found south of the MFZ; thin section petrography reveals three populations of differing mineralogy south of the MFZ. However, petrologic multiplicity of jadeites within each source region makes the identification of artifact provenance difficult using current methods. Since northern and southern occurrences of jadeite formed in distinct petrogenetic environments, stable isotopes may improve the resolution of provenance determination over that possible with mineralogy alone. The present study uses stable isotopes (O and H), together with other petrologic and geochemical analyses, to address the problem of discriminating jade sources near the MFZ. The utility of this approach is evaluated with jadedebitage from Cancuén,
the southernmost Classic Maya site on the Pasión River, north of the MFZ. Since the Cancuén workshop may represent a link between the Motagua source areas and jade-artifact consumers who lived farther north, this work has promise for tracing the economy of jade in Classic Maya society.

Nieuwenhuyse, Olivier [201] see Akkermans, Peter

Nieves, Ana (Northeastern Illinois University) and Gori Tumi Echevarria (Universidad Nacional Mayor de San Marcos)

[90] Beyond Iconography: The Application of Reflectance Transformation Imaging in the Study of Nasca Valley Rock Art Sites (Rio Grande de Nasca Drainage, Department of Ica, Peru)

This paper presents the results of our recent work at Nasca Valley rock art sites. In an effort to work with clear and objective methods of rock art documentation, we adopted Reflectance Transformation Imaging, a computational photography technique that combines a group of photographs taken with different light angles in order to create a three-dimensional representation of the surface. RTI images are helpful in documenting characteristics of petroglyphs that are often lost in line drawings or may not be clearly visible in single digital photographs, such as the superimposition of motifs and the different manufacturing techniques used. Our investigations enabled us to identify petroglyph manufacturing techniques in individual boulders and determine distinct manufacturing episodes at these Nasca Valley sites. Our research also addresses rock art conservation issues since RTI enables us to closely study the damage on rock surfaces due to natural weathering processes.

[90] Chair

Nigra, Benjamin [105] see Jones, Terrah

Nigra, Benjamin (UCLA), Terrah Jones (UCLA) and Jacob Bongers (UCLA)

[146] A Full Coverage Survey of the Middle Chincha Valley Corridor, Peru

The Programa Arqueológico Chincha explores the development of social complexity in the lower Chincha Valley, Peru. The valley contains evidence of intensive human occupation, covering the Early Horizon Paracas traditions through the late Inka incorporation of the Chincha kingdom. Previous survey work in the lower-valley describes monumental adobe architecture, platform mound building, and centralized infrastructure in the form of roadways and irrigation canals across this chronological span. These reviews place heavy emphasis on the massive edifices of the alluvial plain near the coast, largely glossing over marginal areas and underreporting smaller sites. We conducted a full-coverage survey of the middle-valley neck – a crucial transition corridor of some 50 square km, linking the larger coastal plain with mid-valley chawpiyungas. We report our results here: an assemblage of nearly 80 sites including domestic, mortuary, and defensive elements, ranging from the Early Horizon to the Late Intermediate Period. We discuss the implications of our data for interpreting the settlement systems of the earlier Paracas and later Chincha occupations of the mid and lower valleys, and suggest that the mid-valley transition area between the alluvial plain and chawpiyungas served as a key conduit in both the EH and LIP.

[146] Chair

Niquette, Charles (Cultural Resource Analysts Inc) [98] Discussant

Nishiaki, Yoshihiro [236] see Kadowaki, Seiji

Niwa, Etsuko (Aichi Prefectural University) and Saburo Sugiyama (Research Professor, School of Human Evolution and)

[63] Feathered Serpent and Flowering Trees: Interpreting Images of Food and Reproduction Cycles in Teotihuacan

We re-analyze representations of plants and animals in Teotihuacan to better understand indigenous conceptualization of food. We first identify the wide variation of plants and animals represented in
Teotihuacan imagery to a species level from a biological/ecological perspective. Representations of plants and animals can be divided into two categories: 1) plants and animals utilized as food, utility materials, or symbols in the Mexican Highlands including maize, frijol, squash, cactus, maguey, amaranth, chia, or rabbit, deer, dog, wolf, puma, serpent and diverse lagoon birds, and 2) exotic organism such as cacao, cotton, four petals flower, or jaguar, macaw, and sea-shells. Representations of category 1 plants often show their fruits or seeds, indicating that the inhabitants realistically visualized subsistence resources within the context of local reproduction cycles highlighting the dichotomy between dry-wet, fire- water, and death-(re)birth. There were also category 2 representations of plants and animals specifically unidentifiable as they appear in general or abstract forms. They might have been brought from tropical areas and would have been used as symbols in ritual contexts and/or proclamation purposes. Feathered Serpent and Flowing Trees mural may indicate the extent of Teotihuacan’s rule, controlled by their supreme deity Feathered Serpent, well beyond the Mexican Highlands.

Nixon, Sam (University of East Anglia)
While building traditions in West Africa are most commonly associated with mud-architecture, examples of this tradition pre-dating the modern era are relatively rare due to its poor preservation and the rarity of its detection archaeologically. This paper provides an account of an excavated mud-architecture complex from the north of the Republic of Benin which has been dated to some 700-800 years ago, featuring individual rooms and various connected communal spaces. This well-preserved evidence is archaeologically unique due to the associated presence of pottery and laterite pavements throughout the complex, as well as other paved features. Pottery pavements have been documented relatively extensively within West African architecture but rarely has evidence of significant structural remains been able to be detected in association with them. In addition, remains of a range of ceramic vessels destroyed in situ were recorded within the complex, including one buried within a pavement. That these remains come from one of the least archaeologically researched areas of West Africa provides an additional importance to their consideration within wider discussions of early West African architecture. The paper will also discuss the conditions dictating archaeological preservation of mud architecture in West Africa and the methods of its detection.

Nixon, Sarah (Indiana University South Bend) and James VanderVeen (Indiana University South Bend)
[139] Experimenting with Functionality: A Case Study of the Caribbean “Water” Bottle
The true use of the pottery vessel form found across the Pre-Columbian Greater Antilles and known as the “potiza” remains a mystery. Its shape resembles that of a canteen or flattened bottle, and fragments have been found in and near fresh water springs. But was the complex vessel used only to collect water? Might its unique design also be an innovative response to the hot and humid environment? In an effort to better understand the purpose behind the potiza’s shape, a number of replica vessels were created and then specific attributes were tested. Aspects like evaporation rate, content temperature, and vessel stress during transport were recorded in controlled experiments. The results suggest the potters who designed and constructed the peculiar pots had a specific function, as well as symbolic form, in mind.

Nixon-Darcus, Laurie (Simon Fraser University) and A.Catherine D’Andrea (Simon Fraser University)
Grinding stones, also known as saddle querns and handstones, or metates and manos, have been in use by humans in food processing since the African Middle Stone Age and have been recovered from archaeological sites on all continents. As a major tool used in subsistence activities for many cultures, grinding equipment has the potential to provide insights into social constructions, such as gender relations, craft specialization, labour practises, community engagement and cooperation. So, how can the
ethnoarchaeological study of grinding contribute to our understanding of the technological, social and economic context of grinding in ancient and present communities? My paper will review the data collected and insights gained through interviews and participant observations which document the technological and social interrelationships in the life history of grinding stones in a traditional (non-mechanized) rural setting in northern Ethiopia using Design Theory and the chaine operatoire approach and specifically focusing on the "use" of grinding equipment.

Noack Myers, Kelsey [81] see DeMuth, R. Carl

Noack Myers, Kelsey (Indiana University Bloomington), R. Carl DeMuth (Indiana University Bloomington), Joshua Wells (Indiana University South Bend), Stephen Yerka (University of Tennessee) and Thad Bisset (University of Tennessee)

[81] The Anthropology of Archaeological Data Collection and Management

The design of an archaeological data repository's structure has important implications for the ways archaeological professionals interact with the data. The Digital Index of North American Archaeology (DINAA) brings into focus the different choices SHPOs and other repositories make regarding data collection and management. When working with digital data, structure (e.g. booleans, lookup tables, text strings, categories of enumeration, etc.) functions in combination with vocabularies to frame our understanding of the archaeological record. While each state standardizes data collection through site forms and databases, prioritization of specific data categories in the collection process and the ontological system used to form the data necessarily create imposed and differing mental constructs of how archaeological concepts relate to one another. This creates operative differences in site definitions and different affordances for a researcher running queries through these imposed taxonomies of practice. DINAA circumvents these limitations created by the structures of our data communication systems. Although DINAA does not manage sensitive data, including site locations, it is a valuable tool available to interpret data sets for research, resource management, and outreach.

Nocerino, Eric


The archaeological record along the central coast of California has revealed that prehistoric Chumash groups developed a variety of coastal and terrestrial economic adaptations that influenced their settlement practices. However, the role of these adaptations during various stages of cultural change is less clear. This paper discusses the use of Geographic Information Systems (GIS) as a regional analysis tool for interpreting prehistoric Chumash settlement patterns at Vandenberg Air Force Base (VABF), California. GIS will be used to create a general model of the paleoenvironment from the early Holocene to the Late Period at the VABF. Central Place Foraging Theory will then be applied to the model to develop predictions about ideal and secondary site locations and the possible economic risks associated with those localities. Known sites from the VABF radiocarbon database will then be mapped over the environmental model and analyzed within this theoretical context. It is hypothesized that through time, long and short-term changes in the spatial organization of hunter-gatherer settlements at VABF were not only the result of terrestrial and coastal economic adaptations, but also a result of significant changes in the social organization of the Chumash as population increased in the region.

Noell, Mary (Texas State University) and Christina Conlee (Texas State University)

[146] Social Implication of Early Nasca Ceramics at La Tiza

The Nasca people on the south coast of Peru in the Early Intermediate Period produced an unusual amount of polychrome fine ware pottery. Early Nasca (A.D. 1-450) ceramics are found at the site of La Tiza, a substantial town site located at the conjunction of the Aja and Tierras Blancas rivers. I compare the ratio of fine ware to plain ware from La Tiza to two sites with Early Nasca components, Cahuachi
and Marcaya. By comparing these three sites, it is possible to elicit a better understanding of the context in which fine ware and plain ware were used and produced in Early Nasca society. Additionally, differences in the distribution of elite and non-elite vessels within and among these three sites can shed light onto the variation in social stratification in Early Nasca society.

Nolan, Kevin (AAL, Ball State University) and Brian Redmond (Cleveland Museum of Natural History)

[172] Geochemical and Geophysical Survey and Intra-Settlement Activity Patterns: Pilot Study at a Series of Complex Sites in the Lake Erie Basin

Ohio archaeology saw early application of soil phosphate analysis; however, after a series of equivocal applications in the early 1980s little or no use was made of this avenue of investigation as an independent source of information about local or regional activity patterning. Meanwhile geochemistry has proven extremely useful for prospecting and activity pattern analysis in a variety of contexts. Analytical techniques have improved since the 1980s, and phosphate is once again being employed in Ohio. We present the results of a pilot application of combined soil phosphate and magnetic susceptibility soil survey at three sites in the Lake Erie Basin. Our results illustrate the value of the method for disentangling the formation history of three multicomponent sites. Especially when used in a multi-pronged research design, soil analysis is a powerful supplement to traditional techniques and enables whole-site analysis without full excavation.

Nold, Kathryn (Indiana University), Geoffrey W. Conrad (Department of Anthropology, Indiana University), Claudia C. Johnson (Department of Geological Sciences, Indiana University), Cody C. Roush (Archaeometry Laboratory, University of Missouri Re) and Michael D. Glascock (Archaeometry Laboratory, University of Missouri Re)

[269] Compositional Analysis of Ceramic Sherds from Southeastern Dominican Republic

La Cangrejera is a village-shore archaeological site that yielded radiocarbon dates, 1040 – 1490 AD, from mollusc shells. The site contained abundant Boca Chica ceramics and a small set of stylistically-distinct, painted-red ceramics that preceded the Boca Chica style by several hundred years. Our objective is to examine variation in the elemental composition of selected ceramics to determine if discrete typological motifs are characterized by unique compositional groups. We hypothesize if the distinct painted-red and Boca Chica motifs were constructed through unique approaches to the selection of raw materials for ceramic production, they will separate into distinct elemental compositional groups. Two hundred and fifty-four ceramic sherds were analyzed through neutron activation analysis at the Archaeometry Laboratory at the University of Missouri Research Reactor. The hypothesis that distinct typological styles are associated with discrete elemental compositions is not supported. Our results suggest selection of raw materials for ceramic production remained static as cultural motifs changed at La Cangrejera. Our study reveals continuity in the selection of raw materials across material culture boundaries and highlight the need for continued investigation of culture change in the Caribbean using diversified methodological approaches.

Noll, Christopher (Geo-Marine, Inc.)

[225] Approaches toward the Replicable Classification of Archaeological Sites Based on Archaeological Survey Data

Throughout the history of archaeology meaningful classification of artifacts has been vital to analytical processes. The classification of archaeological sites is equally important to studies that investigate regional patterning in occupation, subsistence, and technological organization. The classification of archaeological sites is also a key attribute of archaeological site records throughout the United States. Classification can be completed relatively reliably on rigorously studied sites but those classifications based on survey data alone can be much more subjective. Furthermore, some site types utilized on survey based site records are non-specific. Cultural resource management archaeologists are often faced with the task of classifying sites without a replicable technique. The reliable and replicable classification of sites from survey data can be accomplished with the use of quantitative-based field procedures. This paper identifies ways that sites can be classified using simple, cost effective, and
Identifying Mortuary Ritual and Ancestor Veneration: A Spatial Analysis of the Tombs at Hualcayán, Peru

Ancestor veneration is a concept shared by indigenous peoples throughout the Andes. Identifying patterns in the spatial distribution of tombs on the landscape provides insight into how deceased ancestors were viewed in Andean cultures. This study is an investigation of the ritual activity associated with ancestor veneration in the Peruvian Andes through a survey of eighty tombs at the site of Hualcayán, in the north-central highlands of Peru. This survey included information about the location as well as form, size, and artifacts associated with each tomb. The results show significant variation in both size and complexity among the tombs at this site as well as a pattern of clustering. The clustering of these tombs was influenced by a combination of geographical factors as well as cultural choices, perhaps reflecting and reaffirming kinship ties through physical associations of tombs on the landscape.

Study of a House: Spatial Patterning of a Western Thule Winter Dwelling

Zooarchaeological remains have been studied at all scales of spatial analysis from across landscapes to within features; however, the intra-dwelling studies are in a clear minority, likely due to the paucity of remains normally found within houses and low-resolution collection strategies. Excavations of a Western Thule semi-subterranean dwelling at Cape Espenberg on the Seward Peninsula, Alaska, have yielded a well-preserved, high-resolution archaeofaunal assemblage. I map this data set using a GIS framework to explore the spatial patterns of multiple variables. These spatial patterns exist as part of the house floor due to past activity areas, taphonomic processes, and post-depositional developments. Understanding these processes of assemblage development is important for understanding past human lifeways for Western Thule people.

Conquest and Resistance in the Chicha-Soras: A Diachronic Study of Soras Opposition to Colonial Rule

In times of great political upheaval, new foreign leaders manipulate preceding state infrastructures and social networks to conquer local people. However, the creation of state power is never so one-sided; outside authorities must continually adjust tactics of control according to conditions "on the ground." The resultant landscape of power occupies a “third space” in which contrasting cultures interweave to create an entirely new sociopolitical stage. In the Chicha-Soras Valley (Ayacucho and Apurimac, Peru), the Soras people experienced violent overthrow during Inka conquest, followed by Spanish seizure of both local and Inka spaces. During the early stages of both conquests, Soras people contested imperial presence, mounting a two-year siege against the Inka and later initiating the Taqui Oncoy resistance movement against the Spanish. Never completely subjugated, the Soras actively shaped colonialism, and their overt rebellions taxed both empires. Social power was thus negotiated in the Chicha-Soras
Valley, a product of the clash between Soras opposition and imperial goals of annexation and conversion. While Spanish documents suggest smooth conquest, spatial and material evidence provides a contrasting picture, demonstrating that outside takeover was a tenuous, negotiated, and multivalent process.

Chair

Norman, Garth (ARCON, Inc.) and Jason Jones (University of Warwick, England, PhD candidate in E)

Advanced 3D Imaging for Recovery of Weathered Stone Sculpture at Izapa, Mexico

A recently developed image capture technique called "Reflectance Transformation Imaging" (RTI) has for the first time been applied successfully to map the texture of weathered low relief stone sculpture, providing a new tool for accurate data recovery and drawing restoration. RTI permits computerized inspection of the stone surface with a full range of variable lighting and texture enhancement applications that recovers unseen details thought to be weathered beyond recognition. RTI field tests of Izapa Stelae 4 and 5 confirm the accuracy of the original NWAF Izapa sculpture project photos and drawings (from 1960 to 1976) with some additional details for an accurate permanent record of Izapa sculptures which was the objective of NWAF's original Izapa Sculpture Project completed in 1982.

Norris, Stephen [45] see Becker, Kenneth

Novelo Rincon, Gustavo (INAH) and Philipp Galeev (Universidad Estatal de Rusia)

Investigación y Restauración Arquitectónicas en el Codz Pop de Kabah, Yucatán

Los trabajos de conservación e investigación que se han venido realizando desde 2006 en el Codz Pop de Kabah tienen como objetivo no sólo detener el deterioro y devolverle parte de su apariencia original, sino también entender al edificio a partir del estudio de su arquitectura, la iconografía de sus ricamente ornamentadas fachadas, los materiales asociados, así como de su ubicación dentro del conjunto palaciego del asentamiento, en donde residió la familia gobernante durante el período Clásico Terminal (800-1000 d. C.) y que debió ser un espacio destinado también a la administración y el ejercicio del poder político. La información recuperada a lo largo de estos años junto con el reciente hallazgo de dos jambas esculpidas en el cuarto 1 del edificio, ambas con una fuerte carga iconográfica, nos han permitido ampliar nuestro conocimiento sobre las transformaciones del espacio construido y las posibles funciones que ahí se desarrollaron a través del tiempo, así como acerca de la estructura social y política de los grupos de élite que habitaron en Kabah.

Novo, Alexandre (IDS North America Ltd.) and Beverly Chiarulli (Indiana University of Pennsylvania)

Archaeological Surveys Using Multiple Array Ground Penetrating Radar

The IDS STREAM X is one of a new generation of GPR units that are available for archaeological investigations in the US. The advantage of a Multiple Array GPR is that the instrument collects more data than single antenna units in the same amount of time, providing much greater resolution of subsurface features. The multiple lines of data are acquired simultaneously as the array moves along the surface. Channels within the array are closely space allowing a dense grid of sample points to be created combining full-resolution data acquisition with a robust integration of navigation and centimeter-accurate positioning. Researchers from IDS North America and IUP have used the multichannel STREAM X system for several surveys in Western Pennsylvania during the past year. In one part of the campus, the STREAM was used to investigate a 19th century industrial area later buried by fill and construction of a campus parking lot. The instrument was also used in a search for the burial pit of dozens of circus animals buried in 1893 after an infamous train wreck. This poster presents the results of these surveys and describes this new option for non-destructive prospection of large archaeological sites in North America.

Novotny, Anna [21] see Hoggarth, Julie
Novotny, Anna (Arizona State University)  
[64] Defining Community in the Upper Belize River Valley during the Late Classic Period: A Micro-regional Bioarchaeological Approach

A methodological issue with the study of communities is the assumption that an archaeological “site” is analogous to a social community. Yaeger and Canuto (2000) define community as a constantly emerging social institution governed by suprhousehold interaction. If communities are created and sustained through interaction, they argue studies of community must fall between the levels of the household and region. Here, I apply the concept of a micro-region, larger than one site but smaller than the settlement region, to explore community among the ancient Maya of the Upper Belize River Valley during the Late Classic period (600-900 A.D). A population increase occurred there during the Late Classic florescence of Xunantunich. It is unclear whether the influx of people was due to in-migration or not, although it has been proposed that Xunantunich leaders may have encouraged migration of farmers to support their city. I apply biodistance and isotope analyses from three mid-sized, geographically proximate sites – Chan, Chaa Creek, and Zubin – to address whether the increase in population was due to in-migration and how it affected community interaction. This analysis is novel in that it focuses on interactions within the non-elite community rather than between elites and non-elites.

Novotny, Claire (University of North Carolina - Chapel Hill)  
[198] Marginalized Landscapes and the Social Practice of Archaeological Research: Ancient and Contemporary Perspectives from southern Belize

This paper evaluates the social practice of archaeological research through an analysis of marginalized landscapes from the perspective of ancient Maya hinterland households and contemporary Maya villages. Situated in the Toledo district of southern Belize, the Aguacate Community Archaeology Project examines ancient Maya household socioeconomic integration with regional dynamics during the Classic period (AD 250-850). The cultural and geographic marginality of both ancient and modern southern Belize creates a distinctive landscape between perceived centers of power and influence. First, this paper uses archaeological materials from recent excavations at Kaqru’ Ha’, a small ancient Maya settlement in modern Aguacate village, to shed light on regional social and economic integration. Second, this paper examines the engagement of the local Q’eqchi’ Maya community with the archaeological landscape. A marginalized archaeological landscape is created by a state-managed tourism industry that emphasizes the monumental architecture of ancient Maya cities; Aguacate villagers grapple with issues of local history, identity, and heritage tourism surrounding the modest archaeological sites on their land. Considering archaeological landscapes from ancient and contemporary perspectives situates research within a social context that recognizes the entanglement between the archaeological imagination and community heritage.

Nowell, April (Univ of Victoria-Dept of Anth)  

The life history pattern of modern humans is characterized by the insertion of childhood and adolescent stages into the typical primate pattern. This slowing of the maturational process provides humans with additional years to learn, transmit, practice and modify cultural behaviors. In both human and non-human primates a significant amount of their dependency periods are spent in play. Data suggest that Neandertals experienced shorter childhoods than modern humans. This is significant as there is extensive psychological and neurobiological evidence to suggest that it is during infancy, childhood and adolescence that milestones in social and cognitive learning are reached and play and play deprivation have a direct impact on this development. Faster maturation rates and thus shorter childhoods relative to modern humans lessen the impact of learning through play on the connectivity of the brain. Differences in the length of childhood and associated modes of learning may explain differences in the nature of the symbolic material culture associated with Neandertals and modern humans.

Nowell, April [223] see Ames, Christopher
Nuevo Delaunay, Amalia [69] see Méndez Melgar, César

Núñez Aparcana, Bryan (Universidad Nacional Mayor de San Marcos), Rebecca Bria (Vanderbilt University) and Elizabeth Cruzado (Universidad Nacional Mayor de San Marcos)

[105] Celebrating Death: New Data on Recuay Mortuary Feasting Practices from Hualcayán (Ancash, Peru)
This study presents the analysis of excavated ceramic materials from a patio space outside a small familial (MNI=9) non-elite two-chamber subterranean Recuay tomb at the archaeological site of Hualcayán in highland Ancash, Perú (AD 1-700). Formal characteristics of the ceramic assemblage and their distribution and superposition within the patio space indicate that these materials are the remains of recurring ritual feasts to honor the dead. The assemblage included musical instruments and a high percentage of decorated jars and bowls suggesting that music and ceremonial drinking, likely with chicha beer, were the most important ritual practices performed during these Recuay feasts. Detailed attribute analysis of the assemblage also indicates a high variability of painted techniques, ranging from the careful preparation of sophisticated negative designs with complex iconography to vessels with more free-flowing, uneven paint strokes. The latter technique is the most prevalent. While these designs may suggest a lack of sophistication or care, we argue that the prevalence of these course techniques reflects on the one hand an aesthetic intended by their makers, and second, that these vessels were expediently prepared by living family members in preparation for the burial of their recently deceased family members.

Nuñez Flores, Claudia [256] see Hernández Escontrías, Pilar

Núñez-Cortés, Yajaira (University at Albany-SUNY)

[113] “Fire God’s Animal”: Dogs from Mayapan
Dogs served a unique role for the ancient Maya. Not only were dogs eaten, but they were used for hunting, medicine, and rituals. Dog bones have been recovered in a variety of contexts at Mayapan, including shrines, colonnaded halls, temples, craftperson and commoner dwellings, and elite houses. Prior research indicates that dog bones appear in great quantities at specific monumental center structures such as the Templo Redondo and the Ch’en Mul Cenote temple, indicating their significance to certain elites and for ritual practice. The special role of dogs in Mayapan’s ritual economy is examined in this paper by looking at their distribution across architectural contexts of diverse function. The analysis includes skeletal element representation, age, and frequencies of dog bones, as well as the production of special items made out of dog bones such as drilled tooth pendants. Differences in the spatial distribution of dog bones are best explained by the variable social and functional contexts of dog use at the site. Means of dog acquisition for elite use will be considered, including dog raising, tribute, and other mechanisms.

Nyaradi, Zsolt [102] see Riegert, Dorothy

Nycz, Christine [79] see Brunette, Jeremy

Nycz, Christine (University of Nebraska - Lincoln) and Matthew Douglass (University of Nebraska - Lincoln)

[220] Chipped Stone Analysis from Two Middle Holocene Archaeological Sites in the East Central Great Plains
Current research on Middle Holocene bison populations from the east central Great Plains utilizes isotope analysis to illustrate low regional mobility. While this pattern has interesting implications for land use and territoriality for the human populations that exploited these herds, few published reports detail archaeological assemblages or address features of prehistoric mobility in this subregion. Here we address this question through an investigation of chipped stone raw material variability from two Middle
Holocene archaeological deposits (the Hill and Simonsen sites) in western Iowa. Results indicate that the geographic extent of material sources supports an interpretation of restricted hunter-gatherer mobility within this subregion during the early years of the Middle Holocene in western Iowa.

Nyers, Alex (Pacific Slope Archaeological Laboratory) and Karl Vollmer (High Performance Computing, Dalhousie University)

[77] Archie - The Development and Implementation of an Open Source Archaeological Database System
In 2009, the authors began development of an online, light-weight, open source inventory system for archaeological artifacts (Archie). With feedback from real world use in the field over the last several years, this system has evolved into a robust, secure application capable of handling hundreds of active users and millions of entries. Archie supports associating multimedia files such as photos, audio and video commentary, and 3D scans with artifacts, without any special client software beyond a web browser. This poster will discuss the features present within this application, a roadmap for future development, and its implementation in the field at the Cooper's Ferry Archaeological site in West Central Idaho.

Nygard, Travis [309] see Wren, Linnea

Nyman, James (University of North Carolina) and Vincas Steponaitis (University of North Carolina, Chapel Hill)

[231] Indian Pottery at Fort Rosalie in Natchez, a French Colonial Outpost in the Lower Mississippi Valley, 1716-1763
Fort Rosalie in present-day Natchez, Mississippi was a key outpost in France’s colonization of the Lower Mississippi Valley. Built in the heart of the Natchez nation in 1716, the fort was destroyed during the Natchez uprising of 1729, then rebuilt and occupied by the French until 1763, when the territory was ceded to England. Our analysis of the indigenous ceramic assemblage from the National Park Service excavations at Fort Rosalie highlights the engagement between French and Indian cultures in the Louisiana colony during the first half of the 18th century. Indian women produced ceramic vessels for the soldiers at Fort Rosalie, sometimes after having taken these soldiers as spouses. Our analysis of the pottery reveals how the vessel forms reflect Natchez accommodation of French needs and tastes while also illustrating how Native people participated in the frontier economy. A detailed analysis of historic plans and maps provides additional information on the archaeological contexts from which these ceramics were derived.

Nystrom, Kenneth (State University of New York at New Paltz)

[126] Embodied Inequality: Race, Class, and Anatomy in 19th-20th Century United States
Embodiment as the physiological response to cultural stressors has been considered by public health researchers and bioarchaeologists and provides valuable insight into how psychosocial stress and discrimination can negatively impact health. Within archaeology, embodiment also encapsulates how the body is modified to reflect cultural attitudes and conceptions regarding social identity. It is argued here that during the 19th and 20th centuries in the United States the identity of socially marginalized groups was linked to the living body. Race and class were intertwined vectors of inequality and both were considered to have bodily manifestations; racialization was most often predicated on ‘biological’ differences (e.g., skin color) while poverty was also considered an innate feature of a group. After death these embodied living identities legitimated the modification of their corpses into anatomical specimens used in medical training. While personhood was dissolved as the body became an object, the cutting, partitioning, and display of the dead body was ultimately grounded in a continuity of the living marginalized social identity. This paper will synthesize the available evidence of anatomization and present new data from excavations at the Erie County Poorhouse to discuss the complex relationship between race, class, and anatomy within the United States.
OBoyle, Robert (University Of Montana), Alvin Windy Boy (Chippewa Cree), Virginia O'Boyle (Chippewa Cree), Jason Brown (Chippewa Cree) and Duncan Standing Rock Sr. (Ojibwe)

[77] Success and Opportunity: Consultation, Federal Agencies, and Indian Country
This poster presents the efforts of the Chippewa Cree Cultural Resource Preservation Department in preserving the culture of the Chippewa Cree. The Chippewa Cree, of the Rocky Boy's Indian Reservation in North Central Montana, have been taking a proactive role in the preservation of significant cultural properties. From the online consultation, The Chippewa Cree Tribal Register, and the FEMA funded Cultural Resource Training Video, the Chippewa Cree have worked to stay proactive in the preservation of cultural properties critical to the survival of our people. These sites are not only archaeological or even sacred in nature, they are the biography of our people, and the stones and bones found across the land tell the story of the people who have been here for thousands of years. Working together with other Tribes and Federal partners the Chippewa Cree have moved forward our cultural preservation program to have real lasting effects to the resources, the tribe, and the public in general who have an interest in seeing culture preserved. Cultural resource preservation is the preservation not only of past, but of our language and our living culture, and most importantly the survival of the Chippewa Cree for generations to come.

O'Boyle, Robert [50] see Bello, Charles

OBrien, Lauren (Southern Methodist University)
[344] A New Look at the Communities of the Developmental Period in the Taos Valley
Throughout time, communities have moved and changed across the Southwest landscape. This can be seen during the Developmental period in the Taos Valley, as pithouse communities appeared during a time when multi-room pueblos and kiva architecture existed less than 30 miles away. To understand these changing communities and the decisions they made, we must first examine their use of space, both the locations they chose to settle and the structures they chose to build and inhabit. Investigations on this topic will shed light on many of the current debates of this area: the timing of Puebloan expansion into the Taos Valley, the direction and manifestation of this expansion, the identities of these groups, and the strategies they employed. Research on the Developmental period in the Taos Valley over the past 20 years has predominately been survey-based CRM projects. These projects have located and recorded many sites, but a comprehensive synthetic overview of this period, which is needed to look at these questions, is still necessary. Through an integration of the results of salvage and culture history based investigations (dating to 1950-1960), CRM projects, and current investigations, these lingering questions should be answered.

OBrien, Matthew [16] see Surovell, Todd

OBrien, Michael (University of Missouri)
[193] Discussant

Ochoa-Winemiller, Virginia and Terance Winemiller (Auburn University at Montgomery)
[190] The Application of Laser 3D Technology to Determine Common Origin of Ceramic Figurines, Stamps, and Whistles from Honduras
Over the years, several archaeological studies have focused on ceramic figurines, whistles, and stamps. One daunting question encountered by researchers involves the relationship of figurine to mold and whether production and common source could be demonstrated through traditional methods of analysis. Evidence gathered to date suggests a level of standardization might have existed wherein modifications to a basic theme were accomplished by individual makers. To demonstrate standardization thus production and common source, a correlation must be established between mold and its positive figurine, whistle, stamp or between artifacts. We analyzed sample collections from Honduras and report on the integration of data derived from laser 3D scanning technology with
applications developed for metrological analyses to test goodness of fit and surface deviation. Methods described in this paper have implications for modal analyses of other forms of ceramic artifacts as well.

O’Connell, James (University of Utah) and Brian Codding (University of Utah) [282]  \textit{Ideal Free Colonization of Australia’s Arid Zone}

Australia’s colonizing populations spread rapidly around much of the continent about 45kya, but vast regions of the arid interior remained unpopulated for millennia and under-populated through the Pleistocene. Here we run preliminary tests of qualitative predictions derived from an ideal free distribution model to examine how human foraging decisions, demographic pressure, and environmental suitability interacted to produce this patterning in the timing and distribution of settlement.

O’Connor, Heather (University of Wisconsin - Madison) [35]  \textit{Sourcing Marine Shell in the Indian Ocean: Exploratory ICP-OES Analysis of Conus and Cypraea}

By the mid-third millennium BC, complex overseas networks of interaction had been established between West, Central, and South Asia. Oman and the Indus Valley were important sources of marine shell for overseas trade to Mesopotamia. However, no in-depth comparative studies have been undertaken that include shell artifacts from these regions of trade. Although the locations of ancient shell fisheries have been hypothesized based on modern distributions of mollusc species, a geochemical analysis of modern and ancient marine shell from modern day Pakistan, India, and the Sultanate of Oman utilizing Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES) analysis will more firmly locate important shell fisheries in the Indian Ocean. ICP-OES analysis is one method used in the geochemical sourcing of marine shell, along with Oxygen Isotope analysis. This paper will present the results of a preliminary ICP-OES analysis of modern Conus sp. and Cypraea sp. from three different locations in the Indian Ocean: the Karachi coast, the Gujarat coast (Dwarka), and Ra’s al-Hadd in Oman. If this technique is viable, it will be possible to trace the source of objects made from important trade species found at inland sites in the Indus Valley, as well as in the Mesopotamian region.

Oda, Noriyoshi [223] see Terry, Karisa

Odegaard, Nancy, Marilen Pool (Arizona State Museum - University of Arizona), Gina Watkinson (Arizona State Museum - University of Arizona), Crista Pack (Arizona State Museum - University of Arizona) and Mike Jacobs (Arizona State Museum - University of Arizona) [336]  \textit{Woven Wonders: Research Options Through Advances in Conservation Examination and Imagery}

Advances in conservation practices and imaging techniques employed at the Arizona State Museum have expanded the research options for over twenty-two thousand archaeological perishable objects assembled through systematic archaeological research. The project has provided increased access to the collection, initiated new conservation treatment techniques, and reduced material loss from the collection. The Woven Wonders project, funded with a Save America’s Treasure grant, has also resulted in a state- of-the-art visible storage vault with improved housing techniques and an adjacent interpretive gallery. A conservation survey database was created and photo-documentation protocols (including radiographs, xeroradiographs and other non-destructive techniques) were standardized to assess the object completeness, use ware, dye techniques, patterns of decay and use, and modifications. New treatments were studied and new outcomes have been established. The project is viewed as a continuum rather and an endpoint and is now a process for ongoing investigation and exploration. Ultimate goals from the project include long-term preservation and access to the collections, sustainable cultural bridges to tribal communities and constituents, and research products that are useful to multiple disciplines.

ODonnell, Sarah (Missouri State University) [11]  \textit{Investigating Ozarks Marginality: A Study of Late Prehistoric Ceramics from the Northern Ozark Highland of Missouri}
Archaeologists have proposed several models of human habitation in the Missouri Ozarks during the Late Prehistoric period (A.D. 900-1500). These models position the Missouri Ozarks as an intermittently occupied zone, in contrast to adjacent regions occupied by sedentary and politically complex agriculturalists. Drawing on world systems theory, Ahler, Kreisa, and Edging (2010) propose an alternative model that positions the Missouri Ozarks as a margin in relation to the adjacent Cahokia Mississippian core. However, application of this model is constrained by uncertainty about the type of relationship that prevailed between Ozark margin societies and core (i.e., Mississippian and Caddo) societies. My study helps resolve this problem by using ceramic artifact data to clarify the nature of interaction between populations in the Missouri Ozark Highland and those in adjacent regions. Using shell- and limestone-tempered ceramics from sites within the Gasconade River Drainage, this study focuses on resolving questions of local versus nonlocal production. Analyses of ceramic geochemistry, via Instrumental Neutron Activation Analysis, indicate the manufacture of both shell- and limestone-tempered ceramics occurred locally, in close proximity to Gasconade Drainage sites. The results suggest a relationship of relative isolation between the Ozark margin and nearby core societies.

Oetelaar, Gerald (University of Calgary)
As social constructions, places provide important information on the way people experience and humanize a landscape. Humans experience a landscape through movement and define places based on the challenges of moving through a particular environment. The challenges depend on the available transportation technology and features of the landscape such as topography, hydrology and vegetation. Repeated use of the same pathways connecting these landmarks generates a trail network whereas the places serve as anchors for the narratives, songs, and rituals of the group. Patterned movement along the trails past the succession of named places retraces the footsteps of the ancestors and becomes a combined ritual pilgrimage, historical journey, and social odyssey. The quotidian actions of the people while camped at places along the network of trails influence the local ecology creating a series of microniches or desirable resource patches scattered across the homeland. In this paper, I explore the archaeological and ecological signatures of such place construction on the northern Plains with particular emphasis on the evidence for the persistence and change in the nature of the constructed places.

Offenbecker, Adrianne (University of Calgary), Kyle Waller (University of Missouri-Columbia), Jane Kelley (University of Calgary) and M. Anne Katzenberg (University of Calgary)
[144] Mortuary Variability at Paquimé and Its Implications for Sociocultural Differentiation
The transition from the Viejo to the Medio period in the Casas Grandes region was marked by increasing sociocultural complexity at the core site of Paquimé. This is particularly evident in the burial practices and mortuary treatment of the individuals interred at the site. Our analysis focuses on the most complex burial discovered at Paquimé, a subfloor tomb containing the remains of at least 12 individuals. Burial 44-13 is comprised of two distinct "layers" of interments; the lower layer consists of six articulated skeletons and one skull, while the upper layer contains the disarticulated and fragmentary remains of five individuals. Here we evaluate the hypothesis that the upper level of human remains represents a sacred offering to the elite individuals below through a comparative analysis of health indicators, trauma, post-mortem processing, pathology, and taphonomy. Our results suggest that there are significant differences between the two layers, particularly in terms of post-mortem processing and age-at-death structure. We discuss these findings within the broader scope of mortuary treatment at Paquimé as a whole and argue that burial 44-13 enables us to more clearly contextualize changes in sociocultural complexity during the later Medio period.

Ogata, Nisao [305] see Munro-Stasiuk, Mandy

Ogburn, Dennis (University of North Carolina at Charlotte)
[121] Inca Things and Local Audiences: Adopting Elements of Imperial Material Culture at the Local Level
For ancient empires, the agenda of incorporation and control of provinces did not entail the imposition of imperial material culture on provincial subjects. Instead, the adoption of elements of imperial material culture by local peoples was more of a voluntary phenomenon, but one that had many connotations regarding the political, social, or economic motives of those making and using items that drew from imperial material culture. This paper takes a theoretical approach to the phenomenon, examining how the motives of provincial individuals, their attitudes toward the imperial state, and their levels of participation in state ideology can be understood by focusing on the nature of the cultural elements being adopted, the contexts of their manufacture and use, and the audiences that would have seen those items in use. These points are illustrated with archaeological evidence from the Inca occupation of southern Ecuador and elsewhere, and implications for understanding pre-Inca empires in the Andes are discussed.

Ogiogwa, Joan-Mary


O’Goreman, Jodie [306] see Bengtson, Jennifer

O’Grady, Patrick and Janice Wood (University of Washington)

[Tephra Traps and Projectile Points: An Update on the Volcaniclastic and Cultural Chronologies at Rimrock Draw Rockshelter (35HA3855), Harney County, Oregon, USA]

Laboratory analyses of samples collected during the 2011-2012 excavations at Rimrock Draw Rockshelter indicate regional eolian and pyroclastic surge materials are collected in “traps” influenced by both mechanical and chemical weathering processes. These tephra accumulations range in size from microstratigraphic layers visible only through particle size and geochemical analysis to massive deposits of Mazama ash in the stream channel adjacent to the rockshelter. Identified ash samples include Newberry (1000 RCYBP), Mazama O (6850 RCYBP), and St Helens SG (13,000 RCYBP), the latter collected from buried deposits above fragments of camelid teeth and a chalcedony flake tool. Trenching of both fluvial and eolian deposits in 2013 explored the relationship of erosion and deposition processes to cultural deposits within the rockshelter, yielding additional tephra samples to enhance the chronology of the region. Ash mantled clays preserve diagnostic artifacts associated with the Western Stemmed tradition; plus overshot flakes, bifaces with overshots, gravers, and fluting flakes that may be associated with fluted point technology. This paper, newly updated from the 2013 Paleoamerican Odyssey meeting reports the results of tephra analysis on samples collected from both archaeological and geologic deposits, and their relationship to diagnostic projectile points, extinct animal species, and radiocarbon dated features.

O’Grady, Patrick [324] see Collins, Joe

O’Hara, Michael [66] see Hegmon, Michelle
Assessing Shape Variation of Early Holocene Bifacial Points from South-Eastern and Southern Brazil Using a Geometric Morphometric Approach

Since the 1960s, most of the bifacial points found in archaeological sites from South-eastern and Southern Brazil have been lumped under the name Umbu Tradition, regardless of their geographical origin or their chronological information. Through the application of geometric morphometric methods, this paper aims to test the hypothesis that there are important differences in the early Holocene bifacial points associated to the Umbu Tradition in South-eastern and Southern Brazil. We have analysed 248 bifacial points from South-eastern (states of Minas Gerais and Sao Paulo) and Southern (states of Parana and Rio Grande do Sul). The sample spans from the Early to the Late Holocene. Our results point to important differences in the morphology of the points from Minas Gerais, Sao Paulo, and Parana, while the materials from Rio Grande do Sul suggest a greater morphological homogeneity. The differences observed among different regions may suggest that there is a hidden and not yet truly recognized morphological diversity within the Umbu Tradition.

“With the Gifts and Good Treatment That He Gave Them”: Elite Maya Adoption of Spanish Material Culture at Progresso Lagoon, Belize

Spanish artifacts make up a tiny percentage of all artifacts found on the west shore of Progresso Lagoon, a 15th-17th century Maya community in northern Belize. Textual references suggest that Spanish encomenderos distributed these objects as “gifts” during reduction and pacification efforts, but the careful distribution of these artifacts suggests specific political and economic choices made by Maya individuals. This article compares Spanish material culture from Progresso Lagoon with other Maya sites along the frontier of the Spanish colony, in an attempt to define how strategies of Maya consumption of foreign objects varied with intensity of colonial interaction, social status, and function. The consumption of Spanish artifacts at Progresso Lagoon suggests elite strategies for retaining legitimacy in the uncertain political and economic climate of the fifteenth through seventeenth centuries.

Imposición cultural y superposición arquitectónica en el centro cívico-ceremonial de Teotitlán del Valle, Oaxaca.

La Zona Arqueológica de Teotitlán del Valle, Oaxaca, ubicada en el centro de dicha comunidad, se distingue por los admirables mosaicos de grecas de piedra que decoran el basamento prehispánico del Período Postclásico (900-1521 d. C.), que al parecer sostuvo un complejo Cívico-Ceremonial zapoteco con edificios administrativos y residenciales similares a los que se encuentran en los sitios arqueológicos de Yagul y Mitla. Como en este último sitio, en Teotitlán se puede advertir una imposición cultural, manifestada por la superposición de un templo católico sobre un edificio prehispánico. En coordinación con el Centro INAH-Oaxaca y con la colaboración de la comunidad de Teotitlán del Valle, en el año 2012 se realizaron trabajos arqueológicos en el basamento prehispánico mencionado, adyacente al templo católico construido por la orden de los dominicos en el S. XVI. Con esta exploración se pudo registrar una serie de materiales arqueológicos, así como varios elementos arquitectónicos que corroboran la persistencia de los vestigios del recinto Cívico Ceremonial zapoteco por debajo del Templo católico, mismos que serán expuestos en esta ponencia.

Early Epipaleolithic (Nebekian) Strategies in the Western Highlands of Jordan: Wadi al-Hasa Region

Olszewski, Deborah

[236] Early Epipaleolithic (Nebekian) Strategies in the Western Highlands of Jordan: Wadi al-Hasa Region

Olszewski, Deborah

[236] Early Epipaleolithic (Nebekian) Strategies in the Western Highlands of Jordan: Wadi al-Hasa Region

Olsen, Erica (Crow Canyon Archaeological Center)

Discussant

Olguin, Ivan

[238] Imposición cultural y superposición arquitectónica en el centro cívico-ceremonial de Teotitlán del Valle, Oaxaca.

La Zona Arqueológica de Teotitlán del Valle, Oaxaca, ubicada en el centro de dicha comunidad, se distingue por los admirables mosaicos de grecas de piedra que decoran el basamento prehispánico del Período Postclásico (900-1521 d. C.), que al parecer sostuvo un complejo Cívico-Ceremonial zapoteco con edificios administrativos y residenciales similares a los que se encuentran en los sitios arqueológicos de Yagul y Mitla. Como en este último sitio, en Teotitlán se puede advertir una imposición cultural, manifestada por la superposición de un templo católico sobre un edificio prehispánico. En coordinación con el Centro INAH-Oaxaca y con la colaboración de la comunidad de Teotitlán del Valle, en el año 2012 se realizaron trabajos arqueológicos en el basamento prehispánico mencionado, adyacente al templo católico construido por la orden de los dominicos en el S. XVI. Con esta exploración se pudo registrar una serie de materiales arqueológicos, así como varios elementos arquitectónicos que corroboran la persistencia de los vestigios del recinto Cívico Ceremonial zapoteco por debajo del Templo católico, mismos que serán expuestos en esta ponencia.

Olsen, Erica (Crow Canyon Archaeological Center)

[314] Discussant
Early Epipaleolithic groups in the Levant have often been described as highly mobile. Although there are a few exceptions to this characterization (e.g., Kharaneh IV and Ohalo II), most sites are aerially small and said to represent short-term camps. This creates a scenario in which hunter-gatherer-forager groups were essentially constantly on the move. In this paper, we use information from the sites of KPS-75, Yutil al-Hasa, Tor Sageer, and Tor at-Tareeq in the Wadi al-Hasa region of Jordan to examine the concept of mobility and the "meaning" of site size and site type in the Pleistocene landscape. We argue that aerially small sites do not necessarily constitute short-term occupations, but as highly visible archaeological places in the landscape, they represent investment in place akin to the concept of "persistent places." Sites that might indicate high mobility would have been quite ephemeral and often are not recorded by traditional surveys which focus on identifying highly visible sites rather than on systematically recording "nonsite" locales.

[236] Chair

Olszewski, Deborah [236] see Cooper, Jason

OMansky, Matt (Youngstown State University)

[191] Shaping Identity along Maya Trade Routes: The View from the Highland-Lowland Interface

Recent research at a number of sites on trade routes along the Maya highland-lowland interface detected a range of cultural identities within a narrow geographic region. Material culture at Sebol, in the Alta Verapaz, indicates a populace with a strong highland identity while Cancuen, to the north, is a lowland site. Located between these sites, Raxruja Viejo is a large center with an amalgamation of highland and lowland features. This paper explores ways in which these sites, as nodes in ancient trade routes, drew from different regions to build identity, as reflected in material culture.

Omay, Barbara [140] see Leriche, Christina

O'Meara, Carolyn (UNAM)

[73] Physical and Linguistic Marking of the Landscape – Are They Connected?

One way humans mark or delimit the landscape they inhabit is through the naming of places. While there are numerous studies of the toponymies of the cultures of the world, it is not clear what kinds of places get named cross-culturally (see e.g., Burenhult & Levinson 2008). Humans also leave physical markers in their landscape, not just in the form of evidence of a camp site, for instance, but also markers with informational content. This work looks at toponyms in Seri (using data from Moser & Marlett 1995 and the author), a hunter-gatherer group living in northwestern Mexico, to see if there is an overlap between the types of geographic entities that receive toponyms in Seri and the places that are the result of physical modification. In particular, Seris had a common practice of burying their child's placenta in the desert near to its birthplace, sometimes accompanied by the planting of a cactus. It has been shown that Seri identified a larger area surrounding the burial site as corresponding to "their territory" (Hine & Hills 2000), however, these areas do not correspond with a named place.

Ongwen, D [17] see Basell, Laura

Oram, Richard (University of Stirling, UK)

[29] With Their Backs to the Ocean: Socioeconomic and Cultural Reconfiguration in Hebridean Scotland c 1250 to c 1450

Systemic changes in settlement structures and exploitation regimes in the Hebridean islands of Scotland in the two centuries after 1250 CE have been interpreted traditionally as consequent on primarily political factors. Shifts across that period from deep-water marine exploitation to inshore fishing and from mainly arable cultivation on the calcareous shell-sand machair districts to intensive pastoral activity on the interior ‘black-land’ areas evident in the archaeological and historical record, however, point to long-term societal responses to environmental change. While benefitting from a broader range of resource exploitation opportunities than were available to their Iceland and Greenlandic kinsmen, the responses of the Hebridean population to a range of environmental impacts resulted in social and
cultural reconfiguration at fundamental levels. This paper explores those changes in the context of North Atlantic weather patterns and long-term climatic deterioration at the close of the MCA. It considers the impact of increased North Atlantic storminess, coupled with raised precipitation and falling temperatures, on the economic regime established in the region in the twelfth and thirteenth centuries. It concludes with discussion of the collapse of external market-oriented production, elite consumption and tribute-gathering within a subsistence economy, and the (re-)emergence of predatory behaviour.

Discussant

Orange, Marie [249] see Le Bourdonnec, François-Xavier

Orange, Marie (Southern Cross GeoScience, Australia), François-Xavier Le Bourdonnec (IRAMAT- CRP2A, UMR 5060 CNRS-Université Bordeaux 3), Anja Scheffers (Southern Cross GeoScience, Australia) and Renaud Joannes-Boyau (Southern Cross GeoScience, Australia)

[249] Introducing a New Complementary Geochemical Approach for Obsidian Sourcing: The Case of the Western Mediterranean

Since the 1960s, and the first "real" sourcing campaign of obsidian artefacts by Cann and Renfrew (1964), analytical methods used to characterise obsidian and other rocks have seriously improved in precision and effectiveness. The use of analytical techniques such as PIXE-PIGME, SEM-EDS, XRF, INAA, ICP-MS or LA-ICP-MS, have led to various degrees of success, and methodological problems still remain (artefact's size, surface regularity, soil contamination, etc.). While most of these techniques allow the characterization of the main obsidian sources, some artefact's provenance remain problematic, requiring more enhanced methods. To overcome these questions, we propose to use a multi-isotope ratio analysis. The use of multi-isotope ratios has been widely applied in geological research, but never to obsidian sourcing for archaeological purposes. In this study, we review the application of several characterization techniques (SEM-EDS, XRF and LA-ICP-MS) in a geologically well-known region, the west Mediterranean area, and then compared the results obtained with the new method.

Oré, Gabriela [19] see Makowski, Krzysztof

Ore Menendez, Gabriela (Vanderbilt University) and Steven Wernke (Vanderbilt University)

[188] Time Maps: Site-Intensive Lichenometric Survey at a Planned Colonial Town in Highland Peru

Late prehispanic and colonial-era settlements in the highland Andes often present extensive and complex architectural remains. We present a lichenometry-based methodology for dating such settlements. Though well established as a dating method in earth sciences, lichenometry remains underutilized in archaeological research in the Andes, despite its reliability, cost-effectiveness, and simplicity. In this case, we recorded metric and qualitative data on Rhizocarpon geographicum specimens growing on the surfaces of fieldstone buildings at a large planned colonial town (reducción) in southern highland Peru with extensive architectural remains and a four century occupational sequence. The results of this site-intensive survey provide near 100% coverage of lichenometric data from the architectural remains of the settlement, with over 800 specimen measurements. Prior studies established a growth curve, enabling absolute dating of building construction and abandonment. GIS-based analysis defines the sequence and extents of construction and occupation through a series of interpolated date surfaces. The results define the areas corresponding to prehispanic occupation, the initial construction of the colonial settlement, and areas remodeled or overbuilt during the mid- and late-colonial eras. We also discuss potential broader applications of the methodology.

Orijemie, Emuobosa

[40] Late Holocene Environmental Change and Cultural Response in South-Western Nigeria

The environmental changes in the late Holocene (4500-2000yrs B.P.) of south-western Nigeria were very dramatic altering vegetation, precipitation and river systems. These changes included the complete disappearance of the mangrove swamp forest, decline in hitherto diverse rainforest, significant lowering of sea levels and influx of freshwater into swamps. The hitherto dense rainforest environment provided a base for the local subsistence economy synonymous to hunter-gathering of terrestrial and aquatic
resources. Local communities also maintained interactions with culturally-similar groups in Bénin and Ghana. Upon the subsequent marked increase in freshwater, establishment and spread of secondary forest and coastal savanna, economic adaptation turned to agricultural practices for food production. This shift in culture though was the main way to achieving food security and sustainability, altered the environment beyond its threshold. These major contributing factors along with the introduction of foreign cultures promoted by colonialists prevented the re-establishment of the mangroves and rainforest.

ORourke, Mike

[165] Mapping Value: Making Space for ‘Significance’ in GIS-Based Archaeological Site management. Much of the Arctic archaeological record is situated along or near the modern shoreline. These coastal sites are at substantial risk of damage or outright destruction by numerous processes which continually reshape the Arctic coasts. Such processes have been forecast to increase in severity and scope as climatic conditions continue to change in the years ahead, a situation which has necessitated new ways of thinking about regional-scale archaeological resource management. The threats of relative sea level rise and accelerating rates of shoreline erosion have been employed through GIS analytical frameworks to promote an informed approach to resource management by highlighting regions most at risk. Archaeological resource ‘value’ is a complicated and often contentious measure of public interest which has been mobilized in the management of heritage resources around the world. The uncritical application of value-measures in archaeology has been heavily critiqued however, and for good reason. Such critiques appear to have prevented the use of ‘value’ in GIS-based heritage management frameworks. This paper outlines my efforts to align notions of ‘value’ and ‘threat’ through the establishment of an archaeological site ‘vulnerability model’ for use in the dialogical management of archaeological sites along the Beaufort Sea, NWT, Canada.

O’Rourke, Laura

[204] The View from Las Galeras, a Small Olmec Site in the Region of San Lorenzo

The relative absence of stone at Las Galeras, a village in the hinterland of San Lorenzo, highlights how the tight control of imported stone into the region of San Lorenzo in the late Early Formative period was one of the ways that the ruling elite of San Lorenzo wielded and manifested economic and social power in this early civilization. Stone had to be imported into this region of clay and sand; the raw basalt and andesite stone that was used to create monumental architecture and sculpture, as well as the obsidian used in rituals, was also used to make utilitarian tools. As an imported and restricted commodity, the line between utilitarian and luxury is fluid: the obsidian blade that cuts into an animal and the basalt mano and metate that grind food are utilitarian implements; at the same time, the scarcity of these materials makes them luxury goods. In this way, the multiple uses of stone and the difficulty in obtaining it blurs the line between the everyday and the ritual.

Orozco, Joseph (CSULA)

[70] An Examination of Faunal Remains from Midnight Terror Cave

Over the course of three seasons from 2008-2010, California State University, Los Angeles conducted an intensive surface survey of Midnight Terror Cave. These investigations documented extensive modification of the cave to create broad, level areas suitable for public ritual. The project also recovered extensive human skeletal material thought to be the remains of sacrificial victims. Additional evidence of ritual comes from faunal remains associated with ritual features in the cave. In the course of the analysis, 682 animal bones were examined at Cal State L.A. The assemblage is unusual in containing high frequencies of fish and bird bone, but two species commonly identified in Maya ritual assemblage occur in low numbers. White-Tailed Deer (Odocoileus virginianus) and Ocellated Turkey (Meleagris spp.), which typically make up the largest amount of mammal and bird bone respectively in documented assemblages, are represented by only a single element each at Midnight Terror Cave. There are relatively few cave faunal analyses published so it is not possible to establish the nature of a typical cave assemblage but it is startling is see how divergent the Midnight Terror Cave assemblage is from others. A number of suggestions will be advanced for why this might be.
Orrego Corzo, Miguel [253] see Schieber de Lavarreda, Christa

orser, Charles (Vanderbilt University) [118] The Capitalist Mode of Production and the Postcolonial Project
Postcolonial studies have appeared within almost every discipline, including archaeology. Historical archaeologists using postcolonial theory have tended to adopt two approaches to the subject of capitalism: either they have neatly sidestepped it or ignored it completely, or they have claimed to be studying it while actually masking its impacts. Even some historical archaeologists who have investigated the post-1500 CE modern world have adopted these strategies. The seepage of neoliberal strategies into postcolonial studies has significantly hindered our ability to critique the capitalist project. Now is the time to reclaim the original radical and Marxist roots of the postcolonial perspective and to reinsert the mode of production concept within it.

Ortega-Cabrera, Veronica [293] see Archer, Jorge

Ortegon Zapata, David [158] see Dunning, Nicholas

Ortegón Zapata, David [195] see Smyth, Michael

Ortiz Díaz, Edith [293] see Cockrell, Bryan

Ortiz Ruiz, María (El Colegio de Michoacán A. C. Centro de Estudios Arqueológicos) [319] Los hornos para cal en el área Maya: caracterización de una tecnología prehispánica
En esta ponencia proponemos la clasificación de la tecnología utilizada por los Mayas prehispánicos para la producción de cal. Esta propuesta surge de los de las excavaciones realizadas en el sitio de Oxkintok en el noroccidente de Yucatán. Estos datos nos permitirán re evaluar las clasificaciones y los conocimientos sobre la tecnología de los hornos de cocción de los mayas prehispánicos, los cuales han sido adjudicados etnográficamente.

Ortiz Vallejos, Jose Raul (University of Arizona) [312] Regional Interaction in the Northern Maya Highlands of Guatemala
Recent archaeological excavations at El Soch, Guatemala, a site located along the Chixoy River on the eastern end of the Cuchumatanes Mountains, have provided new archaeological data concerning the development of societies in the northern Maya highlands of Guatemala, but they have also raised a number of questions about how archaeologists should approach broad regional inter-comparisons of material culture. Although this region has only been sporadically addressed by systematic archaeological research, it is promising the evidence gathered at El Soch portrays a dynamic region with the interaction and movements of people, ideas, and goods. This dynamism is found in all sub-regions in the northern highlands, though mainly between the eastern Cuchumatanes and the Alta Verapaz regions. This paper summarizes the ceramic chronology and the construction sequence of El Soch suggesting that shifts in material culture assemblages and practices from the end of the Early Classic to the Late Postclassic can be understood as indicators of regional interaction between different social groups across the northern highlands. I propose that significant social processes and events, such as migrations and expanding trade networks, could explain some regional patterns in the northern Maya highlands in different phases of its chronology.

Ortman, Scott (CU-Boulder) [289] Economic Development in Pueblo History: Methods and Data from the VEP
Recent work in macroeconomics suggests that culture, and especially ideas that impact the scale of
social coordination, are an essential ingredient of economic growth. It also suggests that growth does not derive from specific details of a capitalist economy but from more general aspects of human technology and sociality. These emerging perspectives create an important opening for a renewed dialogue between archaeologists and economists which may also lead to a greater role for archaeology in the public discourse. In this paper, I propose methods for translating the archaeological record into measures that are relevant for studying growth processes in the past and apply these measures to the episodes of Pueblo history that are the focus of the Village Ecodynamics Project. These analyses suggest that significant economic growth took place during the Chacoan era and in the century following the migration of Pueblo ancestors from the central Mesa Verde to northern Rio Grande study areas.

Ortman, Scott [289] see Schwindt, Dylan

Osborne, Daniel [79] see Wandsnider, LuAnn

Oscar Daniel, Llanos Jacinto [146] see Aïcha, Bachir Bacha

Osorio, Daniela [23] see Capriles, Jose

Osterholt, Amber


The practice of trophy taking is a human activity that has been documented globally throughout time. In the Eastern Woodlands of North America, it was prevalent during the late Middle and Late Archaic and found at many (n=22) sites along major waterways in the Ohio and Tennessee River Valleys. Outside of this area, there is a marked decrease in the occurrence of trophy taking. This indicates an area of densification of trophy taking that deserves further investigation. Reasons for delimitation of trophy taking in this region are explored through analyses of trophy victims, distinguished by missing limbs or crania associated with perimortem cut marks, and articulated limbs and crania buried as grave goods. The meaning and power of trophy taking events, both removal and deposition, is examined using perspectives of post-mortem agency, which highlights the ways in which body parts retain the identity and agency of the individuals from whom they were harvested. Thinking about trophies in this manner contextualizes the ways trophies were used to establish and maintain group identity and social boundaries in the Ohio- Tennessee River Valleys during the late Middle and Late Archaic.

Osterholtz, Anna (University of Nevada Las Vegas)

[28] Patterned Processing as Performative Violence at Sacred Ridge

Violence serves social functions. Performative violence is used to reinforce social behavior and to create and reinforce social relationships between aggressors, witnesses, and victims. Sacred Ridge (a PI site in southwestern Colorado) is a large EP (Extreme Processing) assemblage where at least 33 individuals were killed, disarticulated and fragmented, and their remains placed within a pit structure. The crania, in particular, exhibit consistent patterning in fracture distribution and type, mutilation, burning, tool marks, and missing bone; this indicates that individual cranial was treated similarly regardless of age or sex. Distribution of the remains within the pit structure indicates that the cranial were deposited in a fragmented state, meaning they would have been unidentifiable as individuals and possibly as human beings. This presentation explores the patterned processing of the crania as performance. The roles of the aggressors, witnesses, and victims associated with this assemblage are explored through this performative lens.

[28] Chair

Osterholtz, Anna [67] see Martin, Debra

Osterhoudt, Curtis [290] see Goodale, Nathan
Otaola, Clara (CONICET-IANIGLA Museo de Historia Natural de San Rafael) [206]  The Problem of Space Averaging In Zooarchaeological Data from Central Western Argentina: Different Interpretations about Resource “Intensification”

The possible existence of a resource intensification process had been debated widely in central western Argentina. However, spatial units used to support the intensification model have not been critically considered in previous publications. Intensification process had been proposed considering southern Mendoza region as a unique spatial unit. This analytical lumping could have caused wrong interpretations about changes in faunal consumption during the Late Holocene. In this paper we show that changing the spatial analytical units produce different interpretations of faunal consumption in the past. Depending on the size of the spatial scale, the differences in the taxonomic richness through time will be sharper or lighter.

Otis Charlton, Cynthia L. [72] see Fournier, Patricia

Ottenhoff, Randy (The University of Central Lancashire) [334]  Incised Stones of the Great Basin: Associations and the Archaeology of Context

This paper explores the close associations incised stones have with other artifacts at two sites in the Great Basin. Incised stones are small, portable, mostly flat objects that have designs incised on the surface. Left at caves, rock-shelters and open-air sites, these stones are a poorly understood artifact class not only in the Great Basin, but also worldwide. The placement of an incised stone beside other artifacts in just one excavation level may not hint at a pattern. However, my research examines every excavation level with incised stones from two sites: Hogup Cave, and Ruby Cave. In each site, incised stones have been grouped with their closest artifact neighbors. Does a pattern emerge? After a brief introduction of the chronology of incised stones, a combination of plan maps, graphs, and photos will walk through the deposition of incised stones. Patterns in the record will be discerned, and suggestions of what these patterns mean will be made.

Overholtzer, Lisa (Wichita State University) and Angélica López-Forment (University of Calgary) [293]  Turkey, Beef, or Veg? Diachronic and Synchronous Variation in commoner Household Production and Consumption Practices at Xaltocan, Mexico

With the proliferation of household archaeology in Mesoamerica, archaeologists have increasingly carried out extensive, detailed excavations of domestic structures and associated features. Such excavations and greater attention to spatial context within household space have provided scholars with the opportunity to reconstruct the practices of everyday life in households. However, Mesoamericanists have less often been concerned with interpreting these data in terms of the decisions of individual commoner households. Drawing on theories of agency and practice, this paper examines commoner production and consumption practices using faunal evidence from sealed middens adjacent to domestic structures. In particular, it considers variation in these practices along both diachronic and synchronic axes. It reconstructs how members of the household known as Structure 122 altered their animal-related production and consumption practices as their broader political and economic contexts changed—ranging from the height of Xaltocan’s power in the 13th century, to the rise of Mexico and other Nahuatl-speaking groups in the mid-14th century, to the early colonial era. It also reconstructs how such
practices differed between families—comparing the Structure 122 and 124 households and patterns evident at the site-level—at a single point in time, during the early colonial period.

Owlett, Tricia [51] see Zhao, Hao

Owlett, Tricia (Stanford University)

Regional Perspectives on Shellfish Gathering from the Ryokyo Islands, Japan

The antiquity of shellfish gathering along the RyOkyO Islands dates from the region’s earliest inhabitants into the modern era. Invertebrate remains from the RyOkyO Islands, Japan were identified using traditional zooarchaeological methods to determine the contribution of shellfish to the diet during the Middle to Late Shellmidden period (4000 B.C. to AD 1100). I quantify spatial and temporal variations at intra and intersite levels, and use ethnography to place mollusk gathering in the unique socio-historical context of these three shellmidden sites. The addition of these data to existing studies contributes to our knowledge of food procurement strategies, changing subsistence patterns, and paleoenvironmental reconstruction during this time period.

[235] Chair

Ownby, Mary [117] see Elson, Mark

Owoc, Mary Ann (Mercyhurst University) and Janna Napoli (University of Maryland)

From Ideology to Identity: Epitaph Memorialization in the History of the American Cemetery

This presentation examines epitaph popularity and content in north-western Pennsylvania from the beginning of the 19th century to the present, and situates these trends within the context of the wider monument industry, prevailing ideologies and constructions of personhood, and, material forms. Notable trends in popularity, visibility, origin, and content can be seen to characterize epitaph use during this period. The extent to which detailed studies of memorial texts further our understanding of the ideologies that inform, and are actively manipulated by mourners and the funerary industry alike, will be examined.

Paap, Iken (Instituto Ibero-Americano Berlin)

Dzehkabtún (Campeche, México) – un Sitio Maya en la Zona Transitoria entre Puuc y Chenes

En 2012 comenzaron las investigaciones sistemáticas en el sitio maya de Dzehkabtún (Campeche/México) por el Proyecto Arqueológico Dzehkabtún (Instituto Ibero- Americano de Berlín) y con financiación por la Fundación Científica Alemán (DFG). Los resultados de las primeras excavaciones en 2013 indican que el sitio fue habitado desde el Preclásico Medio hasta el Epoclásico o el Postclásico Temprano. Aparte del levantamiento topográfico y una reconstrucción virtual en 3D de la arquitectura del sitio, el proyecto actual se dedica a analizar el contexto sociopolítico en la transición del Clásico al Postclásico en el área del Chenes, así como las causas del abandono de este sitio y de la mayoríay los sitios del Clásico en el centro de la península de Yucatán. Por un lado, los resultados de la primera temporada de excavaciones estratigráficas indican una continuidad marcada entre los habitantes del Clásico Tardío/Terminal y los constructores de edificios tipológicamente epi- y postclásicos en Dzehkabtún. Por otro lado, revelaron una ocupación inesperadamente marcada ya desde el Preclásico Medio y una amplia participación en las redes de intercambio de larga distancia durante el Clásico Temprano y Tardío.

Pacheco Arias, Leobardo (Universidad de las Américas Puebla-Zona Arqueológica de Monte Albán)

Contexts of the Religious Architecture in Atzompa, Oaxaca

Among the most impressive buildings made by the ancient Zapotec people who lived in the Valley of Oaxaca during the prehispanic era are their places of worship. Their building design, decoration and associated offerings made of ceramic allow us to study some aspects of ancient Zapotec religion and
rituality. Here, we examine the architectural and ornamental features of five temples, four of them explored in the core area of the Monumental Complex of Atzompa (Buildings 3, 4, 6 and 16) and one on its periphery (Building 1 at Plaza K). These buildings, excavated between 2007-2012, are architecturally similar but with their own characteristics, are compared with those of the great city of Monte Alban that were built around the Late Classic Period. In addition to describing the patterns of distribution and construction of these temples, we seek to explore the links with recent archaeological objects found in these contexts, such as Zapotec effigy vessels.

**Pacifico, David**

Urban Households and Social Hierarchy at El Purgatorio, Peru

Following radical urban ethnographers, archaeologists have recently turned to examination of houses, households, and communities for understanding the way in which non-elites and their everyday practices contributed to large scale urban processes. This paper presents research from the residential district at El Purgatorio, Peru, dated to the latter part of the Late Intermediate Period (ca. AD 1300-1400). This research employed a “neighborhood archaeology” approach founded upon household archaeology and the community archaeology of Yaeger, Canuto, Wernke, Mac Sweeney, and others. Analysis of residential architecture in the popular residential district of El Purgatorio indicates that social hierarchy and household configuration were interrelated at El Purgatorio. This interrelation suggests that household configuration and kinship were important factors in the development of inequality at El Purgatorio. However, the examination of ceramics and organics recovered from these residences suggests that material inequalities in portable goods were not as pronounced. While preexisting social inequalities were brought to the city and further developed there, citywide economic institutions may have also worked to diminish material inequality between residents of diverse social statuses.

Pack, Crista [336] see Odegaard, Nancy

Padilla Gutiérrez, Eliseo F. [128] see von Nagy, Christopher

**Pagliaro, Jonathan (Santa Clara University), Travis Stanton (University of California, Riverside) and Donald Slater (Brandeis University)**

Is There an Ek Complex in Central Yucatan? Evaluating Early Ceramics from Yaxuna and Aktun Kuruxtun

The Preclassic period in the northern Maya lowlands has been a focus of intense discussion for the past 15 years. Several projects have reported new data that indicate that the Ek ceramic complex from Komchen should predate Early Nabanche pottery and would thus date to the transition from the Early to Middle Preclassic. These data, however, come from the western side of the peninsula, and little is known about the material culture that existed at this transitional point in Central Yucatan. In this paper we discuss the ceramics and radiocarbon dates from two sites in the Yaxcaba region that bear on the transition to ceramic-using communities. Early dates from Yaxuna indicate that a version of Early Nabanche pottery dates as early as 1000 B.C. and is mixed with Ek ceramics that may have been imported. Dating from Aktun Kuruxtun corroborates these early Early Nabanche dates and provides evidence that Yotolin Burnished, a type that George Brainerd placed within the Early Preclassic, may be indicative of a subcomplex associated with the earliest Early Nabanche pottery in Central Yucatan.

Pailes, Matthew (University of Arizona)

Refinement of the Río Sonora Chronological Sequence

The Río Sonora region continues to suffer from a lack of chronological control and, in particular, temporally sensitive diagnostic artifacts. In addition, the region lacks refined typological classifications of ceramics and other classes of material culture. These two problems are obviously closely related. Previous research in the area relied upon C14 analysis and a classification of architectural styles. This is extremely problematic since architectural styles are not mutually exclusive between periods, and vary widely across space. Reliance on C14 data is also problematic due to the wide error ranges inherent to the calibration of dates from the 15th to 17th centuries. This paper will begin to address these issues by
presenting 18 thermoluminescence dates, most made directly on Río Sonora Ceramics, from the Moctezuma Valley. Dated samples were preferentially selected from floor and other contexts to simultaneously evaluate architectural styles. Results provide preliminary ages for a variety of Río Sonora textured types and several styles related to the Casas Grandes tradition. These data allow an initial formulation of late period occupation in the Moctezuma Valley and a basic comparison with previous models based mainly on Sonora Valley data.

Pailes, Matt [210] see Ballenger, Jesse

Paixao, Eduardo [116] see Goncalves, Celia

Paixão, Eduardo (University of Algarve), João Cascalheira (University of Algarve), João Marreiros (University of Algarve), Telmo Pereira (University of Algarve) and Nuno Bicho (University of Algarve) [116] Technological Approaches to Stone Tool Production: The Case of Layer 2 of Mesolithic Shellmounds of Cabeço da Amoreira, Muge (Portugal).
The discovery of the Muge shellmiddens dates back to the nineteenth century and is recognised to be of high importance to international Mesolithic studies. Located near the Tagus River, in central Portugal, this complex has provided high quality Mesolithic faunal remains, human remains, and lithic assemblages. This study will focus on the technology and typology of lithic artifacts, from the Layer 2 of Cabeço da Amoreira from the Muge Mesolithic complex. One of the main goals is to understand the importance of the various raw-materials present at the site and their relation with the different techno-typological aspects. This study seeks to advance our knowledge of economy, functional and stylistic elements, and its relation to the emergence of social complexity in the Muge Mesolithic communities.

Paiz Aragon, Lorena (Universidad del Valle de Guatemala) and Bárbara Arroyo (Instituto de Antropología e Historia de Guatemala) [197] The Maya Highlands and the Pacific Coast: Two Important Regions for the Development of Social Complexity of Southeastern Mesoamerica
Sites located on the Maya Highlands and Pacific Coast of Guatemala demonstrate complex developments that some have proposed represent the emergence of some form of state society. The importance of this area dates back to the Preclassic period, but it is only briefly mentioned in historical accounts of the region. The diverse architecture and sculpture manifestations from these two regions show intense cultural exchange between them and other areas from the Maya lowlands, Eastern region, and Central Mexico. The sites located in these zones have great importance and relevance for the understanding of Mesoamerican sociocultural developments. This paper will summarize the state of studies in these areas and their relationship with neighboring regions.

Paja, Laszlo [222] see Giblin, Julia

Paja, Laszlo (Hungarian National Museum), Julia I. Giblin (Quinnipiac University), Györgyi Parditka (Hungarian National Museum) and Paul R. Duffy (University of Toronto) [222] Cremations in Contexts: the Micro-stratigraphic Investigation of Population and Practice at the Middle Bronze Age Cemetery of Békés Jégvermi-kert, Hungary
Demographical and pathological attributes of a cemetery population’s skeletal remains can be suggestive of living conditions of people during ancient times, but these data are obtained from cremated remains with greater difficulty. The fragmentary state and special fracture patterns of cremated bones may hide or destroy analytically relevant signs, and the removal of fill from cremation urns further fractures and reduces the amount of anthropologically useful morphological and metric information. Our paper focuses on the bioarchaeological results of the Middle Bronze Age (2000-1500 BC) cemetery of Békés Jégvermi-kert in Eastern Hungary, where most bodies were cremated before final interment. During our analyses, we used classical anthropological methods in combination with the layer-by-layer micro-stratigraphic excavation of cremation urns supported by images derived from
computed tomography (CT). We demonstrate how the combination of CT visualization, in situ micro-
excavation data, and the anatomical and metric characteristics of bony fragments informs us not only
about the living conditions of ancient times, but also about mortuary practices of the community that
rarely get documented.

Palacios-Fest, Manuel
[267]  Paleoeoecology of the Blackwater Draw, South Bank, New Mexico
The paleoecological reconstruction of Blackwater Draw in eastern New Mexico is of major significance
to understand the environmental impact on human occupation in the arid Southwest. This study uses
diatoms and microinvertebrates (ostracodes and mollusks) to identify patterns of environmental change
for the time span between the Last Glacial Maximum (LGM) and the early Archaic period, covering the
most important geoarchaeological episode, the Clovis occupation, in the region. Diatoms are abundant
and show distributional patterns based both on salinity and brine composition. Ostracodes and
mollusks, by contrast, are rare but indicate the pond’s water chemistry and stream flow.

Palek, Cory (Graduate Student)
[172]  A Comparative Analysis of Local and Non-local Chert Usage at Two Late Prehistoric Sites in South Western Pennsylvania.
Recent investigations of Late Prehistoric lithic assemblages have reported the appearance of numerous
chert types. Many of these investigations explored the significance and variation of local chert sources.
However, there has been little research into the use of non-local chert type in Monongahela lithic
assemblages. Onondaga and Loyalhanna chert sources can be found in close proximity to many Late
Prehistoric sites in Western Pennsylvania and constitute the majority of the lithic material found in these
assemblages. Non-local chert types such as Flint Ridge, Upper Mercer, and Jasper have also be
identified in many of these lithic assemblages. This research utilized an intersite and intrasite
comparative strategy to identify the differences in lithic reduction strategies between local and non-local
chert sources. Two temporally and geographically similar Late Prehistoric sites in South Western
Pennsylvania were used in this study. Lithic analysis exploring variation in lithic industry, technological
organization and curation were carried out at the individual site level. The results from the individual site
analysis were then compared to identify any distinct variation between the two sites.

Paling, Jason [153] see Lowry, Justin

Palka, Joel (University of Illinois-Chicago)
[72]  Metal Tools in Lacandon Maya Economics
Metal tools of European manufacture quickly entered the exchange networks in the remote southern
Maya Lowlands during the Spanish colonial period. While metal tools did not completely replace Maya
stone implements, including chert projectile points and scrapers, machetes and axes became essential
for native agriculture and local economies. This presentation covers the history and archaeology of the
introduction of Euro-American metal tools to Lacandon Maya and their ancestors in Peten, Guatemala,
and Chiapas, Mexico, and how these items transformed indigenous trade and agriculture.

Pallan Gayol, Carlos (INAH, Mexico/University of Bonn, Germany) and Antonio Benavides Castillo (INAH, Mexico. Regional Center Campeche)
[195]  The Hieroglyphic Monuments from H-Wasil, Campeche
At the heart of the Puuc region lies the site of H-Wasil, in Campeche, a few kilometers west of Labna
and south of Kabah. It was first reported in 2007 by Antonio Benavides Castillo and included in the
surveys conducted by Stephan Merk. The authors present here the results of a more in-depth field
documentation and epigraphic analysis of the site’s epigraphy. Standing architecture at H-Wasil displays
Late- to Terminal Classic features, and of special interest is a small group of monuments with
hieroglyphic inscriptions. The present paper deals with their decipherment and seeks to contextualize
these findings into a broader perspective encompassing regional interaction among Puuc sites, as an
effort toward overcoming the still prevailing lack of epigraphic documentation and analyses in this region
when compared to other parts of the Maya lowlands. This type of work, when extended to several other sites in the Puuc, could then serve as a foundation for enabling historical reconstructions of such aspects as geopolitical interaction and prevailing rulership institutions and sociopolitical conditions during the decades immediately prior to the collapse and abandonment of numerous sites within this region.

Pallán Gayol, Carlos [319] see Ek, Jerald

Palmison, Molly (Texas State University - San Marcos) [109]

A Preliminary Analysis of the Robberg Assemblage at Erfkroon

The site of Erfkroon, located in the western Free State of South Africa, contains an artifact and faunal assemblage that spans the Middle and Later Stone Ages. It has produced the only excavated Robberg assemblage found at an open air site in southern Africa. The majority of the assemblage consists of bladelets and bladelet cores which typify Robberg lithic assemblages found in caves and rock shelters on the South African Cape and interior. A Lockshoek component found stratigraphically above these artifacts helps demonstrate that these microliths fit squarely within the Robberg industry. These bladelets, along with cores, raw materials, processed faunal remains, multiple hearth features and the site’s proximity to water, reflect camp activities. An analysis of tools and debitage revealed that both upland and nearby fluvial hornfels and cryptocrystalline sources were utilized for the acquisition of raw material. This paper provides an introductory analysis of the lithic technology used during the Robberg industry at Erfkroon and a comparison to cave and rock shelter Robberg assemblages.

Palomo, Antoni [22] see Pique, Raquel

Palumbo, Scott (College of Lake County) [197]

Domestic Variation within Isthmo-Colombian Political Centers

This paper explores changes and continuities in domestic organization within four Isthmo-Colombian political centers: Barriles (Panama), Bolas (Costa Rica), El Hatillo (Panama) and Mesitas (Colombia). Evidence for participation in craft specialization, ritual activities and the consumption of “wealth” are explored in detail and indicate clear differences between each case. This variation is discussed in relation to the ongoing discourse in Isthmo-Colombian studies.

Pan, Feifei [42] see Nagaoka, Lisa

Pan, Yan (School of Life Science, Fudan University) [99]

Discussant

Panakhyo, Maria (Southern Illinois University Carbondale) [28]

Creating a Better Understanding of Prehistoric Peoples through Reanalysis of Collections of Commingled Human Remains

Recent reanalysis of the Lewis Jones Cave Ossuary (LJCO) collection (1SC42) of commingled human remains provides insight into the burial behavior of prehistoric peoples living in northern Alabama during the Middle Woodland period (A.D. 100-500). Excavated from a natural cave site in St. Clair Country, Alabama, the LJCO collection of human remains exemplifies Copena mortuary practices through the inclusion of copper and galena burial goods. Reanalysis of the LJCO collection involved the recording of age, sex, pathological indicators, and taphonomic features of nearly 1,300 skeletal elements. Assessment of these variables led to an estimation of approximately 62 individuals and initiated the process of segregating the bone elements into separate individuals. Observation of the physical characteristics of each bone element, specifically the biological features, indicated a diverse population interred within the cave ossuary including individuals of both sexes, all ages, and with varying pathological conditions. Results of this nature suggest prehistoric peoples utilizing Copena mortuary practices in northern Alabama did not practice a separation of individuals during the interment process.
Conducting reanalysis of collections of commingled human remains, such as the LJCO collection, may provide a better way to understand the sociocultural practices of prehistoric peoples through their mortuary behavior.

Panich, Lee (Santa Clara University)

[338]  **Diachronic Trends in Bead Consumption at Mission Santa Clara de Asís**
Archaeological investigations at California’s Mission Santa Clara have recovered thousands of shell and glass beads from a variety of temporal and spatial contexts. In addition to numerous glass bead types, mission-era deposits from Santa Clara have yielded large quantities of beads from two distinct California shell bead traditions: clamshell disk beads and beads manufactured from Olivella shells. In contrast to expectations about technological replacement and decline, archaeological evidence from throughout the colonial period demonstrates that the mission’s Indigenous inhabitants continued to use multiple types of shell beads—many likely acquired from other regions of California—alongside glass beads imported by Euroamerican colonists. This paper will examine diachronic trends in bead consumption as revealed through both incidental and intentional deposits, including residential areas, mortuary contexts, and other deposits that may be related to Indigenous mourning ceremonies. Beads from these contexts are examined with an eye toward understanding how Native Americans at Santa Clara acquired beads of different materials and how they incorporated them into existing yet dynamic cultural practices. The diversity of beads in circulation at Mission Santa Clara suggests Indigenous peoples exercised considerable flexibility in negotiating the constraints to bead access and use posed by Spanish colonialism.

[119]  **Chair**

Panich, Lee [119] see Schneider, Tsim

Pantoja, Raul

[195]  **Un Acercamiento al Patrón de Asentamiento de Kabah, Yucatán.**
El área cultural conocida como Puuc, localizado en la parte sur del estado de Yucatán, México, geográficamente es un área de características geográficas peculiares, entre ellas, es la zona alta del estado, alcanzando en algunos lugares hasta 100 metros sobre el nivel del mar. Por ello, las poblaciones humanas que se asentaron en tiempos prehispánicos, fueron capaces de adaptarse a condiciones particulares que forman un patrón de asentamiento en toda la región. El estudio aquí presentado, es un acercamiento a la comprensión e interpretación de los asentamiento humanos en el sitio arqueológico de Kabah, lugar que posee una especial posición en el contexto cultural, político y social de la región en diversos periodos del desarrollo dela región.

Papadimitriou, Alkestis [5] see Day, Peter

Papadopoulos, Nikos [318] see Zimmer-Dauphinee, James

Papathanasiou, Anastasia [332] see Pullen, Daniel

Pappas, Christina (University of Kentucky)

[263]  **Woodland Perishables in McCreary County, Kentucky**
This poster presents the results of analyses of Woodland-era cordage, matting, and slipper fragments recovered from the Spring Branch Shelter (15McY319) in McCreary County, Kentucky. Comparison with contemporaneous perishable assemblages shows intra-site variation in warps, selvages, and other textile structures and may indicate the presence of two different textile traditions. These findings suggest that the local social group was not homogenous. Expanding interregional interactions encouraged and increased the exchange of information and technologies during the Woodland period. Perishables from the Spring Branch Shelter are an example of these large-scale processes at the level of a site.
Parditka, Györgyi (Hungarian National Museum) and Paul R. Duffy (University of Toronto) [222] Mortuary Practice and the Emergence of Middle Bronze Age Communities on the Great Hungarian Plain

The practice of cremation was introduced to the Great Hungarian Plain near the beginning of the Bronze Age and within 1500 years was virtually the only form of burial treatment of the Plain. This was also a time in which dense settlement and complex trade networks emerged, expanded, and collapsed. In this paper, we trace the arc of changing mortuary patterns across the Bronze Age (2700-750 BC) of the Great Hungarian Plain. We provide chronological and social context for the emergence of the Middle Bronze Age communities that built new trade routes, complex social relationships, and regional identities. We create a backdrop for the several research papers presented in this session, which seek to understand the rich social variability expressed during this regional florescence.

Parditka, Gyorgyi [222] see Giblin, Julia

Paredes-Umaña, Federico (ATACO ARCHAEOLOGICAL PROJECT) and Shintaro Suzuki (UNAM) [161] Late Preclassic Southeastern Mesoamerica, beyond the Maya Construct

During the Late Preclassic, southeastern Mesoamerica was constituted by population nuclei usually described in terms of political entities and ethnic groups. But what is an "ethnic group"? Where should ethnicity be looked for? Terms like Maya, Xinca or Lenca have been used in recent decades to explain population dynamics during the Late Preclassic. But, how are these human groups archaeologically defined? This paper introduces new archaeological data recovered from field seasons between 2007-2011, focused on monumental sculpture from present western El Salvador, and discuss local symbols and regional dynamics as a productive archaeological approach to group boundaries, contentious ideologies, and local configurations. Additionally we discuss modern bioarchaeological methods in order to obtain other perspectives on human group behavior, represented by biocultural practices, biological affiliation and pathological conditions, among others.

Parezo, Nancy [202] see Fowler, Catherine

Parfitt, Anne (Central Washington University) and Patrick McCutcheon (Professor ) [10] Chemical Sourcing of Obsidian Lithic Fragments from the Grissom Site (45KT301) to Study Intra- site and Inter-site Source Variability

The Grissom (45KT301) site, located in northeast Kittitas County, Washington, dates from 2500 B.P. to the Historic period. While much of the assemblage remains unanalyzed, recent preliminary analysis revealed a high frequency of obsidian chipped stone artifacts. A technological, functional and material analysis of 165 pieces of obsidian in addition to XRF analysis of 49 pieces was undertaken in order to provide information on the number of obsidian sources represented, source frequencies through time, and the distribution of sources across space. Nine unique sources were identified in the XRF analysis, one of which was a local tachylyte source. While questions about source frequencies through time could not be definitively answered, source variation across space is higher in the southern part of the site than the northern part. Source variation across technological classes met expectations, but an intersite comparison did not show an expected pattern between distance from source and source abundance.

Pargeter, Justin (Stony Brook University) [255] Chair

Pargeter, Justin [255] see Duke, Hilary

Paris, Elizabeth (University of Southern Mississippi) and Roberto López Bravo (Universidad
Kings of the Hills: Borders and Boundaries of Early Postclassic Polities in Highland Chiapas

This paper investigates the multifaceted ways that the borders and boundaries of small polities in highland Chiapas were defined and maintained during the Early Postclassic period. This region formed part of the western frontier of the Maya linguistic and cultural area, and has been characterized as a relatively autonomous economic and political periphery. Beginning in the Late Classic period, a network of small polities proliferated throughout highland Chiapas. Over time, polity boundaries and interpolity relationships shifted as populations expanded and contracted, and the sociopolitical turmoil of lowland Maya polities to the east wrought transformations in long-distance exchange networks. Archaeological data can be used to examine the degree of porosity in spatial and social boundaries between highland polities, and the renegotiation of polity boundaries over time. The rulers of highland polities such as Moxviquil synthesized the natural and built environments to create defensible monumental centers, while also using architecture to manifest internal social divisions. We argue that polity boundaries were both permeable and mutable, as the populations and political influence of particular polities waxed and waned over time. Interpolity exchange relationships, and perhaps alliances, are reflected through the distributions of architectural styles, luxury goods, and utilitarian items.

Paris, Elizabeth [191] see Lopez Bravo, Roberto

Provenance of Mississippian Chert Sword-form Bifaces Illustrating Selection Diversity in Inter-regional Resource Procurement

Existing Mississippian chert resource selection models are largely centered upon well documented quarry sites. As a result, chert source is macroscopically assigned to these static locations on the landscape. Provenance results for a sample of Mississippian sword-form bifaces suggests that material selection decisions are potentially diverse and are not solely confined to material from major prehistoric quarry sites. Provenance data for a sample of Mississippian chert ‘swords’ highlights a variety of sources beyond the Dover Quarry Complex possibly indicating inter-regional relationships between Middle and South Appalachian Mississippian polities. Results signify the importance of material selection within cultural meaning.

Park, Robert [115] see Milne, Brooke

Culture vs. Behavior: Can We use Archaeobotanical Data from Ritual Contexts in the Maya Lowlands to Document Environmental Change?

If ancient Maya cave sites were loci for ritual, is it possible to use archaeobotanical data from them to understand environmental change? The often formulaic and canonical dimensions of ritual should instruct us on how cultural models of reality mediate peoples’ practices. If plant remains recovered from ritual contexts were in fact key elements of ceremonial assemblages, they possibly cannot be used as direct proxies of environmental changes. But such a statement does not mean they cannot be considered proxies for how people responded to changes in their ecological, political, and social worlds. We examine this issue using archaeobotanical data recovered from several cave sites in the upper Belize valley. We study spatial and temporal patterns of variation in these caves’ archaeobotanical
assemblages. Using data from over 15 sites allows us to investigate this question while also dealing with different sampling factors. The patterns of variation we document not only reveal the importance of considering how culture mediates human decision making. It also allows us to consider the broader social universe within which ritual practitioners lived—a socio-ecological and political context that conditioned not only their daily lives but also their ritual ones.

**Parker, Evan (Tulane University)**

[88] *Heritage Conflict Arbitration and the Media in Post-Katrina New Orleans*

In the wake of Hurricane Katrina, the press played a key role in ensuring the protection of the archaeological and historical heritage of the City of New Orleans. This paper examines the media coverage following the disaster and how it shaped the conflict between those who advocated for the recovery of the city's cultural patrimony and those who believed that the reconstruction of New Orleans was ultimately misguided. In the midst of this conflict, archaeologists, historians, and residents promoted the renewal of one America's richest historical treasures, yet the amplification of their voices through the press tipped the conflict in favor of reconstruction. As a result, much of the archaeological and historical heritage of the city has been preserved. Yet new conflicts have arisen with regards to the future of the city's heritage. These conflicts continue to undergo arbitration via traditional and alternative media organizations.

Parker, Evan (Tulane University)

Heritage Conflict Arbitration and the Media in Post-Katrina New Orleans

In the wake of Hurricane Katrina, the press played a key role in ensuring the protection of the archaeological and historical heritage of the City of New Orleans. This paper examines the media coverage following the disaster and how it shaped the conflict between those who advocated for the recovery of the city's cultural patrimony and those who believed that the reconstruction of New Orleans was ultimately misguided. In the midst of this conflict, archaeologists, historians, and residents promoted the renewal of one America's richest historical treasures, yet the amplification of their voices through the press tipped the conflict in favor of reconstruction. As a result, much of the archaeological and historical heritage of the city has been preserved. Yet new conflicts have arisen with regards to the future of the city's heritage. These conflicts continue to undergo arbitration via traditional and alternative media organizations.

Parkinson, William [310] see Yerkes, Richard

**Parkyn, Andrew, Armin Schmidt (GeodataWIZ Ltd: Geo Data + Visualisation), Chris Gaffney (University of Bradford) and Roger Walker (Geoscan Research)**


Mobile sensor platforms are now often used for archaeological geophysical surveys, with many of the developments coming from Continental Europe. The development of such platforms has mainly focused on a single sensor type, albeit offering multiple sensors, depths of detection or frequencies, but has not considered the physical impact on soil. The Geoscan Research Mobile Sensor Platform (MSP40) was designed to improve survey efficiency and remain a lightweight system. The platform can collect measurements from three earth resistance configurations simultaneously, showing directional variations of the current's flow through the soil. Additional sensors were integrated on to the hand-pulled cart to record simultaneous fluxgate gradiometer and microtopographic data. The MSP40 has been tested on a number of different soils at various times of the year with encouraging results. However, the continuous collection rate and combination of techniques means a slight drop in data quality is inevitable when compared with manually collected data. The increased data density, availability of multiple-sensors data and improved rate of collection offset any slight reductions in data quality. The research has shown that the MSP40 can perform low-impact rapid site assessments on 'vulnerable' sites, whilst maximizing the information gained from a single traverse.

**Parris, Caroline (Tulane University)**

[167] *Refitting Refuse: An Assessment of Late Classic Maya Depositional Behavior*

Refitting studies in archaeology have been used to investigate the creation and alteration of the archaeological record by both cultural and natural forces. From assessing the organization of technology to the evaluation of post-depositional stratigraphic disturbance by rodent burrowing, refitting studies can inform on a wide range of behavioral and taphonomic topics. The current study applies refitting methodology to pottery sherds in an attempt to reconstruct the depositional processes involved in the creation of a Late Classic midden deposit from the Maya site of La Corona, Peten, Guatemala. The formation processes associated with this deposit will be used to illumine specific pre-depositional behaviors of the La Corona Maya. It is proposed that this midden is the result of a single consumption event whose remains were quickly processed and intentionally disposed. This study contributes to our understanding of Maya trash disposal practices and emphasizes the addition of refitting methodology to ceramic studies of large midden deposits for the reconstruction of ancient behavior.
Parsons, Jeffrey (University of Michigan)
[34] Discussant

Parsons, Erin [121] see Van Buren, Mary

Pascal, Camila (ENAH)
[293] El cambio formal de algunos edificios de la zona arqueológica del Templo Mayor: El caso de las estructuras A y B.
El recinto sagrado de Tenochtitlan ha sufrido diversos cambios a lo largo de su historia constructiva. Cada uno de los edificios que integran el conjunto se fueron modificando en un lapso de alrededor de 200 años según las necesidades del conjunto ceremonial. En especial, se puede observar que el grupo de edificios que ocupan el área central del recinto muestran un desarrollo vinculado al del Templo Mayor. Este trabajo describe los diferentes momentos constructivos que se pueden observar en algunos de los edificios de la zona arqueológica del Templo Mayor, tanto en sus elementos constructivos como en su forma general. Nos concentramos especialmente en el caso de los edificios A y B, y su relación con el principal inmueble tenochca. Justamente estas estructuras muestran algunos cambios importantes a nivel formal pues modifican no solamente sus dimensiones, sino algunas de sus partes constitutivas.

Pastrana, Alejandro [30] see Woods, James

Pastrana, Alejandro (INAH)
[72] Obsidiana - Continuidad Prehispánica e Integración en el Periodo Colonial Temprano, Centro de México
La obsidiana fue un material estratégico y multifuncional en la época prehispánica, se empleó en actividades productivas, militares y religiosas. Después de la conquista en el periodo Colonial Temprano, continuó empleándose en varios oficios artesanales europeos. Sin embargo, su utilización hasta nuestros días, se debe a los atributos mágico-religiosos asignados tanto por indígenas como por los europeos.

Patch, Shawn (New South Associates, Inc.) and Sarah Lowry (New South Associates, Inc.)
Prior archaeological investigations in the upper Guntersville Reservoir in northeastern Alabama have indicated intensive occupations during the Woodland and Mississippian periods. The purpose of this paper is to discuss the results of a large-scale geophysical survey designed specifically to address several research questions related to prehistoric occupation in this area. We focus on the archaeological interpretations and inferences drawn from complementary geophysical datasets. Attention is called to intra- and inter-site feature patterning, comparisons with other archaeological investigations, identification of stratigraphic and geomorphic elements that influenced prehistoric activities, and the use of geophysical datasets to assist in agency planning and the management of archaeological resources.
[196] Chair

Patch, Shawn [196] see Lowry, Sarah

Patel, Shankari (Foothill College)
[33] Pioneer and Pilgrim: James Brady and the Archaeologies of Space, Place, and Landscape
Over his thirty year career, James Brady has contributed significantly to the archaeologies of space, place and landscape, as among one of the earliest to recognize the key role of caves in the political and
religious dimensions of ancient Mesoamerican life. Early on, Brady argued that caves, as with the
natural world in general, provided elite justification for political domination. By equating the body politic
as an organism, alive and part of a larger cosmic order, elites had a powerful metaphoric tool that
defined difference and inequality as a given; inescapable if not a moral prerogative. Starting from this
point, I explore how Brady’s examinations of caves and pilgrimage have shaped archaeological
discussions of landscapes in recent years and the potential direction of research in years to come.
Using my own work on pilgrimage and religious authority, I argue that current frameworks of landscape
and cave archaeology have the potential to move beyond elite centered analyses and consider the ways
in which these spaces are important for understanding ancient gender and class dynamics.

Paterson, Alistair (Uni of Western Australia)
[244] Human Uses of Barrow Island in Recent Centuries
Barrow Island is a significant target for a range of activities known to have occurred along the West
Australian coastline, as well as a hazard to shipping given the wreck of Australia’s earliest shipwreck in
1622. After 1800, the island may have been visited by American whalers, explorers, and pearling
vessels. Leases were granted by the colonial government to various pastoralists, turtle hunters, guano
harvesters, and fishers. A shortly lived Lock Hospital for Aborigines may have existed, as well as a slave
market run by pearlers. By the early 20th century, the island was a natural reserve, then oil field after
WWII. The BIAP project is surveying the island for historical sites for the first time. The results of the
2013 season have revealed the presence of Aboriginal people and others at several locations. The sites
will require particularly fine-grained dating of single episode events using historical materials to match
locations with historical events, many of which exist outside historical records.

[331] Discussant
[244] Chair

Paterson, Alistair [244] see Ashley, Michael

Patil, Lokesh [289] see Kobti, Ziad

Patiño, Alejandro [227] see Morales-Aguilar, Carlos

Patrello, Ralph (University of Florida)
[106] Contact and Communication in Southern Gaul, 400-600: The Ceramic Evidence
The traditional historical narrative of late antique Gaul is one of gradual fragmentation and
regionalization as a result of the so-called “barbarian migrations” and the fall of the Western Roman
Empire. Archaeologists have attempted to verify this narrative, based on the written sources, by
searching for objects of supposed barbarian manufacture. The focus on such objects as projectile
points, weapons, fibulae, belt buckles, and other items of “personal adornment” has effectively
marginalized the study of ceramic evidence in western Europe for the period between 400 and 600 CE. I
propose to address this lacuna on the basis of several recent surveys of ceramic finds from southern
Gaul (modern southern France between the Loire and Garonne rivers). In doing so, I propose that we
can trace lines of contact across the region on the basis of the ceramics evidence. I will use this
evidence to illuminate the extent to which local communities participated in networks of communication
and exchange in the late antique Mediterranean. I propose that through such a study, it will be possible
to determine whether processes of regionalization took place, and to what extent such processes may
have predated the arrival of barbarians in southern Gaul.

Pattee, Donald (University of Nevada, Reno)
[166] A Changing Valley, a Changing People? An Examination of the Prehistoric Occupation of
Warner Valley, Oregon
Warner Valley, Oregon was occupied as early as the terminal-Pleistocene (~11,000 radiocarbon years
ago [14C] BP). Random and intuitive pedestrian survey performed over the course of three field seasons by the Great Basin Paleoindian Research Unit (GBPRU) in the northern portion of the valley, which has been designated the Northern Warner Valley Study Area (NWVSA), has resulted in over 100 newly-recorded sites dating to the Paleoindian and Archaic periods. This paper considers all site data (e.g., site size and location, types of tools present, lithic debitage attributes) as well as x-ray fluorescence data for a large sample of obsidian projectile points and debitage from the NWVSA. Data derived from the site and artifact sample facilitate the reconstruction of land-use by prehistoric groups in the NWVSA and surrounding region. Additionally, the analysis of temporally discrete sites and isolated diagnostic projectile points aids in determining if prehistoric behavior in Warner Valley changed through time.

Patterson, Winona (NMSU-Department of Anthropology), Todd Scarbrough (NMSU-Department of Anthropology), Kristin Corl (NMSU-Department of Anthropology) and Fumiyasu Arakawa (NMSU-Department of Anthropology)

[42] Mesmerizing, Sacred Place at Tank Mesa Village in Montezuma Canyon, Utah

Tank Mesa Village, located in the Montezuma Canyon in southeast Utah, shows at least three occupational events during the late Baskemaker III/early Pueblo I, Pueblo II, and Pueblo III periods. Unlike many of ancestral Pueblo sites in the Four-Corners area, settlement patterns at Tank Mesa Village display multiple occupations that are uninterrupted. The earliest occupation occurred around A.D. 600, and a hiatus took place for at least one generation; ancestral Pueblo people returned and constructed two different villages around mid-1100s and around 1200. On the basis of recent reconnaissance and mapping of the site, we argue that the Tank Mesa Village site was a mesmerizing, sacred place for ancestral Pueblo people for several generations. Our argument is not only supported by the evidence of uninterrupted, multiple occupations of the site but also by the existence of nearby, elaborate rock art panel and potential water shrines.

Patterson, Erin (Tulane University)

[93] Reconstructing Health and Diet: Interpreting Patterns of Dental Pathologies in Two Classic Maya Populations

Osteological analysis of human dentition is an important tool in the reconstruction of past lifeways. Teeth contain a wealth of information about ancient diet and health and tend to preserve well even when the rest of the skeleton does not. The skeletal remains analyzed in this study come from the Classic Maya sites of La Corona and El Perú-Waka’ in Petén, Guatemala. The following indicators of health and diet are examined: linear enamel hypoplasias, caries, calculus, antemortem tooth loss, and dental attrition. The patterns and prevalence of these pathologies, when analyzed by age, sex, social status, etc., will provide important insight into Classic Maya life in the lowlands. These data will be articulated with the larger corpus of knowledge about Maya health and diet and will contribute to our growing understanding of Classic Maya life.

Patterson, Thomas (University of California, Riverside)

[118] Modes of Production in Southern California at the End of the Eighteenth Century

Looking at archaeological and ethnohistorical evidence from Southern California through the lens of modes of production raises interesting questions about our understanding of the practices and institutions of First Nation peoples who lived immediately before and after the arrival of the Spaniards in the late eighteenth century. This paper considers the questions of terms—like money, barter, trade, and exchange—and their ambiguity, which potentially clouds our understanding of evidence.

Patterson, Erin [312] see Navarro-Farr, Olivia

Patton, John [284] see Bowser, Brenda

Pauketat, Timothy (University of Illinois)
**Discussant**

**Paul, Kathleen (Arizona State University)**

**[291] Accessing Mid-Scale Collective Identities in the Past: New Bioarchaeological Perspectives on Kinship**

The application of social identity theory to bioarchaeological research has proven relevant for accessing various dimensions of social organization and the lived experience of past peoples. Despite its recent visibility, most of this research focuses on large-scale collective identities including gender, ethnicity, and religion from the perspectives of individuals and larger social groups, while mid-scale collective identities remain largely under-investigated. Kinship is an essential mid-scale identity for which (bio)archaeology can provide deep-time perspectives, insights that are increasingly significant given the ever-changing definitions of relatedness emerging concomitantly with rapid cultural transformations and new reproductive technologies. This paper provides historical background on the practice of kinship studies in bioarchaeology, highlighting the recent resurgence of kin-focused ethnographic research. We present examples of bioarchaeological research designs that embrace a) the greater resolution provided by new methodological and analytical developments, and b) more nuanced conceptions of “family” in order to move beyond the mere identification of biological kin in mortuary contexts to using kin-based identity as a framework for investigating sociopolitical organization. This paper will provide the theoretical orientation for the symposium while emphasizing the potential of family-focused bioarchaeological research to explore the interconnectivity of individual, kin-level, and population-level social identities.

**Chair**

**Pavao-Zuckerman, Barnet (University of Arizona), J. Homer Thiel (Desert Archaeology, Inc.) and Jeremy Moss (National Park Service)**

**[119] The Joy of Archaeology at the Mission of Sorrows: Investigations at Mission Los Santos Ángeles de Guevavi**

Mission Los Santos Ángeles de Guevavi, a unit of Tumacácori National Historical Park, was among the earliest Spanish colonial missions in the Arizona-Sonora region active from 1691-1775. Mission Guevavi has been the subject of several archaeological surveys and limited excavations since the early 20th century. In 2013, a University of Arizona Archaeological Field School investigated several damaged and threatened contexts at the mission site, including the mission midden and an adobe structure of unknown function that may be an earlier church. Excavations in the mission-period midden illuminated mission ranching and agricultural activities, as well as Guevavi’s engagement with a regional and global economy. Our initial field season also revealed several features of the site that were previously unknown, including the presence of additional structures in and around the mission compound. Planned research at the site in 2014 will reveal additional details regarding the age and function of the two adobe structures.

**Pawlowicz, Matthew (Virginia Commonwealth University)**

**[58] Pursuing the Local in the Swahili World: Survey of Songo Mnara Island, Tanzania**

The Swahili communities of the East African coast have attracted quite a bit of attention from the breadth of their cultural and economic connections to the African interior and, especially, across the Indian Ocean. Yet Swahili cities were independent, competitive entities and the nature of their participation in those large-scale networks varied considerably. Drawing on data from a recent full coverage survey of Songo Mnara Island outside the walls of the well-known 15th-century site, this paper suggests that we can achieve a better understanding of that variation by exploiting a relatively underutilized scale of archaeological analysis on the coast – the immediate hinterland surrounding Swahili cities.

**Chair**

**Pawn, Ian (Florida State University)**

**[291] Kinship at Tiszapologar-Basatanya: A Bioarchaeological Study of Genetic and Affinal Relations during the Early to Middle Copper Age on the Hungarian Plain**
The Early to Middle Copper Age (4500-3500 B.C.) on the Hungarian Plain is well known for shifts in settlement patterns, trade, and mortuary treatment. Regional bioarchaeological studies have focused on defining the nature of interaction during this dynamic time. However, it is not well known how these changes in social organization affected concepts of kinship. The sociodynamics of the Copper Age likely influenced both genetic and affinal relationships between individuals; therefore cemeteries, containing both people and representations of identity, are valuable sources of information.

This paper will examine Copper Age kinship using Tiszapolgar-Basatanya, a large cemetery spanning the Early to Middle Copper Age. Researchers have argued that rows of graves, maintained over long periods, may have represented kin groups. This study examines this concept using similarities in dentition with clusters of graves as the unit of analysis. However, kinship is not merely defined by genetics; this study will also use burial treatment and associated funerary objects to nuance understanding of the nature of kinship during the Copper Age. Drawing upon perspectives from gender archaeology, the paper will focus on affinal kinship and uses a combination of spatial patterning, mortuary treatment, and the identification of family structures in cemeteries.

Payne, Claudine (Arkansas Archeological Survey) and Michelle Rathgaber
From its inception, the Arkansas Archeological Survey (AAS) has advocated a multi-stranded approach to archaeological practice. Centered on research, the model also encompasses preservation and public communication. In his 20 years directing the AAS, Tom Green has expanded on this basic approach, championing new research techniques such as geophysical survey while actively promoting preservation efforts and collaboration with descendant communities. The Eaker project offers a case study of the classic AAS model of archaeological practice. An effort spearheaded by Green to establish a curation facility in northeast Arkansas led to community and legislative efforts to establish a national park at the Eaker site. These, in turn, resulted in the creation of the Survey’s Blytheville Research Station and the Delta Gateway Museum. Research initiated by the Blytheville Station to support the national park efforts drew on geophysical survey to inform excavation and yield insights into broad-scale interpretation. And, crucial to the project was collaboration with the Arkansas Archeological Society, the Quapaw Tribe of Oklahoma, the City of Blytheville, the Center for Earthquake Research and Information, the Blytheville Courier News, and local civic groups. In sum, the Eaker project benefited from multiple strands of archaeological practice introduced or encouraged by Green.

Pazan, Kyra (The Ohio State University)
[310] Subsistence, Settlement, and Social Stratification on the Great Hungarian Plain during the Transition to the Copper Age
This paper concerns itself with hunting and animal domestication during the Late Neolithic (5000-4500 cal B.C.) and Early Copper Age (4500-4000 cal B.C.) on the Great Hungarian Plain. Intensively occupied tell sites and other surrounding flat areas characterized the landscape of the Carpathian Basin during the Late Neolithic. During the Early Copper Age, these tell sites dissolved into smaller, more widely dispersed settlements. Chi-square analysis of faunal data from Szeghalom-Kovaschalom and Veszto-Magor, two Late Neolithic sites, shows that hunting was more prevalent on tell sites than on flat areas. Additional analysis of the Early Copper Age sites of Veszto-Bikeri and Korosladany-Bikeri shows that the frequency of hunting and the occupation of tell sites declined simultaneously during the Early Copper Age. I propose that the variation in the faunal assemblages of tells and flat sites during the Late Neolithic can be attributed to a social hierarchy in which hunting was a luxury of the tell populations. Additionally, I conclude that the decline of hunting and dissolution of tells in the Early Copper Age is evidence of a rejection of that social hierarchy, which would have endangered the existence of the smaller and more interdependent Early Copper Age sites.

Pazmino, Estanislao [57] see Lippi, Ronald

Peacock, Evan (Mississippi State University)
[165] A Critique of the Thematic Approach for Assessing the Significance of Historical
Archaeological Sites
A thematic approach is a common framework for assessing cultural properties from the Historic period in a CRM context. While there are some evident advantages to this approach from a humanistic perspective, it is faulty from a scientific perspective for several reasons, including a lack of attention to variability, incommensurable scales, the inescapably contemporary nature of themes, the minimal likelihood of anything new being learned, and the inherent subjectivity of a humanistic approach. Attempts to match some themes (e.g., ethnic lifeways) with the archaeological record have met with very limited success. Employing the Principle of Representativeness is an alternative approach under which both scientific and humanistic concerns can be addressed.

Peacock, Sandra [173] see Pokotylo, David

Pearsall, Deborah (University of Missouri)
[39] Discussant

Pearsall, Deborah [250] see Siegel, Peter

Peate, David [102] see Waterman, Anna

Peau, Tish [242] see Herdrich, David

Pechenkina, Ekaterina (Queens College of CUNY), Wenquan Fan (Henan Prudential Institute of Cultural Relics and ) and Xiaolin Ma (Henan Prudential Institute of Cultural Relics and )
[126] Bioarchaeological Perspectives on Social Status in Early China
Based on analysis of skeletal collections from Neolithic and Bronze Age sites on the Central Plains of China and using funerary contexts as proxies for social status, we evaluated the consequences of social inequality and gender roles. In assessing burial status, we considered the number of grave goods, their type, and the materials they were made of, as well as the size, construction, and location of the burial chamber. Skeletal health parameters were divided into those reflecting juvenile health, health during adulthood, and traumatic injuries. During both the Neolithic and Bronze Ages, sex of the deceased was the best predictor of burial wealth. The wealth of funerary offerings and indicators of health were correlated in the Neolithic assemblage; these associations were weaker, but also significant in the Bronze Age assemblages. The most distinct differences in parameters contributing to health status were those for skeletal traumas and the occurrence of systemic infections in comparisons between sample sets from cemeteries ranked by us as higher or lower in status. These findings offer compelling evidence that social inequality significantly affected the distribution of health risks and access to resources in China by no later than the end of the Bronze Age.

Pedersen, Jeannine
[68] There is a New Curation Facility in Town: Strategies for the Development of Educational Programming, Outreach and Social Media
The Dr. John D. Cooper Archaeological and Paleontological Center opened its doors in July of 2011 and became fully staffed in August of 2012. The Center is a partnership between Orange County Parks and California State University Fullerton and is the repository for Orange County, California’s archaeological and paleontological material. After collecting material for almost 40 years, the County dedicated funds to build a Curation facility and laboratory to ensure the proper care and curation of millions of artifacts and specimens. Part of the mission of the Cooper Center is to provide educational programming and outreach to the greater community. In the last two years the staff and volunteers at the Center have developed programming, outreach, and social media in an effort to increase awareness and education within the community and beyond with the ultimate goal to demonstrate the value and importance of archaeology, cultural history, paleontology, and natural history to the public. We will share the different strategies and approaches we have taken in the past two years and discuss
those that have proven most successful.

Pedler, DR [69] see Adovasio, James

Peelo, Sarah [119] see Blackmore, Chelsea

Peeples, Matt (Archaeology Southwest) and Gregson Schachner (University of California, Los Angeles)

[202] Comparing the Nature of Aggregated Settlements across the Zuni/Cibola Region
The eleventh through the thirteenth centuries A.D. were marked by a trend toward aggregation across the Zuni/Cibola region, as formerly dispersed households increasingly clustered in small areas, often centered on large public architectural features. In some areas, it is relatively easy to identify spatially distinct communities surrounded by unoccupied expanses. In other areas, clear settlement clusters are difficult to objectively define. These differences in our ability to identify clusters archaeologically likely arise from variation in the nature of social integration, boundedness, and the scale of communities across the region. In this paper, we formally compare aggregated settlements through time (ca. A.D. 1000-1300) in several well-surveyed portions of the Zuni/Cibola region (Lower Zuni River, Pescado Basin, and the El Morro Valley) along three dimensions of variation: 1) the demographic and spatial scale of clustering, 2) the frequency, nature, and geography of integrative activities, and 3) the degree of population mobility. This comparison will allow us to better understand differences in the trajectories of community formation and organization across the Zuni/Cibola region as a whole. This research draws on Linda Cordell's perspectives on the processes associated with aggregation and the establishment of large villages and towns across the northern Southwest.

Peeples, Matthew [333] see Dungan, Katherine

Peeters, Hans (University of Groningen, Groningen Institute of Archaeology)

[229] Discussant

Peiró Vitoria, Andrea [154] see Muñoz Cosme, Gaspar

Pelegrin, Jacques [254] see Darras, Véronique

Peles, Ashley (UNC Chapel Hill), Erin Stevens Nelson (UNC Chapel Hill) and Mallory A. Melton (UNC Chapel Hill)

[260] Foodways and Community at the Late Mississippian Site of Parchman Place
Parchman Place (22CO511) is a Late Mississippian site in the northern Yazoo Basin of Mississippi. Archaeological investigations over multiple field seasons have resulted in the recovery of significant amounts of ceramic, faunal, and floral remains. We take advantage of all three of these datasets to obtain a more nuanced understanding of the ways in which people used foods in social contexts. By bringing together these different lines of evidence, we explore the daily food habits of the people of Parchman Place as well as the ways food may have been used as a method of building community.

Pellegrini, Evan [148] see Carey, Peter

Pena, Angel [43] see Corl, Kristin

Pena, Felicia (Department of Anthropology and Middle Eastern Cultures, Mississippi State Univ.) and Molly Zuckerman (Department of Anthropology and Middle Eastern Cult)

[303] The Pox Enters the Space Age: Assessing the Impact of Mercury Treatments for Acquired Syphilis on Health in 17th to 19th Century London Using Pxr...
Mercury was the most commonly employed treatment for syphilis in the 15th to early 20th centuries in Europe. However, debate persists about whether it 'killed or cured'. Various medical historians have questioned whether mercury ameliorated infection or instead exacerbated it, even leading to debility and death. This has led some to claim that “the use of mercury in the treatment of syphilis may have been the most colossal hoax ever perpetrated in a profession which has never been free of hoaxes.” As no in vitro studies on the effectiveness of mercury exist, we analyzed several skeletal samples from 17th to 19th century London for evidence of mercury treatments using portable X-Ray Florescence spectrometry (pXRF). Mercury concentrations were characterized in a pathological sample of skeletons manifesting lesions suggestive of and specific to syphilis (N=22). To establish background, endogenous exposure, a non-pathological control sample (N=51) of skeletons spatially, chronologically, and socioeconomically matched to their pathological peers was also assessed; soil samples (N=11) were analyzed to test for diagenetic transfer of mercury. Mercury concentrations were assessed in relation to the severity of syphilitic lesions, skeletal stress indicators, and mortality profiles to investigate whether mercury produced more positive or poisonous effects.

Pendergast, David [72] see Mayfield, Tracie

Peniche May, Nancy (UCSD) and Jaime Awe (Institute of Archaeology - Belize)

[252] Buried like a Tick: A Middle Preclassic Residency beneath Plaza B, Cahal Pech, Belize

The earliest occupations in the Maya Area have aroused a great interest in the archaeological world. Investigations at several sites across the Maya lowlands (i.e. Tikal in the Peten, Komchen and Xocnaceh in the northern lowlands, and Xunantunich, Pacbitun, Cuello in Belize) have enable us to learn more about the sociopolitical development in the Maya society during the Preclassic era. Yet many aspects about the quotidian life of the earlier inhabitants need to be further explored to understand local and regional variability. Recent excavations at the southern section of Plaza B at Cahal Pech (Belize Valley) have offered an excellent opportunity to investigate a Middle Preclassic residency (Feature 27) that reveals new information about the nature and scope of the different activities conducted by its occupants and the status these persons held in society. This knowledge, along with the information coming from other areas of Cahal Pech and other Belize Valley sites, will provide a better understanding of the household patterning and variability as well the sociopolitical and economic organization prevailing during the Middle Preclassic period in this region of the Maya area.

Peraza, Carlos [52] see Russell, Bradley

Pereira, Gregory (CNRS-Université de Paris I)


According to ethnohistoric documents, the Middle Postclassic period, which precedes the emergence of both the Mexica and Tarascan empires in Western and Central Mesoamerica, is characterized by instability, both political (fragmentations, competition, alliances and conflicts) and demographic (migrations, fast cycles of aggregation and disintegration or abandonment). Archaeologically, this period of Mesoamerican history is also marked by the establishment of large urban settlements that seem to reflect, in a material aspect, the migrations evoked in the texts. However, the study and comprehension of these migration processes is challenging due to the nature of the sources available. Precise knowledge of chronology, settlement formation processes, and occupation length is critical for appreciating the complexity of these phenomena. We base our research on sites located in the Zacapu region of Michoacan, attempting to identify the parameters most likely to shed light on the occupation history and formation processes of those ancient agglomerations. We consider several factors in the Zacapu settlements: radiometric dates, stratigraphy, waste and burials accumulations, as well as urbanism and spatial organization at the sites. Finally, we discuss our preliminary results in relation to current understanding of the studied social phenomena.

[21] Chair
Pereira, Telmo (Núcleo de Arqueologia e Paleoecologia da Universidade do Algarve), Nuno Bicho (Núcleo de Arqueologia e Paleoecologia da Universidade), João Cascalheira (Núcleo de Arqueologia e Paleoecologia da Universidade), João Marreiros (Núcleo de Arqueologia e Paleoecologia da Universidade) and Célia Gonçalves (Núcleo de Arqueologia e Paleoecologia da Universidade) [116] Testing the Impact of Coastal Environments in Social Inequality through Lithic Raw Materials

Archaeological sites and sources of lithic raw materials are fixed points on the landscape. Because of that, changes seen in the frequency of these resources in the archaeological record are usually related with visibility, availability, cultural and technological factors. Recent studies have highlighted the impact that the coastal settling has on social organization, complexity and inequality. Muge is an inland river valley that faced an oceanic environment during the period between the 8.2 ka event and the rise of Neolithic. This makes the Mesolithic occupations in this region crucial to understand the impact of coastal adaptations on social complexity. In this paper we present a high-resolution intra-site study of the lithic raw materials in Cabeço da Amoreira in order to test for the existence of such complexity and bring important insights to the issue of social inequality among hunter-gatherers.

Pereira, Telmo [116] see Paixão, Eduardo

Peres, Tanya [53] see Ledford, Kelly

Peres, Tanya (Middle Tenn State Univ) [192] Shellfishing Does Not Equal Starvation: Debunking Modern Biases against an Ancient Lifeway in Tennessee

There is a long-held bias among archaeologists regarding the role of shellfish in the diets of pre-columbian North Americans. Despite presenting an easily accessible and nutritionally beneficial resource, shellfish have been traditionally viewed as a marginal food source consumed in response to starvation or environmental crisis. This bias stems from the emphasis on dietary protein sources during the heyday of Processualism, the supplemental role of shellfish and their association with women and children in modern and ethnographic gathering-collecting cultures, and the lack of large quantitative datasets on such sites that allow us to look at longterm occupations. Recent surveys and excavations of shellfish-bearing sites along the Middle Cumberland River in Tennessee have yielded temporal and spatial data that allow us to reevaluate the role of shellfishing in the lifeways of people occupying these sites from the middle to late Archaic through Mississippian periods.

Perez, Kelita [146] see Stanish, Charles

Perez Robles, Griselda [312] see Navarro-Farr, Olivia

Perez-Juez, Amalia (Boston University), PAUL GOLDBERG (Boston University) and ALEXANDER SMITH (BROWN UNIVERSITY) [300] Quarrying, Site Fabric and Site Use in the First Millennium Menorca, Spain

The island of Menorca, Spain, hosted the development of the Talayotic Culture in the first millennium BC. During this period, the landscape was transformed by the construction of megalithic structures, both for public buildings –watchtowers and sanctuaries- as well as private buildings –domestic spaces, storage areas. These striking features have been extensively studied in recent decades. Some important archaeological projects have been carried out in buildings, dealing primarily with the architecture and the objects found in them. Interestingly enough, although all these structures are built with a specific local limestone, there has been very little attention paid to the provenance of raw materials and quarrying techniques. A similar lack of interest applies to the inter-building spaces in the settlements or non-architectural environments. These ‘inter-architectural’ areas have wonderful potential for understanding the complete fabric of the living space and can serve to weld activities within
individual dwelling spaces to communal areas. In this poster we present some initial results of our excavations at Torre d’en Galmés, Menorca, that contribute to a greater understanding of the large site complex as a whole, quarrying and building methods specifically, and how all this relates to other sites in the Balearic Islands.

Pérez-Juez, Amalia [332] see Smith, Alexander

Perkins, Stephen [79] see Drass, Richard

Perkins, Carrie (Belize Valley Archaeological Reconnaissance Project) [319]

Chultunob of the Belize River Valley: Exploring Morphology, Function, and Meaning

Recent excavation and analysis conducted on four chultunob of the Belize River Valley has focused on investigating the morphology, function and meaning of these small, man-made subterranean chambers. Through this work, we have been able to gain valuable insight into the role chultunob played in the everyday life of the ancient Maya while artifact assemblage, geographic placement and specific morphology have all helped to build on theories suggesting their place in the funerary process. The aim of this paper is to present the results of the excavation and subsequent analysis of four chultunob located within the ancient Maya sites of Baking Pot, Cahal Pech and Lower Dover.

Perrin, Thomas [201] see Marchand, Grégor

Perrot-Minnot, Sébastien [191] see Costa, Philippe

Perry, Megan [13] see Roepe, Kelsey

Perttula, Timothy K. [30] see Trubitt, Mary Beth

Pestle, William (University of Miami), L. Antonio Curet (National Museum of the American Indian, Smithsonia), Joshua Torres (National Park Service, St. Croix, USVI), Reniel Rodriguez Ramos (Social Sciences Program, Universidad de Puerto Rico) and Carmen Laguer Diaz (Department of Anthropology, University of Florida) [269]

Proyecto Arqueológico Regional de Añasco: New Findings and Regional Research Trajectories in Western Puerto Rico

The west coast of Puerto Rico remains understudied in comparison to other regions of the island despite the fact that historical documentation and previous, albeit limited, archaeological research suggest substantive pre-colonial and historic occupation of the region. In this research we present an overview and results of a recent field survey in the Añasco drainage basin in western Puerto Rico, including: 1) a regional predictive model for site location potential, 2) the results of preliminary regional walkover and subsurface testing, and 3) findings from the first season of excavations at a newly located Ceramic Age site. On one level, these findings support the potential of future archaeological study and generally validate the proposed field methods. Furthermore, these preliminary data suggest and/or confirm: 1) a possibility of Archaic inhabitation, 2) the involvement of the region’s Ceramic Age inhabitants in island-wide and inter-island exchange networks, 3) evidence for an early Historic (contact period) Spanish presence, and 4) intriguing patterns of 18th/19th century socio-economic processes.

Peter, Veth [244] see Ashley, Michael

Peters, Ann (University of Pennsylvania Museum)
Evidence for production Practices, Artifact Arrangements and Postmortem Rites at the Paracas Necropolis Based on Patterns Of Fiber Deterioration

Since 2005, Peruvian and international researchers have worked to restore contextual information and restudy the components of ‘Paracas Necropolis’ mortuary bundles excavated in 1927-28 at the Necropolis of Wari Kayan at the Paracas site, under the direction of Julio C. Tello. For four years the project “Practice in Life, Presence after Death: Style and Substance at the Paracas Necropolis” has reconstructed gravelots and analyzed the form and material composition of the associated artifacts, in order to develop proposals on social identities and relationships asserted in continuing interaction between the living and the dead. Crossing archival data with analysis of textiles and other fiber-based artifacts that structure and adorn an ancestral effigy built around the remains of an individual, new types of information emerge that shed light on production processes and mortuary ritual. We have defined types of information provided by patterns of fiber destruction, including dye technologies, prior use of artifacts, their arrangement in the mortuary bundle, and previously unidentified practices that formed part of the funerary and ancestral rites.

Discussant

Chair

Peterson, Jane (Marquette University)

Integrating Local Perspectives: An Early Neolithic Case from Southern Jordan

The early Neolithic of southern Jordan provides a case study for how local, contextual approaches can shed light on agropastoral developments in Southwest Asia. Several Neolithic excavation projects and land-use studies in the Wadi al-Hasa of Jordan provide significant data sets. Localized spatial patterning of material culture, architecture, mortuary practices, and botanical remains suggest that decision-making and social interaction took place at sub-regional scales that overlapped in complex ways. This diversity suggests that local populations chose to adopt, ignore or modify different aspects of regional practice. Certainly the mosaic Early Holocene environmental and climatic conditions played a role. Understanding a phenomenon as multifaceted as the rise of domestication economies benefits from multi-scalar approaches that integrate local patterns into larger modelling efforts.

Chair

Peterson, Elizabeth (Simon Fraser University)

Something Different within Casas Grades lithic Technology: New Finding from Small Sites in Casas Grades, Chihuahua Mexico

This paper reports on findings from the analysis on lithic collections from four Medio period small sites uncovered during the 2013 summer excavations in the Casas Grades region of Chihuahua Mexico. While prior excavations within the region have placed focus on the large and medium sized site types found throughout the region, the summer 2013 excavations focused solely upon the small, lesser-understood sites in order to evaluate their relation both specially and temporally to the rest of the area including the large site of Paquimé. Analysis of the lithic from these small sites revealed there to be a different strategy for the organizing of their lithic technology that was separate from that found at the other two site types. Such findings indicate a change within the selection of specific behavioral strategies the occupants where acting upon that may reveal more information as to what role these small sites played within the larger known Casas Grades interaction sphere.

Chair

Peterson, Veronica (Vassar College)

Buried in Burial Data: Statistical Pattern Identification in Native American Burials from Pennsylvania

Many years of excavations at multiple sites in Pennsylvania’s Susquehanna Valley have produced an overwhelming amount of burial data. This data set is believed to contain substantial information about multiple cultures, such as the Shenks Ferry and Susquehannock occupants of the same sites in virtually the same time period. The sheer volume of data, however, has precluded traditional straightforward analyses, hindering our ability to recognize patterns that may reveal details on how the two groups
interacted. Multivariate statistical analyses provide an opportunity to look for such patterns. Rather than basing the cultural classification of a burial on a single variable such as body position, as has been done with the Shenks Ferry (extended) and Susquehannock (flexed), statistical analysis allows us to visualize multiple types of burials by determining other important variables and principal components (i.e., the typical burial of an adult male or female of the Shenks Ferry culture). The results provide alternate means for testing hypotheses about Shenks Ferry and Susquehannock cultural interaction and culture change. Such region-wide analysis could be expanded to assess interaction with other groups, to further test theories of culture change, and possibly to assist with determinations of cultural affiliation for repatriation.

Peterson, John (University of Guam)


Intensive field survey of over three sections of northwest-facing slopes at over 8000’ elevation documented an impressive and extensive Gallina phase settlement and agricultural field system. Gallina sites are found north of the Jemez Mountains into Southern Colorado, and appear to have been parts of a highland refugium during a period of intense drought from the end of the Chaco era ca. 1050 – 1300 A.C.E. Stone towers and deep pithouses are distributed systematically throughout mountain terrain on the south slopes of the Gallina River canyon. Over 100 structures were found during the survey, mostly with maize-farming terraces. Many towers align as an intervisible network on the ridges and rims above the canyon Vistas and solstice alignments with Polvadera Peak to the southeast link the Gallina with the Tewa worlds. This project follows in the tradition of intensive, large-scale interdisciplinary field programs such as the W.S. Ranch Field School project in western New Mexico established by James Neely that was the training site for many archaeologists who continued to apply this research model in the Southwest or in other distant island worlds. This project was a University of Texas at El Paso archaeological field school 1997-1999.

[237] Chair

Pett, Daniel [36] see Bevan, Andrew


[308] Technological Organization at Site 8LE2105: Human Response to Late Pleistocene Environmental Change in Northern Florida

Ripley Bullen defined the Bolen projectile point in 1958, but since then most of the ensuing archeological evidence regarding this Early Archaic phenomenon has been limited to surface finds. Recently, several sites with intact Bolen components have been excavated professionally and subsequently reported. One of these sites, 8LE2105, contained two stratigraphically separate Bolen components with a pooled mean average two date of 11,273 cal BP (9870+38 14C). This site provides new data that allow exploration of lithic technologies and site use. Considered in the context of data collected from other Bolen sites in north Florida, this information provides a more robust understanding of the Bolen toolkit, technological change, and settlement of hunter-gatherer adaptations at the onset of modern climates.

[308] Chair

Pezzutti, Florencia [21] see Solinis-Casparius, Rodrigo

Pezzutti, Florencia (Colorado State University), Stephen Leisz (Colorado State University) and Christopher Fisher (Colorado State University)


Full Coverage archaeological survey is often labor intensive and time consuming, especially in areas with dense architectural remains. LiDAR is fast becoming a powerful alternative to traditional surveying and mapping of archaeological settlements and cultural landscapes. This paper will explore the use of
LiDAR derived 2D+ point clouds and hillshade models created from the point clouds to identify individual architectural features at the ancient urban center of Angamuco, Michoacán, Mexico. We present a comparison of methods to delineate and identify ancient features which range from visual interpretation of 2D+ point clouds and hillshades to the innovative use of object based classification techniques applied to products created from point cloud data.

Pfeiffer, Susan (University of Toronto) and Elizabeth Sawchuk (University of Toronto) [186] Funerary Practices in the West Turkana Pillar Sites: Evidence from the Burials

Excavations at West Turkana pillar sites in 2012 and 2013 provide substantial information about the funerary uses of these sites. The Lothagam North site is the primary source of information (GeJi9, MNI=25), with corroboration from Lothagam West (GeJi10, MNI=3) and Manemanya (GcJh5, MNI=2). Most burials are primary interments, with newborn to old age and both sexes represented. Most bodies seem to have been demarcated by boulders or rock slabs on top of the head. Body positions are variable, but tight leg flexion and arms flexed so that hands are beneath the chin is the most common. Orientation of the body is variable, by cardinal direction and plane. Most people were buried with ornamentation, but grave gifts are rare. The density of burials at the Lothagam North site contributes information about site formation. Juveniles tend to have been buried less deeply than most adults were, bodies were close to one another, yet there is minimal evidence of the disruption of prior burials by subsequent interments. Such information from burials can inform broader questions of site formation and the status of those buried therein.

Phelps, Danielle (University of Arizona) and James T. Watson (Arizona State Museum, University of Arizona) [43] Bad Death or Blood Feud? Mortuary Performance and Signaling among Early Farming Communities in the Sonoran Desert

Early Agricultural period (circa 2100 B.C. - A.D. 50) sites represent the earliest permanent village settlements based on agricultural investment in the southwest U.S. and northwest Mexico. Members of irrigation-based communities located on floodplains likely experienced considerable social tensions generated by balancing public cooperation for the management and maintenance of irrigation systems and private property interests among households controlling agricultural fields. The performance of normative mortuary ritual functioned to publicly integrate a shared community identity while simultaneously legitimizing household interests through descent and inheritance. However, several interments fall outside normative residues of mortuary ritual performance and instead likely correspond to "body disposals." These deviant burials could represent prescribed mortuary treatment for "bad deaths," or could have resulted from violent acts such as revenge killings—a form of costly signaling that results in the deposition and desecration of individuals by the perpetrators of such violence. These actions influence and manipulate an intended audience similar to premeditated mortuary performance, but they represent basal violent reactions (in that details are less premeditated) possibly stemming from blood feuds that result in costly signaling. The resulting action can be ‘costly’ because of the potential it creates for inviting reprisal from the kin/community of the deceased.

Philip, Graham [75] see Wilkinson, Tony

Phillips, Bil [33] see Rissolo, Dominique

Phillips, Paige (The University of South Florida) [140] Examining Activity Organization through Geochemical Analysis at Tlalancaleca, Puebla, Mexico (800 BC-AD 100)

This poster presents the results of a geochemical investigation of soils and sediments from Tlalancaleca (ca. 800 BC to AD 100), a large urban center in the Puebla Valley of the central Mexican highlands. The main ceremonial center in the site center, the Cerro Grande Complex, was cored in 2013, providing over 500 soil and sediment samples from Formative occupation surfaces. The samples
were subjected to geochemical analysis, including pH, Mehlich phosphate colorimetry, and a series of tests for organic residues developed by Luís Barba. Select samples were also characterized using Inductively Coupled Plasma-Mass Spectrometry to examine a broad suite of elemental concentrations for correlation with human activity patterns during the period of Tlalancaleca’s occupation. In understanding the chemical residues in the plazas and terraces within the complex of Cerro Grande, the activities of these areas and thus the uses of these spaces have come to light, revealing the social and political dynamics of space at the Cerro Grande complex and larger site of Tlalancaleca.

Phillips, Harriet (University of California Merced), Holley Moyes (University California Merced), Justine Issavi (Stanford University) and Nicholas Bourgeois (University California Merced)

[277] Mapping the Underworld: Innovations in Cave Mapping at Las Cuevas Using GIS
Maps are abstractions of the real world that are essentially arguments for a particular view of a space. Cave surveys conducted by archaeologists and those of spelunkers are necessarily different and no cave map will be identical to another. Therefore, it is not surprising that to understand and render caves from their perspective, archaeologists must develop their own cave survey methods. Cavers traditionally survey natural caves using compasses, clinometers and more recently distometers, moving from “station to station.” A sketch map is generated in the field and some distances are measured, but this is not always systematic. Total stations or other heavy digital equipment is rarely employed because of obvious access issues in many caves. At Las Cuevas we needed to develop a hybrid form of cave mapping demanding very high accuracy in some areas. We employed traditional cave survey techniques making hand-drawn maps using compass, clinometer, and distometers, with digital technologies to increase our level of accuracy yet retain the detail of recording that only hand-drawn maps can offer. Using GIS as a tool in this process we were able to produce maps that are both visually informative and capable of managing and analyzing our data.

Phillips, Erin (University of Alabama)

[327] Three Models for Social Contexts of the Production and Use of Moundville’s Hemphill-Style Engraved Pottery
This paper evaluates three models that have been proposed for social contexts of the production and use of Hemphill-style engraved pottery within the Moundville polity. Moundville is a major Mississippian center located in west central Alabama with 32 earthen mounds. There are an additional 15 single mound centers within the polity located along the Black Warrior River. The Hemphill style is Moundville’s local representational art style that can be found in several genres including stone palettes, copper gorgets, shell gorgets, stone pendants, as well as engraved and incised pottery. This paper focuses only on the engraved pottery (ca. AD 1325-1450) as it seems likely that the social contexts of the production and use of the various genres may be different. The political economy model, the sacred economy model, and the associations model will be evaluated based on stylistic evidence, usewear, and distribution.

Philmon, Kendra (Kalispel Tribe of Indians) and Clifford Brown (Florida Atlantic University)

[153] Bioarchaeological Analysis of Cusirisna Cave, Nicaragua
There is little archaeological data regarding the prehistory of central Nicaragua, especially in reference to mortuary practice and the use of caves. We analyzed human remains and artifacts from Cusirisna Cave, Boaco, collected in the 1870s by Dr. Earl Flint, an explorer for the Harvard Peabody Museum with the goal of understanding mortuary practice and the function of Cusirisna Cave through a bioarchaeological lens. The study of the commingled osteological remains (n=82) established MNI (=9); estimated sex, age, and stature; identified pathology and trauma; and examination of cranial modification for the purpose of studying ethnic affiliation. The associated artifact assemblage included shell and greenstone beads, guacales (bowls made from jícaras), and a well-preserved wooden duho. A radiocarbon assay using the accelerator mass spectrometry technique on a sample from one of the guacales yielded a date of cal A.D. 1450 with a 2-sigma calibrated interval (95% probability) of Cal AD 1430 to 1483 (Cal BP 520 to 470)
Picard, Jennifer (University of Wisconsin-Milwaukee)

[340]  A Diachronic Analysis of Floral Remains at Aztalan, a Multicomponent Late Prehistoric Site in Jefferson County, Wisconsin

The Aztalan site is a heavily fortified Late Prehistoric village in southeast Wisconsin. Excavations in 1984 in the riverbank midden revealed a complex stratigraphic profile with evidence for an initial Late Woodland component followed by a mixed Late Woodland/Middle Mississippian occupation. A diachronic paleoethnobotanical analysis of these components is presented alongside data recovered during the 2011 field season from a probable early Mississippian context. Analysis suggests similar patterns of wild and domesticated plant use for both components, although overall taxa diversity is low. New direct AMS dates on Zea mays specimens prompt a discussion on the possibility of cross-contamination at a multicomponent site.

[340]  Chair

Picha, Paul (State Hist Soc of North Dakota) and Carl Falk (PaleoCultural Research Group) [265]  “Toss of the Dice:” Gaming Pieces in Middle Missouri Archaeology

Gaming pieces and gambling practices have figured prominently in discourse within economic anthropology and in describing exchange systems in North American archaeology. A review of Mandan, Hidatsa, and Arikara ethnography and history suggests the importance of gambling behavior for nineteenth century Plains Villager exchange systems. The Middle Missouri archaeological record provides the opportunity to examine the material correlates of gaming practices from the longue durée. Examples drawn from archaeological and ethnographic collections are analyzed with respect to style horizons, intertribal relations, and pre-contact and post-contact exchange systems for the Northern Great Plains.

Pickering, Robert (Gilcrease Museum/University of Tulsa)

[189]  Results of External and Internal Examinations of the Human Figures from Shaft Tombs

The finely crafted hollow ceramic figures from West Mexico have been recognized for their visual appeal for over a century. These figures spurred waves of looting and generations of people creating replicas. Many figures and entire collections have been donated to museums with minimal contextual data. Reaction to such collections often falls into two disparate responses; either the objects are assumed to be genuine because they are in a museum or since they have minimal data, the figures are deemed to have no significant research value. This project explores the premise that museum collections of Occidente figures do have research value that is revealed through detailed internal and external examinations. The first goal of this research is to create a system of objective and reproducible observations for determining authenticity. Work has primarily focused on observing mineral deposits and insect puparia. Observations of the internal surfaces of figures with a medical endoscope and CT scanning equipment dramatically enhance the ability to find indicators of authenticity. These observations partially recontextualize the figures so that they can become part of the second and most critical objective of this project - to understand the use and meaning of hollow ceramic shaft tomb figures.

Pierce, Daniel (University of Missouri-Columbia)

[339]  Obsidian Source Frequencies as a Social Attribute at San Felipe Aztatán, Nayarit, Mexico

This research uses a combination of color sorting and XRF geochemical sourcing to identify patterns in volcanic sources of obsidian artifacts at Postclassic-period San Felipe Aztatán in Nayarit, Mexico. Despite nearby sources being easily accessible, more sophisticated lithic reduction techniques seem to
have been used only for more distant sources. With no substantial qualitative differences between obsidian sources, purely social factors likely resulted in the temporal and spatial distribution patterns at San Felipe Aztatán. I argue that the restricted access to distant sources, such as Pachuca, created elevated value of obsidian blades and thus created, maintained and legitimated elite identities. At San Felipe Aztatán, the limited area in which Pachuca obsidian is found may indicate an area of elite residence or elite activity, while its limited temporal distribution may reflect the peak of trade and influence of the Aztatlán tradition before the expanding Tarascan Empire. This research may have greater application for other sites within the Aztatlán tradition. If obsidian source can be utilized to identify social stratification, we may be able to understand the spatial and social organization of specific sites as well as the complex dynamic trading relationships between sites.

Pierson, Stacey (SOAS, University of London)
[194] Production, Consumption and Visuality: Abundance and Chinese Porcelain, 1350-1800
Chinese porcelain was and is characterized by abundance in production, consumption, decoration and function. In China, from about 1300 porcelains were made at Jingdezhen for domestic and foreign consumption, utilizing large quantities of raw materials, labour and energy. The evidence of abundance is visible today in the huge sherd heaps at the imperial kilns, the textual records of vast orders for specific occasions and the deforestation of whole areas of south China. Visually, porcelain in China further demonstrated a cultural desire for representations of abundance through the often dense and repetitive decoration that can be seen on Chinese porcelains from the 14th century onward. For foreign consumers, the development of maritime trade from as early as the Tang dynasty ensured that they too could also acquire and use large quantities of Chinese porcelain. Abundance is therefore an important framework for the understanding of key characteristics of the character and impact of Chinese porcelain domestically and overseas. With a view to exploring this new way of looking at Chinese porcelain, this paper will consider manifestations of abundance in three different contexts: a Yuan dynasty dish, the Ming imperial factory, and a Qing dynasty shipwreck.

Pijoan, Carmen (I.NA.H./Mexico) and Josefina Mansilla (Instituto Nacional de Antropologia e Historia)
[25] Human Cranial Masks from Central Mexico: Techniques and Usage
This study focuses on five cranial human masks from Postclassic central Mexico. Four belong to two children and two adult males found in two offerings at Templo Mayor. The fifth adult male mask was found in Tlatelolco among 100 skulls belonging to a tzompantli or skull rack. This latter mask is less ornate than the ones found in Templo Mayor, it is also lacking eyes shells and knives in mouth. Here we analyze, explain and discuss the techniques (cut marks, impacts, bone cutting, and pigmentation, among others) employed to elaborate such masks. We also discuss the evidence of repetitive usage of one of these masks in several ritual occasions. This investigation contributes to the knowledge of relevant ritual elements to the cosmovisión of the central part of ancient Mexico.

Pierns, Carmen [164] see Mansilla, Josefina

Pike, Matthew [266] see Wilson, Jeremy

Pikirayi, Innocent
[145] The Post-Great Zimbabwe city: Towns, Palaces, Villages, and Functional Specialization in the Mutapa State, Northern Zimbabwe, 1500-1900 AD
Some Portuguese written sources referring to southern Zambezia – the region dominated by the Zambezi River – describe capitals of the Mutapa State variously as “…of stone and clay and very large….” or composed of “…many houses of wood and straw.” In one of the towns, the residence of the king is described as “…a very large place, whence the merchants take to Sofala gold which they give to the Moors without weighing for coloured cloths and beads which among them are most valued…” (Theal, 1898-1903, vol. 1, 95-6). It is evident from both archaeological and available written sources that
although population aggregation continued in northern Zimbabwe in towns akin to the extant Great Zimbabwe, the gradual disappearance of ‘elite’ stone-walled palaces signified the demise of the much earlier classical city. Socio-political complexity continued in different forms, however, with functional and other specialization taking place within villages contiguous to and beyond palaces.

Pilco Vargas, Rene  [105] see Bryan, Adrienne

Pilles, Peter and Kimberly Spurr (Museum of Northern Arizona)  

Human burials recovered from Coconino National Forest land during the last century are being documented prior to repatriation under NAGPRA. Working with tribal consultants, we have developed a documentation regimen to provide information about prehistoric demography, health, and skeletal traits that indicate genetic relationships within and among cultural groups across the Southwest. Our goal is to evaluate and expand models of ancestral migrations and interactions that are of interest to tribal members and archaeologists, and to expand our understanding of Southwestern human history. Our work to date suggests that patterns of morphology in human remains that reflect genetic relationships may be mirrored by distinctive characteristics of ceramic vessels from the same sites, possibly indicating the presence and movement of cultural subgroups such as families or clans.

Pilliard, Sarah (Stony Brook University)  
[186] Stone Tools on the Moving Frontier: Lithic Technology and Early Herding in Northwest Kenya

The prehistoric spread of food production was associated with changing social organization as early farmers and herders negotiated new environments, new subsistence bases, and new groups of people. In the Turkana Basin, Kenya, where herding was the first form of food production, early pastoralism may be linked to the creation of monumental architecture. Around 4000 bp, contemporary with the earliest livestock in the Turkana Basin, people constructed 'pillar sites' containing burials, stone platforms, and basalt pillars. Analysis of lithics from the 2012 excavations of four West Turkana pillar sites shows how they were used for short-term, specialized purposes, whereas other contemporary sites were used for longer durations. Pillar site lithic assemblages can also clarify whether these sites were constructed by one or multiple groups of people on the landscape. This case study elucidates the ‘frontier zone’ of food production in which there may have been a mosaic of different cultural groups dealing with a novel social landscape.

Pilloud, Marin and Clark Larsen (The Ohio State University, Columbus, OH)  
[291] Alternative Definitions of Kin within Bioarchaeology: A Case Study from Neolithic Çatalhöyük, Turkey

Within bioarchaeological research, kinship has been studied through biodistance analyses that identify patterns of biological relatedness within a skeletal sample. As a stand-alone method, this approach assumes that kinship is biologically defined. However, kinship is a much more complex social unifier, extending well beyond the biological realm. It is therefore important to explore possible alternative definitions of kin in past societies utilizing human remains within archaeological contexts. Using dental data from Neolithic Çatalhöyük, Turkey, a biodistance analysis was undertaken to explore biological patterns in relation to interment location (subfloor house burials). A biological division was identified at a large community level; however, meaningful patterns were not identified at the individual level. Based on these results, we argue that this early farming community was largely not biologically structured at the household and neighborhood level. Instead, we draw from the wealth of archaeological data to argue that social structure was likely fluid and complex, depending on any number of factors, including house residence, food production, social bonds, ideological views, and to a lesser extent, biological affinity. This study highlights the need for a connection of human biological and archaeological data for developing a more informed understanding of kinship in the past.

Pinkey-Drobnis, Aurora [158] see Frappier, Amy
Pintar, Elizabeth [93] see Bolnick, Deborah

Pintar, Elizabeth (Austin Comm. College) and Jorge G. Martínez (ISES-Universidad Nacional de Tucumán-Argentina)

[287] Obsidian Projectile Points: Patterns of Variation and Range of Mobility during the Mid-Holocene in the Salt Puna of NW Argentina, South-Central Andes

Although projectile points have dominated the discussion of Paleoindian archaeology in North and South America, this tool class has not figured prominently in the archaeology of hunter-gatherers of the South-Central Andes. Here we present a typological, technological and morphological analysis of obsidian, quartzite and vulcanite projectile points found in Antofagasta de la Sierra, Catamarca. We compare projectile points from tightly dated Middle Holocene contexts and investigate patterns of technological, morphological and stylistic variation between projectile points manufactured of local and non-local raw materials. Geochemical source identification is used to draw general archaeological implications regarding wide mobility range that includes the use of five obsidian sources distant 30-120 km.

Pinto Lima, Helena (Universidade do Estado do Amazonas - Brazil)

[331] Archaeology and Traditional Communities in Amazonia

Archaeological sites in the Amazon are generally composed of anthropogenic black soils and ceramics found in locations that are re-inhabited by contemporary communities. This is due to chance but also punctuated by a series of elements of cultural choices which are repeated over time. Thus, archaeological materials are, in a way, part of daily riverine life. Archaeologists have looked towards contemporary societies to understand not only aspects related to past societies, but also to better frame social interactions in the present. In this way archaeology is not just a way to understand the past, but also a social practice experienced in the present. Present-day riverine communities constitute a privileged object of study in the practice of Amazonian archaeology. Their (re)signification of the place where they live and its spatial and material components are important elements that contribute to a more holistic understanding of interactions between community and the archaeological record, in a process of continuous formation and transformation of the archaeological site. Through archaeological approaches that allow for a broader dialogue and multivocality that interrelates different spheres of knowledge, including traditional and scientific knowledge, Amazonian societies are themselves actors that contribute to the construction of archaeological knowledge.

Piperno, Dolores [250] see Reitz, Elizabeth

Piperno, Dolores (Smithsonian National Museum of Natural History) and Christine Hastorf (University of California at Berkeley)

[250] Deborah M. Pearsall and World Ethnobiology

The papers in this session will be discussed and ideas offered for future directions in the field.

Pique, Raquel (Departament de Prehistòria), Susagna Romero (Departament de Prehistòria, Universitat Autònoma d), Antoni Palomo (Departament de Prehistòria, Universitat Autònoma d), Josep Tarrús (MUseu ARqueològic Comarcal de Banyoles) and Xavier Terradas (Departament d’Arqueologia i Antropologia, Institut)

[22] The Production and Use of Ropes in the Early Neolithic Site of La Draga (Banyoles, Spain)

La Draga is an Early Neolithic site located on the shore of Lake Banyoles (Spain). The archaeological layer of the earliest phase of occupation, dated to 5,300-4,900 cal BC, has been preserved in waterlogged conditions. Several fragments of ropes have been preserved in the site, providing a unique example of rope production by the early farmers in the Western Mediterranean region. The objective of this work is to present the types of ropes recovered at the site. Several ropes made of vegetal twisted fibres and some made of lianas show the diversity of rope production. This paper presents a discussion of rope production and examines the potential uses of these items.
Pirtle, Jennifer (The University of Tulsa)

[179] Gender, Age, and Status in Ancient West Mexican Figurines Through the Lens of Body Modification

The Mexican states of Nayarit, Jalisco, and Colima comprise most of the area in which the so-called shaft tomb culture flourished circa 300 BCE to 300 CE. The most distinguishable grave goods found within these tombs are ceramic figurines that are thought to represent the people themselves, rather than deities or deity-impersonators. Based upon this hypothesis, this paper investigates attributes of gender, age, and status in Ancient West Mexico by means of identifying and analyzing body modification and adornment as viewed on the ceramic figurines. Unfortunately, research in the Occidente has suffered from extensive looting and widespread production of modern copies. To counter these negative effects, recent research into authenticity of individual figurines will be used to verify that only genuine features are considered. Various physical representations on the figurines, such as tattooing, piercing, body painting, and cranial deformation, will be identified and statistically analyzed in order to discern their connection to gender, age, and status.

Piscitelli, Matthew (University of Illinois-Chicago), Sofia Chacaltana Cortez (University of Illinois-Chicago), Nicola Sharratt (Bard Graduate Center, American Museum of Natural H), Mark Golitko (The Field Museum) and P. Ryan Williams (The Field Museum)

[19] Inferring Sociopolitical Dynamics in the Moquegua Valley through Geochemical Analysis

This paper presents the first synthesis of available geochemical data from the Moquegua Valley in southern Peru. LA-ICP-MS analysis has been conducted on raw clay sources from the lower, middle, and upper portions of the valley. Additional geochemical analysis has been performed on ceramic samples collected from Middle Horizon (500-1,000 A.D.) through Late Horizon (1,450-1,532 A.D.) sites in the Moquegua Valley. These comprehensive data allow for a broad characterization of social interaction among groups inhabiting the region for over a millennium. Furthermore, the information gleaned from geochemical analysis forms the basis for an ongoing effort to answer important anthropological questions. More specifically, this research is helping to understand ceramic production and distribution among prehistoric Andean communities, to elucidate interactions between ethnic groups, and to infer socio- political dynamics throughout several periods of dramatic cultural transformations.

Piscitelli, Matthew [146] see Wolff, Nicholas

Pitblado, Bonnie [10] see Dalpra, Cody

Pitblado, Bonnie (University of Oklahoma)

[69] Earlier and Higher than You Thought: The Peopling of the Rocky Mountains

We've all heard the cliched response to why one climbs a mountain: "because it's there." Yet recently gathered evidence indicates that First Americans occupied the Rocky Mountains just as soon as alpine glacial melting allowed. The archaeological signature they left behind is inconsistent with merely traveling over or through the Rockies to move from some relatively flat "Point A" to another relatively flat "Point B." Instead, the signature suggests sustained use of the Rockies very early in the continental peopling process. Clearly, the motivation(s) for terminal Pleistocene colonization of the Rocky Mountains extended well beyond "because they were there."

In this paper I explore three inter-related topics. I first discuss the unique ecological structure and resource base of the Rocky Mountains-particularly when compared to the archaeologically better-known adjacent Plains and Far West-highlighting why we should expect prehistoric people to have been drawn to them. Next, I overview the time frame for initial colonization of the Rockies, touching on the variability in occupation dates as one moves north/south. Finally, I discuss what extant archaeological evidence suggests about how, precisely, First Americans exploited the heterogeneous Rocky Mountain landscape.
Pitezel, Todd [47] see Searcy, Michael

Pitman, Heidi [22] see Fullagar, Richard

Pittman, Holly (University of Pennsylvania) [329] Glyptic Art in the Uruk Expansion: Measuring Interaction and Differentiation through Imagery
The late fourth millennium BCE drainage basin of the Tigris and Euphrates Rivers saw the introduction of material forms, known under the rubric of Middle and Late Uruk and originating in the lowlands, into strategically located sites in the Jezira steppe zone of upper Mesopotamia. This contribution characterizes and evaluates the visual evidence, both iconographic and stylistic, preserved as impressions of cylinder and stamp seals on clay devices used in the administration of goods and labor. It is argued that this imagery and style originates in Khuzistan emerging out of a long tradition of economic administrative practice centered around figural and abstract imagery impressed on anepigraphic documents and clay closing devices. A comparison of the iconographic repertory of images from Uruk and Susa/Chogha Mish suggests that distinct sectors of the economy were administered in the two zones of the lowlands. An extended comparison that includes imagery from sites across the Uruk diaspora deepens our grasp of the motivations for the expansion and the diverse character of the colonies and their relation to the substrate Late Chalcolithic communities.

Placzek, Christa (James Cook University) and Peter Veth (University of Western Australia) [244] Climate Reconstructions from Barrow Island Speleothems
Cave carbonates are proven archives of terrestrial climate variation. Indeed, such records are among the most useful records of past climate as the chemical proxy data preserved in carbonates evidence changes in rainfall, mean temperature, and surface vegetation data at high resolution. Climate records from cave carbonates are unique in that they are high resolution, generating snapshots of palaeoclimate that can be used to greatly refine the more generalized climate records preserved by sediments and fossils of the time. Cave carbonates can also be dated radiometrically using U-Th methods to provide robust chronologies, providing some of the best age control for past climate changes. Two large subterranean caves with speleothems are located on Barrow Island, providing opportunities for climatic reconstruction from cave carbonates. Development of these climate archives will offer insights into climate that is directly applicable to the human occupation history of the site. The potential of Barrow Island to provide both a recent and deep-time perspective on tropical/subtropical climate variability suggest that it will add to critical understanding of the local, regional, and global drivers of climate change.

Plank, Shannon (Eastern Kentucky University), Iliana Ancona Aragón (Universidad Autónoma de Yucatán) and Isabelle Martínez-Muñiz (University of Kentucky) [305] Two Thousand Years of Ceramics along the Uci-Cansahcab Sacbe
Three seasons of excavation at Maya sites in the region of the Uci-Cansahcab sacbe in northwest Yucatan, Mexico have produced a corpus of ceramic material that spans the Middle Preclassic through the Colonial periods. This paper outlines the results of the first stage of analysis, which permit us to 1) sketch the chronology of the population foci of Uci, Kancab, and Ucanha, as well as of surrounding low-density but continuous rural settlement; 2) discuss the dynamics of shifting regional affiliations over a span of 2,000 years; and 3) contribute to a larger regional conversation about at least two current problematics. First, materials from the site of Kancab, in particular, address the issue of pre-Mamom ceramics in northwest Yucatan. Second, ceramics from multiple locales in the Uci-Cansahcab environs allow us to approach the fuzzy trajectory of the evolution of red-slipped wares between the Late Preclassic and Early Classic periods in this region.

Plannette, Carol
Space Defined: Mortuary Analysis and the Symbolic Depiction of Spatial Organization.

Archaeologists have long been interested in the relationships that form the burial rites and rituals in the Andean region. As a result, an important consideration to the analysis of mortuary practices is the utilization of the landscape and space. Various pre-Columbian cultures have been known to allocate unique spaces for the interment of their dead. These chosen burial landscapes, whether generated from a natural terrain or manufactured, create a symbolic representation of the culture’s relationship with the land and their ancestors. There remain, however, numerous issues to be resolved, including the dynamics of the sociocultural relationships of the Moche people of the north coast. The application of landscape analysis to specific Moche burial grounds provides useful opportunities to reexamine various factors regarding the cultural symbolism and identity of the people associated with the burial areas. This poster focuses on the opportunities provided by landscape analysis to discuss the Moche’s arrangement of burial space in a new framework, providing insight into the sociocultural relationships of their mortuary practices, ancestor veneration, and their everyday lives.

Plaza, David (Eastern New Mexico University)

Digital Preservation Approaches for Legacy Archaeological Collections

Archaeology is faced with the inheritance problem of managing legacy collections, partly due to the high expense of maintaining such collections. Often these datasets are underutilized and difficult to properly preserve or to integrate into the current archaeological dialogue. To address this problem, an examination of the current condition of the records and artifacts of legacy archaeological collections is needed. In this research, recursive archaeology and living documents will be used as guiding principles for a research design to integrate the Anasazi Origins Project (AOP) Legacy Archaeological Collection into the current archaeological dialogue using electronic databases such as a geodatabase. Traditional and digital preservation methods will be used and presented to construct a conceptual frame of reference for similar types of legacy archaeological collections. This research is an effort to preserve and disseminate the dataset that helped to define the Archaic northern Southwest of the United States, the Oshara Tradition.

Plemons, Amber [126] see Zuckerman, Molly

When Scientific, Indigenous and Capitalist Epistemologies Collide - Investigating Heritage Conflicts and Repatriation in Contemporary Russia

This paper explores the construction, contestation and appropriations of different post-Soviet heritages in the multi-cultural Altai Republic (federal subject of Russia). It particularly investigates the conflict surrounding the excavation, scientific investigation, and subsequent repatriation of a remarkably well-preserved frozen female mummy (named the Ice Maiden) found 20 years ago. The extent of this dispute is more than merely a story of two opposed approaches to cultural heritage: it is rooted in the specific sociopolitical background of archaeology and Indigenous rights in contemporary Russia and frames within the post-Soviet period of ethno-cultural cataclysm in which appropriation of heritage and history further expanded. By applying a relational social framework to social practice to the multiple, historically-embedded conceptualizations and appropriations of archaeological heritage I develop a multi-actor stewardship approach to Indigenous archaeology in Russia. The Ice Maiden case clearly presents archaeology as part of a broader holistic process, dominated by different actors with their own particular agendas and dispositions. Episodes of heritage contestation not only enable a comprehensive understanding of Indigenous politics and archaeological ethics in contemporary Russia, but also present archaeological heritage as a social practice providing a unique information source on the dynamics of a transitional multi-cultural society.

Plew, Mark (Boise State University) and Jan Kee

Incised Stones from Idaho
Incised stones have been reported from locations across Idaho—most commonly in the panhandle region. Though relatively rare, they are in some instances associated with Late Archaic (2000-150 B.P.) period sites and in southeastern Idaho with the Fremont pattern. Five types have been described and include cobbles with small incisions along lateral margins, cobbles having centrally placed straight parallel lines, cobbles with centrally placed hachure, stones with irregular etchings, and highly decorative stones that combine a variety of motifs. This paper reviews the geographic and temporal distribution of incised stones in Idaho offering observations regarding their function.


Pluckhahn, Thomas (University South Florida) and Victor Thompson (University of Georgia)

Production, Exchange, and Complexity at Crystal River
Crystal River (8CI1) is a Middle and Late Woodland period (ca. 300 B.C. to A.D. 1050) site on Florida’s west-central coast. The site is famous for its distinctive monumental architecture and diverse suite of local and extra-local Hopewellian trade goods. Archaeologists have traditionally explained the site’s seemingly precocious complexity as a product of elite control of the production and exchange of whelk shell cups and ornaments. Recent work suggests a more heterarchical complexity with a less linear relationship to production and exchange. Craft production and exchange may have been—to an extent—centralized at Crystal River, but were diverse, small in scale, embedded in ritual, and dependent on relationships with communities elsewhere for raw materials and people. We argue that this centralization resulted from the interplay of ritual, economic, and ecological structures and the agency of elites who encouraged, but did not control, the process.

Plunger, Elizabeth (University of California, San Diego) and Paul Goldstein (University of California, San Diego)

Tunics, Tapestries, and Gendered Bodies: Male- and Female-associated Clothing Sets from Tiwanaku Burials at Rio Muerto, Moquegua, Southern Peru
Gender is an important and inescapable facet of both individual identities and of the structures and functions of whole societies, yet is often difficult to parse out through the material record. The formation of gender identities and the nature of gender relations under the Andean Middle Horizon state societies are two of the least understood aspects of the Wari and Tiwanaku civilizations. Little is known about when, where and how gender identities were constructed, and how gendering fit into the larger process of socialization. In the case presented here, preservation conditions permit the contextual examination of clothing from individual, scientifically excavated burials from the Tiwanaku culture site of Rio Muerto (600-1000 A.D.). Using data from burial clothing as well as paleodemographic information about the individuals interred, the researchers have isolated a number of “outfits” that are particular to male and female individuals. Here we discuss the implications of the differences and similarities in these clothing sets, the clues this may hold to gender categories and boundaries, and how these societal constraints were enacted and reinforced through material culture worn on the body.

Plunket, Patricia (Universidad de las Americas Puebla)

Lessons from Tetimpa: A Formative Village in Mexico’s Central
Fifteen years of fieldwork at the highland site of Tetimpa in Puebla, Mexico, have provided rich data sets that allow us to visualize both patterning and variation among the households of this large dispersed village that was occupied from the Middle to the Terminal Formative. Here we reflect on what these data from 27 houses reveal about social organization, storage technology, exchange networks, and domestic ritual at the village level during this time period.

Pluta, Paul (University of Maine) and Alice R. Kelley (University of Maine)

Fluvial Deposition and El Niño at San José de Moro, Peru
In coastal Peru, the El Niño climate anomaly is a frequent cause of devastation and social disruption for human populations. However, the prehistoric chronology of this phenomenon is poorly understood, limiting our understanding of the interrelationship of El Niño and the archaeological record. In this study we interpret an alluvial sedimentary sequence at the archaeological site at San José de Moro to infer patterns of past El Niño flooding. This location experiences flooding only during periods of El Niño rainfall due to the limited size of the Chamán River’s drainage basin and its coastal desert setting. The sedimentary sequence formed at the site is thus interpreted as a record of past El Niño flooding. Our detailed geologic analysis suggests changes in El Niño intensity over time. A major shift from broad, fine grained, floodplain deposits to higher energy, coarse grained, channelized deposits may indicate an increase in flood velocity at this site or a change in channel location related to increased flood discharges, both potentially caused by an increase in the strength of El Niño events. This climatically driven landscape change has significant implications for reconstruction of past climate patterns and the impact of this phenomenon on prehistoric humans.

Pohl, Mary D. [128] see von Nagy, Christopher

Pohl, John (UCLA)

Chicomoztoc as an Inter-Regional Exchange Zone
The legend of Chicomoztoc, is largely regarded by ethnohistorians as a mythic event by which Nahua populations accounted for their migration south into the Basin of Mexico and the Plain of Puebla under the leadership of Chichimec culture heroes who subsequently became the focus of religious cults established within their city-states. This examination of the “Seven Caves” is not so concerned with the myth itself or even the specific location but more importantly how it could have functioned as an intermediate frontier zone for cultural and economic exchange between the Casas Grandes, Azatlan, and Huaxtec traditions.

Chair

Poirier, Marcela (Purdue University), Hendrik Van Gijseghem (Université de Montréal) and Kevin Vaughn (Purdue University)

Hematite Mining and Ritual in Ancient Peru
We report on multiple seasons of excavation at Mina Primavera, a remarkably well-preserved hematite mine located in the Nasca region of the southern Peruvian coast. Remarkably well-preserved, it has yielded an impressive diversity of materials that include tools, ceramics, textiles, food remains, and items related to ritual. Evidence indicates that the principal extractive activities occurred in the first centuries AD by members of Nasca society. The place’s status and importance in the south coastal landscape appear to have changed through time, and it was sporadically visited and used for diverse reasons until the 20th century. This research takes advantage of a rare archaeological context and highlights the intersection of place, materiality, and landscape in its many dimensions.

Pokines, James T. [223] see Ames, Christopher

Pokotylo, David (University of British Columbia), Sandra Peacock (University of British Columbia - Okanagan) and Brian Kooyman (University of Calgary)

Use, Reuse and the Lifecycle of Earth Ovens on the Canadian Plateau: A Case Study from the White Rock Springs Site (EeRj 226), British Columbia
Archaeologists have often dated earth ovens/roasting pits used by Plateau collector communities for large-scale root processing on the basis of single radiocarbon sample per feature. Consequently, they treat oven construction and use as a “one off” event in discussions of root resource intensification. Using a series of 45 radiocarbon dates collected from various depositional zones of 10 roasting pit features at the White Rock Springs site (EeRj 226), British Columbia, we show that roasting pits have a complex life history of use, re-use, maintenance, and renovation. While roasting pit dimensions have been inferred to vary with respect to the quantity and type of plant materials processed and nature of the socioeconomic group, change in pit size over time is often cited as evidence of changing levels of overall root resource
intensification. We argue that the re-use of roasting pit facilities is a significant factor in explaining size variation and requires archaeologists to rethink existing models of resource intensification.

**Politis, Gustavo** (INCUAPA-CONICET, Argentina)  
**[73]** *Signs in the Forest: Territorial Markers of the Tropical Forest Hunter-Gatherers of South America*  
Hunter-gathers of the tropical forest of South America conceive their territory in several dimensions. However, the band or co-resident group territory is the one which is felt, perceived and used as the "closest" both in spatial and emotional terms. This land has been thus constructed for generations, and its texture has been transformed and modified, in a subtle way, through the centuries. Moreover, the band territory is also signaled by means of a variety of marks on the land: broken branches, animal bones, feathers, scratches in trees, etc. All these marks are saturated with coded information and contain different layers of meaning. The Nukak from the Colombian Amazon and the Hoti from the Upper Orinoco of Venezuela provide good examples to illustrate and explore these kinds of actions and to better understand the territorial behavior of tropical forest hunter-gatherers. In this paper, these issues will be presented and discussed and will be compared with similar information from other hunter-gatherers of South America such as the Ayoreo and the Hetá.

**Pollack, David** [28] see Killoran, Peter

**Pollack, David** (Kentucky Archaeological Survey) and **Gwynn Henderson** (Kentucky Archaeological Survey)  
**[340]** *Fort Ancient Ritual Poles*  
Large ritual poles are most commonly associated with plazas or central places within a community. Within these contexts, they may have served as marker posts or as symbols of community existence and identity. The rituals and ceremonies during which these poles were pulled and reset may have been as important to the community as the pole itself. In this paper, we explore the possibility that by ca. A.D. 1400 shorter ritual/sacred poles were being erected inside Fort Ancient public structures. We argue that the presence of these interior poles and their repeated resetting and capping represents a shift from rituals and ceremonies that were open to all, to ones that were restricted to a segment of the community.

**Pollard, Helen** (Michigan State University)  
**[254]** *Tula of the Toltecs and Tzintzuntzan of the Tarascans*  
Unlike other core regions of Mesoamerica central Michoacán did not have a long history of city-states and empires during the Classic and Early Postclassic periods (AD 200-1100), but was politically and economically peripheral to powerful polities to the east and west. However, in the last centuries before European Conquest a highly centralized state emerged in the Lake Pátzcuaro Basin, which was rapidly transformed into an expanding empire. The late emergence of the Tarascan state after AD 1350 and its survival into the early sixteenth century has provided us with the opportunity to use both archaeological and documentary sources of data. These sources present a complex, and somewhat counter-intuitive, pattern of ruling elites who claim an immigrant Chichimec heritage to justify their cooption of the native Purépecha nobility, while at the same time presenting themselves as fully ethnically purépecha. Moreover, they have materialized the state and its institutions using a template from the Toltec world of Epiclassic and Early Postclassic north-central Mexico. In the ecologically and politically unstable world of the Postclassic both commoners and elites alike apparently saw benefits in following this new form of society and internalizing it as the only true society they had ever known.

**Pollard, Dustin** [299] see Benedetti, Mike

**Pomedio, Chloé** (archaeologist)  
**[200]** *The Incised Ceramics of Sayula Basin: An Interregional Perspective*  
The Sayula Project (UDG-INAH-IRD) allows us to study ceramic production in prehispanic times around
the Sayula Basin. During the Classic and Epiclassic periods (Sayula Phase), Sayula and Atoyac incised types employ decorative techniques that are reminiscent of incised ceramics produced elsewhere in northwest Mesoamerica (i.e., Bajío, Michoacán, Jalisco, and Zacatecas regions). The technological study, related to the iconographic classification of the Sayula incised ceramics, permits us to understand some anthropological aspects of this specific tradition of ceramic production regarding the choices of potters. Thus, comparing the technological and iconographic attributes of Sayula and Atoyac incised types to similar traditions in neighboring areas should provide a clearer picture of the interregional relationships represented by these decorated ceramics.

Pomédio, Chloé [200] see Torvinen, Andrea

Pomfret, James (Georgia DOT)

[196] Geophysical Investigation of Andersonville Cemetery
The Andersonville National Historic Site, located in southwest Georgia, is the site of the infamous Andersonville Civil War Prison. Over a period of 14 months the confederate prison held 45,000 union soldiers, of which nearly 13,000 died from starvation and disease. The prison cemetery is located adjacent to the prison and holds the remains of all who died at Andersonville Prison. Based on limited information from soldier diaries and prison records, it has been understood that the earliest part of the cemetery contained individual interments in wood coffins. As the number of dead increased, the burial methods changed from individual interments to mass burials in trenches. Using Ground Penetrating Radar, Resistivity, and Magnetometer, a geophysical survey was conducted in the prison cemetery in an effort to determine at what point during the 14 month history of the prison did the interment method change from individual burials in coffins to mass burials without coffins.

Pontzer, Herman [16] see Raichlen, David

Pool, Christopher (University of Kentucky)

[279] Making Urban Places in the Late Formative Gulf Lowlands, Mexico
Cities are palimpsests. As a spatial and historical process, urbanization responds to perceived needs and aspirations of the moment as well as the physical and remembered imprint of the past. These points are well represented in the archaeological record of the southern and south-central Gulf lowlands of Mexico. While sharing a generally dispersed population pattern common to most lowland centers in Mesoamerica, Late Formative centers in this region exhibit impressive variation in nucleation, boundedness, monumentality, and the layouts of civic-ceremonial complexes. Grounded in our work in and around Tres Zapotes, Veracruz, but employing a comparative perspective, we argue that much of this variation results from politically strategic negotiations among factions and emergent classes and the reconciliation of differing politico-economic traditions with contemporaneous realities.

[1] Discussant
[254] Chair

Pool, Christopher [128] see Venter, Marcie

Pope, Melody [263] see Collins, Angela

Popejoy, Traci (University of North Texas, Department of Geography), Amy Eddins (University of North Texas, Department of Geography) and Steve Wolverton (University of North Texas, Department of Geography)

[206] Applied Zooarchaeology of the Late Holocene Freshwater Mussel Community in the Upper Trinity River of North Texas
Recent studies indicate that the late Holocene (approximately 2000 to 500 B.P.) freshwater mussel community in the Upper Trinity river of north Texas was more diverse in terms of species richness than
the contemporary community. However, archaeomalacological data have been studied from only a handful of sites, some with small mussel assemblages. We report new data from 41TR198 a late Holocene site on the West Fork of the Trinity near Fort Worth. We analyze nestedness and species area curves to assess data quality to determine if the Upper Trinity faunas are representative of the late Holocene mussel community in terms of taxonomic composition. Results indicate that these applied zooarchaeological data provide an important conservation and restoration benchmark for the Upper Trinity river, which is a highly modified system due to reservoir impoundment, water use, and water treatment.

Popescu, Gabriel (SHESC, Arizona State University)

[223] Edge Length and Flake Production Strategies in the Middle Paleolithic of Romanian Southern Carpathians

In order to better understand the Middle Paleolithic behavior, it is necessary to study lithic technology beyond the inferences of typological classification. Recent advances in theoretical and methodological approaches to lithic studies have led to new perspectives on past human behavioral systems, and have shown that the 20th century industrial paradigm, still widely used in Paleolithic archaeology, is not well suited to address research questions on Paleolithic behavioral systems. One of these advances is the use of the Conservation Index, or of the edge length to mass index. This paper documents the technological responses to lithic resource constraints, through the use of a raw material efficiency index expressed as the ratio of edge length to mass, to emphasize the efficiency with which a knapping strategy converted a mass of stone into flake edge. The data set is represented by several assemblages from significant Paleolithic sites from the region of the Romanian Southern Carpathians, e.g., Nandru-Peștera Curată, Ohaba Ponor-Bordu Mare, and Baia de Fier-Peștera Muierii.

Popetz, Kimberley (Jefferson Patterson Park & Museum)

[152] Turning Privies into Class Projects

What would happen if we gave a group of high school students the opportunity to act as archaeologists and curators with a real archaeological collection? Would they benefit from the experience? Would we? And what about the rest of the community? Could they derive some benefit from the project as well? We decided to find out. Students worked with a collection of artifacts that was excavated more than 30 years ago, turning it into an exhibit for the public. If you’re contemplating a similar project, join us to learn what worked and what to avoid.

Popov, Vladimir [287] see Suda, Yoshimitsu

Popova, Laura (Arizona State University)

[124] Very Local Vegetation Histories: Analyzing Pollen Signatures from a Wet Forest Hollow in the Ural Mountain Foothills

Palynologists, for the most part, sample large lakes and bogs to produce pollen diagrams that show shifts in the regional vegetation over long periods of time. Archaeologists, however, usually want to know about subtle shifts in the local vegetation that indicate intentional human use of plants. Such shifts can be discerned by examining sediment cores from smaller basins, like a wet forest hollow, that record the pollen deposited from arboreal plants in the immediate vicinity of the sampling site. In this paper, I will discuss the vegetation history of one of these small basins, a wet forest hollow in the Ural Mountain foothills (Samara, Russia). Focusing on this one place, seemingly distant from settlements and cities, I will explain how small changes in the vegetation over time indicate larger social-cultural and political changes in the region starting with the interesting absence of the forest in the Iron Age and ending with the active manipulation of the arboreal species in the forest in recent history.

Porraz, Guillaume [16] see Tomasso, Antonin
Porrett, Brian (College of Wooster) and P. Nick Kardulias (The College of Wooster)

A World-Systems Perspective of Early Bronze Age Fortifications in the Levant

This study investigates Early Bronze Age fortification walls in the Levant. The lands of Canaan and Judah in the Southern Levant were situated between larger and more populated nations. The application of a world-systems analysis framework to sites with fortification walls in this region permits unique insight into the political systems at work regarding early state formation. This report focuses on evidence retrieved from the site of Tell es-Safi over the past two field seasons (2012 and 2013). The fortifications there are compared to those at other sites in the Southern Levant. A comparison of various sites from different cultural contexts reveals diverse fortification construction strategies tailored to the specific needs of these communities. These differences may be attributed to the diverse locations, available resources, political structure, and cultural beliefs at these sites. World-systems analysis may help to explain the variation in construction strategies as well as provide a broader understanding of Early Bronze fortifications in the Levant.

Porter, Benjamin (University of California, Berkeley)

Archaeology Should Be Undisciplined: Exploring a Four-Fields Approach in the Context of Area Studies Archaeology

A good test of an intellectual framework like anthropology’s four-fields approach is its durability during transfer to neighboring fields. Evaluating this transferability is particularly relevant for area studies archaeologists working in Classics, East Asian, Latin American, Middle Eastern, and South Asian Studies. Area studies archaeologists share all archaeologists’ concern for the documentation and analysis of past societies. Yet, most area studies archaeologists do not share anthropological archaeologists’ concern for the documentation and analysis of past societies. Yet, most area studies archaeologists do not share anthropological archaeologists’ concern for the documentation and analysis of past societies. Yet, most area studies archaeologists do not share anthropological archaeologists’ commitment to the investigation of culture as a universal phenomenon of human practice, a commitment that often provides the implicit glue between the four-fields. Area studies archaeologists instead concentrate on history, religion, and other aspects of humanism. And yet, many themes that concern each of the four-fields circulate in area studies pedagogy and practice: an interest in the creation of materials and how they come to be endowed with meanings; emphasis on the role of language, discourse, and the production of texts; a concern for how human collectives form and dissolve; and an interest in the representation and manipulation of human bodies in art and mortuary practices. This paper explores the implications of this “undisciplining” of the four-fields approach in the practice of area studies archaeology.

Ports, Kyle (Texas Tech University)

Entering Xibalba: A Report on Subterranean Feature Investigations at the Dos Hombres to Gran Cacao Archaeological Project (DH2GC) in Northwest Belize

Caves and subterranean features are an integral aspect of ancient Maya sacred space. For many years archaeologists have studied large intricate cave systems that can be associated with elite ceremonial centers. However, by presenting the results of the 2012-2013 excavations of subterranean features located at the site of N950 within the Dos Hombres to Gran Cacao Archaeological Project (DH2GC), this poster will focus on smaller cave features within the socioeconomic context of the Maya hinterlands. The intent of this poster is to provide interpretations using artifact analysis and spatial characteristics to understand how the Maya utilized the features located at N950. In addition this poster will present an outline of future investigations of subterranean features within the DH2GC project, new data may provide a better formulation of the roles that caves played in ancient Maya hinterland settlements.

Ports, Kyle [292] see Cortes-Rincon, Marisol

Poteate, Aaron (University of Oregon)

Digging in the Dark: The Influence of Spatial Sampling in Zooarchaeological Analysis

The choice of specific sampling strategies for zooarchaeological analysis has important implications for determining the kinds of information collected from a particular site. The location of units or spatial sampling of a site can be a primary factor in the recovery and interpretation of faunal materials. While variation in the kind, size, and formation of deposits has often led to a reliance on judgmental sampling,
researchers should more strongly consider how their selections may impact results. To highlight the importance of choice, hypothetical models of basic archaeological site formations were used to test various spatial sampling strategies. Understanding the formation of faunal deposits, in particular their intermittent nature, can better inform researchers on spatial sampling techniques and what size, frequency, and location of units are required to achieve statistically significant results. This paper targets small island residential models to avoid the complexity of larger residential areas, while providing fundamental trends and insights. Establishing an adequate sample size based on the research questions and specific locations will provide more reliable information, enabling archaeologists to better compare sites and assemblages within a given area.

Chair

Potter, Ben (University of Alaska Fairbanks)

[23] Technological and Economic Organization in Central Alaska: New Data from Mead and Upward Sun River

I report on recent intrasite and intersite research in central Alaska geared towards exploring late Pleistocene to middle Holocene organization of technology and economy. This work encompasses excavations at the Mead site and Upward Sun River, where multiple feature-related activity areas in several components add to our understanding of site structural and organizational variability. Excavation and survey data from adjacent uplands suggest structured variation in land use strategies, providing a more comprehensive dataset to evaluate regional hunter-gatherer adaptive strategies. Results indicate climate change at the end of the last glacial did not alter technological strategies, though there is evidence of widening diet breadth during the Younger Dryas chronozone followed by narrowing diet breadth during the early Holocene.

Potter, Jim [119] see Dietler, John

Potter, James (SWCA), Mark Varien (Crow Canyon Archaeological Center) and Tito Naranjo [194] Performing Abundance in the Northern American Southwest

The northern American Southwest has typically been viewed as a landscape of scarcity due to limited precipitation and relatively short growing seasons. Despite this view, Pueblo people have thrived in the region and the concept of abundance, while not typically associated with Pueblo groups, can provide insights into the dynamics that characterize their society. In this paper we use the concept of abundance to examine two important aspects of Pueblo life. The first is feasting associated with ceremonialism that was important to community social organization. In contrast to other parts of the world, communal feasting in the northern Southwest involves common, everyday "abundant" resources, such as ceramic bowls, maize, and rabbits, rather than rare, valuable, or feasting-specific resources. In this way feasting may be thought of as a communal performance of household abundance. The second is the increasing elaboration of artifact assemblages through time that were associated with both feasting and daily domestic life, particularly decorated serving bowls. By comparing the assemblages from three villages dating to different time periods, similarities and differences in these assemblages show how household abundance was translated conceptually to communal abundance through performance of the feast and through elaboration of common household items.

Potter, David (UNMH University of Utah), Shannon Boomgarden (NHMU - University of Utah), Issac Hart (NHMU - University of Utah) and Duncan Metcalfe (NHMU - University of Utah)

[317] Microrefuse Analysis from Superimposed Structures at Big Village - Range Creek, Utah

Range Creek Canyon is located in the West Tavaputs Plateau area of East Central Utah. Students and staff of the Range Creek Field Station have recorded nearly 450 prehistoric Fremont sites in the canyon, including residential, storage, and rock art sites. Of these, three large village sites have been excavated. Big Village (42Em2861) is a Fremont site with a relatively long record of occupation. Excavation at Big Village over the last three years has produced radiocarbon dates ranging from A.D. 889 to A.D. 1123. Current excavations have revealed three, possibly four, superimposed occupation levels with associated structures and hearths. Bulk fill from three hearths and floors were collected and processed through screening for microrefuse analysis. Results of microrefuse analyses have been
shown to be indicative of the range of activities that occur within a structure or on a living surface. The results of the analysis of each hearth and associated floor are compared and dated to show changes through time.

Potts, Richard [26] see Brooks, Alison

Poupeau, Gérard [249] see Le Bourdonnec, François-Xavier

Powell, Doss (Paradise Valley Community College)

[32]  *Subsistence and Social Change during the Late Pithouse Period at the Harris Site*

The Late Pithouse period in the Mimbres Mogollon region was a dynamic time that witnessed changes in the social structure and organization of household groups. We present zooarchaeological data from recent excavations at the Harris Site in the Mimbres River Valley to explore the implications that subsistence-settlement systems and resource exploitation have on our understanding of the organization of household groups at the end of the Pithouse Period.

Power, Torin [137] see Casias, Rhiana

Powis, Terry [123] see Howie, Linda

Powis, Terry (Kennesaw State University), Norbert Stanchly (Trent University) and George Micheletti (University of Central Florida)

[252]  *Middle Preclassic Development of the Main Plaza at the Ancient Maya Site of Pacbitun, Belize*

Over the past 75 years, archaeologists have realized the benefits of investigating early Maya communities beneath plaza surfaces. Sites like Barton Ramie, Cahal Pech, Caracol, Ceibal, Colha, Cuello, Tikal, and Uaxactun have produced a wealth of information on Preclassic buildings, burials, and caches. In the Belize Valley, there has been a concerted effort since the late 1980s to recover as much information as possible about the Preclassic Maya by targeting plazas. This approach has been very effective at Pacbitun where we have uncovered new information on the earliest community located within the main plaza at the site. This paper reports on recent investigations in Plaza A and provides new information on E-Groups and/or Triadic Eastern Plaza Complexes that may be compared with other sites in the region to identify general patterns in Preclassic Maya development.

Pozorski, Shelia [59] see Pozorski, Thomas

Pozorski, Thomas (University of Texas-Pan American) and Shelia Pozorski (University of Texas-Pan American)

[59]  *Domestic Complexity at 1500 B.C.: Exploring the Roots of Andean Domestic Practices within Two Casma Valley Residential Components*

The Casma Valley on the North Coast of Peru was home to the Sechin Alto Polity, one of the grandest Initial Period (2100-1000 B.C.) developments. Two sites within this polity, Pampa de las Llamas-Moxeke and Huerequeque, contain well-preserved domestic zones that have been extensively excavated by the authors. Resultant data provide insights into how the resident populations participated in and responded to life within a highly centralized political and economic organization. Examples include clear evidence of social inequality in the residential sector, artifacts that document specialized production through cottage industry, and intrasite hierarchy with ramifications at the household level. Many such key Initial Period domestic practices persisted and are known from major north coast polities such as the Moche and Chimu, thereby contributing significantly to the roots of a greater Andean tradition.

Prates, Luciano [6] see Martinez, Gustavo
Pratt, William and David Brown

[188] Searching for Truth in Local Legends: Investigations at the Chapel of Ecuador’s Oldest Hacienda

Archaeological investigations conducted in 2011 and 2012 were undertaken to explore the chapel of Ecuador’s oldest hacienda. Hacienda Guachala was founded in 1580 with the inauguration of the chapel which, according to local legend, was built on top of an Inka temple. Historic records indicate that when the Spanish arrived, the site was burning having been set alight by the fleeing Inka. Pieces of the disassembled Inka baths which once occupied the site are still visible in the colonial construction and a series of collcas line the hill above confirming that the site was indeed Inka. In 1736, members of the French Geodesic Mission stayed at the hacienda. When one of the members of the expedition contracted malaria and passed away he was reported to have been buried inside the floor of the chapel. In 2008 GPR was conducted inside the chapel and revealed several anomalies. The goal of the 2011 and 2012 archaeological investigations was twofold: 1) Determine the architecture of the chapel itself to confirm whether the legends of the Inka temple are true 2) Review the anomalies picked up by the GPR in 2008 to see if the grave of the French Geodesic member could be identified.

Prentiss, Anna (University of Montana) and Alexandra Williams

[145] Theorizing the Historical Development and Peak Structure of Dense Aggregate “Villages” in the Middle Fraser Canyon, British Columbia

The large “villages” of the Middle Fraser Canyon of interior British Columbia have puzzled archaeologists for several decades. With exceptionally large houses clustering in numbers of 80 or more, it is possible that some of these communities may have exceeded 1000 persons during the late portion of the “Classic Lillooet” period. Households may have been internally ranked with family space arranged around the internal peripheries of floors. Houses within villages were organized in densely packed geometric arrangements that include lines, arcs, and circles, in some cases with distinct plaza areas. The arrangement of villages within the Mid-Fraser landscape was similarly patterned with a triad of settlement sizes with evidence for routine interaction marked by exchange of goods. This fractal pattern of settlement organization along with a range of other evidence (e.g. public feasting and other rituals) implicates the likelihood of a complex history, particularly in the period of 1000-2000 years ago. We draw from a range of theoretical models (innovation, emergence, and cultural macroevolution theory) to offer some initial statements on the nature of that history. To accomplish this, we introduce concepts of platforms, emergence, extrapolation, and exaptation as essential to this modeling process.

Chair

Prentiss, Anna M. [175] see Hill, Katherine
Prescott, Catherine (Hamilton College), Nathan Goodale (Hamilton College) and Alissa Nauman (Hamilton College)

[76] Cooking for the Camp: An Archaeological Field School Cookbook

There is a lot more learning that goes on at an archaeological field school than just survey field methods and excavation techniques. Many students come to field school with different levels of skills, for some it may not be their first dig experience, for others it is their first real camping experience. One aspect to an archaeological field school that may take students out of their comfort level is learning how to cook for large groups; large, hungry groups of people. And each field school is different: different eating habits, different dietary restrictions and preferences. Over the course of a 6-week field school, we followed the development of students' abilities within the kitchen. Using the Mac app iBooks Author, we created a digital, shareable cookbook filled with recipes provided and cooked by the students. No matter their skill level or previous cooking experience, students are, at first, a bit overwhelmed at the prospect of cooking for a large group. But as the weeks passed and students became more comfortable in dealing with the large quantities of food, meals became more complex with additional side dishes and more adventurous starters.

Preucel, Robert (Haffenreffer Museum, Brown University)

[296] Discussant

Prewitt, Elton

[199] Painted Pebbles in the Lower Pecos Canyonlands

Small painted stones from dry rockshelters throughout the Lower Pecos Canyonlands traditionally are interpreted as ritual objects. Attributed to women's roles in increase rituals involving fertility and water abundance, specific motifs are identified as insects like butterflies and other creatures and natural phenomena relating to life cycles. Post-painting breakage of painted pebbles may be intentional and once used for their intended purposes, they no longer were sacred and were returned to secular use as mundane tools. Many pebbles, whether whole or broken, display pitting and scratching use-wear suggestive of knapping tools. To investigate these ideas and expand our understanding of the artifacts, Drs. Jean Clottes, Carolyn Boyd and I developed a method grounded in data collection. Using sophisticated imaging equipment, we analyze pebbles individually, re-creating painting sequences to examine how designs were created and to identify possible relationships between design and use-wear. We also collected extensive attribute data from pebbles to objectively identify patterns in their complex imagery. Data generated from our sample of nearly 700 specimens will allow us to analyze these patterns and provide hypotheses regarding the possible meaning, function, and significance of painted pebbles to the Archaic and Late Prehistoric peoples of the Lower Pecos Canyonlands.

Prezzano, Susan (Clarion University)

[239] Contributions of the Washington Office to the Archaeology of the Northeast and Mid-Atlantic Regions

Although the River Basin Survey (RBS) program is best known from the large-scale projects performed in the western United States, archaeologists out of the Washington RBS office implemented a considerable volume of archaeological investigations in the Mid-Atlantic and Northeast starting in the late 1940s and continuing into the 1960s. These surveys comprise some of the earliest professional archaeology performed in many river systems. The benefits of the RBS to the discipline are considerable, including the discovery of important sites central to the understanding of regional culture history within the Eastern Woodlands. Early in their careers, important archaeologists such as Ralph Solecki and William Mayer-Oakes contributed to the RBS in the Northeast and Mid-Atlantic regions.

Price, T. Douglas [21] see Freiwald, Carolyn

Price, Max (Harvard University)

[84] Animal Husbandry and Secondary Products at Chalcolithic Marj Rabba (Lower Galilee)

The site of Marj Rabba, located in the Lower Galilee region of Israel, contains fourth and fifth millennium
occupations. Excavations began in 2009 with the aim of understanding the evolution of complex society in the Chalcolithic period in northern Israel, a previously understudied region. Of particular interest is how the production and exploitation of secondary pastoral products figured into the local economy. In this paper, I present faunal data collected from five seasons of excavation. The results show that while textile production was important, herders did not depart from generalized production strategies. Pig production, part of an unspecialized meat economy, was particularly prominent. This likely reflects optimal environmental conditions for raising pigs in the Chalcolithic. On the other hand, pathologies to the appendicular skeleton of cattle are evidence for animal traction. This may relate to intensified production of cereal agriculture.

Prieto, Gabriel [245] see Sutter, Richard

Prieto, Oscar [245]  
**Social Dynamics and Economic Interactions of an Early Initial Period Maritime Community: The Gramalote Case**
Recent excavations at the early Initial Period (1550-1250 B.C.) site of Gramalote, located in the Moche Valley, north coast of Peru are confirming that the households of this fishing community shared a marine- oriented economy based on shark and sea-lion meat, complemented by fish, seabirds and abundant mollusks. There is evidence that Gramalote inhabitants were practicing wetland-type horticulture to grow reeds, gourds and squash in large quantity. Some households were engaged in non- subsistence activities such as the manufacture of shell beads, basketry, mats and the production of red pigment on a large scale. These data offer a new perspective in our understanding of the early stages of Andean prehistory, based on the study of social dynamics from a bottom-up perspective. In a broader sense, this research aims to provide an alternative model to study fishing settlements, integrating subsistence pattern studies, technological aspects and the household approach.

Prince, Paul [325] see Holly, Donald

Prins, Adam [65] see Adams, Matthew

Prociuk, Nadya (University of Texas at Austin) [89]  
**Inscribing Identity: A Case Study of Symbolic Communication from the Iron Age Castro Culture of North-Western Iberia**
How did the symbols saturating the material culture of the Castro people serve a social and political, not merely decorative, role during the Late Bronze and Iron Ages of north-western Iberia? My research explores the interconnected aspects of identity, symbols and material culture within the Castro Culture of Late Bronze and Iron Age Portugal. Using materials from five sites within the Castro region of northern Portugal, I examine the context, frequency, and association of various symbolic motifs as they appear on ceramics, domestic and public architecture, and objects of personal adornment. Comparing this data with that from excavations conducted at the Cividade de Bagunte site, I attempt to trace the ways in which the Castro people may have employed various symbolic motifs to communicate elements of personal and group identity by inscribing particular symbols in different social contexts. These symbols may have functioned to convey aspects of identity both within Castro communities and to the larger Atlantic and Mediterranean social spheres in which they participated. This paper will present the theoretical underpinnings of the project as well as preliminary research results.

Proctor, Terren (McGill University) [278]  
**The Last Neanderthals: An Examination of Climatic Influence on the Extinction of the Neanderthals**
While many areas of paleoanthropology are debated, perhaps none is as contentious as that of the
Neanderthals. Among the most hotly debated topics concerning Neanderthals are concerned is the question of their extinction. Why? How? When? There are a number of prevalent theories, though all experience the same problems of providing adequate proof despite the problems plaguing all prehistoric archaeology: the problem of dating, the problem of preservation and the problem of proving a reconstruction of the past. This paper aims to examine the influence of the climate upon the extinction of the Neanderthals, including why this glacial era was different from the other, as well as the importance of the coast for the late survival of the species.

Profitt, Tomos [255] see Byrne, Fergus

Protzen, Jean-Pierre

[120] Pilgrimages to Pachacamac and Titicaca in Inca Times

Long-distance and populous pilgrimages in Inca times to important shrines like Pachacamac and Titicaca were not only religious acts but played a significant role in the integration of conquered peoples into the Inca Empire and the legitimation of the power of the Inca. We propose to explore how the approach to the sanctuary, the landscape, the architecture and the shrine itself, as well as the ceremonies and sacrifices along the way, contributed to the religious experience of the pilgrims, and in what ways the pilgrims acknowledged and submitted to the power of the Inca.

Prufer, Keith (University of New Mexico)

[337] Evaluating Airborne LiDAR for Detecting Settlements and Modified Landscapes in Disturbed Environments at Uxbenka, Belize

LiDAR has the potential to enhance existing regional studies of settlement distributions and landscape modifications, as well as to increase the resolution of related hydrological modeling, view shed analysis, and least cost paths. We present data from 134 square kilometers of LiDAR, which is centered on the Classic Period Maya center Uxbenka, and discuss its potential for detecting archaeological settlements and landscape modifications in areas of vegetation heavily disturbed by shifting agriculture. Vegetation density, type, and height impacts LiDAR ground reflection, evidenced in density of ground returns in the point cloud and can reduce visibility of smaller structures, terraces, and other anthropogenic features under certain regimes. Ground-truthing and comparison with pedestrian survey results allow us to estimate these limitations for varying stages of forest recovery. Profile models of ground and high-resolution (< 1m) topographic maps created from the LiDAR DEM aid in predicting the locations of otherwise invisible household groups and structures spread across the landscape.

[33] Discussant

Prufer, Keith [138] see Jordan, Jillian

Puckett, Neil (Texas A&M CSFA)

[225] Lost and Found: Using GIS to Identify Viable Underwater Projects

Over three decades of work has shown the viability of researching, surveying, and excavating terrestrial archaeology in an underwater context. Many of these investigations have been done in naturally submerged environments. However, over the last six decades numerous sites were anthropogenically inundated as a result of reservoir construction. Many of these sites were written off after being recorded in a flurry of investigation prior to their submersion. With the proven viability of underwater research, it is clear many such sites are still accessible for additional investigation. Unfortunately, data concerning their location, condition, age, and depth is not easily accessible. As such, they are often bypassed by governmental agencies, CRM firms, and most academic researchers. This paper presents a model for developing a GIS database that provides easy access to information concerning artificially inundated sites. The model is applied across the Great Basin and the resulting database is presented. As is shown, it provides visual, textual, and digital information on the applicable sites. This information allows potential researchers to quickly identify crucial details about site archaeology and location in order to determine the possibility and importance of conducting additional investigations at sites previously
thought lost to the march of progress.

Pugh, Timothy [147] see Lamela Lopez, Raquel

Pugh, Timothy (Queens College and The Graduate Center) [147]  
The 2013 Season at Nixtun-Ch’ich’, Petén, Guatemala

A social group called the Itza occupied the Petén lakes regions of Petén, Guatemala from initial contact in 1525 until after their conquest in 1697. The 2013 field season at Nixtun-Ch’ich’ in Petén, Guatemala investigated a faction of the Itza called the Chakan Itza. The project excavated a Late Postclassic period ceremonial complex and associated domestic groups in Sector QQ and conducted a new detailed survey of part of the site. Horizontal excavations uncovered a ceremonial complex with two colonnaded halls constructed side by side. The halls were decorated with sculpted snake, parrot, and turtle imagery and included effigy and composite censers. The masonry of the halls differs from that found in other colonnaded halls in Petén. The forms of the residences in the domestic groups were difficult to document as they did not include substantial walls. Nevertheless, the residences contain a variety of artifacts and features indicative of domestic practices. The 2013 survey of the western portion of the site added details to an earlier map and remapped a large ballcourt in the northern portion of the site. Limited testing in the ballcourt revealed some details about its construction history and use.

[147] Chair

Pugliese, Francisco Antonio (MAE/USP BRAZIL), Eduardo Góes Neves (Museu de Arqueologia e Etnologia da USP - Brazil) and Guilherme Mongeló (Museu de Arqueologia e Etnologia da USP - Brazil)

[129] Exploration, Mapping and Excavation of the Fluvial Shellmounds of the Guaporé Basin, Southwestern Amazonia

Shellmounds are visible fixtures of the archaeological record of the New World, being known from the California coast to Patagonia. In lowland South America, shellmounds have been noticed and studied since the Nineteenth century along the Atlantic coast of southern Brazil. Most of those shellmounds are placed near the seashore or at estuarine areas. It is little known, however, that fluvial shellmounds are also found in other settings, including the deep interior of the Amazon basin. In this work, we present the results of research in the Monte Castelo archaeological site, a fluvial shellmound in the middle Guaporé basin, southwestern Rondonia state, at the border of Bolivia and Brazil. The context of Monte Castelo site is worth exploring because the excavated ceramic fragments show decorative features, such as zone-incised cross-hatching or hachure-zoning, known in some of the earliest known potteries of New World, such as Puerto Hormiga, in Colombia, Valdivia, in Ecuador, and Early Tutishcainyo, in the Peruvian Amazon. Hence, the investigation of such contexts allows for a better understanding of early contacts between the Andes and the Amazon in the pre-colonial history of South America.

Puig Castell, Jordi [105] see Toyne, Jennifer Marla

Pullen, Daniel (Florida State University), William Parkinson (Field Museum of Anthropology), Anastasia Papathanasiou (Ephoria of Paleoanthropology and Speleology of So), Panagiotis Karkanas (Ephoria of Paleoanthropology and Speleology of So) and Michael Galaty (Mississippi State University)

[332] Alepotrypa Cave and Its Regional Context in the Late and Final Neolithic Aegean

Current work at the Alepotrypa Cave at Diros in the Mani, southern Greece, now allows us to place Alepotrypa into a larger regional framework of the Late Neolithic and Final Neolithic Aegean. A regional survey and the excavation of an adjacent open-air site complement the continuing excavations and scientific program within the cave. Comparison of material from three areas in the Peloponneseos, Greece, where both excavation of a cave and/or open-air site and a survey have recovered material dating to LN and FN (the Corinthia, the southern Argolid, and the Mani), reveals regional variability in settlement patterns. The northern Peloponneseos (the Corinthia) follows the pattern of central and
northern Greece with the establishment of multiple long-lasting open-air settlements within a region through the LN and FN, whereas the southern Peloponnesos sees single or no open-air settlements in similar sized territories in the LN. Instead, in the LN, these southern regions seem to be focused on the use of caves such as Alepotrypa, with abundant open-air settlements appearing in addition to caves in the FN. On the local level our project aims to explain the relationship between the cave and its surroundings through the LN and FN periods.

Punke, Michele
Geoarchaeology provides a different lens through which archaeologists can understand and properly address the management of cultural resources. This is true for the early planning stages of a project, during the investigation and interpretation phase, or at the end of the project when what we’ve learned should be disseminated and incorporated into the lexicon of considerations for cultural resource planning and management in a region. By viewing recent archaeological discoveries in Oregon and Washington through a geoarchaeological lens, the larger implications of these small discoveries can be understood and integrated into cultural resource management practices on a local and regional scale.

Punzo, Jose Luis (Instituto Nacional de Antropología e Historia)
[339] Moving North: Metallurgy in West and Northwest Mesoamerica during the Postclassic (A.D. 900-1450)
Metallurgy in Mesoamerica suddenly appears for the first time in West Mexico around A.D. 700. In this paper I analyze metal artifacts found in West and Northwest Mesoamerica, items associated with the Aztatlán Tradition at that time. I explore the rapid expansion of metal items, first in western Mesoamerica, then northward along the Mexican Pacific coast in the Aztatlán World, inland into the Chalchihuites and Casas Grandes regions, and north into the American Southwest.

Punzo Díaz, José Luis [140] see Sandoval Mora, Cindy Cristina

Purdue, Louise (Arizona State University, School of Sustainability)
[149] From the River to the Fields: An Integrated Study of Water Systems towards a Better Understanding of Socio-Environmental Interactions
Water management has contributed to the construction and organization of human communities since the emergence of the first agricultural societies. The evolution of water availability and allocation strategies through time and its impact on cultural shifts is a socio-environmental question necessarily raised by researchers. However, traditional approaches to answer this challenge rarely consider water systems at the interface of nature and culture. Yet irrigation systems are an image of an existent agrosystem and an adaptation to a changing hydrosystem they depend upon and impact on various spatio-temporal scales. This socio-environmental signature is recorded in the hydraulic structures temporality (construction, maintenance, abandonment), their spatial organization, and sedimentary fill. The principle and limits of an integrated multi-proxi approach applied to this research object are presented and discussed in this presentation. Hydraulic structures are studied from their intake to the fields they supply, and their systemic study allows for the formulation of dynamic models of anthroposystems, locally to regionally. The study of a prehistoric Hohokam irrigation system in the semi-arid Phoenix basin, Arizona will be presented as an example. This approach is a key tool to measure the long-term vulnerability and resilience of agricultural communities and evolve from retrospective to prospective analyses.

Purser, Margaret [134] Discussant

Putsavage, Kathryn J. [43] see De Smet, Timothy
Pyburn, James [158] see Frappier, Amy

Pyburn, Anne (Indiana University)  
[240]  *The Next Generation: Thoughts on Mentoring Archaeologists*  
In 1980, slightly more than half of the incoming class of graduate students at the University of Arizona were female. There were no female archaeologists on the faculty. Today I am a member of a faculty that includes 8 archaeologists, currently all female. I have seven graduate students; one is male. My colleagues are similarly low on male students. In this presentation I will consider whether this is a discipline-wide demographic shift, or simply an artifact of an all-female faculty. Since there is still a salary and promotion gap between male and female professionals, such a shift implies a pressing need to change some of our mentoring strategies.

Pye, Jeremy (Cultural Resource Analysts, Inc.)  
[155]  "Unwanted Guests": Malaria and Other Parasites in 19th Century Tucson, Arizona  
The Alameda-Stone Cemetery, Tucson, Arizona, was in use between the early 1860s and 1882 before being closed. During that period, it served as the only municipal cemetery for Tucson, a city which acted as a hub of interaction between national influences from Mexico and the United States. The community was multiethnic, consisting of Hispanics, Native Americans (Tohono O'odham, Akimel O'odham, Yaqui, and Apaches), Anglo-Americans, African-Americans and recent migrants from Europe, Canada, South America, and Asia. Not surprisingly, a variety of parasites affected the people of Tucson, as well as the associated military post, Fort Lowell, in the 19th century. Drawing on historical, archaeological, osteological, archaeoparasitological, and environmental information, this paper investigates how the infection of people by several species of parasites, was impacted by changes that took place in both the physical and cultural landscape.  
[155]  Chair