Putt, Shelby (University of Iowa)
[122] The Origins of Stone Tool Reduction and the Transition to Knapping: An Experimental Approach
There is now a general consensus that the earliest Oldowan artifacts were made by skilled toolmakers with a clear understanding of the fracturing mechanics of different toolstone materials, thus leading several researchers to propose a simpler lithic reduction stage that occurred prior to 2.6 Ma. Three reduction techniques that are within the behavioral repertoire of the genus Pan are proposed as potential intermediate stages between the percussion behaviors of the LCA of chimpanzees and humans and the skilled knapping of the Oldowan toolmakers. These include direct and indirect projectile percussion and bipolar flaking techniques. To better understand some of the factors that influenced how early hominins obtained sharp flake tools, measures of productivity, expediency, and efficiency were obtained and compared between these three reduction techniques and novice knapping. The results of this experiment indicate that dropping or throwing a large hammerstone on a brittle core is the most efficient way to exploit a core, while bipolar flaking is the most expedient method; however, novice knapping creates the most productive flakes with large, sharp cutting edges. Thus, the transition to knapping in the late Pliocene may have been due to a shifting emphasis on productive toolmaking over expediency or efficiency.

Puzachenko, Andrey Y. [74] see Van Kolfschoten, Thijs

Pyburn, Anne (Indiana University)
[147] The Same, but Different
Variations in the architecture, settlement patterns, local environmental context, and occupational history of Maya archaeological sites are difficult to assess. Which differences are culturally meaningful? Which similarities indicate social relationships, and if so, what sort of relationships? Which differences are simply a result of local climate and available building materials? In this paper I will examine some of the similarities and differences among the three Maya sites in North-Central Belize where I have done research: Chau Hiix, Albion Island, and Nohmul. This comparison will shed light on the value of regional analysis.

Pye, Jeremy (Cultural Resource Analysts, Inc.)
[204] Laboratory Techniques for the Detection of Human Parasites in Archaeological Samples.
Parasites have had a significant impact on the course of human history. Activities of a variety of parasites throughout the world can lead to lethargy, dementia, malabsorption of nutrients, bowel obstruction, internal bleeding, blindness, physical disability and deformation, and many other symptoms of disease. Furthermore, parasites have caused the deaths of countless individuals, have resulted in the abandonment of settlements, and have even affected the outcome of wars. The effect that parasitic illness has had on people worldwide is a hot topic in fields like medical anthropology. It is curious, therefore, that archaeologists have paid relatively little attention to looking for evidence of parasites in archaeological samples. This poster explores a variety of laboratory techniques that can be used to identify evidence of parasites in samples that can be collected from archaeological contexts. Perhaps once more archaeologists are aware of the importance of archaeoparasitological testing, we can make more informed interpretations of past population health, as it relates to parasitic disease.

Qin, XiaoLi
[37] Turquoise Ornaments and Inlays Technology in Qijia Culture -- A Comparative Study of Qijia Culture and Erlitou Culture
Most turquoise ornaments from early Neolithic sites are pendants with a single material. However, from the later Neolithic period such as Qijia culture, people started to use ornaments which were inlaid with turquoise and other materials by unique techniques. In early Bronze Age, turquoise
production process, especially the inlays technology, reached its peak. From a Qijia culture site, we found a bone hairpin. On its tail part, small white bone rings were sticking on black jelly. From Majiayao culture site, we found 12 bracelets bone plates of the same length, which were stuck on black jelly. From later Qijia culture site, ceramic inlayed with turquoise have been found. Meanwhile from Erlitou site, archaeologists found a large dragon-shaped turquoise painting, variety animal-shaped turquoise decorations, and turquoise workshops. In this paper, I will compare the turquoise products in Qijia culture and Erlitou culture, then try to understand the importance of turquoise products in early dynastic formation process by analyzing the following topics: the technological evolution, the combination of composite materials, the usage of adhesive, and the production process of this type of ornament.

Qin, Ling [186] see Weisskopf, Alison

Qin, Zhen (Washington University in St. Louis)
[283] A Geoarchaeological Investigation of Ancient Agricultural Fields at Sanyangzhuang Site, Henan Province, China
Over the last 10,000 years, agriculture has gradually replaced hunting and gathering, and become the dominant food resource. Because of their extreme importance agricultural issues have attracted much academic attention; a wide variety of new perspectives and understandings, especially concerning agricultural origins, have been gained in the past few decades. However, there is a huge intellectual gap between the extensive agriculture soon after the earliest domestication and intensive agriculture practiced by early states. How was the gap bridged? What resources were invested to intensify food production? Questions concerning agricultural intensification have been attracting but also puzzling anthropologists and archaeologists for a long time. Field management technique is one of the most significant aspects of agricultural intensification. This paper presents the result of the geoarchaeological surveys at the Sanyangzhuang site in recent years, and explores the development of the field management techniques on the basis of micromorphological and geochemical analyses of soil samples from the site. Plowing, manuring, and irrigation are focused. By doing that, the outline of the trajectory of agricultural intensification from the late Neolithic Age to the early Iron Age in the local scale will be depicted.

Quackenbush, William (Ho-Chunk Nation)
[195] Discussant

Qualls, Catherine and Leslie Drane (Glenn A. Black Laboratory Of Archaeology- Indiana )
[359] The Creation of a Comparative Resource for 1000 B.C.E. – 1600 C.E. Indiana Ceramics
This poster explains the work being conducted for the creation of a booklet about Indiana (and likely surrounding states) ceramic types and varieties from approximately 1000 B.C.E. – 1600 C.E. We anticipate this booklet being utilized as a field guide and a comparative resource for those studying precolumbian people in the area. Because archaeologists so often encounter unfamiliar types and hybrid ceramic formations, this resource could be extremely beneficial for any researchers studying Midwestern people. Using the collections at the Glenn A. Black Laboratory at Indiana University, Bloomington, we are producing a guide that will contain photographs of each ceramic type with a detailed report on variety of the type, as well as a list of examples located at the lab. Ultimately, this project will end in the production of a comparative resource on Indiana ceramics, as well as a revision and inventory of the ceramic type collections held at the Glenn A. Black Laboratory. Our poster explores the process of creating this guide, the benefits it will provide researchers, and the future, collaborative advances we hope to accomplish.

Quates, Duane [43] see Schulz, Margaret

Quesada, Marcos [180] see Korstanje, Maria Alejandra
Quezada, Osiris (Arqueóloga) and Camila Pascal (Instituto de Investigaciones Estéticas UNAM)  
[198] Vocablos nahuas aplicados al proceso constructivo de los edificios prehispánicos del Altiplano Central  
Este trabajo presenta los términos constructivos que se aplicaron en época prehispánica para nombrar elementos arquitectónicos, algunas técnicas constructivas, así como a los individuos que colaboraron en las actividades relacionadas con la edificación, particularmente en edificios del Posclásico en el Altiplano Central.

Quicksall, Andrew [230] see Hollenback, Kacy

Quilter, Jeffrey (Peabody Museum, Harvard University)  
Revised chronologies affect our interpretations of cultural phenomena more than vice versa. This paper explores these issues in relation to the Moche. New dates suggest that the Moche phenomenon occurred later and ended later than previously thought and this is linked to a number of key issues in Andean culture history. The collapse of the Larco ceramic sequence is linked to the undermining of the concept of the Moche state and affects our concept of "Moche," in general. Particular attention will be focused on the relations between the dual temples at Huacas de Moche and El Brujo, a case study that provides some of the most detailed information currently available for examining chronology, culture history, and culture processes.

Quinlan, Angus (Nevada Rock Art Foundation)  
[352] Exploring Nevada Rock Art as a Social Landscape  
Approximately 1,500 rock art sites that broadly span the Archaic have been identified in Nevada. Regional and temporal differences in site structure, rock art styles, landscape settings, and associated archaeological contexts are discernible in these data, offering insights into Great Basin culture history and the categorization of the environment as a social landscape by prehistoric populations. Traditional approaches to Nevada rock art have often emphasized interpretation at the expense of explanation, seeking rock art's cultural significance or "meaning" in subjective considerations of its imagery. As Nevada rock art marks only a small percentage of the landscapes prehistoric populations are known to have used, I argue that understanding what made these locations appropriate places to be marked by rock art is a research theme that can address mainstream archaeological interests in describing the structure of past landscape use. Relating Nevada’s rock art to the physical environment and settlement patterns provides information about the structure and properties of special places in the landscape, and illustrates that the use of culturally significant places was a consideration in residential mobility strategies.

Quinn, Colin [54] see Dalton, Jordan

Quinn, Colin (University of Michigan)  
[54] Decoupling Decoration and Dates: A New Absolute Chronology for the Transylvanian Middle Bronze Age  
Metal from southwest Transylvania fueled the development of inequality and regional polities across Eastern Europe during the Bronze Age. However, little is known about the communities in the resource-rich region. Through regional survey, test excavation, and digitization of existing collections, the Bronze Age Transylvania Survey (BATS) Project seeks to understand the long-term dynamics of social organization throughout the Middle Bronze Age in southwest Transylvania (2000-1400 B.C.). A robust chronology is critical to monitoring contemporaneous variability across the region and change through time in social, political, and economic organization. However, current models for the structure and dynamics of Bronze Age communities in Transylvania are based on a previously untested relative dating system based on ceramic seriation. In this poster, I present a new radiocarbon-based chronology for the Middle Bronze Age. These new dates challenge our understanding of the social significance of ceramic decoration as well as the long-term dynamics of
social complexity in Bronze Age societies.

Quinn, James

Quintana, Patricia (Cinvestav Unidad Merida IPN), Vera Tiesler (Laboratorio de Bioarqueologia, Facultad de Ciencia), Diana Arano (Sección de Restauración, Centro INAH Campeche, Ins), Dominique Rissole (Waitt Institute for Discovery, San Diego, Ca) and James Chatters (Applied Paleoscience and Direct AMS, Bothell, Wa.)

General Taphonomy and Diagenesis of a Submerged Pleistocene Skeleton from the Cenote of Hoyo Negro, Tulum, Quintana Roo, Mexico: Preliminary Results

This paper examines the macroscopic taphonomy and the diagenesis of a partially lifted preceramic skeleton of a female juvenile (called “Naia”), dated approximately between 13,000 and 12,000 yrs AP. Naia was recovered at 41 meters below sea level in a submerged karstic cave. Despite the good general preservation of Naia’s remains, the bone segments are brittle, showing changes attributable to time, weathering, changing salinity and micro-organisms. The external bone layer is only loosely attached to the subjacent bony core. Our present research aims to understand the fluctuating postmortem conditions of Naia, to prospect the analytical possibilities for conducting molecular research, and assisting mid and long term stabilization measures of the dental and bony remains. The study combines macroscopic taphonomy with X-Ray Diffraction Raman Spectroscopy, SEM, histology of undecalcified bone, and ICP analyses of associated water and sediments. Our results show diagenetic substitution of the inorganic substrate with exogenous calcareous minerals and moderate preservation of histological structure. This study was financed by the Subdirección de Arqueologia Subacuática of the Instituto Nacional de Antropología e Historia, CONACYT-152105 (2012-2015), the Laboratorio Nacional de Nano y Biotecnología (FOMIX LAB-108160, CONACyT-123913).

Quintana Morales, Erendira (Muséum national d’Histoire naturelle, Paris)

A Social Topography of Fishing: Exploring the Spatial Variability of Fish Consumption Practices at Songo Mnara

In the Swahili towns of the East African coast, fish have contributed a major source of protein consumed by coastal inhabitants, but the role of fish consumption in the construction of social meaning is rarely discussed. This paper addresses this gap by exploring spatial differences in fish consumption strategies around Songo Mnara, a fifteenth -sixteenth century Swahili town in the Kilwa Archipelago, and links them to social patterns visible in the organization of the town. The spatial distribution of discarded fish and other animal remains shows variability in the relative frequency, taxonomical composition, and estimated size of fish, indicating that food consumption practices varied across different socially-defined spaces around Songo Mnara. Inhabitants in a non-elite area of the town relied more heavily than their elite counterparts on the consumption of fish rather than domesticated animals; the elite also consumed larger fish and more outer reef fish compared to their non-elite neighbors. More than reflections of the socio-economic status of their consumers, these differences in fish consumption could indicate processes through which people constructed and reinforced social status, such as through access to particular tools and forms of consumption that connected them to the Indian Ocean trading network.

Quintus, Seth (University of Auckland) and Jeffrey Clark (North Dakota State University)

Examining The Temporal Scale of Human-Environmental Relationships on Ofu Island, Manu’a Group, American Samoa

Pacific Islands have long been considered natural laboratories or model systems for the examination of human-environmental relationships. The impact of temporally variable environments on human populations is now well-documented throughout the Pacific, though questions remain on how the variable temporal scale of environmental change can modify the human response to these changes. An opportunity to address this question is presented by the cultural sequence of Ofu Island, a small
island in the Manu’a Group of the Samoan archipelago, in which the impact of both short-term environmental hazards and long-term landscape evolution is apparent. The reconfiguration of the coastline through the 1st millennium A.D. led to a transition in human settlement and subsistence patterns, eventually leading to permanent settlement in the island’s interior uplands. The recurrence of quasi-predictable hurricanes, on the other hand, led to investment in infrastructure to mitigate the effects of hazards on the terrestrial food production system. The differential response to these environmental factors can be understood in terms of risk and uncertainty. Furthermore, the influence of coastal reconfiguration is significant on small islands such as Ofu, where marine regression modifies the ratio of shallow marine environments to terrestrial lowlands.

**Raczek, Teresa** (Kennesaw State University)

[292]  
*A Plethora of Possibilities: Evaluating Debitage from Large Habitation Mounds*  
For the past few decades, the analysis of lithic production has incorporated an extensive consideration of debitage. While this work has been fruitful, the social and economic context of early habitation mounds presents a number of challenges to debitage analysis. Debitage can result from a number of activities beyond chipped tool production; as a result, researchers must carefully analyze broader economic and social activities in order to offset these challenges. This paper will present the analysis of lithics, debitage, and other related artifacts from a variety of sites in third millennium B.C. southeast Rajasthan in order to demonstrate how our analytical methods must be modified for early complex societies.

**Radde, Hugh** (California State University Northridge)

[27]  
*Understanding Island Tongva Villages: Results from the Catalina Island Museum’s Toyon Collection*  
The Catalina Island Museum (CIM) cares for the largest collection of Island Tongva (Gabrielino) artifacts in the world, the results of early expeditions, modern excavations as well as objects donated by Catalina Islanders. Opened in 1953, the Catalina Island Museum boasts a wealth of historic, archaeological, and archival materials that document life from the first islanders 8000 years ago to the present day, and strives to provide awareness and appreciation of the island’s rich heritage through the use of research, exhibition and educational programs. However, most of the collection remains unstudied and unanalyzed and in some instances in the same paper bags that they were put in over 50 years ago. This presentation will discuss the importance of using legacy collections to understand Island Tongva lifeways and provide the results of one such collection from Toyon Bay, on Catalina Island, California.

**Radermacher, Matthew** (North Dakota State University), **Stephanie Day** (North Dakota State University), **Anne Denton** (North Dakota State University), **Jeffrey Clark** (North Dakota State University) and **Donald Schwert** (North Dakota State University)

[260]  
*Pattern Recognition and Automatic Feature Extraction in GIS*  
Archaeological applications of geographic information systems and remote sensing technologies are becoming increasingly popular, especially in regard to site prospection and the geospatial analysis of cultural features. Utilizing aerial LiDAR and high-resolution satellite imagery of North Dakota, a training data set was used to define the boundaries and characteristics for certain morphological features of anthropogenic origin, which include mounds, earth lodge depressions, and fortification ditches. From this, a data mining algorithm was developed to adapt machine learning into an automated extraction program. This system was then tested on other data sets aimed at detecting similar, unrecorded features in the landscape, and verified in the field through ground truthing to determine accuracy. Implications for the successful development of this technology will allow archaeological investigators to review topography and locate specific anthropogenic features on the surface that can otherwise be difficult to distinguish in the field due to vegetation cover, terrain, or landowner permissions. Additionally, it could reduce the amount of time ground crews spend in the field and provide the researcher with site leads and an accurate model of feature distribution within a project area.
Radivojevic, Miljana (UCL Institute of Archaeology)

Paint It Black: The Rise of Metallurgy in the Balkans

This study integrates archaeological, microstructural and compositional data of c. 7000 years old metallurgical production evidence with an aim to address the how and why of the world's earliest metallurgy. The main focus is set on copper ores and metal production debris coming from four Vinča culture settlements in Serbia and Bosnia and Herzegovina, all dated between c. 5400 – 4400 B.C. Chemical study of copper minerals throughout all sites points at striking uniformity in selecting black and green minerals for metal extraction, some of which predate smelting events at c. 5000 B.C. Microstructural examination of metal production debris showed convincing technological similarity throughout c. six centuries of copper making in studied sites. It is argued that black and green ores were intentionally selected as ingredients for the metal smelting ‘recipe’ in the early stages of Balkan metallurgy based on the knowledge related to their appealing visual aspects. This finding demonstrates a unique technological trajectory for the evolution of metallurgy in this part of the world and illustrates the capacity that materials science carries in addressing the how and why of the emergence of metallurgy, and outlines methodology for future studies of early metallurgies worldwide.

Chair

Radivojevic, Miljana [89] see Amicone, Silvia

Radovanovic, Ivana (University of Kansas)

Correlating Climate Change and Archaeological Record in the Iron Gates Mesolithic

Material culture record from the Danube Iron Gates Mesolithic reflects a variety of hunter-gatherer adaptive strategies, including shifts in foraging methods, changes in preferential choices for the raw material extraction, and a variable use of the same locations for residential and/or aggregation camps covering over five millennia. Archaeological debates however remained focused mainly on a few hundred years of the local hunter-gatherers’ interaction with the incoming food producers during the Final Mesolithic. Recent geoarchaeological and archaeological survey of Mesolithic sites beyond the Danube Gorges in tandem with building a finer resolution record of the climate oscillations on the local and regional scale (AMS dating and stable isotope analyses), provides a possibility to explore a fuller context of the Iron Gates Mesolithic settlement and establish if there is a chronological correspondence between the late Pleistocene and early Holocene climate oscillations and the archaeological record.

Chair

Radovic, Marija (University of Belgrade) and Kevan Edinborough (University College London)

Teeth As Tools: Paramasticatory Dental Modifications Reflecting Habitual Behavior in the Danube Gorges, Serbia (9500 - 5500 B.C.)

Technological knowledge and task-related activities of past populations are known mostly by analyses of material culture remains. Here we use a new line of evidence for reconstructing habitual behavior by investigating paramasticatory use of human teeth. Paramasticatory dental modifications (chipping, notching, occlusal and interproximal grooving) are examined on 89 individuals’ dentitions (1308 teeth) from three sites of the Lepenski Vir culture: Vlasac, Lepenski Vir and Padina in the Danube Gorges, eastern Serbia (9500 - 5500 B.C.). Both macro- and micro-scopic (scanning electron microscope - SEM) lesions were analyzed. Paramasticatory use of teeth was detected in 43% (38/89) of individuals. Variations in sex/age categories and diachronic changes in teeth use-wear patterns were quantified. SEM surface imaging and micro-residue analyses of lesions enabled comprehensive investigation of their etiology. Specific task-related activities involving teeth-as-tools (e.g. cordage/basketry, bow-drilling) were only detectable using SEM analyses. Our SEM results show that teeth formed an integral part of tool kits for prehistoric inhabitants of the Danube Gorges. Ethnographic and material culture comparisons indicate patterns of tooth-wear found in our study have significant implications for understanding technological evolution in other case-study areas. Thus, archaeometry can provide an essential insight into human behavior.
Radu, Valentin [401] see Herrscher, Estelle

Rae, Brianna [281] see Jones, Brian

Rafferty, Kevin
[352]  The Rock Art of Valley of Fire, Clark County, Nevada
Valley of Fire is one of the gems of Nevada archaeology known as an area rich in archaeological resources. Yet little work had been undertaken in the area. Since 2003 the College of Southern Nevada (CSN) has conducted five survey field schools in Valley of Fire designed to teach students survey and site recording. The results so far demonstrate that Valley of Fire is an area rich in rock art and other cultural resources, with new rock art sites being recorded and data from earlier recorded sites being updated. These sites range in age from the Archaic period (ca. 5500 B.P-2000 B.P.) to the proto-historic Numic period (ca. 800 B.P.-150 B.P.). The data also suggests that in the late prehistoric period, several different cultural traditions occupied or used Valley of Fire as a resource procurement zone. This succession of occupations and cultural traditions will be examined through a discussion of the rock art resources of the locality. In the end the results demonstrate that Valley of Fire is an important archaeological zone that holds the potential to enhance or change many of southern Nevada’s archaeological community’s ideas about the prehistoric occupation and use of the southern Great Basin.

Raffield, Ben [57] see Greenlow, Claire

Raffield, Ben (Simon Fraser University)
[57]  The 'Bare Branches' of Scandinavian Society and the Origins of Viking Raiding
The surge of violent raiding that traditionally marks the beginning of the Viking Age at the end of the 8th century ushered in a period of turmoil and change across much of Europe. Though the factors that might have triggered this have been repeatedly debated, no hypothesis has thus far provided a convincing explanation for this important historical phenomenon. One of the oldest arguments, discussed in this paper, was that proposed during the 11th century by Dudo of St. Quentin in Gesta Normannorum, who suggested that an excess of young males amongst Scandinavian societies forced many to embark on raiding in search of wealth and reputation. This paper will propose a hypothetical social model for the conditions that might have prompted this violent behavior. The mutually reinforcing social practices of polygyny and selective female infanticide will be considered in light of their potential to generate a pool of low-status males who were required to seek wealth and status in order to enter an elite-dominated marriage market. Relevant archaeological, historical and anthropological data will be consulted in order to identify the possible social mechanisms underpinning Iron Age Scandinavian societies, as well as the extent to which these precipitated socio-political change.

Rafuse, Daniel [250] see Gutierrez, Maria

Raghavan, Maanasa (Center for GeoGenetics, University of Copenhagen) and Eske Willerslev (Center for GeoGenetics, University of Copenhagen)
[337]  The Genetic Prehistory of the New World Arctic
The New World Arctic, the last region of the Americas to be populated by humans, has a relatively well-researched archaeology. However, there is no consensus on how the different Arctic traditions were genetically related to one another. We present genome-wide sequence data from ancient and present-day humans from Greenland, Arctic Canada, Alaska, Aleutian Islands, and Siberia, contributing new perspectives to the debate of cultural versus genetic replacement in the New World Arctic. We show that Paleo-Eskimos (~3000 B.C.E. to 1300 C.E.) represent a migration pulse into the Americas independent of both Native American and Inuit expansions. Furthermore, the genetic
continuity characterizing the Paleo-Eskimo period was interrupted by the arrival of a new population from western Arctic, representing the ancestors of present-day Inuit, with evidence of past gene flow between these lineages. Despite periodic abandonment of major Arctic regions, a single Paleo-Eskimo metapopulation likely survived in near-isolation for more than 4000 years, only to vanish around 700 years ago.

Ragsdale, Corey (University of New Mexico) and Heather JH Edgar (Department of Anthropology, University of New Mexico)

Biological Distance among Huastec, Veracruz, and Maya Groups

The people of the Huasteca region have a shared language history with the Maya region. This connection has long been of interest to Mesoamerican archaeologists and linguists. They also traded with other populations along the Gulf Coast, such as those in Veracruz. To date, biological evidence for these connections remains limited. We compared Huastec (n= 62), Veracruz (n= 47), highland (n= 29) and lowland Maya (n= 63) groups to evaluate the effects of shared language and economic exchange on biological similarities using dental morphological observations. We also conducted non-metric multidimensional scaling to evaluate within-group variation among samples from each region. Our results show a high similarity between Huastec and Maya groups compared with Veracruz groups. The highland Maya is similar to both the Huastec and lowland Maya groups. Additionally, non-metric multidimensional scaling results suggest high variation among individuals from the Huastec sample from Tamtoc, indicating high immigration related to cultural processes. Our results are consistent with archaeological and linguistic evidence for similarities between Huastec and Maya groups. We further conclude that shared migration histories between Huastec, Veracruz, and Maya groups affect population structure based on morphological (phenotypic) data.

Ragsdale, Corey [346] see Edgar, Heather

Raharijaoana, Victor [20] see Kus, Susan

Raharijaoana, Victor (U of Fianarantsoa) and Susan Kus (Rhodes College, Memphis, TN)

“My Only Equal [as Sovereign of This Land] Is Rice”: The “Technology” of Rice Production Politically Deployed and Ideologically Appropriated in Early Merina “States” of Central Madagascar

Over past centuries the landscape of the central highlands of Madagascar has been dramatically transformed. Draining, diking and terracing have created vast expanses of irrigated rice fields where forests once stood. The employ of this transformative technology depended on collective social labor; unsurprisingly the dikes that rendered the land productive also served in the political organization and unification of territory and populations. Yet, the destruction of these dikes was also a ploy and consequence of political warfare. Under the rule of Andrianampoinimerina, credited with creating a unified and expansionist Merina “state” in the 18th century, the additional vast marshland expanses that were drained and diked were not only put into standard rice production, but also allowed a second “counter-seasonal” crop of rice. The crediting of this innovative “technological” move to this sovereign was put to extensive ideological use: (1) construction of dikes and rice fields was confounded with the construction of polity; (2) food security served as an “index” of legitimacy of rule; (3) the counter-seasonal second crop of rice was understood as a “true” product of the “state”; and (4) the ruler, as innovator/creator, beyond the constraints of ordinary mortals, was portrayed as a “god seen with the eyes.”

Railey, Jim (SWCA - Albuquerque)

Bell-Shaped Storage Pits and Social Evolution in the Yuanqu Basin, North China

Control and manipulation of stored food was an important force driving human social evolution. Among the more distinctive forms of storage facilities are bell-shaped pits, which have a global distribution and were common in ancient north-central China. In this paper, size variation of 86 bell-shaped pits, spanning the Neolithic to Early Bronze Age in China’s Yuanqu Basin, are examined in relation to other evidence of sociopolitical complexity and change. The data show a significant
increase in the average size, and size range, of bell-shaped pits between the Yangshao and subsequent Late Neolithic and Early Bronze age periods. This may be evidence for increasing inequality, and possibly intensified competition and variable success at control over food production and storage. Moreover, given that concealment was an important function of bell-shaped pits, their presence throughout this sequence may signal household-level management of food stores, resistance to economic control by elites, and perhaps conditions of intense warfare and a desire to hide stores from enemies. These trends are considered in relation to evidence and arguments that the development of sociopolitical complexity, inequality, and state-level societies in China was rooted more in the ceremonial and ideological realm, and less in control over subsistence economics.

Raimond, Christine [350] see McKey, Doyle

Rains Clauss, Lee
[224] Discussant

Raja, Mussa [53] see Goncalves, Celia

Rakita, Gordon (University of North Florida)
[245] Plainware Ceramics from the Surface of the 76 Draw Site, Luna County, New Mexico

The 76 Draw archaeological site (LA 156980) is located in southwestern New Mexico. This Medio period (A.D. 1200-1400) site is situated within the northern edge of the Casas Grandes interaction sphere just south of Deming, New Mexico. It includes the remains of pueblo-like adobe structures overlain with a scatter of thousands of artifacts including lithic and mixed ceramics. In the summer of 2013, the University of Missouri and University of North Florida surface sampled the site. One purpose of this sampling was to assess the cultural connections between the Casas Grandes, Salado, Black Mountain, and El Paso Phase, Jornada in the Animas region. In this paper we report our analysis of the plainware ceramics retrieved from the site. We explore four questions. First, to what extent do the 76 Draw Plainware ceramics conform to the original Di Peso type descriptions for Casas Grandes plainwares? Second, we assess whether or not plainware ceramics provide meaningful information about the regional connections of those living at the site. Third, our data allows us to investigate how plainwares were used at the site. Fourth, and finally, we assess whether or not the plainware ceramics provide clues to the chronological placement of the site’s occupation.
[161] Discussant

Rakita, Gordon [245] see Waller, Kyle

Ramirez, Alfredo
[232] The Comparison of Central and Peripheral Household Compounds at the Site of Panquilma, Peruvian Central Coast

This paper explores the hierarchical differences between households at the site of Panquilma. Previous studies at the site have identified two types of household compounds: central and peripheral. Despite the fact that central compounds are bigger and located closer to the public buildings of the site, no other difference has been identified that can point towards the presence and the nature of any type of hierarchical distinction between both types of domestic compounds. Using 3-D reconstruction, recorded at a domestic and central compound respectively, this paper will be based in the assessment of differences between both types of households in terms of the household developmental cycle. To this end, I will identify remodeling events associated with the different activities that took place at these domestic spaces.

Ramírez, Felipe [141] see Ibarra, Georgina
Ramírez Muñoz, FAVIO WILLIAM (Favio Ramirez Muñoz)

Aprovechamiento de Recursos Renovables Durante el Horizonte Tardío en la Cuenca Hidrográfica del Río Cañete

La presente investigación tiene por propósito aproximarnos al conocimiento tecnológico alcanzado por las sociedades prehispánicas durante el Horizonte Tardío en los distintos espacios geográficos que abarca la cuenca hidrográfica del río Cañete, enfatizando en el aprovechamiento de los recursos naturales renovables, acontecido por una constante interacción entre el hombre y su medio ambiente, siendo un factor importante en los cambios ecológicos la necesidad de adaptación al entorno en el que se desarrolla. Se ha elegido como marco temporal el Horizonte Tardío por ser la última etapa de producción de conocimientos autónomos y por abarcar los conocimientos tecnológicos alcanzados en los anteriores períodos. Su estudio se realizará tomando en cuenta la geografía, los sitios arqueológicos, los rasgos arqueológicos en el paisaje, los artefactos, los ecosistemas y los actuales saberes locales. El cruce de variables para su análisis toma indicadores arqueológicos, etnobotánicos, ecosistémicos, antropológicos y etnohistóricos que al congregarse nos permitirán llegar a inferencias arqueológicas sobre los conocimientos alcanzados tanto por las élites como por el grueso de la población que conforman las sociedades anexadas al aparato estatal incaico en la cuenca hidrográfica del río Cañete.

Ramírez-Sánchez, Felipe [409] see Pacheco Gonzalez, Marco

Ramírez-Urrea De Swartz, Susana (Universidad de Guadalajara), Catherine Liot (Universidad de Guadalajara) and Javier Reveles (Universidad de Guadalajara)

The Transition between Epiclassic to Early Postclassic in Western Mexico. Processes Involved in the Sayula Basin (Jalisco)

The transition between the Epiclassic and Postclassic in Western Mexico has been linked to the Aztecan tradition. The Sayula basin offers a great opportunity to explore the processes involved in the cultural assimilation and interaction between two contemporary major cultural components: one with strong local identity related to a major component of social structure at Epiclassic sites, such as Ixtepete, La Higuerita, Los Altos de Jalisco and La Quemada (Zac). The other is part of the Aztecan Tradition.

Ramon Celis, Pedro

Registros gráfico-rupestres en Yagul, pintura rupestre en contextos urbanos

El sitio arqueológico zapoteco de Yagul, Oaxaca, es conocido por su carácter de ciudad-fortaleza, contando con una gran cantidad de edificios monumentales, una traza urbana definida, y un área habitacional que se extiende más allá del macizo rocoso donde se enclavan los edificios más importantes. Emperor poca información se ha referido en cuanto a un elemento que ante su pequeño tamaño, palidece frente a estos contextos mencionados, nos referimos a las pinturas rupestres y petrograbados que se encuentran a lo ancho de la ciudad. En esta exposición mostraremos cómo es que estas pinturas se relacionaban y formaban parte integral de la ciudad.

Ramos, Martha [11] see Carini, Claudio

Ramos, Jorge

A Sacred and Defensible Hill and the Memory of Ruler 12 in Late Classic Copan, Honduras

Inscribed monuments, iconography and archaeological correlates point out the pivotal role the founder of Copan’s dynasty, K’inich Yax K’uk’ Mo’ played in the religious and political ideology of the local community. Moreover, several lines of evidence in the archaeology of Copan show the importance of the long-lived Ruler 12, K’ahk’ Uti’ Witz’ K’awiil (ruling from 628 to 695 CE) in the Maya kingdom of Copan during the Late Classic period (600-820 CE). Recent research in the Copan Valley at the outlying Group 6N-1, in the area traditionally known as Rastrojon, has revealed an ornately decorated residential complex devoted to the memory of Ruler 12, his sacred mountain and
defensive system. This paper explores the motives behind the construction and use of this architectural complex at a very strategic place within the Copan Valley and seeks to add to our understanding of the local ideology in connection with the figure of Ruler 12 in Late Classic Copan's multi-ethnic community.

Ramos Madrigal, Jazmín [229] see Wales, Nathan

Randall, Lindsay (Robert S. Peabody Museum of Archaeology), Ryan Wheeler (Robert S. Peabody Museum of Archaeology) and Joel Jacob (Phillips Academy)

[93] Statistics: It's a Sherd Thing: Archaeology in a High School Math Class

Entire books have been dedicated to the subject of math applied to archaeology, both in the field and in analysis. Archaeology educators have recognized that the excitement of archaeology can be used to share elements of trigonometry, statistics, geometry, and more. Educators at the Robert S. Peabody of Archaeology and Phillips Academy have collaborated to use existing collections of pottery sherds from sites in New Mexico to introduce statistics to high school students. In the “It's a Sherd Thing” exercise students analyze sherds and then test hypotheses about chronology, all the while contending with issues of collections bias and other challenges often absent from textbook problems. A writing assignment asks that the students concisely describe their results, providing an opportunity to assess the learning goals of the project. Like other learning opportunities offer by the Peabody Museum,” It’s a Sherd Thing” supports existing curricula, using the concept of “teaching with” archaeology, rather than adding archaeology to the already burgeoning curriculum. Problem and project oriented learning, like “It’s a Sherd Thing,” fosters deeper knowledge and contribute to greater self-esteem, and provides a new way to use older museum collections.

Randall, Asa [348] see Gilmore, Zackary

Ranere, Anthony (Temple University) and Richard Cooke (Smithsonian Tropical Research Institute)

[186] Contributions of Archaeological Research in Panama to the Early Human History of the American Tropics

There has been a sea change in our understanding of the early human occupation in the tropical lowlands of the Americas over the last four decades. Research carried out in Panama has contributed to this change in a number of ways. First, evidence of Terminal Pleistocene hunter-gatherer populations using both Clovis technology and presumably later fluted fishtail projectile point technology was recovered in tropical forest as well as open woodland habitats. Importantly, the pioneering analyses of phytoliths and starch grains by Dolores Piperno documented the early domestication and dispersal of tropical lowland plant species in the Americas. In addition, by establishing a massive comparative collection of terrestrial and aquatic faunas, a detailed assessment of faunal use over the last 8000 years has been established in the region. Finally, a probabilistic site survey of a tropical watershed documented changing settlement patterns and occupational densities from 13,000 years ago until European contact. This research implies that New World tropical forests were occupied by hunter-gatherers as early as other non-forested tropical habitats and that tropical forest populations were key participants in the early domestication and widespread distribution of New World crops.

Ranere, Anthony [186] see Dickau, Ruth

Ranhorn, Kathryn (The George Washington University), Francys Subiaul (The George Washington University), David Braun (The George Washington University), Alison Brooks (The George Washington University) and Robert Kaplan (The George Washington University)

[122] Detecting Signatures of Cultural Transmission: An Actualistic Study

The potential to detect signatures of cultural transmission in stone tool technology is quickly gaining traction in Paleolithic archaeology (e.g. Tostevin 2012). These methods, rooted in middle range theory, remain to be tested through controlled experiment. This project uses experimental flint
knapping and a social learning framework to test the hypothesis that signatures of direct cultural transmission can be detected in core reduction strategies. The participant pool included experienced North American flint knappers. The experiment consisted of three isolated sessions simulating different degrees of information transfer ranging from Baseline (low fidelity) to Imitation (high fidelity). Preliminary results suggest that variation in core form is driven primarily by shape of the original cobble and skill level. Skill was determined by both post-experiment questionnaire and by pre-experiment observation. Variation in flake morphology was correlated to different stages of reduction intensity. This study attempted to empirically elucidate signatures of cultural transmission and demonstrates the importance of analyzing these markers across the reduction sequence. The lithic variables measured in this study can be applied to various spatial and temporal contexts.

Ranhorn, Kathryn L. [356] see Wilkins, Jayne

Rankin, Caitlin (Washington University in St. Louis), John Kelly (Washington University in St. Louis) and T.R. Kidder (Washington University in St. Louis)

[359] Geochemical and Physical Characteristics of Anthropogenic Sediments from Cahokia

The 110 mounds that characterize Cahokia’s landscape represent the most visible aspect of anthropogenic transformation of landscape. Recent ongoing efforts on the northern edge of the east plaza at Cahokia are uncovering a hidden landscape of earthmoving, illustrating the social complexity of this urban center. Traditionally, mound building has been perceived as a simple process of moving and reshaping earthen material. Because of this simplified model of mound construction, studies of mound building have primarily focused on identifying and dating construction stages, as well as studying the structures supported by these various construction stages. Recent interpretations suggest mound construction required a planned effort to organize labor, prepare the original ground surface for construction, and select specific building materials. We apply geochemical and physical soil analyses to anthropogenic sediments from the northern edge of the east plaza at Cahokia that are associated with a planned effort to transform the landscape. We treat the sediments as artifacts that can contribute to our knowledge of social complexity, as well as show how pre columbian North Americans were actively engaged in transforming their environment.

Rankin, Amanda (University of Nevada, Reno)

[386] High Altitude Residence in the Great Basin and the Rocky Mountains

It has been suggested that high elevations are highly demanding environments, poor in resources, and only heavily used to procure high ranked animal prey. Steward’s work in the Great Basin with the Shoshone and Piute showed that valley and foothill resources dominated subsistence patterns, with high altitude resources playing only a minor role for hunting. However, evidence exists for high altitude residential sites in both the White Mountains of eastern California (Great Basin) and the Wind River Range of western Wyoming (Rocky Mountains). These sites appear to be anomalous in that they contradict previously held ideas about hunter-gatherer adaptive choices, specifically intensive plant processing in lieu of hunting, evidenced by large quantities of groundstone. Ongoing research seeks to define the use of grinding implements through starch residue and use-wear analysis to better understand hunter-gatherer adaptive choices at high altitude.

Ranoli Oñasojle, Ishiba [409] see Silverstein, Jay

Ranzi, Alceu [157] see Watling, Jennifer

Rao, K.P. [101] see Abraham, Shinu

Rareshide, Elisabeth (California State University, Northridge)

[27] Legacy Collections in Public Education

Not all legacy collections are forgotten in dusty boxes. Some find new life in public education, offering non-archaeologists tangible connections to the past. Integrating legacy artifact and
document collections with effective education techniques provides the opportunity to engage children and adults in archaeology. Through the case study of developing an interactive educational tour about pre-Contact Chumash at the Leonis Adobe Museum in Calabasas, this paper explores practical concerns regarding communicating educational material to the public, working with multiple stakeholders, and ethically representing native voices.

Raschkow, Wanda

[29] **Mystery in Grapevine Canyon: Gender and Ethnicity in a Historic Period Site**

The Grapevine Archeological District in Death Valley National Park contains evidence of prehistoric and historic occupations. The district also overlaps with the Death Valley Scotty Historic District. A road realignment project in 2014 led to the discovery of a historic period site that appeared to be a mining camp with features and artifacts typically associated with tasks performed by men. Surface features and artifacts included a forge and hand-forged axes; a mining claim cairn marked the eastern boundary of the site. Excavation conducted for mitigation of adverse effect revealed artifacts that hint at the presence of women and children and also raise issues of ethnicity. These artifacts include a thimble, doll’s leg, metate fragments, and knapped glassware.

Rasic, Jeffrey [8] see Urban, Thomas

Raslich, Nicole (Michigan State University)

[95] **Indigenous Perspectives On Cultural Heritage Management And Preservation**

Cultural Heritage Management has various perceptions when utilized by indigenous communities and archaeologists. Heritage management professionals advocate preserving sites from looters, limiting access to curb erosion and protecting historical places from the degradation of time. Preservation methods may include stopping traditional uses of these locations unless otherwise specified through legislation. Most often, sites are located and archived through historical and archaeological research. Various Sami and Ojibwa groups along with other indigenous communities use cultural heritage management to preserve sites or buildings while allowing for the continued traditional utilization of the place. Often, indigenous perspectives on cultural heritage preservation refer to the passing of cultural knowledge to future generations through the continued traditional use of sites. Many times these places are located through oral history surveys and visual surface surveys with archaeologists and elders. Both of these often contested perspectives speak to the same principle that is at the core of archaeological practice; stewardship. By aligning these methods along the common principle of stewardship, mutually constructive and meaningful partnerships can be achieved.

Raslich, Frank [365] see Bengtson, Jennifer

Raslich, Frank (Michigan State University), Jodie O’Gorman (Michigan State University) and Michael Conner (Dickson Mounds Museum)

[365] **Coming Together: Evidence of Ritual and Public Space as a Mechanism of Social Integration**

Structure 16 at the Morton Village site (11F2) provides a unique opportunity to examine social interactions between Oneota and Mississippian populations situated within the Central Illinois River Valley. Prior to our work, the nature of these interactions at this site was poorly understood. Burgeoning data supports our interpretation of a cohabitation at Morton Village between these populations following Oneota in-migration. A method of this integration is demonstrated through ritualistic activity expressed extensively at structure 16. This structure is a unique public space illuminating various forms of ritual. Our archaeological investigations at structure 16 provide strong evidence of cultural admixture within an exclusively integrated public domain. Our data suggests a negotiation of identity occurs, after the Oneota in-migration, through the active adaptation of select traits, activities, and behaviors between these populations. We explore the nature of integration that existed between the Oneota and Mississippian populations identified through the material remains and architecture found at structure 16.
Rasmussen, Amanda
[120]  *An Analysis of the Archaeological Remains at Fort Halifax Park*

Fort Halifax, located in Halifax Township, Pennsylvania, was occupied from 1756 to 1757 during the French and Indian War. Fort Halifax Township Park, where the fort is believed to be located, contains rich expanses of prehistoric and historic archaeological data. Since the Fort Halifax Park contains information regarding several occupations, the collected archaeological data has been useful in identifying the spatial relationships between occupations. This data, when further analyzed through the implementation of Bayesian Statistics, could assist in identifying which locations are most likely to yield remnants of fort activity. The use of Bayesian Statistics assists in assessing a group of test criteria through the incorporation of archaeological evidence. The probability is influenced not only through geophysical data and historic artifact densities and distributions, but also other factors such as landscape data, soil stratigraphy, and levels of disturbance. This investigation implements these attributes into a statistical analysis, increasing the likelihood of recovering Fort Halifax.

Rasmussen, Josephine (University of Oslo)
[218]  *Heroes of Heritage: Detrimental Situations as Commendable Motivation for Hobbyist Metal Detecting*

Within the contemporary European heritage discourse, agriculture and forestry are increasingly identified as threats to archaeological remains. At ploughed-over archaeological sites, objects that were once associated with primary depositional contexts become mixed into the top soil, and this enhances their destruction. This paper explores the discourse that revolves around hobbyist metal detecting as a large scale means of rescuing archaeological material from destruction. Based on a case study from Norway, I address the rhetorical dichotomy between commendable and dubious motivations that permeate debates concerning hobbyist metal detecting, archaeology, the antiquities trade, and artifact collecting.

Rassman, Knut [47] see Davis, Stephen

Rath, Will [362] see Vernon, Kenneth

Rath, Pip (University of Sydney, Australia)
[412]  *Negotiating Social Identity through Practices with Stone*

Dazzling, large, highly retouched obsidian objects comprised part of the material world of prehistoric people from West New Britain, Papua New Guinea from sometime between ca 6300- to 3300 years ago BP. Beyond their role as valuables, the seemingly mundane practices of choosing and acquiring raw material together with the application of a sequence of actions on the material and knowledge used in making them were fundamental for creating and structuring social relations. A case study, identifying and comparing the routine practices at three sites where various mixes of obsidian sources were exploited to make the stemmed tools, illustrates how people used these practices to negotiate social identity and ownership of the sources.

Raubenheimer, David (The University of Sydney)
[415]  *The Nutritional Ecology of Human Obesity*

Nutrition has exerted a powerful influence on human evolution and history, and continues to play a central role in global challenges such as food security and obesity. However, the complexity of nutrition presents considerable challenges for researchers to unravel its grip on human affairs. In this talk I will introduce an approach called nutritional geometry that has been developed to aid this process. Nutritional geometry differs from conventional nutritional models in acknowledging that nutrients do not act alone, but interact extensively in their influence on humans. I illustrate this in the context of human obesity, showing how nutritional geometry has provided new insight into the ways
that recent changes in human nutritional ecology have interacted with evolved human traits to generate this major global problem.

Raviele, Maria (Institute of Museum and Library Services)  
[5] Discussant

Ray, Erin (University of California, Merced)  
[10] Geochemical Analysis of Construction Materials in the Cave at Las Cuevas, Belize: An Intrasite Analysis
The entrance chamber of the Cave at Las Cuevas, Belize prominently features many platforms, staircases, and terraces. To date 72 platforms, seven staircases, and two sets of terraces have been mapped and recorded. Geochemical analyses of the plastered surfaces were conducted in situ and in the lab in order to understand the technology used to create the platforms within the cave. Geochemical analyses were conducted in situ using portable XRF (pXRF) and additional samples were collected for portable XRF analysis in the lab. Platforms from different areas of the cave entrance, different light quality, and different sizes were considered for this study. I hypothesize that differences in chemical composition may represent differences in function or may represent a construction chronology. I will present the results of the pXRF analysis and discuss the range of variation and possible reasons for the variation.

Razeto, Jorge [318] see Vidal Elgueta, Alejandra

Reagan, Andrew [15] see Riggs, Erin

Reardon, Jim [90] see Kneifel, Rebekah

Reber, Eleanora (UNC Wilmington)  
Nahal Tillah is an Early Bronze I site in the Southern Levant with evidence for a strong Egyptian trade presence. Twenty-eight sherds from four different vessel types underwent absorbed pottery residue analysis to identify possible traded resources and to confirm vessel functions. Although wine and olive oil are believed to be the major trade resources in the region, wax was an unexpectedly important resource in the pottery sampled, particularly among the Southern Levantine styled jars.

Reddy, Seetha (Reddy Anthropology Consulting)  
[41] Changes Palates and Resources: Modeling Diachronic Plant Use in Prehistoric California
Despite considerable diversity in plant communities across coastal and inland California, the region’s hunter-gatherers often have been viewed as having broadly similar plant resource orientation. This paper reassesses this perspective by explicitly examining spatial and temporal variation in plant use west of the Sierra Nevada. In doing so, the study capitalized on a growing body of paleoethnobotanical data to explore similarities and differences in plant food resource emphasis across six main regions in western California. Initially, the talk will highlight regional patterning in potential plant resource distribution and density. Then analysis will emphasize trends in the relative reliance on exploited resources, focusing on three main plant food groups – seeds, nuts and geophytes. The results provide a baseline to explore to what degree observed spatio-temporal patterns in plant use are primarily a function of resource distribution, and in what contexts do social factors (such as investment in labor, risk assessment, population density, settlement organization, and cultural preference) play a more prominent role. The talk concludes with a consideration of the underlying causal factors driving the pace and scale of change in plant usage, and the social context in which certain plants became keystone resources.

[41] Chair
Reddy, Seetha [175] see Hull, Kathleen

Redmount, Carol (UC Berkeley)

[240] Mortuary Practices through Time at El Hibeh, Egypt

El Hibeh is an isolated urban site some three hours south of Cairo. The walled town was founded at the beginning of Egypt’s Third Intermediate Period, when it reached its greatest importance, and was occupied for approximately a millennia and a half— at least into Coptic/Early Islamic times. Hibeh was an important provincial town during Egypt’s Third Intermediate Period (early first millennium B.C.E.) after which it lost much of its regional significance. The town mound is surrounded by burials cut into the natural limestone; the mound itself was also used for burials at various times. This paper provides an overview, based on available evidence, of shifting mortuary practices at the site through time and seeks to correlate these shifts with developments in contemporaneous political, religious, economic, landscape, site usage and other patterns as relevant.

Reed, Lori (Aztec Ruins National Monument) and Mary Ownby (Desert Archaeology, Inc.)

[79] In the Land of Lava: Petrographic and Chemical Analysis of Pottery from El Malpais National Monument

Pottery found at four sites located in the eastern half of El Malpais National Monument offers significant clues into the importance of this area for the southern Chaco cultural extension. Further, the movement of pottery within the area is also significant as is information on local or non-local production. In order to begin to understand these issues, chemical and petrographic analysis was carried out on pottery mostly from the great house site of Las Ventanas. The Cibola White Ware, Socorro White Ware and White Mountain Red Ware are dominated by sherd temper that can cause difficulties for analysis. This may have resulted in the many chemical groups identified, for which petrography indicated some connections. We suggest that Cibola White Ware from the monument was made at many sites, while Socorro White Ware and White Mountain Red Ware may have had more limited production. Examination of the NAA data within a larger database also indicated such a pattern. These results have provided a preliminary hypothesis on pottery exchange in this area which further analyses will test.

Reed, Denne (University of Texas at Austin)

[161] Discussant

Reed, William (USDA - Forest Service)

[329] Discussant

Reed, Paul (Archaeology Southwest)

[382] Life and Ritual at the Edge of the Lava: The Ancient Chacoan Community at Las Ventanas

The ancient Chacoan-affiliated community at Las Ventanas, New Mexico, on the El Malpais National Monument, has been known to the southwestern archaeological community since Adolph Bandelier’s time in the late 19th century. Knowledge has accrued over nearly 140 years with visits by various archaeologists. Archaeology Southwest’s recent Las Ventanas Community Landscape Project has continued this work and produced some astounding findings. Seven extensive trails were documented in the lava west of the Las Ventanas Pueblo Community and the Sandstone Bluffs area. Hints of trails were apparent before, in this area and across the entire Monument. But, new research has shown the construction and use of trails to have been much more intensive and extensive than previously suspected. Furthermore, these trails were not built primarily or exclusively as utilitarian transportation corridors. Rather, most were built as ceremonial byways to access a variety of rituals features in and around the lava flow.

[382] Chair

Reeder-Myers, Leslie [105] see Rick, Torben
Reeder-Myers, Leslie (Smithsonian Institution)  
[120] Modeling Sea Level Rise and Shoreline Change in a Complex Sedimentary Environment: Case Study from Chesapeake Bay  

Accurate estimates of past shoreline locations are important for archaeologists interested in the complex relationships between sea level rise and human ecology. However, shoreline reconstructions require careful consideration of highly variable eustatic, isostatic, tectonic, and sedimentary processes. In the Chesapeake Bay, records from marsh cores have produced high resolution models of relative sea level rise since the Bay first emerged between 8000-7000 BP, influenced by both global sea level rise and local subsidence. Shoreline reconstructions within Chesapeake Bay, however, are complicated by significant and highly variable sediment deposition during the Colonial, Historic, and Modern periods, which has obscured the original bathymetry. This study explores different methods for measuring and compensating for that sedimentation to model shoreline change across the entire Bay. Results suggest that even the relatively slow sea level rise during the Late Holocene produced shifts in shoreline locations that would have affected estuarine ecosystems and the people who depended on them. Modeling, in this case, is an important starting point, but variability in sedimentation rates requires more localized studies to produce accurate reconstructions to contextualize archaeological studies.

Reedy, Chelsea (University of Oklahoma) and Leland Bement (University of Oklahoma & Oklahoma Archaeological S)  
[122] Tool Production, Subsistence, or Practice: An Investigation of Human Modified Bison Phalanges Present at the Bull Creek and Clary Ranch Sites  

The Clary Ranch site in Southwestern Nebraska and the Bull Creek site in Northwestern Oklahoma are Late-Paleoindian camps that were used for processing the meat and bones from bison hunts. This is an experimental archaeological investigation involving Clary Ranch and Bull Creek, both of which contain evidence of spiral fracturing on bison phalanges resulting from the butchering and preparation process. This archaeological experiment investigates possible motives Paleoindian hunters would have for breaking the small, dense, and low-yield marrow bison phalanges at these two sites. The hypothesized reasoning behind this anomalous butchering practice is threefold; perhaps the use of the broken phalanges for bone tool production, a possible addition to the Paleoindian subsistence strategy, or the practicing of spiral fractures for the later butchering of higher yield areas. The results are consistent with the idea of marrow extraction over spiral fracture practice and bone tool production.

Reedy, Chandra (University of Delaware)  
[284] Incorporating Image Analysis into Ceramic Thin-section Petrography  

In 2002, our laboratory received a grant from NCPTT to research digital image analysis of petrographic thin sections. Two years previously we published our first paper on the application of image analysis to thin-section studies; the enormous potential of this line of research was apparent, but to fully pursue it would require a period of dedicated time and effort. The NCPTT grant gave us this time, and allowed us to purchase new software packages and upgrade our computer and microscope digital camera capabilities. That original grant resulted in a document comparing two comprehensive commercial software packages and one free shareware package, taking each through a series of typical operations important for image analysis of archaeological thin sections. Twelve years later, image analysis is a routine part of thin-section petrography research in our laboratory. We currently focus on ceramic studies, which now incorporate both traditional qualitative thin-section petrography (such as identification of minerals and other aplastics, geological comparisons, and inferring fabrication and production methods) and collection of quantitative data through image analysis. Examples illustrating these new routines will focus mainly on low- and high-fired ceramics (particles, pores, and decorative layers) from a variety of sites in China, especially within Sichuan Province.

Reents-Budet, Dorie (Smithsonian Institution)
Ideology and Power at Copán, Honduras

The ideology of place was central to the structures of power that directed the socio-political trajectories of the myriad polities that comprised the Classic Maya landscape. Nowhere was this more vital than at Copán, Honduras. In their book Forest of Kings, Linda Schele and David Freidel highlighted the ideological underpinnings of Copán's dramatic architecture and sculpture. They defined an interpretive history based on the inter-weaving of archaeological, art historical, and epigraphic data to craft a socio-historical narrative from both an academic and anecdotal perspective.

Reese, Kelsey (Washington State University) and Timothy Kohler (Washington State University)

Agency of Access: Public Architecture in Mesa Verde National Park

There are many architectural features in the Mesa Verde region that have been defined as “community centers,” or rather, specific areas of cultural and social significance. Community centers may contain several public features, including a: Great Kiva, Reservoir, Great House, Plaza, Tower, and others. Although these features are assumed to have served a large surrounding population, the placement of these structures on the landscape can help us understand the ease with which the surrounding population may have accessed these public features—either visually or physically. The production of public architecture suggests forethought into the level of visibility and accessibility to each public feature—and this paper hopes to extrapolate and quantify that thought process by examining the placement of both habitation sites and public features. This paper combines least-cost and viewshed analyses to produce an accessibility metric that represents the ease of travel and participation from habitation sites to contemporaneous public architecture. By running these analyses across the Mesa Verde landscape and through time, changes in accessibility can be observed to suggest how communities may have responded to social, cultural, and environmental changes from A.D. 600-1280.

Reese-Taylor, Kathryn and Julia Guernsey (The University of Texas at Austin)

Situating the Narrative Style and Legacy of A Forest of Kings

In this paper, we situate A Forest of Kings, which combined archaeological and art historical data, within the genre of ethnographic fiction. We consider its waxing and waning throughout time as a popular narrative form and its legacy that continues to this day. A Forest of Kings was conceived and written at a significant moment within the history of ethnographic fiction. While it is strongly grounded in the reflexive and representational practices of the late 1980s and early 90s, A Forest of Kings simultaneously presents an interesting departure. One that, we believe, was “before its time” in its effort to present archaeological data and also people the past with individual actors and agendas through “story-telling.” This style of writing and its goals of imaginatively populating long abandoned archaeological sites provided a vehicle through which innovative ideas concerning performance and the built environment were presented that have been pursued and criticized by many scholars in the field since then. The goals of this paper, therefore, are both to provide a long overdue historical context for A Forest of Kings, as well as to assess its influence within the field of Maya studies.

Reetz, Elizabeth, Cynthia L. Peterson (University of Iowa Office of the State Archaeologist) and Melody Pope (University of Iowa Office of the State Archaeologist)

Bridging the Professional-Public Divide through Flood Recovery Compliance Archaeology at the University of Iowa

Recent federally-funded flood relief compliance projects on the University of Iowa campus provided the University of Iowa Office of the State Archaeologist with an opportunity to involve various publics in our work. It also provided us with an opportunity to reflect critically on how we represent our work and archaeology more broadly to the public and how our work is presented to even wider publics by the media. We first present an overview of the various approaches we took to engage the public in...
learning about on-going compliance archaeology resulting from a major flood that impacted the university and city through active learning, lectures, discussion forums, and media interaction. We then offer some critical reflections on the successes, failures, challenges, and responsibilities of representing archaeology and the past to various publics in what are often politically-contentious settings.

Reetz, Elizabeth [98] see Alex, Lynn

Reeves, Daniel [143]

Signs of Authority? Symbolic Media and Items of Personal Adornment from Cache Cave

Along with a remarkable utilitarian perishable assemblage, a number of objects recovered from Cache Cave can be considered from ideological or symbolic perspectives. These include a number of ornamental and personal items that clearly indicate something other than the storage of everyday objects within the cave. This assemblage contains a variety of beads, a coyote femur tube, an exquisite chert knife, and several other enigmatic objects made of animal bone, skin, wood, and shell, including the rarest of items known of in South-Central California: a decorated bald eagle beak pendant. While some of these items may have functioned in everyday roles, the presence of rare artifact types presents the opportunity to explore dynamics of status or authority that may have been conveyed through the possession and/or display of such items. This paper describes these objects along with their contexts and considers competing explanations for their usage as well as for their caching at Cache Cave.

Reeves, Daniel [143] see Brown, Gloria

Reeves Flores, Jodi [123] see Rivers Cofield, Sara

Reeves Flores, Jodi (Center for Digital Antiquity, Arizona State University) and M. Scott Thompson (Center for Digital Antiquity)

Managing 'A Mountain' of Rock Art Digital Data

Currently, rock art research generates large amounts of digital data, both un-structured and structured. This paper discusses the significant role that digital data management systems and repositories such as the Digital Archaeological Record (tDAR) can play in the examination, management, and long-term curation of these data. tDAR is a dynamic digital platform that allows archaeologists to conduct research with and manage their data. The paper describes how rock art researchers can use tDAR to study, organize, and share vast amounts of unstructured data; such as images, reports, and field notes; and large structured data sets. It also presents a case study from the American Southwest as well as other examples from current collections in tDAR to illustrate tDAR’s utility in managing rock art data. The case study focuses on legacy rock art data from A Mountain (Tempe or Hayden Butte) in Tempe, Arizona.

Reff, Daniel (Comparative Studies, Ohio State University)

Warfare, Invasion, and Ethnogenesis during the Protohistoric Period in Sonora

When examined separately, the archaeological record and early Spanish accounts of Sonora are seemingly insufficient or ambiguous with respect to culture continuity and change. However, critical juxtaposition of the two “data sets” suggests that the late prehistoric period in Sonora was a time when competing chiefdoms or “statelets” embraced slavery and territorial expansion, contributing to processes of ethnogenesis that have confounded previous interpretations of the archaeological and historical records.

Regnier, Amanda [173] see Hammerstedt, Scott

Rehren, Thilo [89] see Amicone, Silvia
Rehren, Thilo (UCL Qatar), Maninder Gill (UCL Qatar) and Ian Freestone (UCL Institute of Archaeology)

[Cultural transmissions and indigenous influences: Glazed tiles from Mughal India]

The use of glazed tiles for architectural embellishment in the Islamic world was widely patronized by the Timurids in Central Asia in the fourteenth and fifteenth century, influencing in times to come the decorative traditions of neighboring lands. In northern India, glazed tiles began to be used in substantial numbers by the Mughals on their buildings in the sixteenth and seventeenth century, in the province of Punjab near the north-west border, and further inland at Delhi. Samples representative of tile-work on buildings in these two regions were subject to laboratory investigations using electron microscopy. The tiles from the Punjab region are similar in character and composition to tile-work from nearby Central Asia, their manufacture thus seemingly in the hands of itinerant craftspeople. In contrast, tiles from Delhi were found to be technological hybrids, exhibiting an interesting amalgamation of imported and indigenous technologies, in the bodies and glaze layers respectively. Our findings provide firm evidence of the incorporation of traditional Indian glass technologies in the manufacture of a product of essentially foreign Central Asian character. Overall, the paper aims to present the efficacy of archaeometric investigations in studying such cultural interactions, through an assessment of technologies manifest in the archaeological record.

Reich, David [396] see Krause, Johannes

Reichardt, Stephen (Arizona State University)


The six year Chavez Pass Archaeological Project (Arizona State University - Chavez Pass Project 1976-1982) consisted of survey and excavation at the large Puebloan site of Nuvakwewtaqa. The burial assemblages that resulted from this project were recently reanalyzed in cooperation with the Coconino National Forest, as part of ASU's Forest Service sponsored NAGPRA Documentation project. The initial project recorded and documented all features identified across the site. However, a comprehensive site map tied to a non-arbitrary coordinate system was not generated. Archaeological relationships within and between features at Chavez Pass are complex and as such, necessitated a visual mode of spatial data interaction. Recent improvements in mapping technology including Geographic Information Systems (GIS) greatly facilitated georeferencing the digitized site maps. Once georeferenced and projected (Arizona NA.D.83 UTM Zone 12), the non-arbitrary site coordinates were applied across all subsequent feature maps. These new georeferenced data layers served as foundations to build a comprehensive geodatabase and map of the Chavez Pass site that will provide researchers, and students with a visual mode of spatial data interaction.

Reid, David (University of Illinois at Chicago)

[Rock Art and Prehistoric Roads: The Connection in Southern Peru]

The site Toro Muerto, located in the Majes Valley of southern Peru, constitutes one of the largest and better studied rock art sites in South America. Approaching Toro Muerto through a 'landscapes perspective,' we can situate the site within a changing ideological, socio-economic, and political landscape beginning in the Middle Horizon (A.D. 600-1000) to the 18th century Colonial-period. This paper goes beyond the typical site-level analysis to place Toro Muerto at the center of a southern Andean rock art tradition that extended beyond the Majes Valley. Utilizing geographic information systems (GIS), a least-cost path analysis was conducted between Toro Muerto and other known Middle Horizon sites of southern Peru. Remote sensing and archaeological survey of the modeled path show that Toro Muerto was a major node on a road and caravan system that linked other prehistoric settlements and rock art sites. Petroglyphs depicting camelid caravans, the presence of stone cairns or apachetas, fresh water wells, and geoglyphs at Toro Muerto also require us to reexamine previous interpretations of rock art sites in the southern Andes.
Reid, Kenneth (Idaho State Historical Society) and Ethan Morton (Idaho State Historical Society)
[300]  *Idaho’s Radiocarbon Record and the Challenges of Chronometric Hygiene*

Idaho’s position as a hub adjoining several culture areas gives its radiocarbon chronology more than local interest. The record of late Pleistocene and Holocene radiometric dates extends back more than fifty years and includes at least 800 known or reported assays, not all of which are on file at the Archaeological Survey of Idaho. As of mid-2014 more than 650 dates were available from 184 sites distributed across all ten of the Level 3 ecoregions intercepted by the state’s border. Not surprisingly, here as elsewhere, issues of chronometric hygiene haunt interpretation and contribute to debates and uncertainties concerning initial colonization, the emergence of the storage-anchored “winter village pattern,” the arrival of bow-and-arrow technology, the appearance and spread of pottery, and, more generally, the accurate establishment of occupation timing throughout the state. This paper reviews the sample, and offers a preliminary scoring system combining sample type, measurement method, and the age and precision of the measurement to gauge the relevance of the dates to events of interest in Idaho prehistory.

Reid, Connie (Connie Reid)
[308]  *Discussant*

Reider, Kevin [30] see Hoffman, Brian

Reilly, Kent [182] see Stauffer, John

Reilly, Frank (Texas State University) and David Freidel (Washington University St. Louis)
[306]  *Middle Formative Origins of the Early Classic Period Stela Cult*

Stela are standing stones, incised or carved with iconographic or hieroglyphic information. Stelae vary in size from the portable to monumental stones. Some of the earliest examples of stelae were erected at the Middle Formative period site of La Venta. Undoubtedly, these La Venta stela, like their Maya counterparts, are linked to concepts of rulership and sacred cycles of time. A close iconographic analysis supports an interpretation that finds the origin of these early stela firmly rooted in the caches of polished green stone celts and or figurines and statues that carry incised symbols and motifs as secondary information.

Reindel, Markus [31] see Isla, Johny

Reindel, Markus (German Archaeological Institute, Bonn, Germany)
[100]  *Overview: MayaArch3D - A Web-based 3D-GIS for the Analysis of the Archaeology of Copan, Honduras*

The documentation and analysis of complex archaeological sites constitutes a challenge for modern research. Large amounts of data have to be stored and accessed, normally by different research teams, based on places all over the world. Funded by the German Ministry for Education and Research (BMBF), and in cooperation with partners from Germany, Italy, USA and Honduras, the MayaArch3D project is using data from the Maya site Copan, Honduras, to develop a state-of-the-art, open source, online system for the documentation and analysis of complex archaeological sites. The data, different in kind and resolution, include text and numerical information, raster data, vector data, 2.5D surface models, and 3D models of objects, architecture and landscape. The system combines the database functions with the analytical functions of Geographical Information Systems (GIS) into one single platform. On the back-end of our system, a Filemaker Pro database contains the archaeological attributes for each digital object and two PostGreSql databases that hold the geometries for 3D objects and 2D shapefiles. On the front end, the public sees a 2D geobrowser, a 3D geobrowser, and a Single Object Viewer. A user management system offers different security levels, with both a public and password log-in.
[100]  *Chair*
Reinhard, Karl (University of Nebraska - Lincoln) and Isabel Teixeira-Santos (Escola Nacional de Saúde Pública, FIOCRUZ)

[127] Dietary Reconstruction Based on Coprolites from Antelope Cave

Results of 20 Antelope Cave coprolites show both consistencies and inconsistencies with other Ancestral Pueblo coprolite analyses. Most of the human coprolites appear to be late summer and early fall depositions. Four principal plant foods were ground to a fine flour: maize kernels, dropseed caryopses, sunflower achenes, and cheno-am seeds. Maize and dropseed were found in six coprolites each and they did not co-occur. Microscopically, maize starch occurred in seven coprolites. Thus, maize was slightly more important than dropseed. Sunflower occurred in four coprolites and dominated three of these. Ground sunflower flour, in our experience, is unique to Antelope Cave. Flour was also made of cheno-am seeds and was found in three coprolites but dominant in only one. Following maize and wild grass, prickly pear pads were an important food source. Four coprolites included macroscopic remains of prickly pear while eleven contain microscopic remains. Prickly pear tended to co-occur with other foods. Therefore, prickly pear was an important stand-alone food and also supplemented other foods. Nutritionally, there was a high reliance on fiber-rich plant foods with low glycemic indices. The relevance of this diet to the development of NIDDM in descendent populations will be presented.

Reinhard, Karl [127] see Araujo, Adauto

Reinhard, Andrew (American Numismatic Society) and Shawn Graham (Carleton University)

[235] Playing Pedagogy: Videogaming as Site and Vehicle for Digital Public Archaeology

While there is an extensive literature on the pedagogical uses of video games in STEM education, and a comparatively smaller literature for languages, literature, and history, there is a serious dearth of scholarship surrounding videogames in their role as vectors for public archaeology. Moreover, video games work as ‘digital public archaeology’ in the ways their imagined pasts within the games deal with monuments, monumentality, and their own ‘lore’. In this presentation, we play the past to illustrate twin poles of ‘public’ archaeology, as both worlds in which archaeology is constructed and worlds wherein archaeological knowledge may be communicated.

Reinhardt, Eduard [112] see Brown, Alyson

Reinhart, Katrinka (Stanford University)


Elite ritual has been a primary focus in Chinese archaeology. Well known studies of the oracle bones from Anyang and bronze ritual vessels have shed light on elite ritual practices but have also generated a bias linking ritual with elites. Indeed there is strong evidence of elite ritual activity in palace temples of the early Bronze Age site of Yanshi Shangcheng (the Shang city at Yanshi), located in the Central Plain area of northern China. However, there is also evidence of similar rituals in domestic contexts of an artisan's neighborhood. This calls into question the idea that elites monopolized access to ritual power. In this paper, I will compare these two contexts, explore the relationship between ritual and power, and raise questions about ritual, social status, and agency.

Reinhold, Alexander [385] see Chaterji, Katia

Reinicke, Kris (Centro de Estudios Avanzados de Puerto Rico y el Caribe)

[118] GIS Illuminates Site Formation Processes: Archaeology of the Fortín de la Perla

This is the first archaeological investigation into a 17th century Spanish fortification whose remnants lie within a dynamic urban slum setting in La Perla, San Juan, Puerto Rico. The Fortín de la Perla does not enjoy protection by any government or cultural agency and its condition has substantially deteriorated due to natural and cultural processes. During the first quarter of the 20th century, parts
of the Fortín’s structure and immediate surroundings were settled by poor workers and country folk from all over the island. These first La Perla community members reincorporated what remained of the dilapidated structure as a foundation for dwellings and reutilized building materials. This process is evident in aerial photographs starting in the 1930s. By digitizing and georeferencing historical maps, Spanish Military Engineering plans, and aerial photographs, we are able to distinguish the cultural site formations processes. Armed with this information, we can enter into the discussion of what should be done with the Fortín as it stands today.

Reitz, Elizabeth (University of Georgia)

[178] The Transect Survey at 30-Something
In 1977, an American Museum of Natural History team lead by David Hurst Thomas began an ambitious survey of St. Catharines Island, Georgia. The intent was to systematically survey 10% of the island following a series of transect lines using a research design from plant ecology. The survey collected hundreds of small vertebrate samples, none of which met zooarchaeological standards for adequate sample sizes and analysis. These hundreds of small samples, however, proved invaluable because they were used to develop hypotheses about change and stability in animal use that have guided all subsequent zooarchaeological studies of both prehispanic and Hispanic sites on St. Catharines Island and elsewhere in the Georgia Bight. These systematically recovered survey data provided a broad perspective of people’s lives on the island, snapshots of how they used each habitat available to them from the very earliest known sites through the Mission period. Many of the hypotheses developed from the transect survey samples have been supported by larger samples recovered by subsequent work, others need revision, and new hypotheses have emerged. Starting a long-term zooarchaeological study with a survey program, even with very small samples, is more than worth the effort when long-term research is anticipated.

Reitze, William (University of Arizona)

[148] Folsom on the Edge of the Plains: Occupation of the Estancia Basin, Central New Mexico
At the end of the Pleistocene, during Folsom occupation, the Estancia Basin contained the easternmost pluvial lake in the American Southwest. The basin has a long history of archaeological research and the story of changing lake levels has played an important part in understand the Paleoindian occupation of the New World. Within the basin, geocultural assessment at the Martin site can be used as a baseline for understanding environmental change during the late Pleistocene. The large well documented Martin and Lucy Folsom artifact assemblages provide a window into lithic technological organization. Combining these data within a broader basin-wide analysis provides a glimpse at Folsom occupation and land use between the well-studied Southern High Plains and the Middle Rio Grande. By combining the stories of environmental change, fluctuating lake levels, lithic variability, and human mobility a better picture of life at the Pleistocene/Holocene transition emerges.

[364] Chair

Reitze, William [364] see Erickson, Katrina

Remondino, Fabio (Bruno Kessler Foundation (FBK)) and Belen Jiménez Fenández-Palacios (Bruno Kessler Foundation (FBK))

[100] Virtual Copan - From 3D Data Collection to Analysis Inside a Web Visualization Tool
3D modelling technology is increasingly used for research, preservation, reconstruction, documentation, and communication of cultural assets. Heritage 3D models, accessible on the web, are the most powerful solution to disseminate culture and, at the same time, a great source for tourism, research, and education. While the use of 3D technologies in CH have been around for many years there are still some blocking factors that slow down a wider approach. On the technological side we still lack robust and easy to use technologies that allow the practical use of complex 3D models. On the other hand, the authoring tools for developing 3D applications are mostly borrowed from the entertainment industry and oriented to the creation of dedicated applications. The creation and management of 3D applications oriented to remotely study, visualize, analyze, query, and interact with 3D digital copies of heritage is still partly missing. This presentation
presents on the reality-based, multi-resolution and multi-source 3D documentation and digital reconstruction of architectures at the ancient Maya kingdom of Copan, Honduras. We discuss our strategies for 3D surveying and modeling as well as optimization of the 3D models for use in 3DWebGIS.

Ren, Minghua [294] see Smith, Eugene

Renard, Delphine (McGill University), Anne Zangerle (Université de Montpellier, Center d’Ecologie Fonct) and Doyle McKey (Institut Universitaire de France & Université de M)

[350] Ecological Legacies of Precolumbian Raised Fields and Their Implications for Agroecosystems Today

Some South American lowland environments bear impressive legacies of precolumbian agriculture: vestiges of raised fields that have persisted since their abandonment centuries or millennia ago. In an interdisciplinary approach, we aim at understanding how the construction and use of raised fields in the past influence the functioning of these ecosystems today. In a raised-field landscape in a seasonally flooded coastal savanna of French Guiana, we characterized the distribution of soil macroinvertebrates (ants, termites, earthworms) and plant roots within the landscape and quantified their influence on soil physical properties. Our results showed that landscape modification by precolumbian farmers has long-lasting effects on the distribution of soil organisms in this wetland. Since their abandonment, and perhaps before, raised fields have attracted a diverse and abundant community of soil engineers that enhance the stability of mound soils, allowing their maintenance against erosion. We compare similarities and differences in the ecological functioning of ancient raised fields in this study site with those in the Beni savannas of Bolivia, where raised fields have a different history and show very different spatial organization in the landscape. Finally, we examine the applications of our results in the framework of ecological engineering to conceptualize new durable agroecosystems.

Rendell, Luke [33] see Morgan, Thomas

Rennaker, Patrick (Portland State University) and Virginia Butler (Portland State University)

[168] Conservation Biology and Archaeology: Using faunal remains of Pacific cod from the Tse-whit-zen village

In 2010, the Salish Sea stock of Pacific cod (Gadus macrocephalus) was listed as a species of concern, which resulted from declining commercial and recreational catches that have not increased despite harvest reductions. Fishery managers typically use historical data from the past 40 to 50 years to create baselines to manage reduced fisheries; archaeological data can extend these baselines much further back in time. The Tse-whit-zen village site, located on the southern shore of the Strait of Juan de Fuca in Port Angeles, WA, provides a ~ 2000 yr history of indigenous fisheries for one part of the Salish Sea and thus presents a unique opportunity to study Pacific cod history in the area. Through measurements of skeletal elements and faunal frequency estimates it is possible to reconstruct data that fisheries biologists collect, such as length, age, fecundity, and relative abundance compared to other species. This would extend the data available to fisheries biologists back 2000 years, and, along with site-scale and other regional paleoenvironmental records, enable us to study ways Pacific cod are affected by climate change and other processes.

Renteria, Rebecca (University of Arizona Tree-Ring Lab), Ronald Towner (University of Arizona Tree-Ring Lab), Anastasia Steffen (Valles Caldera National Preserve) and Galen McCloskey (University of Arizona Tree-Ring Lab)

[128] Dendroarchaeology of the Otero Cabin, Valles Caldera National Preserve, New Mexico

The Valles Caldera National Preserve (VCNP) in northern New Mexico has been the site of many culture group activities from prehistoric to present times due to its exceptionally resource-rich environment. During the early 20th century, profit-driven ventures left the landscape that we see today. A few families during this period were critical participants in the development of the VCNP
environment. The earliest of these families was the Oteros who used land in the VCNP primarily for grazing horses, cattle, and sheep. As part of this land use, the Oteros built cabins to serve as housing for family and workers, corrals, and other outbuildings. One such structure, the Otero Cabin, is said to have been constructed in 1908, and based on historical records, is one of the oldest Euroamerican structures in the VCNP. Dendroarchaeological samples from the Otero Cabin were collected during our 2014 field season and the results are presented here. These data and resulting interpretations will provide the VCNP staff with the most recent and accurate data to be presented through interpretative tours while also informing the public about dendroarchaeological methods.

Renteria, Rebecca [354] see Towner, Ronald

Reuther, Josh [360] see Holmes, Charles

Reveles, Javier [189] see Ramirez-Urrea De Swartz, Susana

Reyes, Omar [2] see Méndez, César

Rhode, David (Desert Research Institute)
[341]  Plant Resources in Great Basin High Altitude Foraging
Prehistoric high altitude occupation sites in the White Mountains and Toquima Range contain archaeobotanical assemblages that inform on the use of plant resources both alpine in origin and imported from lower altitudes. Plant assemblages from the two areas show many similarities in the range of plant resources represented, as well as evident differences that reflect variable modes of high altitude living across the Great Basin. This presentation compares the plant materials from the White Mountains and Toquima Range and considers how plant resources fit into high-altitude foraging patterns.

Rhodes, Sara (Eberhard-Karls-Universitat Tubingen), Antonio López-Jiménez (Departmento de Zoologia y AntropologiaFisica, Univ), Mariano López-Martinez (Murcia, Spain), Maria Haber-Uriarte (Departmento de Zoologia y AntropologiaFisica, Univ) and Michael J. Walker (Departmento de Zoologia y AntropologiaFisica, Univ)
Cueva Negra, an upland rockshelter in southeastern Spain, has revealed a delineated ash feature containing burnt macrofauna and chert within Early Pleistocene deposits (>0.78 Ma). This paper details a novel methodology utilizing heat-altered micromammal remains to identify opportunistic fire-use by the inhabitants of this site. We hypothesize that micromammal bones deposited in the by non-human predators were unintentionally modified by anthropogenic fire, and may be used as proxy evidence of human behavior in the past. Taphonomic analysis of 2290 rodent remains identified discoloration indicating exposure to temperatures exceeding those common in natural fires (>600°C). SEM – EDS confirms this modification is not due to post-depositional mineral staining. Charred/calced micromammal remains constitute 32% of specimens within the ash feature, or 97% of all heavily burnt bone examined. This is a statistically significant pattern in the distribution of burnt bone (x² – 169.7, p < 0.001). Digestive corrosion and skeletal representation suggest the assemblage was deposited by non-human predators. As such, the thermal alteration of these remains represents unintentional anthropogenic modification. This represents another type of taphonomic bias rarely considered in small mammal studies, as well as a novel line of evidence in identifying hominin pyrotechnological capabilities at early Pleistocene sites.

[397]  Chair

Rice, Prudence [158] see Duncan, William

Rice, Glen (Rio Salado Archaeology)
The Interaction of Hohokam Ideology and Religious Beliefs in the Hohokam Practice of Dual Cemeteries

From A.D. 900 to 1400 Hohokam populations frequently used both corporate and household cemeteries within the same village. The practice became more visible following A.D. 1200, when burial was by inhumation in household cemeteries and by cremation in corporate cemeteries. The choice of cemeteries gave households flexibility in dealing with the tension between Hohokam sociopolitical ideology and religious beliefs. Burial in the privacy of household cemeteries served their egalitarian ideology while burial in public corporate cemeteries served their religious beliefs. Faced with a death, households chose the strategy best suited at that moment for maintaining or advancing their social standing.

Ixlú: A Postclassic Entrepôt on Lake Petén Itzá

Ixlú, occupied from pre-Mamom times through the late seventeenth century, is a relatively small site on the isthmus between Lakes Petén Itzá and Salpetén. This siting conferred a strategic advantage for monitoring movements of goods and people. Just southwest of Ixlú, pairs of raised jetties or wharfs modified the lower courses of the Ríos Ixlú and Ixpop and extended into the eastern end of the main body of Lake Petén Itzá. These large, wide channels likely served as port facilities and could handle canoe traffic of different drafts; Itza canoes could hold up to 40 persons. We propose that in the Postclassic through Colonial periods Ixlú was an entrepôt: an intermediate transshipment point in long-distance trade. Ixlú and its facilities were controlled by the powerful Itzas, but at some point their eastern enemies, the Kowojs, allied with the Chak’an Itza faction to the west, challenged that control. With a substantial settlement at nearby Zacpetén, the Kowojs built a characteristic temple assemblage at Ixlú and established settlements on the northeastern shore of Lake Petén. The Ixlú port facilities were contested in the conflicts between the Kowojs/Chak’an Itzas and the Petén Itzas over Spanish demands for submission.

From A Forest of Kings to the Forests of Petén: The Mirador Group at El Perú-Waka’

More than 10 years of research at El Perú-Waka’, carried out under the co-direction of David Freidel and several Guatemalan collaborators, has resulted in a wealth of information about this ancient city and the role its rulers and residents played in the Classic Maya world. Enhanced through his work with Linda Schele, Freidel’s persistent focus on the interplay between ancient history and archaeology—on stelae, buildings, and people—has shaped research at Waka’, located in Guatemala’s Laguna del Tigre National Park. The Mirador Group, one of the site’s principal civic-ceremonial settings, was an initial focus for the El Perú-Waka’ Regional Archaeological Project. While the Mirador Group’s stelae are either blank or largely eroded, archaeological investigation of the monumental architecture has shed light on topics explored in A Forest of Kings, including the role of Teotihuacan, Tikal, and Calakmul in Classic period interactions. This paper will explore Waka’s involvement in these relationships, particularly as evidenced by the Mirador Group’s royal interments and the narrative figurine scene depicting an elaborate courtly ritual.

What’s an (Archaeological) Peasant? Notes on Rural Subjectivities in Atlantic Africa

This paper explores rural communities’ historical relationships to state authority in the Siin province (Senegal). I engage with classic literature to examine how the concept of ‘peasant’ might be relevant to archaeological realities in Senegal’s countryside during the Atlantic era, and how it might helpful to think about political identity among social actors chronically understudied (and under-documented) in the African past. I am interested in the term as one way to conceptualize the relations tying rural people with the various formation of power – pre-colonial, colonial and postcolonial – that governed
the Siin over the past 300 years. I lend special attention to the material worlds that peasants made and that mediated their experiences of centralized government. The landscapes fashioned over the centuries by collective labor and organization provide both a record of political relations in the past and a medium for their construction and negotiation. Specifically, I argue that peasant landscapes were a key vector of subjectification, through which people constructed themselves as members of communities of political feeling and crafted their relationship to the state. Historically, peasant landscapes appear to have worked less as avenues of subjugation than as conflicted spaces that frequently collided with state rule.

Richard, François [398] see Pacyga, Johanna

Richards, Michael [80] see Grier, Colin

Richards, Julian (University of York Archaeology Data Service)
[221] Encouraging Open Methods via Data Repositories
In order to make our research results reproducible we must first of all make our research data available, so that others can re-use them, and test our results. In turn this requires long term digital data preservation and open access to data. Data sets must also be citable via permanent digital identifiers. This paper will discuss the experience of the UK’s Archaeology Data Service in making data available for re-use, and our evidence for such re-use. It will highlight, in particular, the use of Digital Object Identifiers to reference specific data sets, and data items, but also the reluctance of researchers to properly cite the digital data resources which underpin their research.

[297] Discussant

Richards, John (University of Wisconsin - Milwaukee) and Catherine Jones
[301] Using PXRF Technology to Aid in the Recovery and Analysis of Human Remains
Excavation and analysis of human remains from the Milwaukee County Institution Grounds Poor Farm Cemetery (MCIG) provided an opportunity to test the effectiveness of portable X-ray fluorescence (pXRF) as both a field and laboratory tool. During the fieldwork portion of the project, excavations exposed soils that visual inspection suggested might harbor a concentration of toxic materials. PXRF was used on site to determine the nature of the potential toxins and determine the risk factor associated with continued excavation. Subsequent laboratory analysis used the pXRF analyzer in two separate instances. First, elemental composition of excavated soil samples was identified to determine background levels of soil constituents that might produce diagenetic changes in human skeletal remains. Second, the MCIG excavations recovered 77 instances of commingled human remains representing multiple individuals. This paper reports the results of a pilot study to use pXRF as an aid in identifying commingled bones from MCIG interments as belonging to specific individuals.

Richards, Nicholas (University of Wisconsin-Milwaukee)
[301] MCIG according to MCIG: historic document research
The Milwaukee County Institutional Grounds Cemetery in Wauwatosa, WI, operated under the administration of the Milwaukee County Institutions, which prepared official reports for submission to the Milwaukee County Board of Supervisors. These primary documents survive in varying degrees of completeness at repositories across Milwaukee and include evidence of the mortuary activities of County institutions that may have buried individuals under institutional care at the MCIG cemetery. Submitted annually by law, the reports offer an ‘official’ picture of institutional operations and the population therein to compare with the archaeological understanding of the cemetery. Statistical and prose reports evidence the institutional process by which the cemetery was created. Intake and outtake statistics record age, nationality, occupation, and religious affiliation, drawing a demographic portrait of aid-seekers at various institutions over time. Tallies of coffins built, burials conducted, County-related post-mortems, Hospital and Home for Dependent Children deaths, and fulfillment of the religious needs of those served by the County can be accounted for in the County’s official
documents. Taken together, these documents give a contemporary picture to compare with the archaeological evidence.

Richards, Patricia (University of Wisconsin-Milwaukee)  
[301]  Here Lies.... You Know, Weaver, I've Forgotten Who We Just Buried: The Milwaukee County Poor Farm Cemetery Project

The Milwaukee County Poor Farm Cemetery Project was initiated in 2008 and is a collaborative effort of the UW-Milwaukee Archaeological Research Laboratory, UW-Milwaukee Anthropology Department graduate students, UW-Milwaukee Undergraduate Research Opportunity Students, and the staff of Historic Resource Management Services (now UWM-CRM). In 2008 UWM Archaeological Research Laboratory applied for and was granted by the Wisconsin Historical Society final disposition of all human remains, personal artifacts, burial hardware, field notes and field images associated with 1991 and 1992 excavations of human remains at the Milwaukee County Institutions Grounds-Froedtert Tract (site # 47 MI 527). In 2013, Historic Resource Management Services of the University of Wisconsin-Milwaukee recovered an additional 640 individual coffin burials representing over 700 individuals from the Milwaukee County Institution Grounds (Froedtert Tract) Poor Farm Cemetery. This paper provides a summary of the overall progress of the project as well as the preliminary results of analyses of human remains and material culture recovered as a result of the 2013 excavations.

Chair

Richardson, Karimah [27] see Villarreal, Margarita

Richardson, Lorna-Jane (UCL Center for Digital Humanities)  
[235]  Public Archaeology in a Digital Age: An Overview of My Research

This paper examines the impact of the democratic promises of Internet communication technologies, and social and participatory media on the practice of public archaeology in the UK. This work is based on my doctoral research undertaken from 2010-2014 and addresses the following issues: the provision of authoritative archaeological information online; barriers to participation; policy and organizational approaches to evaluating success and archiving; community formation and activism, and the impact of digital inequalities and literacies. This research was the first overarching study into the use of participatory media in archaeology. It is an important exploration of where and how the profession is creating and managing digital platforms, and the expanding opportunities for networking and sharing information within the discipline, against a backdrop of rapid advancement in the use of Internet technologies within society. It demonstrates that archaeologists do not yet fully understand the complexities of Internet use and issues of digital literacy, the impact of audience demographics or disposition towards participation in online projects. While recognition of democratic participation is not, on the whole, undertaken through a process of actively acknowledging responses to archaeological information, there remains potential for participatory media to support and accommodate these ideals.

Discussant

Richardson, Leesha (University of South Africa)  
[294]  Environmental Implications of Marine Bird Remains in the Late Holocene of Pinnacle Point

Marine bird remains are common in late Holocene coastal sites in South Africa. The Pinnacle Point Shell Midden Complex (PPSMC) is such a site. Marine bird remains from the PPSMC were studied to better understand their role in the foraging and mobility patterns of late Holocene stone age people on the Mossel Bay coast. The PPSMC has four separate excavation areas and marine bird remains are present and were studied in each. Microscopic analyses for signs of surface modification proved to be difficult as root damage was extensive. However some signs of cutting and tool manufacture were found. Research of modern bird wash-ups by Avery have shown that certain marine bird species are more commonly found washed out along the South African coast during
ABSTRACTS OF THE SAA 80TH ANNUAL MEETING

Richards-Rissetto, Heather (University of Nebraska-Lincoln)
[100] A 3D Landscape Analysis of Stelae Visibility at Copan, Honduras

From the early 5th to early 9th centuries, a dynasty of sixteen kings ruled at the ancient Maya site of Copan, Honduras. In the mid-7th century, Chan Imix K’awiil, or Ruler 12, is believed to be the first of Copan’s rulers to erect stelae outside the city’s main civic-ceremonial group. Why did he do this? Did these stelae exist as solar markers? Did they serve as territorial markers? Or, were they part of a communication system? Scholars have set forth these and other hypotheses, to explain the purpose of the valley stelae. In this paper, we use traditional Geographic Information Systems (GIS) and the MayaArch3D WebGIS to perform visibility studies using GNSS GPS data of the stelae and terrain modeled from airborne LiDAR data. We then evaluate our results using additional archaeological and iconographic data in relation to existing hypotheses and explore new potential interpretations for the placement of these stelae in the Copan Valley.

[5] Discussant

[100] Chair

Richards-Rissetto, Heather [289] see King, Justin

Richerson, Peter (UC Davis)
[191] Cultural Evolution in Archaeology

Models of cultural evolution aim at a process level understanding of cultural change and gene-culture coevolution. The micro level foundations of these models can be tested in the lab and field on living populations and, in favorable circumstances, with fine-grained archaeological data. Macro scale problems can only be studied by fitting models to historical and archaeological data that can resolve patterns on time scales of a century or more. Progress in two areas in particular is contributing to making this project feasible. First, improvements in dating resolution and increases in the spatial and temporal resolution of the archaeological record are making it possible to generate high quality quantitative databases that resolve the longer time scales. Second, increased computing power and improvements in statistical methods allow us to fit competing evolutionary models directly to this data.

[1] Discussant

Richter, Tobias [210] see Maher, Lisa

Rick, Torben [32] see Erlandson, Jon

Rick, Torben (Smithsonian Institution), Leslie Reeder-Myers (Smithsonian Institution), Kenneth Gobalet (California State University Bakersfield), Nicholas Jew (University of Oregon) and Thomas Wake (University of California Los Angeles)
[105] Small, But Not Insignificant: Human Subsistence, Ecology, and Land Use on Anacapa Island, California

Anacapa Island (2.9 km²) is the second smallest of California’s Channel Islands and has limited freshwater and terrestrial biodiversity. Called ‘Anayapax, a word meaning deception or mirage, by the Chumash, archaeologists have long speculated that the island was occupied seasonally or as a stopover by people based on the mainland or other islands. Here, we focus on our recent archaeological research at CA-ANI-2 and other Anacapa sites. Occupied between about 3130 and 2750 cal BP, CA-ANI-2 contains diverse faunal and artifact assemblages, including the remains of whales, pinnipeds, deer from the mainland, a variety of marine fishes, and unique chipped stone and bone tools. Stable oxygen isotope data suggest that mussels deposited at CA-ANI-2 were harvested during all seasons of the year. When placed in the context of other archaeological sites on Anacapa...
and Santa Barbara islands (2.6 km2), these data suggest that, despite their small size and perceived marginality, both of these islands played an important role in larger Native America interaction spheres and settlement/subsistence systems.

Riebe, Danielle (University of Illinois at Chicago)

Exploiting, Exchanging, and Establishing Boundaries: Lithic Trade during the Neolithic on the Great Hungarian Plain

There has already been extensive analysis of Late Neolithic material culture on the Great Hungarian Plain. Much of that research, however, typically has been restricted to one site as opposed to multiple sites within a region. This paper explores assemblage variation in lithic materials from multiple sites across the Plain. By identifying differences in lithic materials, one can assess the extent to which lithics either reflect or even potentially reinforce social boundaries. In addition, building off of a study assessing ceramic stylistic and compositional variability from this period, this paper addresses how patterns of lithic long-distance trade and exchange relate to short-distance trade and exchange of ceramics in order to discern socio-cultural boundaries in the past.

Riel-Salvatore, Julien [53] see Docchio, Rebecca

Riel-Salvatore, Julien (Université de Montréal), Ingrid Ludeke (University of Colorado Denver) and Fabio Negrino (Università degli Studi di Genova)

Upper Paleolithic Use of Space at Riparo Bombrini (Balzi Rossi, Italy)

We present an analysis of the spatial distribution of various features (hearths, dripline, etc.) and of four broad artifact classes (lithics, fauna, ochre, shell) in the proto-Aurignacian levels of Riparo Bombrini. The site is a collapsed rockshelter in the Balzi Rossi site complex and is interesting in part for having yielded very late Mousterian and very early proto-Aurignacian levels. The site thus offers an ideal setting in which to study behavioral differences between late Neanderthals and early Homo sapiens in this part of the world. Our analysis comprises complementary multiple levels of resolution: visual; density; and unconstrained cluster analyses are performed to tease out 1) whether evidence of spatial segregation of activities is visible; 2) whether these activity areas are recurrent over time; and 3) what may cause this variability. We conclude with a discussion of what the patterns seen at Bombrini mean for our construal of Upper Paleolithic behavioral strategies and of how to best integrate spatial analysis with other lines of evidence to do so.

Rieth, Christina (New York State Museum)

Public Engagement and Compliance Archaeology in a Museum Setting

Public engagement in compliance archaeology is inherent in Section 106 of the National Historic Preservation Act as well as many state historic preservation ordinances. Engagement in publically funded projects allows those who pay for the research to share in the project results but also provide information as stakeholders of the past. Although such regulations provide for public engagement, the process and type of involvement varies by project, geographic area, and archaeological resource. This paper provides an overview of the benefits and challenges of public engagement and the need to diversify engagement strategies to serve the various publics encountered by compliance archaeologists. The importance of including a plan for engagement into scientific research designs is discussed along with the need to consider engagement both during and after the completion of fieldwork. Examples of public engagement from state and federally funded compliance projects in New York are provided.

Chair

Rieth, Timothy [77] see Cochrane, Ethan

Rieth, Timothy (IARII) and Ethan Cochrane (University of Auckland)

The Origins and Distribution of Oceanic Agricultural Techniques Revealed through Comparative Phylogenetic Analysis
Agricultural innovation fueled the development of Oceanic societies. Techniques such as pond-fields and lithic mulching increased yields and made marginal landscapes habitable. Unfortunately, our knowledge of the evolution of techniques, including ancestral states, homologies, and independent inventions has been largely speculative. Here we present a phylogenetic analysis of ethnohistorically and archaeologically documented agricultural techniques across Oceanic societies. The analysis combines linguistic trees as models of population history with agricultural technique data to explain the evolution of techniques across Oceania. Results have implications for explaining prehistoric interaction, variation in social complexity, and the concept of Polynesia as a monophyletic cultural unit.

Rigano, Aryel [85] see Diederichs, Shanna

Riggs, Erin (SUNY Binghamton), Andrew Reagan (GIS Data Resources, Inc.) and Matt Riggs (California State University, San Bernardino)

Through the growth and development of satellite imagery and panoramic street photography championed by Google Earth, a mass archive of accessible imagery has been created documenting intimate material worlds frozen in space and time. Utilizing these newly available forms of public data, our team (built of one historical archaeologist, one GIS technician, and one statistician) conducted a virtual pedestrian survey of 1000 randomly selected home fronts in Oakland, California, implementing a five-facet rating scale to document evidence of resident investment. Personal investment was compared to city investment to test for bias in use of replacement strategies within negatively characterized neighborhoods as opposed to refinement within positively characterized neighborhoods. We argue that through innovative selection of subject material, interdisciplinary collaborations, and the utilization of all available tools, historical archaeology will continue to expand in scope and relevance.

Riggs, Matt [15] see Riggs, Erin

Riggs, Casey (Texas A&M University) and Suzanne Eckert (Arizona State Museum-University of Arizona)
[272] Plants in a Day: A Cost Distance Analysis of Single Day Distance to Floral Resources of the Ancestral Puebloans at Goat Springs Pueblo (LA 285)

The way in which groups interact with their surrounding environment can provide insight into the importance of natural resources for a social group, despite having a large reliance upon cultivation for subsistence. For this study the landscape around Goat Springs Pueblo (LA 285) was analyzed to identify accessible botanical resources for the pueblo’s inhabitants. Current research has indicated that abiotic natural resources were not frequently accessed, therefore site use may have been related to biotic resource availability. Through cost distance analysis in a geographic information system, in tandem with data from the Ecological Site Description System and the Terrestrial Ecological Unit Inventory, a single day foraging area was digitally replicated around the pueblo. Results indicate that Goat Springs Pueblo’s unique location allowed access to elevation-based environmental gradients, both north and south of the pueblo, in addition to grassland and shrubland plant communities that bisect the foraging area. More specifically the cost catchment indicates access to large stands of an ethnographically important winter food staple: piñon pine (Pinus edulis) nuts. Finally, results indicate that ease of access to stands of Douglas fir (Pseudotsuga menziesii), an important construction material, may have further predicated the site’s positioning.

Riley, Jenny (Indiana University) and Kevin Hunt (Indiana University)
[164] Preservation of Faunal Remains from an Underwater Cavern, Padre Nuestro, Dominican Republic

Between 2005 and 2010, Indiana University dive teams performed surface collections at the entrance chamber to Padre Nuestro Cavern, a submerged limestone cavern located in the East National Park in the southeastern peninsula of the Dominican Republic, where they recovered Taino
ceramics, Casimiroid lithics, and many faunal remains including two extinct sloth species (Acrotocnus ye and Parocnus serus), an extinct platyrhine monkey (Antillothris bernensis), and other commingled bones including sloth, bird, bat, fish, rodent, and insectivore. The faunal remains were sent to the Human Origins and Primate Evolution Laboratory at Indiana University for preservation. Water can have a negative impact on the preservation of bone, sometimes causing cracking and flaking. This poster details the preservation process applied to the monkey specimen along with the commingled remains. The specimens were immersed in distilled water for 30 days, changing the water every 10 days, in order to dissolve impurities within the bones. The next stage involved submerging the bones in increasingly concentrated solutions (10%, 20%, and 50%) of polyethylene glycol (PEG) 4000 over a period of 30 days. They were then allowed to dry. Overall, the process proved successful in stopping or slowing down the deterioration of the bone.

Riley, Tim (Prehistoric Museum @ USU Eastern)

Polly Schaafsma was among the first to recognize the many stylistic elements shared between Utah's Barrier Canyon rock art and the Pecos River style along the Lower Pecos Canyonlands in Texas. While the Barrier Canyon murals are markedly simpler in execution, common elements include anthropomorph shape and torso decoration, composed sets of zoomorphs, and the depiction of wild plants. During this initial study, Schaafsma (1971) defined the Barrier Canyon style based on nineteen sites located in the San Rafael Swell and the associated Green River desert. Since that time, many more Barrier Canyon panels have been located in this region of the Colorado Plateau. This paper reevaluates the argument of stylistic similarity between these two styles in light of this broader data set. The recently published optically stimulated luminescence (OSL) dates of the type site in Horse Canyon will also be incorporated into a discussion of the cultural association of the Barrier Canyon style and possible temporal variation within the style.

Rinck, Brandy [10] see Hodges, Charles

Rinck, Brandy (Northwest Archaeological Associates)

Solving geoarchaeological questions in a cultural resources management (CRM) context can be difficult due to time and budget constraints. In the Pacific Northwest, however, recent projects have fortunately allowed for some micromorphological analyses. Paul Goldberg has championed micromorphology as a valuable geoarchaeological method over the past three decades. The micromorphological analysis of shell middens, peat deposits, and alluvial sediment in and around the Seattle, WA area has elevated the resulting cultural resources assessments and data recovery reports. The conclusions drawn from these micromorphological analyses can be applied to both academic research and the private sector. If time and money for geoarchaeological analysis, such as micromorphology, can be built into CRM schedules and budgets, then CRM archaeologists can continue to produce useful and sophisticated scientific reports while conducting business. This presentation provides examples of the successful application of micromorphology to specific geoarchaeological research questions asked in CRM. Examples come from the Paleoindian Bear Creek site in Redmond, the Cattail Lake midden on the Bangor Naval Base, and Foster Island in Lake Washington. This talk also includes special thanks to Paul for teaching me how to collect and process micromorphology samples and for sharing his knowledge and mentoring me along the way.

Rincon Mautner, Carlos

This presentation explores the diachronic significance and variety of ritual uses assigned to caves and cavates by the peoples who lived in what is now southern Puebla and northern Oaxaca, Mexico from the Archaic through the Early Colonial Periods. The existence of distinct ritual complexes for different time periods suggests changing functions and meanings, which are inferred from
archaeological artifacts, parietal pictograms and petroglyphs for different caves, and documentary sources. These cave ritual complexes focused principally on cosmogonic, fertility/generative, propitiatory, mortuary and socio-political foundational themes. Caves also served to introduce Christianity to the native peoples.

Ringberg, Jennifer (California State University - Stanislaus)

[404] Ceramic Petrography and Early Intermediate Period Interaction in the Moche Valley, Peru: Current Understanding and Future Research

Understanding the spatial distribution of pottery styles in combination with pottery composition and raw materials availability can help illuminate networks of interaction among groups at a regional scale. My research focuses on distinct pottery styles of the middle and upper Moche Valley that had wide distribution during the Gallinazo and Early Moche phases. The pottery assemblage from three large, high status households at Cerro León (A.D. 60 to 350, 2 sigma cal.) in the middle Moche Valley demonstrated that imported highland pottery was integral to particular activities, especially feasting, spinning, and certain daily food processing and storage activities. However Cerro León’s relationship to contemporary sites in the valley during this dynamic period remains unexplored. The data presented in this paper represent initial efforts to understand the composition of stylistically similar pottery assemblages from eight sites in the upper middle Moche Valley. Context and contemporaneity must be confirmed, but preliminary results indicate broad technological similarities with possible differences in paste composition that may indicate local variation in manufacture.

Ringelstein, Austin

[27] Turning "Crisis" into Opportunity: Rediscovering and Reconnecting with a Colonial Era California Collection

In the late 19th century museum collectors recovered an abundance of cultural materials from the Channel Islands and dispersed them to national museums. Although they recorded important ethnological observations, their practices were often not in the best interests of native peoples or even academics. Many of the artifacts were stored without provenience information and in many ways disregarded. However, the unique preservation of legacy collections provides an excellent opportunity to recover valuable information without filling more valuable space on repository shelves. Institutions such as the Peabody Museum of Archaeology and Ethnology are supporting research of such collections. Current research on the Schumacher Collection aims to rediscover the material practices of the Tongva people on Catalina Island. Many of the artifacts embody how the Tongva were integrating local and non-local materials as new people were arriving on California shores. Although these artifacts were originally removed from their community, they now offer a fresh chance for archaeologists to help reconnect native peoples with the brilliant traditions of their ancestors.

Ríos, Jorge (Centro INAH Oaxaca) and Juan Carlos Diaz Vazquez (INAH- Zona Arqueologica de Mitla)

[111] Las manifestaciones grafico-ruprestres en las Cuevas Prehistoricas de Yagul y Mitla (WH-UNESCO)

El arte rupestre, dentro de los contextos arqueológicos, es una herramienta capaz de proveernos información privilegiada acerca de fauna, flora y de comportamiento humano, en el caso de las Cuevas Prehistóricas de Yagul y Mitla en los Valles Centrales de Oaxaca, es uno de los atributos por los cuales, además de la evidencia de domesticación temprana de plantas, se ha documentado en una diversidad de motivos que denotan un paso constante humano y su conocimiento del medio que le rodeaba. Las Cuevas Prehistóricas de Yagul y Mitla incluye un área de cinco mil trescientas hectáreas en donde se incluyeron elementos culturales que exaltan los valores científicos, arqueológicos, naturales, estéticos, económicos, sociales e identitarios del área que comparten los municipios de Tlacolula de Matamoros, Villa de Díaz Ordaz y San Pablo Villa de Mitla junto con la agencia municipal de Unión Zapata en el estado de Oaxaca.

Ríos Allier, Jorge Luis [111] see Jimenez Roman, Karina
Precolumbian Monumentalism and Social Structuration: Geospatial Modelling of Relative Accessibility as a Proxy for Emergent Territoriality among the Southern Proto-Jê

How did southern proto-Jê mound and enclosure complexes (MECs) in the eastern La Plata basin structure their social landscapes? MECs possess a broad geographical distribution from the banks of the Rio Paraná to the Atlantic mountains of southern Brazil, as well as a variety of configurations, relative densities, and sizes. Discussions of their functions have emphasized their implications for the perception of social inclusion/exclusion among the groups that constructed them. Archaeological evidence from them has been linked to the emergence of kin-based socio-political hierarchies, based on commensal relations established through feasting practices.

To date, however, the effect and presence of MECs in their broader environmental settings has not been studied through formal and statistically robust spatial analytical techniques. This research employs simulation and modelling in order to enable the analysis of the relative accessibility of MECs, and describe their relationship to their social environment in clearer terms. Ultimately, the goal will be to establish a framework within which competing hypotheses on the interpretation of the material record may be tested. The findings of the simulations are placed within the context of our archaeological understanding of precolumbian complexification and anthropological explorations of territoriality. Correlations with settlement data are also proposed.

Multi-Tiered Proveniencing Analysis of Early Holocene Radiolarite Artifacts from Northern Spain

Radiolarite is a fossil-rich derivative of biogenic chert found in isolated geologic formations across northern Spain. This inconsistent presence on the landscape has often led archaeologists to misidentify it with other siliceous rock types. However, as the proveniencing of lithic raw materials increase in Spain, archaeologists are becoming more aware of radiolarite and its possible unique technological, typological, and social significance in prehistoric cultures.

This paper will present the results of a multi-tiered analytical program that combines the results of macroscopic, petrographic, and geochemical analyses to characterize and compare natural and human altered radiolarite samples from the northern coast of Asturias, Spain. Natural radiolarite source areas were identified, sampled, and analyzed from the montane and coastal region of eastern Asturias. Using the same analytical techniques, these results were compared to radiolarite artifacts originating from the Early Holocene assemblages in the El Mazo rockshelter site located in proximity to the identified source areas.

By establishing the geographic presence and geologic characterization of radiolarite, archaeologists will have new empirical data in which to help define how hunter-gatherer-fisher cultures: 1) organized stone procurement strategies, 2) moved and settled across the landscape, and 3) utilized stone material in a sociocultural context.

Shifting Tides along the North Coast of Quintana Roo: Recent Research at Conil and Vista Alegre

In the northern lowlands, there is strong evidence for a coastal Maya presence since at least the
Middle Preclassic, and scholars have long discussed how inland-coastal connections served as a catalyst for the development of social complexity. The scope and scale, however, of maritime commerce and interaction was closely linked to the ever-changing political and economic landscape. The work of the Proyecto Costa Escondida at the neighboring port sites of Conil and Vista Alegre highlight the shifting nature of coastal-inland relations over millennia. During the Terminal Preclassic and Early Classic periods, both Vista Alegre and Conil appear to have been involved in robust trade with regional inland polities, which may have been facilitated by seasonally navigable interior waterways as well as overland routes. The parallel occupational histories of these sites, however, diverge in the Terminal Classic. The Terminal Classic period at Vista Alegre was characterized by participation in larger peninsular networks of exchange, controlled or influenced by more distant polities, like Chichen Itza. In the Late Postclassic period, while Vista Alegre was largely abandoned, the coast remained a dynamic locale as evidenced by the reoccupation and growth of Conil into a large center at the time of Contact.

[Rittenour, Tammy] see Jones, Hillary

Ritterbush, Lauren and Virginia A. Wulfkuhle (Kansas Historical Society)

[98] The Power of National and State Engagement for Archaeology Education in Kansas

Kansas has played a synergistic role in Project Archaeology for more than a decade. Archaeologists in the state linked with educators as early as 1992, disseminating curriculum materials as part of Kansas Archeology Week. An early focus on shelter played a key role in the development of national Project Archaeology's first Investigating Shelter unit, drawing on a Kansas example. Since then, the Kansas Historical Society has adopted the national themes of shelter, food and culture, and migration to create state-specific units. The relevance of these units to current educational goals (Kansas College and Career Ready Standards/Common Core) makes them flexible and attractive to both educators and students. Today, Project Archaeology is spreading in the state through a variety of partnerships and teacher contacts in workshops, in-service trainings, and university courses, resulting in the adoption of Project Archaeology materials in K-12 districts, classrooms, virtual schools, home schools, and informal educational settings.

Ritz, Crilly [358] see Sparks, Shane

Rivera, Angel (INAH)

[410] Un estudio sobre la iconografía de los huesos grabados de la Mixteca Baja

Los huesos humanos grabados, encontrados como ofrenda en depósitos funerarios, representan un marcador especial del gremio sacerdotal de la sociedad del Oaxaca antiguo. Por un lado, al ser huesos humanos, establecen un lazo con los ancestros del grupo; por otro, la imaginería que muestran permiten establecer el tipo de rituales y oblaciones a los que estaban dedicados. Más aún, estos objetos eran considerados como reliquias y en algunos casos se les ilustra en la imaginería de los códices posclásicos. En este trabajo se analizan unos ejemplares procedentes del sitio clásico de Cerro de las Minas, en Huajuapan y de Tonalá; en ellos es representativa la iconografía ñuiñe y por el contexto de las piezas es posible determinar el rol y papel que sus poseedores tuvieron en la estructura social mixteca.

[111] Discussant

Rivera, Iran (Posgrado en Estudios Mesoamericanos) and Sergey Sedov (Instituto de Geología-UNAM)

[141] Paleosols and Human Activities in the Lakebed Area of the Basin of Mexico during the Middle Holocene

During 2013-2014, archaeological research was undertaken in San Gregorio (Xochimilco) and Tepexpan, Basin of Mexico, to recover evidence for human activity associated to the preceramic period in the lakebed area of Chalco-Xochimilco and Texcoco. One of the specific objectives of this
research is to characterize soil conditions north and south of modern Mexico City during the early agriculture period (6500-4000 BP) by means of paleopedological analysis, and evaluate environmental and anthropogenic processes involved in site formation using micromorphology, pollen, phytoliths, and stable isotope analysis. These data will be correlated with human activities in both sites, the introduction of domesticated plants and the effects of management by human groups on the lacustrine environments before the first villages in the region were established.

Rivera, Mario [333] see Olson, Elizabeth

Rivera Guzmán, Ángel Iván [88] see Helmke, Christophe

Rivera-Claudio, Hector (Para la Naturaleza)
[290] Una experiencia personal en el descubrimiento de la arqueología: mi voz como ciudadano
Un interés personal por la historia me llevó a buscar cómo entender mejor mi presente, aprendiendo sobre los errores y los éxitos de nuestro pasado. La creación de las investigaciones de Ciudadano Científico coordinadas por Para la Naturaleza da oportunidades al público para obtener experiencia en varias áreas de la naturaleza y personalmente me abrió las puertas hacia el mundo de la arqueología. Mi experiencia en la investigación Descubriendo Nuestras Raíces y en proyectos anteriores del programa Ciudadano Científico inspiró a enfocarme en la arqueología como campo de investigación y así poder re-descubrir un pasado poco conocido. Esta perspectiva multidisciplinaria me ha dado la oportunidad para estudiar y presentar mi perspectiva dada por las experiencias personales en otras actividades tales como estudio de cuevas y cavernas, flora y fauna, viéndolo todo no solo como actividades recreativas, sino como una posibilidad de contribuir a la ciencia, uniendo disciplinas que antes yo no relacionaba. Esta experiencia me ha permitido comprender la relación entre la naturaleza y la arqueología. Esta ponencia presenta mi perspectiva sobre el conocimiento adquirido a través de la investigación e interacción con las personas me dieron la inspiración y vías necesarias para aprender y compartir sabiduría.

Rivera-Collazo, Isabel (University of Puerto Rico, Rio Piedras)
[290] Codes of Ethics and Archaeology in Practice: “Communal Archaeology” and Citizen Science towards the Advancement of the Discipline
Adherence to codes of ethics is central to successful and respected practice of archaeology. The SAA’s Code of Ethics includes eight principles that address critical broad issues, including the importance of in-situ long-term conservation and protection of archaeological sites (Principle 1), establishing beneficial working relationships with all parties (Principle 2) and the importance of public outreach (Principle 4). Even though, as members of the SAA, we agree that these principles are the best standard to which we should all aspire, in practice it is not that simple. In this presentation I argue that the practice of community archaeology, from the Latin American perspective of “communal archaeology”, and the opportunity of informal education provided by citizen science, can help us comply with all the Principles. While practicing communal archaeology, the archaeologist as expert can demonstrate ethical behavior to the public without restricting access to the archaeological heritage or the production of knowledge. I propose that this approach can help reduce destruction of sites by shifting public perception of archaeology from a selfish endeavor (go, excavate and disappear) to a communal work for the recovery of lost pieces of history that belong to the community, and they are part of the process.

Riveros Cofield, Sara (Maryland Archaeological Conservation Laboratory) and Jodi Reeves Flores (Center for Digital Antiquity)
The Maryland Archaeological Conservation Laboratory (MAC Lab) and the Regional Archaeological Curation Laboratory (RACF) in Ft. Lee, Virginia are archaeological repositories that meet high professional standards for the care of artifacts and paper records. Unfortunately, neither facility has
of the expert technical staff and specialized infrastructure necessary to qualify as permanent repositories for digital records, despite the exponential rise in site documentation that exists in digital form only. This project is designed to test tDAR as an alternate repository for digital records held by the MAC Lab and RACF on behalf of 25 different military installations in Maryland, D.C., and Virginia. Of paramount importance is determining whether tDAR can strike a balance between accessibility and the stringent security that many DoD installations require in a way that is cost-effective and applicable to many different kinds of installations. The project results are positive, and the procedures developed to address the 25 installations included in this project have therefore been converted into standards and recommendations for the DoD as a whole. Ultimately, the project participants hope to impact DoD policy so that their irreplaceable archaeological data will be protected regardless of its form.

Rizvi, Uzma (Pratt Institute)

Harappan Urbanites: Standardization, Ratios and Subjectivity

Hallmarks of the third millennium B.C.E. Harappan civilization include baked bricks, weights and measures, and water wells, which index centralized control, civic management and urban planning. In this study, I aim to locate the Harappan in a Harappan urban environment. I will consider the ways in which the use of space, design, and architecture may inform the constructions of self. Furthermore, I will interrogate the ancient urban form by considering ratios and standardization as a means to construct an ideal ancient urban subject. The co-production of politics and technology in relation to the construction of self will be of central concern. These urban subjectivities should not be read as passive constructions of the self, rather as active decisions to maintain a cosmopolitan and urban sensibility. Through an investigation of how the self may be constructed, and the ideals linked to that self that are being encouraged by the production of space, questions related to Harappan political structures will be addressed.

Roberts, Charlotte (Durham University)

The Potential and Challenges of Constructing a Bioarchaeology of Care for a Person with Leprosy in the Late Medieval Period

Everybody suffered ill health at some point during their lives in the past. In late medieval England (12th-16th centuries A.D.) historical data suggest the availability of care and treatment of disease, but it is unknown how many, and which, people got access to care. There is also little direct evidence of specific care seen in skeletal remains beyond trepanation, amputation, and dentistry. Using the 'Index of Care' (IoC; Tilley and Cameron 2014), this paper describes bone changes of leprosy in a middle aged man from a late medieval leprosy hospital that functioned in Chichester, Sussex, England. Potential ‘disability’ (life experience) is assessed through applying signs and symptoms to the man, based on the bone changes, and attempting to construct a model of care. Likely and uncertain interpretations of the data are provided, along with the type of care that would have been needed for the 'patient'. It is emphasized that the IoC is a more objective method to use for inferring care, yet every person experiences even the same diseases in different ways and would not necessarily have required the same kind of care. 'One size cannot fit all'; a personalized approach through an osteobiography is recommended.

Robertshaw, Peter (CSU San Bernardino), Laure Dussubieux (Field Museum, Chicago) and Freda Nkirote (National Museums of Kenya)

The Explanation of Ceramic Variation in East African Prehistory: New LA-ICP-MS Results from Gogo Falls, Kenya

Two of Frannie Berdan’s abiding research interests are the concept of ethnic identity and the application of scientific analyses to archaeological problems. These two topics intersect in research on pottery in East Africa. Pioneering work in the 1970s by Simiyu Wandibba led to the recognition of several ceramic ‘wares’ represented among Neolithic and later assemblages from Kenya and northern Tanzania. The occurrence on some sites of more than one ware in the same occupation horizon challenged conventional culture-historic frameworks and prompted a long-lasting debate with
opinions ranging from claims that the initial analyses were flawed and that a traditional culture-historic framework could be constructed to a view that the ceramic variation found in East Africa was unique. While theoretical advances in our understanding of both ethnicity and ceramic variability has led to more mature discussion, there has been little progress in understanding East African ceramic variation, perhaps because no new analytical tools have been used. We report here results of chemical analysis of 94 sherds of three different Neolithic and two different ‘Iron Age’ wares from Gogo Falls in Kenya. The compositional analyses of these ceramics represent a first step in opening new avenues of inquiry.

Robertson, James [280] see Hambacher, Michael

Robertson, Robin (University of Texas, San Antonio) and Debra Walker (University of Florida) [413]  Prospering in Place: Cerro Maya and the Late Preclassic Exchange Networks
Cerro Maya, located on Lowry’s Point at the southern edge of Chetumal Bay in northern Belize, sits at a strategic intersection between riverine and coastal transportation routes used by the Maya from Preclassic times onward. Evidence suggests a major dock facility was the first monumental construction undertaken during the initial Late Preclassic occupation, indicating the site was intentionally founded to mediate access to interior sites on the two principal river drainages in the region for purposes of exchange with coastal traders transporting goods from all over the Maya Lowlands. During the 100-150 years of Late Preclassic occupation, the diversity of the ceramic inventory and comparative richness of the material remains evinces interactions with sites on the Northern Plains of Yucatan, as well as central Peten and the Central Karstic Uplands. Cerro Maya flourished during this era, developing from a small village of perishable structures next to a monumental dock into an important center with monumental architecture remembered well into the Postclassic era.

Robinson, David [3] see Bedford, Clare

Robinson, David (University of Central Lancashire, UK) [143]  Cache Cave: Site Structure and Chronology
This paper presents an overview of the site structure within the confines of Cache Cave with a particular focus on excavated crevices, deposits, and features. We also present the results of 25 AMS dates so far submitted from the site. These dates include a range of material from basketry, cordage, matting, reeds, bone objects, and charcoal. In total, this program represents the most comprehensively dated Chumash cache cave assemblage yet achieved and yields important data regarding site usage and chronology. This paper concludes by considering the site chronology within a wider regional diachronic context, with particular attention to environmental variables that may aid in our interpretation of the site’s history of use and abandonment.

[143]  Chair

Robinson, Eugenia [196]  The Antigua Valley, Guatemala: Dating and Contexts of the Middle Preclassic Period
Evidence of sedentism in the Antigua Valley begins in the Middle Preclassic Period at the archaeological sites of Urias and Rucal, located at the head of a corridor to the Pacific coast. This area has evidence of mobile Early Preclassic peoples as early as 1400 B.C. Middle Preclassic finds at Urias and Rucal include middens, bottle-shaped pits, stone markers, platforms, a burial, and pottery similar to Charcas types from Kaminaljuyu and Naranjo. Radiocarbon dating and stratigraphy could support interpretation of settlement beginning at 800 B.C., rather than 1,000. B.C. This later date would suggest discontinuity with the Early Preclassic remains.

Robinson, David (URI-GSO), Doug Harris (NITHPO) and John King (URI-GSO) [243]  Identifying Submerged Paleocultural Landscapes: A Collaborative Archaeological Approach
Narragansett Indian Tribal oral history relates to us that “More than 15,000 years ago, the ancient villages of the Narragansett were out where the ocean is now. The waters began to rise overnight and the people had to abandon their homes.” This Tribal oral history echoes the regional geological record indicating that at the time of the last glacial maximum, ca. 24,000 years ago, what are now the Atlantic waters of Rhode Island and Block Island sounds were part of a subaerially-exposed continental shelf that was an open vegetated plain available for ancient human habitation. Since 2012, a research team from the University of Rhode Island’s Graduate School of Oceanography and the Narragansett Indian Tribal Historic Preservation Office has been working collaboratively in the Atlantic Ocean off Rhode Island’s coast on a 4-year BOEM-funded study designed to assist with the development of protocols for identifying submerged paleocultural landscapes and the ancient Native American archaeological sites they may contain. This paper will present our initial methodological approach and preliminary results from these ongoing investigations, as well as provide some insights about what has been learned along the way regarding the integration of marine geoarchaeological research with Tribal knowledge, perspectives and concerns.

Robinson, Jess (Vermont State Archaeologist) [255]  Discussant

Robles, Fernando [413] see Andrews, Anthony

Robles Cortés, Erika (Proyecto Templo Mayor), Ximena Chávez Balderas (Proyecto Templo Mayor), Alejandra Aguirre Molina (Proyecto Templo Mayor) and Michelle De Anda Rogel (Proyecto Templo Mayor) [298]  Images of Death in Offering 141 of Tenochtitlan’s Great Temple: Human Sacrifice and the Symbolism of Effigy Skulls

Offering 141 is one of the numerous deposits found at the Great Temple of Tenochtitlan that contain the remains of decapitated individuals associated with the Mexica practice of human sacrifice. After the immolation of men, women, and children, their heads underwent various cultural treatments in order to be utilized by the city’s priests in specific rituals. Although some of these severed heads were buried shortly after death to consecrate the building, others were transformed into effigies of defleshed beings that represented earth and death deities. This paper presents the results of osteological and symbolic analyses of the seven skulls found in Offering 141, which are characterized by their magnificent conservation and for preserving sufficient polychromy to generate a graphic register and pictorial reconstruction of their facial decoration. The skulls also were adorned with insignia of shell, pyrite, and wood, and were found associated in the context of skeletal sculptures, marine material, and animal pelts—ritual objects that help us understand the symbolism of the effigies represented.

Robles Garcia, Nelly (Instituto Nacional de Antropología e Historia) [26]  Athens-Oaxaca y puntos intermedios: Steve Kowalewski’s Influence in Local Archaeologists

One of the major contributions of Dr. Kowalewski has been a dual impact in the development of Oaxacan archaeologists, and his model of engagement with communities where he has studied. Undoubtedly, Steve has been an example to follow in academia, as his Valley of Oaxaca survey expanded on Ignacio Bernal’s pioneer study. He and his associates used the full-coverage strategy for the central valleys and replicated it in the Mixteca Alta. Steve has always been open to including Mexican archaeologists in his projects; and shares and discusses Oaxaca’s archaeology with all interested colleagues. Ethics permeates his work and he teaches his assistants how to perform good social archaeology. His international students received from him a great contribution; he made us feel at home, attended to, and supervised. Finally, our time there will be among our best memories and we have learned what it means to be a good teacher and a best friend.

[111]  Discussant

Rocek, Thomas (University of Delaware)
Which Neolithic House? Pithouses and Pueblos in the U.S. Southwest

The archaeology of the United States Southwest permits examination of the process of Neolithization with chronological precision in a wide range of contexts. In broadest outline, Southwestern data parallel social, economic and technological patterns documented worldwide. The recency, large sample, and fine resolution of Southwestern data allow recognition of multiple divergent and convergent patterns shaped by local environments and cultural traditions that are difficult to observe in other areas.

A major dimension of change in the Southwest is the architectural shift from semi-subterranean pit structures to individual, or more often conjoined surface pueblo buildings, the “pithouse to pueblo transition.” While this shift is widespread in the Southwest, its timing, specific form, correlation with other aspects of Neolithization, and the degree to which the transition occurs all vary. I suggest that the pithouse-pueblo contrast helps to disaggregate some of the closely linked variables that are often thought of as part of a single Neolithic “package.” At the same time, variation within the pithouse to pueblo transition demonstrates how, despite the seemingly straightforward contrast between pithouses and pueblos, use of these architectural forms as proxies for other variables over-simplifies the interplay of processes that together constitute Neolithization.

A National Strategic Vision for Climate Change and Archaeology

The US National Park Service (NPS) recognizes a two-fold relationship between cultural resources and climate change: climate change affects cultural resources, while in turn cultural resources contain invaluable information about long-term human capacity to adapt to changing climates. The NPS Climate Change Response Strategy (2010) set out four pillars of climate change response: science, adaptation, mitigation, and communication. Work is now underway to merge these two approaches, integrating the two-fold perspective of cultural resources with each climate change response pillar. The result is a full complex strategic vision for a national climate change and cultural heritage program. This paper walks out roles and examples of NPS archaeology in this program.

Chijipata Alta: Tracing A Genealogy of Potting Practice in the Lake Titicaca Basin

Andeanists have produced rich ethnoarchaeological studies of specialized potting villages, yet up until now scholars have ignored contemporary ceramic production in the Southern Lake Titicaca Basin. This poster reports on recent work of the Proyecto Olleros Titicaca Sur (P.O.T.S.), a recently initiated project in the village of Chijipata Alta exploring the relationship of learning, identity, and social boundaries using both ethnographic approaches (participant observation, oral history, and videography) and archaeological methods (excavation, petrography, and radiography). This community of specialized “olleros” produces standardized forms and exchanges them throughout the altiplano. Three particular material traces associated with the life of these vessels resonate with ongoing archaeological research in the region: (1) The paste recipes, which are excavated from a long utilized and important clay quarry to manufacture the utilitarian pots. (2) The ash mounds that grow over many generations of pottery firings within and across the boundaries of this specialized community. (3) The fragments of Chijipata Alta produced cooking pots that are distributed across the larger South-Central Andes. I argue that the social dynamics behind these three variables provide valuable insights to ongoing archaeological research into issues of identity and social boundaries in the deeper past.

Using GIS in Archaeological Research: A New Look at Hunting Rock Art Sites

Place, space, and movement are core concepts for analyzing how cultural behaviors of traditional
hunting societies shape a landscape. Sites mark the use of a landscape and connect people to particular events, movements, or places on this landscape. Analysis of rock art must consider who created and used this art and the roles it played in shaping landscape use. Panels depicting hunting scenes have been recorded at communal hunting sites, in rockshelters that served as habitation areas, and as isolated panels. Common archaeological evidence of hunting includes faunal remains, stone tools, architectural features, and topographic features that provide favorable vantage points. Notably, the presence of hunting images may be interpreted as overall evidence for hunting behavior, but unlike other artifacts are not individually interpreted as a sign of hunting.

Assuming these images played a role in hunting behaviors whether in the form of actual subsistence practices or hunting like rituals, I use spatial analysis and traditional archaeological methods to take a new look at the potential relationships between hunting-themed rock art locales and surrounding archaeological sites in the landscape at the Pinon Canyon Maneuver Site to gain insight into the placement of images and the land use of the area.

Rodning, Christopher (Tulane University), Robin Beck (University of Michigan) and David Moore (Warren Wilson College)

Conquistadores, Colonists, and Chiefdoms in Northern La Florida: Artifacts and Architecture at the Berry Site in Western North Carolina

From 1566 to 1568, the northern frontier of the Spanish colonial province of La Florida was situated in western North Carolina. Members of the Hernando de Soto expedition traversed the province of “Xuala,” in the upper Catawba Valley, in 1540, en route to towns on the other side of the Appalachians, in eastern Tennessee. Expeditions led by Juan Pardo between 1566 and 1568 visited many of the same places and provinces in the Carolinas and eastern Tennessee as the Soto expedition, including “Joara.” Pardo established six outposts along what was intended to become an overland route connecting Santa Elena, the capital of La Florida in what is now coastal South Carolina, with New Spain and the Spanish silver mines of Zacatecas, Mexico. That overland route never materialized, but Pardo chose the Native American town of Joara as the location of his principal outpost (Cuenca) in the interior of La Florida, where he established Fort San Juan. Investigations at the Berry site—the location of Joara, Cuenca, and Fort San Juan—shed light on the sixteenth-century Spanish colonial presence in western North Carolina and responses by the people of Joara and other Native American towns to Spanish contact and colonialism.

Discussant

Rodning, Christopher [188] see Moore, David

Rodrigues, Antonia [163] see Wellman, Hannah

Rodrigues, Teresa (Gila River Indian Community), Frances Landreth (Gila River Indian Community, Cultural Resource Man), Lorrie Lincoln-Babb (Bioarch, LLC) and Chris Loendorf (Gila River Indian Community, Cultural Resource Man)

Rock Art Heritage Conservation and Management

The Gila River Indian Community is actively engaged in the inventory and documentation of petroglyphs located within the Community. These recording efforts also include oral history interviews with tribal members who have knowledge of the areas where the art occurs. Rock art sites include prehistoric and historic period figures, and they are found throughout the buttes and mountains surrounding the Middle Gila River. This art often occurs along trails, and in prominent locations such as mountain ridges or passes. Petroglyphs are associated with many areas that are sacred to the modern members of the Community, and most rock art sites are considered to be Traditional Cultural Properties (TCPs). Other goals of our work are to prevent rock art site damage, as well as to mitigate and restore damaged sites. Public outreach within the Community maintains and strengthens ties to the landscape. These efforts are also designed to facilitate access to sacred sites for elders as well as young people learning O’odham traditions. Heritage awareness fosters preservation and protection of these important locations. The Community is committed to a holistic
approach for the appropriate sharing of knowledge, while also safeguarding sacred and important places on the landscape.

Rodrigues, Antonia (Simon Fraser University), Camilla Speller (University of York), Anna Prentiss (University of Montana) and Dongya Yang (Simon Fraser University)

Dog Coprolites as a Source of Dietary and Genetic Information at the Bridge River Site, B.C.

DNA recovered from ancient coprolites can provide an important source of dietary and host information. In this study, ancient DNA techniques were applied to dog coprolites recovered from two pithouses at Bridge River, a complex hunter-gatherer village on the Fraser River, British Columbia. Dog mitochondrial DNA was targeted to assess the genetic relationship between the domestic dogs of Bridge River and other ancient and modern dog populations both locally and worldwide. Multiple Canis familiaris mitochondrial DNA sequences were recovered from the ancient remains, some of which matched sequences recovered from ancient dogs at other Pacific Northwest Interior Plateau sites. Mitochondrial sequences matching Oncorhynchus nerka were recovered from salmon bones within the canid coprolites, and from the coprolites themselves, indicating that domestic dogs at Bridge River had access to sockeye salmon. Whole genome analysis, followed by next-generation-sequencing on an Illumina MiSeq platform was also applied to investigate other dietary components, as well as the potential for obtaining host nuclear DNA from coprolites.

Rodriguez, Erin (University of California, Berkeley)

Microscale Geoarchaeology in a Historic Context: Soil Micromorphology Analysis with the Fort Davis Archaeological Project

Microscale geoarchaeology, specifically soil micromorphology, has incredible potential for enriching archaeological understandings of the materiality of past experience through detailed information on the events, actions, and processes which create archaeological sites. Soil micromorphological analysis can parallel the strict time scales available through historic documentation with material evidence of specific human, non-human, and natural events. This paper shows how micromorphological approaches can be integrated into a historical archaeology project through examples from the Fort Davis Archaeological Project in Fort Davis, Texas. Micromorphological sampling during field season 2014 was crucial in understanding the development of archaeological sites excavated by the project, particularly in terms of deposition and the effects of water action on archaeological features. Furthermore, micromorphological analysis was incorporated into the analysis of living spaces and depositional practices at several sites analyzed by the project. Using these examples this paper shows how integrating microscale geoarchaeology within a historical archaeological framework provides a material and temporal correlate to historical and artifactual modes of analysis which are standard practice within historical archaeology.

Rodriguez, Carol

Characterization of the Cerro de Oro Pottery Style

This study focuses on the analysis of the ceramic material from the archaeological site Cerro de Oro, located in the Cañete Valley. While the Cerro de Oro pottery style has been defined previously in a generic way (Menzel 1964), this study seeks to reopen the investigation and conduct a deeper analysis with recently excavated material, which allows us to characterize it in itself. The aim is to define an iconographic program that allows us to compare and contrast it with popular styles from a defined time and space. Evidence from literature and preliminary studies show that styles from the Nasca, Wari and Lima societies are present in the ceramic of Cerro de Oro and would play an important role in the dynamics of defining the cultural identity of these societies during the late Early Intermediate and early Middle Horizon (550-750 A.D.)

Rodriguez, Iraida [300] see Smith, Lisa

Rodriguez, Enrique (University of Texas)
**ABSTRACTS OF THE SAA 80TH ANNUAL MEETING**

[393] Postconquest Figurines from Central Mexico: Aspects of Phenotype and Artifice

This analysis focuses on figurines made after the Spanish conquest (1521 CE) of Mexico, based on the collections from three museums: the Hearst Museum, the American Museum of Natural History, and the Field Museum. The central questions address figurines as media that could potentially negotiate issues of racial (or casta) categorization, phenotype, and artifice. The figurines were collected and accessioned in the early 20th century, before the development of archaeological methodologies that pay close attention to context and stratigraphy. Therefore, they present serious challenges to chronology-building, to our knowledge of the sites where the figurines were collected, and to any determination of use of the figurines. Still, it is possible to address three basic questions regarding the figurines: 1) Do they portray what we would recognize as phenotypes or any other aspects of racial categorization? 2) Do they focus instead on what we would associate with ethnicity, including aspects of dress, hairstyles, and other material culture? 3) Were figurines media for conveying ideas about race or casta, ethnicity, class, or other social distinctions in postconquest Mexico? The figurines offer us a unique opportunity to understand how indigenous people portrayed aspects of ethnicity and casta in colonial and republican Mexico.

**Chair**

Rodríguez, Agustín [78] see Guillen, Sonia

Rodríguez Mota, Francisco [21] see Esparza Lopez, Rodrigo

Rodriguez Suarez, Roberto [313] see Buhay, Bill

**Rodríguez Zariñán, Nora (Universidad Nacional Autónoma de México)**

[21] Parallels between Pseudo-Cloisonné and Huichol Votive Gourds: Iconography, Processing, and Disposal

Pseudo cloisonné is a characteristic ceramic type of West Mexico. It has generally drawn the attention of researchers because of its complex iconography and elaborate manufacture, which have led many to regard it as a prestige/exchange good. The study of this ceramic type, supported by ethnographic analogy with votive gourd bowls produced by the Huichol of northern Jalisco, suggests the possibility that many pseudo-cloisonné pieces may not have been considered as prestige/exchange goods. The Huichol do not even conceptualize the votive gourd bowls as vessels for deities, but as the deities themselves. And then, the ethnography also supports the possibility that this pottery was manufactured in situ. This study shows how pseudo-cloisonné vessels and Huichol gourds share patterns of manufacture (with respect to both iconography and ceramic forms) and disposal (sherds in fill or whole vessels in ceremonial contexts), thus justifying the possibility that not only are these patterns shared between the vessels, but also the cosmogenic value that they possess. It is important to mention that these analogies are not trying to indicate a direct relationship between the groups involved. However, properly argued, this analogy provides an enlightening and clearer understanding of pseudo-cloisonné pottery.

**Chair**

Rodriguez-Rellan, Carlos

[137] Watch out for Rocks: a GIS and Agent-Based Modeling Approach to the Rock Art of Northwestern Iberia

Geographic Information Systems and high-resolution cartography (LIDAR), together with Agent-Based Modeling, are used for assessing the traditional view of open-air rock art as an active element in the shaping of the prehistoric landscape. Petroglyphs have usually been thought to play a major role in the configuration of different significations of prehistoric landscapes, their location repeatedly analyzed in terms of spatial proximity with paths and resource-rich areas that would have been key for the local Neolithic and Bronze Age communities. Nevertheless, such considerations were often based on relatively shallow spatial analyses, which the importance of perceptibility of the engravings as a main element in determining their agency. The use of new GIS approaches to mobility and
perception, such as the density of potential pathways and the reverse viewshed analyses, together with the simulation of the processes of perception of rock art sites by applying Agent-Based Models, shall allow us to check the accuracy of the notion of rock art acting as a landscape marker linked to the so-called "geography of movement."

Chair

Rodriguez-Rellan, Carlos [353] see Valcarce, Ramon

Rogers, Michael (Ithaca College) and Scott Stull (State University of New York at Cortland) [124]

Using Archaeogeophysical and 3D Laser Surveying to Visualize an Integrated Landscape

Archaeogeophysical and 3D laser scanning at the Old Fort Johnson National Landmark site in Fort Johnson, New York provides a case study for creation of an integrated landscape. The ability to digitally image above and below ground features creates a new way of visualizing an integrated landscape. Above ground remains of historic structures often appear out of their original context. Defensive elements, outbuildings, agricultural areas, ceremonial areas, walkways, and shape of the ground surface may be modified or removed. Evidence for these former features on the original landscape may appear in historic documents, artwork, photographs, collective memory, and beneath the subsurface. Archaeogeophysical survey, historic document research, and other archaeological methods have the ability to help us visualize the landscape in its original state, and address anthropological questions.

Pedersen, John [140] see Pedersen, Johanna

Rogers, Thatcher (University of Wisconsin - La Crosse) [245]

Paquimé and Diablo Phases at Paquimé: An Examination of Architectural Validity of Phase Declarations

This paper will present on the results of statistically-based analyses of architectural data relating to the Paquimé and Diablo Phases at the site of Paquimé collected and published by Charles Di Peso et al. in 1974. A re-examination of the architectural data is necessitated as, in a methodology dissimilar to standard procedure, Di Peso utilized architectural attributes as a basis for phase differentiation. While prior statistical analysis (Frost 2000) has been applied successfully to architectural remains correlating to the Buena Fe and Paquimé Phases, no known successful statistical analysis of the Paquimé and Diablo Phases, nor division therebetween exists. The analyses undertaken have the dual objective of determining the validity of Di Peso’s declaration of structures sans secure dating to either phase, and whether a phase distinction can be supported using architectural attributes. The results to be presented will assist in future understanding of the diachronic constructive history of structures at Paquimé, as well as that of individual architectural attributes and the frequency of their presence.

Rogers, Jason [360] see Kielhofer, Jennifer

Rogge, A. E. [273] see Herr, Sarah

Rogoff, David (University of Pennsylvania) [307]

Combating Researcher Bias in Archaeological Investigations of Identity

There is extensive evidence that people are self-serving in the interpretation of data and are very likely to reach their desired conclusions. Archaeologists have grappled with this issue as it pertains to the construction of meaningful analogs, but there has been little effort to follow through with an evaluation of archaeological analogies. I propose a methodology for combating researcher bias in archaeological analysis and apply it at El Coyote, a Classic Period center in western Honduras.

Rohlwing, Kathryn [220] see Purdy, Barbara
Roksandic, Ivan (University of Winnipeg)
[313]  
**The Nicaraguan Rise and the Problem of Early Peopling of the Greater Antilles**
This presentation examines the patterns of interaction in the Greater Antilles at the time of early migrations, the sources of those population movements and the reasons behind them, with a special focus on the probable links between Lower Central America and the Western Caribbean, in light of recent research results from several academic fields, such as archaeology; aDNA studies; physical anthropology; toponomastics. It investigates developments that made possible such long distance maritime links and population movements. The Nicaraguan Rise – extending from Honduras and Nicaragua as far as Jamaica – with its numerous low-laying islands, provides both an ideal situation for island-hopping, and an extremely rich environment for economies based on fishing. If the sea level, as recent bathymetric studies have suggested, was just two meters lower than it is today in the period between 8 and 4 ka. years BP, many more islands would be exposed, providing early fishing communities with an easy island-hopping route towards the Greater Antilles. This hypothesis is in agreement with recent views, which analyze the process of island colonization as consisting of the phases of discovery, exploration, visitation, and year-round utilization, followed by seasonal settlement, and finally establishment, or permanent settlement.

[Roksandic, Mirjana (University of Winnipeg), Sagrario Balladares (Universidad Nacional Autónoma de Nicaragua), Leonardo Lechado (Universidad Nacional Autónoma de Nicaragua) and Donald Byers (Bluefields Indian Caribbean University (BICU-CIDCA))
[313]  
**The Earliest Dated Skeletal Remains from the Atlantic Coast of Nicaragua**
A recent discovery of a female skeleton from Monkey Point – a shell matrix site on the Atlantic coast of Nicaragua – represents the earliest confirmed evidence of the occupation of the region. In 2014, the skeleton eroded from the profile (left unprotected after the excavations in the 1970s) prompting rescue excavations. The skeleton was not disturbed, and the excavations could follow proper archaeological procedures, allowing us to reconstruct the burial position and to attempt chronometric 14C dating. Here we present the skeletal and burial data in their archaeological and chronological context. Situated in Bluefields, Atlantico Sur Province, Nicaragua, (11° 36' 0" North, 83° 40' 0" West), the site is a large shell-matrix site in the Duck Creek region, considered to be very important in the subsistence of the local indigenous Kriol and Rama communities. This particular region, because of its geographic position on the coastal area of the Nicaraaguan rise, plays a potentially critical and yet poorly known role in our understanding of the early peopling of the Greater Antilles. The discovery of human remains at the site offers us material evidence of the early population and the opportunity to examine population affiliations and movement.

[Roksandic, Mirjana [313] see Buhay, Bill

Rolbiecki, David [363] see Mt. Joy, Kristen

Rolett, Barry (University of Hawaii)
[77]  
**Marquesan Voyaging during the East Polynesian Archaic Era**
Early East Polynesian chiefdoms are remarkable for their voyaging spheres, as evidenced by archaeologically-documented interisland contact. One of the most prominent examples of interisland contact derives from a 1974 study by Bill Dickinson in which it was found that a handful of pottery sherds discovered in the Marquesas can be sourced to Fiji, an archipelago lying more than 4000 km to the west. Various interpretations of this discovery continue to fuel debate surrounding the context and intentionality of early East Polynesian voyaging. An emerging consensus suggests that the imported pottery is linked to an early period of systematic long-distance voyaging, prior to a later
breakdown in interaction. Recent research, including new excavations at the Archaic era Hanamiai site (southern Marquesas), highlights the value of stone adzes and phonolite (a distinctive green-colored rock) for reconstructing early voyaging and refining the chronology of the ca. A.D. 1450 breakdown in interaction spheres.

Romanowska, Iza (University of Southampton)
[84] Testing the Variability Selection Hypothesis on Hominin Dispersals - A Multi-Agent Model Approach
The Variability Selection Hypothesis proposed by Potts (1996; 1998) postulates the evolution of behavioral plasticity among early hominins arising during periods of strong environmental fluctuations in the last 6 million years. It argues that the inconsistency in selection regimes caused by the rapid environmental fluctuations produced particularly strong selection pressure on adapting to change rather than any particular set of conditions (termed 'adaptive complexity', 'adaptive flexibility', 'adaptive versatility', or simply 'versatilist organisms'). The work by Potts was further formalized by Grove (2011) in a single locus model and tested on the temperature curve spanning the last five million years. The current implementation aims to assess the implications of the Variability Selection Hypothesis on the agent's ability to disperse, a process that is visible in the archaeological record. The model was translated into a stochastic multi-agent simulation to investigate the dynamics between individuals with different positions and range on the adaptive spectrum (including the 'versatilist' individuals) within a non-homogenous population. The initial results shows that using heterogeneous multi-agent simulation can successfully replicate Grove’s formal implementation but also sheds new light on how the pattern of dispersal unravels under different environmental regimes.

[84] Chair

Romero, Freddie (SYB.C.I Cultural Resources Coordinator)
[106] Discussant

Romero, Sergio (University of Texas at Austin)
[242] “Just the leftovers!” Pre-Christian Ritual in Highland Maya Colonial Documents
In this paper I will present an analysis of colonial texts in indigenous languages that describe or paraphrase prehispanic ritual. I will present comparisons between the structure and poetics of such texts and those of contemporary Christian sacramental practice as attested in sixteenth and seventeenth century doctrines and catechisms. Based on the analysis of intertextuality, I will show that prehispanic ritual genres became a template for the Spanish mendicant friars and their native collaborators charged with the translation of Catholic ritual and prayer into highland Maya languages. Eventually, this led to two opposed Christian ritual traditions. The first, represented by the Dominican Domingo de Vico’s Theologia Indorum, closely followed prehispanic poetic and lexical templates. The second, represented by the diocesan Antonio del Saz’ sermons, sought to distance itself from any discursive repertoire with potential "pagan" associations. These two incarnations of Christian language were solutions to tensions among Spanish clergy resulting from different views of the Maya and of evangelization. However, they also reflected tensions among Maya elites torn between continuity and adaptation to Spanish colonial rule. Christian language underwent constant changes and readjustments but Spanish clergy never really succeeded in exorcizing the linguistic traces of prehispanic ritual.

Rondeau, Michael [35] see O'Grady, Patrick

Rondelli, Bernardo [73] see Angourakis, Andreas

Roney, John (Colinas Cultural Resource Consulting), Robert J. Hard, A.C. MacWilliams and Mary E. Whisenhunt
[262] Recent Test Excavations at an Early Agricultural Period Cerro de Trincheras Site on the Upper Gila River, Arizona
Investigations on a cerro de trincheras site overlooking the Gila River were conducted in 2014. The Round Mountain site tentatively dates to the Early Agricultural period (2100 B.C.-A.D. 100). The 6 ha expanse of the site includes 1.9 km of constructed walls and terraces. The remains of 16 houses are defined by a constellation of rock rings in the central part of the site. Projectile points include five Tularosa corner-notched points. This style of point is associated with both Early Agricultural period and Pithouse period occupations. Other surface artifacts include 63 metates, and are largely basin and slab forms, as well as 14 complete one-hand manos. In addition two stone pipes and a rectangular stone mortar or tray were also found on the surface. This ground stone assemblage is consistent with that seen in other Early Agricultural period contexts. Early Agricultural period cerro de trincheras sites have been documented in the Rio Casas Grandes in northwestern Chihuahua and along the San Pedro River in the Tucson Basin where they are associated with the spread and adoption of maize agriculture. The Round Mountain site on the Upper Gila extends this phenomenon to a third major river valley in the Greater Southwest.

Ronsairo, Karleen (California State University, Northridge)  
Postclassic Chen Mul Fragments from the Cochuah Region, Quintana Roo, Mexico

Postclassic Chen Muls are known as effigy censers, or incensarios. Thompson (1957) suggested that these objects were placed at the feet of altars and used in ceremonial shrines during rituals of renewal. During the 2014 Cochuah Regional Archaeological Survey, we recovered a collection of Postclassic Chen Mul fragments from excavations at four sites in the project area: San Felipe, San Francisco, Venadito, and the Fortín de Yo’okop. While we did not recover whole incensarios, visual analysis of the Chen Mul fragments we found from the Cochuah region suggests that the deities portrayed in this assemblage are comparable to those of other Postclassic Chen Mul collections from sites throughout the Yucatan Peninsula, such as Mayapan (Smith 1971) and Tulum (Sanders 1960). Analysis of our sample of Chen Mul fragments not only provides insight into the ritual practices associated with these Postclassic incensarios, but also the changes in Maya power and ideology in the Cochuah region during the transition from the Terminal Classic to the Postclassic, as Maya ideology and religion centered on kingly power was replaced by folk religion that glorified deities (Johnstone 2008).

Rooney, Clete (National Park Service), David Morgan (National Park Service) and Kevin MacDonald (University College London)  
Archaeology of the 18th-Century French Colonial Metoyer Land Grant Site, Natchitoches, Louisiana

Recent plans to develop a tract of land on Cane River prompted examination of a locality pivotal to understanding the colonial creole experience in northwest Louisiana. Survey work in 2011 and 2012 identified a large river front site, part of which was home to the plantations of Narcisse Prud’homme, John Plauché, and Pierre Metoyer—the latter an economically prominent colonial known for his relationship with the celebrated Marie-Thérèse Coincoin. Subsequent archival research, geophysical survey, and excavations have identified the possible residences of the plantation owners and those they enslaved.

Roos, Christopher [52] see Hernandez, Nicole

Roos, Christopher (Southern Methodist University)  
Multi-Millennial Fire Histories from Sedimentary Archives: Human and Climate Impacts

Sedimentary archives offer the opportunity to build millennial length fire history reconstructions with which to evaluate hypotheses of anthropogenic and climatic impacts on fire prone forests. Particularly when calibrated with centennial length fire history records from tree-rings, sedimentary paleofire proxies can be used to build spatially explicit records of fire regime changes. As part of the Jemez Fire & Humans in Resilient Ecosystems Project, this paper presents the results of multiple, spatially distributed paleofire records that span more than 6000 years. This research contextualizes the historic fire-climate dynamics on these landscapes and provides evidence of human impacts on the vulnerability of fire-prone ponderosa pine forests to low-frequency climate changes.
Roosevelt, Anna (Univ. Illinois, Chicago) and Christopher Davis (UIC Anthropology)

[353] Doing It the Old-fashioned Way: Dating Paleoindian Rock Art in Eastern South America

Rock painting flourished in several parts of the world, including eastern South America. Traditions that can be important evidence not only of development of art, society, and religion but also of science and technology. Techniques for direct dating are in active development these days, but archaeological stratigraphy and radiometric dating can give an important baseline to compare with other methods. We present an example of this strategy and its results at Monte Alegre, Brazil and briefly summarize evidence from sites in the larger region. At Cavern of the Painted Rock, people dropped paint and prepared pigment on the ground below art panels, and sediment subsequently covered them. We radiocarbon dated charcoal and carbonized plants with the paint, thermoluminescence-dated burned lithics, and OSL dated sediment. At the open site of Panel of the Painted Rock of the Pestle, paint stone and carbonized wood were left on the ground next to the painted walls and these became buried in sediment. The sediment was shaded, so could not be OSL dated, but the charcoal was radiocarbon dated. Both sites paint-bearing layers dates averaged c. 13,150 cal years BP., making the art and its archaeoastronomical alignments among some of the oldest yet dated.

Roper, Donna (Kansas State University)

[79] Characterizing Eighteenth Century Technological Changes in Pawnee Pottery

The pottery produced by the Pawnee of the central Great Plains of North America underwent extensive modification in the eighteenth century. Although twentieth-century archaeologists described the “early” and “late” materials, they did not adequately characterize how Pawnee potters modified their craft in terms of vessel morphology or technological practice, nor did they consider pottery function. Thus, we have no satisfactory account of this change. Situated in the context of technological changes during the contact era, this study uses petrography, vessel morphometrics, pXRF, and FTIR to address how the pottery changed. The analysis reveals that the introduction of metal vessels did not lead to a phase-out of native pottery, but rather that the functions formerly performed by pottery alone were divided between metal and earthenware. The appearance of the material was so markedly different because manufacturing technology and form were modified to facilitate pottery’s revised role in foodways.

Rorabaugh, Adam [92] see Fulkerson, Tiffany

Rorabaugh, Adam (Washington State University)

[114] Restricted Forms of Knowledge in Pre-contact Coast Salish Lithic Craft Traditions

Recently anthropologists have increasingly recognized the role that the control of knowledge has in the production and reproduction of social inequality in small scale societies. In the case of the pre-contact Coast Salish of the Pacific Northwest, ethnographic data emphasizes the role that the control of elite prerogatives had in the maintenance of their status. Drawing upon cultural transmission models, these social relationships would be reflected not only in the prestige goods often discussed by archaeologists but in a shift towards more restricted household learning in a wide range of technologies during the Marpole period (2400-1000 BP) when large winter plank house villages and hereditary forms of social inequality are argued to have emerged. High resolution analyses of formed lithic tools from previously excavated archaeological collections were conducted to examine fine scale stylistic and metric variation in assemblages in sites throughout the Salish Sea. The impacts of material quality, tool curation, and time-averaging effects were also assessed and did not appear to be factors significantly patterning this sample. Overall these data suggest that the learning of these technologies may have been restricted by gender and kin lines, and became increasingly influenced
by prestige over the past 3,000 years.

Rosales-Tham, Teresa [347] see Duke, Guy

Roscoe, Paul (University of Maine)


At contact, New Guinea polities were uniformly at war, either episodically or permanently, with at least one of their neighbors. As a result, they all adopted significant defensive measures, commonly some mix of advanced warning systems, settlement nucleation, and natural or artificial fortifications. These measures were crucial to survival but they had numerous social and cultural implications. In this paper, I outline some of the more important of these consequences, before focusing on the political implications. In communities where people perforce interacted on foot through face-to-face communication, the distribution of population across a landscape had significant political consequences. I trace some of these outcomes drawing on data from about a hundred contact-era New Guinea polities.

[228] Discussant

Rose, John [6] see Canaday, Timothy

Rose, Chelsea (Southern Oregon University)

[45] Getting Burned: Fire, Politics, and Cultural Landscapes in the American West

The National Historic Landmark town of Jacksonville, Oregon is celebrated for its nineteenth century past. While saloons, hotels, and shops survive as testament to the days of the Oregon gold rush, the selective preservation of the built environment has created a romanticized frontier landscape. A sleepy park now covers the once bustling Chinese Quarter, which burned to the ground in 1888. Recent public archaeology excavations revealed the remains of a burned building and led to a fruitful collaboration with the local fire department, which helped illustrate the taphonomic processes of the historic fire. While fires often lead to the recovery of well-preserved archaeological deposits, the context of the fire itself as a socio-political artifact has been underexplored. Used as both a deliberate and opportunistic means of controlling and creating social and political landscapes, fire was effective at displacing, marginalizing, or even erasing populations like the Overseas Chinese from historic communities.

[45] Chair

Rosen, Steven (Ben-Gurion University) and Francesca Manclossi (Universite Paris Ouest Nanterre and Ben-Gurion Uni)

[292] The Importance of Being Ad Hoc: Patterns and Implications of Expedient Lithic Production in the Bronze Age in Israel

Analysis of the ad hoc component of lithic assemblages from three Bronze Age sites in Israel shows common technological patterns without significant chronological and geographical differences. Like more formal components of lithic industries, expedient and opportunistic production of tools can be characterized using technological criteria and parameters which discern recurrent patterns in lithic manufacture. Irregular flakes, variable in shape, size, and raw material, and with only minimal retouch, constitute coherent assemblages, resulting from basic knapping strategies based on a few rules and simple flaking schemes. Specifically, the absence of standardized morphologies should not be misconstrued as random production. A general uniformity and stability in the ad hoc production system through the Early, Middle, and Late Bronze Ages indicates the maintenance of common technical behaviors that did not change in parallel to other technological transformations, either within the flint system or outside it, and nor in response to significant socio-political changes. This diachronic continuity, attested through the early Iron Age, reflects a stable technological substrate. Low technical investment and elementary production/consumption systems represent domestic contexts, widespread within the society, which for millennia played a leading role the daily life of ancient people.
Rosen, Arlene (University of Texas at Austin)

Climates of History in Ancient China: Lessons from Deep-Time and Cross-Cultural Perspectives

In recent decades, studies of climate change and its impact on past societies have been colored by a veneer of political agenda and oversimplification of how ancient societies might have actually responded to changes in their environments. Although many of these climatic changes would have profoundly impacted economic systems of past societies, these social and economic systems have often demonstrated remarkable resilience in the face of such changes. Other times, abrupt environmental changes initiated profound transformations in past societies. The scholarship and published works of Brian Fagan have provided us with an invaluable compilation of case studies which help to illuminate the complex responses of societies to environmental change in both the distant past and within historical periods. In the spirit of honoring this contribution, this paper relates a sequence of environmental changes and human responses in northern China beginning with the Neolithic Holocene Climatic Optimum that encouraged rice farmers to spread to the moist valleys of the Loess Plateau, the abrupt onset of drier conditions which coincided with the first state society in the Early Bronze Age Erlitou Period, and the impact of droughts on the expanding Han Empire at the beginning of the Iron Age in China.

Rosenberg, Danny [91] see Campeau, Kathryn

Rosenberg, Michael

That Complex Whole: Hierarchies, Sorts, and Punctuation

Implicit in most approaches to the evolution of culture is both the view that cultural evolution is always incremental and that cultures are structurally simple entities, making individual cultures seem entirely as capable of evolving in one direction as another, based solely on phenotypic plasticity and/or selective forces. However, as noted 140+ years ago by Tylor, culture is a complex whole. Structurally, it can best be viewed as multiple reflexive social, behavioral and informational hierarchies, each subject to a different mode of selection. Selection within each hierarchy produces a sort that feeds into each of the other hierarchies to be reflexively acted on there by the specific selective forces in operation within each of the destination hierarchies. The sort sent by one hierarchy to another given hierarchy and the selective forces operating within that destination hierarchy are not of necessity always compatible. When such incompatibility occurs, punctuational change is sometimes produced.

Rosenberg, Danny (Zinman Institute of Archaeology, University of Haifa)

Bedrock Features and Cupmarks-Bearing Boulders: An overview of a Natufian and PPNA Phenomenon

The Natufian–Pre-Pottery Neolithic A transition (ca. 11,500 Cal BP years ago) in the southern Levant is evident in many aspects of the material remains, and reflects pronounced socio-economic changes. One of the most fundamental changes is documented for bedrock features such as mortars, basins and cupmarks. While during the Natufian we find bedrock features mainly in 'public' contexts near or within sites, it seems that during the following PPNA period these were also introduced into the domestic arena. The documented transition includes a notable shift from natural outcrops/cave floors to large boulders, slabs and querns, on which cupmarks were now made; the latter were found for the first time on many floors of dwelling structures. Also, it appears that while Natufian bedrock features reflect a typologically rich and divers assemblage (from tiny holes to deep narrow shafts) the PPNA remains reflect a dramatic reduction in the variety of types (shapes, depths, diameters and morphologies). In our talk we offer an overview of this intriguing change and suggest possible explanations, linked to other contemporaneous shifts documented in the archaeological record.

Chair

Rosenfeld, Silvana (University of South Dakota)
Zooarchaeological Inferences and Analogical Reasoning at Chavin de Huantar (Peru)

Chavin de Huantar (1000-500 B.C. Peru) has long been considered a major center in the central Andes given its complex architecture and art. Mostly based on art depiction, ritual at Chavin has long been associated with psychoactive plant ingestion. Stone sculptures show the hallucinogenic San Pedro cactus, as well as the representation of monstrous animals and supernatural beings interpreted as priests transforming into animals during hallucinogen consumption. Inspired by Diane Gifford-Gonzalez’s epistemological work on zooarchaeological inferences, analogical reasoning, and actualism, I analyze and interpret the manufacture and use of bone artifacts at Chavin in its ritual context.

Luminescence Dating of Surface Ceramics from Naturally Burned Archaeological Contexts

Luminescence dating of surface ceramics at archaeological sites is problematic for many reasons, including estimation of environmental dose rate, likelihood that an artifact is in situ and weathering. Until now, there has not been systematic research on the effect of natural fires on luminescence dating of pottery. This is an important consideration, because while the temperature of a typical fire is well above the threshold for resetting the luminescence signal in a sherd, the length of time exposed to that heat is relatively short. At Wabakwa village in the Jemez Mountains (LA 478), we developed a robust sampling strategy for collecting surface ceramics around the pueblo from specific areas of differential heating and smoldering during the San Juan Prescribed forest fire in 2012. At this level of specificity, we can compare the luminescence signals of sherds exposed to varying temperatures and duration of heat at the same time. This study is a guide for archaeologists dating sites where surface collection of artifacts is the only sampling method permitted.

Defining the Izapa Polity with Lidar and Pedestrian Survey

This paper reports the results of the first systematically collected Formative period settlement data from the area around Izapa. Three environmental zones (coastal plain, low hills and piedmont) were documented by the Izapa Regional Settlement Project combining lidar and pedestrian survey methods. Results indicate population was highest on the coastal plain from 1700-850B.C. as a series of four sequential political centers rose and fell, each lasting for a century or two. After 850B.C. collapse of the La Blanca polity (the fourth and final coastal plain center), occupation shifted to the piedmont as the Izapa polity coalesced. Between 750-350B.C. (the Escalon and Frontera phases) population peaked in both the low hills and piedmont survey zones while there was almost no one documented in the coast plain survey zone. At this time, eight lower-tier monumental centers are documented in the low hills zone — all arranged with the same orientation and architectural features as Izapa. During the Guillen phase (350-100B.C.) the quantity of occupation decreased in both the low hills and piedmont zones and population was relatively more concentrated in and around existing monumental centers. These data begin to illuminate regional demographic changes as the Izapa state was established.

The Negotiation of Political Subjectivity in the Neo-Assyrian Empire

Thinking of political subjectification as the processes by which individuals recognize themselves as subjects to authority, this paper pursues the negotiation of this subjectivity for people living within the purview of the ancient Neo-Assyrian empire. Negotiation resides between the poles of subjugation...
and resistance to authority, and constitutes the ways in which people participate in defining the contours of their socio-political positions. In the provinces of Upper Mesopotamia in the early first millennium B.C.E., Neo-Assyrian authorities put conquered peoples to work farming the land, and this program of agricultural colonization instituted human-environment practices that established ties between agriculturalist and empire. But, importantly, subject agriculturalists cultivated agro-pastoral practices that circulated outside Neo-Assyria’s large-scale, surplus economy. These divergent forms of land-use nuance subjects’ relationship to the empire. Neither wholly assenting to nor rebelling against the Assyrianization wrought on them through imposed resettlement and taxation, subject agriculturalists preserved and/or created avenues (both material and performative) for fostering non-imperial subjectivities. Archaeobotanical data from the provincial capital of Ziyaret Tepe (ancient Tushan) in southeastern Turkey demonstrate the archaeological imprint of this negotiation of political identity and agency.

Rosero, Paulina [367] see Cordero, Maria-Auxiliadora

Rosiles Hernandez, Sara and Philip J. Arnold III
[144] Surface Ceramic Distributions at Matacanela, Southern Veracruz, Mexico
Prior archaeological research in the Sierra de los Tuxtlas, southern Veracruz, Mexico demonstrates significant sociopolitical transformations spanning the Formative through the Postclassic periods. Ongoing fieldwork at the site of Matacanela, located within the central portion of the Tuxtla Mountains, is contributing to this understanding. This paper discusses the results of the first season of fieldwork at Matacanela with a focus on patterning in the distribution of surface ceramic material. These systematic survey data allow us to identify both temporal and spatial trends in the site’s material record and provide additional insight into the internal development of Matacanela as well as its position within the regional cultural sequence.

Roskin, Joel [368] see Bar-Yosef Mayer, Daniella

Ross, Wendy [29] see Sturdevant, Jay

Ross, Ann [384] see Sugimoto, Kassie

Rossen, Jack (Ithaca College)
[109] Agriculture and Inter-village Space in the Ancient Haudenosaunee (Iroquois) World
Ancient Haudenosaunee (Iroquois) settlement patterns have been commonly presented as a series of well-spaced two acre defended agglutinated villages. Inter-village space was generally viewed as dangerous within a landscape of endemic warfare. Surveys and excavations in the Cayuga heartland (east side of Cayuga Lake) of the Finger Lakes region, central New York, are altering that vision. By at least the 15th century, agricultural complexes and stations were established between villages. These locales, possibly hosted by a particular clan, served as nodes of contact and communication between both local and distant groups. Based on recent excavations at the Myers Farm site, they do not contain the size, organization, or longhouse architecture of villages, but do contain small middens, unusually small ceramic bowls, and high frequencies of ground stone, farming implements and smoking pipes. As evidenced by large-scale food production at small sites, communal feasts were held to host visiting work parties.

Rossi, Franco (Boston University)
[303] Sabios in Situ: Art-making and Representing Authority at Classic Period Xultun
The study of mural art has moved beyond analytical approaches that isolate these highly meaningful works from the anthropological contexts that produced them, toward approaches that underscore their inseparability from the complex circumstances surrounding their production. However, such contexts in the ancient world are not directly observable and therefore cannot be studied using ethnographic methods. Instead, sociological dimensions of ancient art must be reconstructed.
through careful analysis of the archaeological context in which it occurs—situating specific works in place, time, and socio-cultural setting. This paper attempts one such reconstruction, focusing on the eighth century Maya mural at the Los Sabios group within the site of Xultun, Guatemala. I discuss the social and political implications of the Xultun mural in light of the archaeological record on site, to shed light on the ways residents shaped this living work of art and were themselves shaped by what anthropologist Stephen Houston calls the mural’s “moral narrative.” Together, the images, texts, and archaeological materials found in and around the chamber enable us to contextualize acts of art-making and their authorship, as well as engage larger questions regarding the cultural constructs and systems of authority shaping artistic literacy and its pedagogy in Maya society.

Rostain, Stéphen

What's That Mound? Answers from Interdisciplinary Approach

Modern archaeology must diversify its scientific approaches. First, it is essential to get various viewpoints and different scales to understand better the artifact. Moreover, the interdisciplinary methodology improves considerably the interpretation. The Amazonian raised fields study is a good example of such multiple scientific approaches. While raised field agriculture is no longer widely practiced today, it was quite widespread in the past. These structures are frequently found on the coast of the Guianas, the remnants of a technique widely used during the pre columbian period. The interdisciplinary research recently conducted on these structures revealed many surprising aspects of such intensive agriculture. Only the multiplicity of expertise completed successfully to a general understanding of these ecofacts. The Guianas coast has a long history of human impact and the actual landscape partially results of a millenary cultural action.

Roth, Barbara [138] see Woods, Aaron

Roth, Barbara (UNLV), Aaron Woods (UNLV) and Forrest Jarvi (UNLV)

Lithic Technology and Households at the Harris Site, Southwestern New Mexico

Recent excavations at the Harris Site in the Mimbres River Valley of southwestern New Mexico have documented differences between Three Circle phase (A.D. 750-1000) pithouses and associated features that suggest differences in social organization. In this poster we use data from cores and chipped stone tools recovered from house floors, extramural work areas, and extramural storage areas to examine core reduction technology and raw material use associated with these households. Our main goal is to determine if a consistent pattern in core reduction technology, raw material access, and raw material preference exists across the community or if differences exist between households. Factors influencing the similarities and differences in lithic technology will be explored.

Rouse, Lynne (Washington University in St. Louis)

In-Visible Periphery of Old World “Collapse”: Recognizing Choice and Circumstance in the Archaeological Record of Mobile Pastoralists

As in many regions of the Old World, the end of the Bronze Age in southern Central Asia is marked by a prolonged period of social “collapse” toward the end of the 2nd millennium B.C., during which the size, arrangement, and apparent sphere of influence of agriculturally-based population centers changed. Discussions of this period focus primarily on the loss of visible markers of social hierarchy and inter-regional trade networks, but as our collective knowledge of mobile pastoralists in Eurasian prehistory grows, previously ‘invisible’ practices operating outside the direct control of agricultural centers can be recognized as stabilizing and even driving forces in Old World history. In re-framing pervasive binaries such as Center/Periphery, State/Non-state, and Sedentary/Nomad in terms of social networks and alignments of practices, “collapse” becomes a matter of perspective, and might productively be analyzed for the arenas of daily behavior, relationships, and social institutions that endured across it.

Rowe, Matthew (William R Adams Zooarchaeology, Indiana University)

Rockshelters in the Bighorn Basin, Wyoming; Environment, Ecology, and Landuse Patterns
Archaeologists have investigated many aspects of rockshelters in the Bighorn Basin, Wyoming, but questions remain about the role of these sites within regional settlement patterns. It is clear that the Bighorn Basin is a moisture-controlled ecosystem and that variability in environmental moisture levels produces dramatic changes in both animal and plant populations. Changes in environmental moisture also appear to affect human population levels, and past settlement and subsistence patterns. This research combines geoarchaeology and zooarchaeology to interpret environmental conditions and cultural responses to changes in environmental conditions preserved in four Bighorn Basin rockshelters. This study incorporates faunal material from BA Cave (46BH1065), Eagle Shelter (48BH657), Alm Shelter and Paintrock V (48BH349). Results of this research suggest that well-established geographic features contribute to predictable patterns of resource distribution through the preservation and maintenance of productive microclimates at high elevations and in deeply cut riverine canyon systems. This suggests that settlement and subsistence patterns observed ethnographically reflect a long-term adaptation to these recurrent patterns. By combining environmental data derived from rockshelter sediments and cultural information based on faunal remains, this research clarifies our understanding of the role these sites played during different environmental conditions in the Bighorn Basin.

Rowe, Matthew [35] see Finley, Judson

Rowe, Robert and Collin Rucker
[155] Archaeology in a Cretaceous Swamp
During the Late Paleocene and Early Eocene, a tropic/sub-tropic forest located in a large swamp was located in present day east-central Colorado. Over time the swamp was enveloped by subsequent volcanic eruptions which resulted in the creation of the Paleosol-Dawson Arkose formation. The primary area of this geological formation is located in Elbert County, between Colorado Springs and the small town of Agate on the plains of Colorado. Large stands of tropical wood, including sycamore, walnut, gingko, sequoia, and palm became silicified as a result of the deposition of the volcanic ejecta. Due to uplifts of the area and subsequent erosion of the formation, large areas of petrified wood have become exposed creating a readily accessible source of stone tool material for native populations to exploit. The presence of this material allowed the native populations to occupy the area with a moderate population. Archaeological surveys in support for the installation of a natural gas pipeline across the study area allowed a unique opportunity for archaeologists to map the area of the silicified wood deposits and determine how much exploitation was taking place and if there was preference for type of wood to another.

Rowe, Marvin (Texas A&M University), Eric Blinman (Office of Archaeological Studies, Museum of NM), Jeffrey Cox (Office of Archaeological Studies, Museum of NM), John Martin (Office of Archaeological Studies, Museum of NM) and Mark MacKenzie (Conservation Laboratory, Museum of NM)
[284] Cold Plasma Oxidation and "Nondestructive" Radiocarbon Dating
A decade ago, with partial funding from the National Center for Preservation Technology and Training, marvin Rowe and his students at Texas A&M University developed a cold plasma oxidation method for “nondestructive” radiocarbon sampling of organic materials. This sampling approach is applied to the whole artifact, is carried out under vacuum, plasma temperatures can be maintained below 100C, only organic carbon is oxidized (carbonate and oxalate are not sampled), and sampling leaves the artifact virtually unaffected. This approach takes advantage of the AMS direct dating potential of samples as small as 100 micrograms, and since the sample is in the form of carbon dioxide, no further treatment is required at select AMS labs. A new and improved cold plasma device has been constructed at the Office of Archaeological Studies, resulting in a more efficient procedure with even lower temperatures. We report on the design innovations and on additional experiments in sampling.

Rowe, Sarah (UNC Chapel Hill)
Local Communities, Ceramic Use, and the Uneven Development of Social Complexity in the Late Valdivia Period of Coastal Ecuador

The Late Valdivia period of the coast of Ecuador is often portrayed as one of movement, as sites in the former “heartland” adjacent to the Santa Elena Peninsula were abandoned and new, larger sites were founded at the former peripheries to the north and south. These new sites are implicated in the development of incipient social hierarchy within Valdivia society. However, recent research at the site of Buen Suceso in the Manglaralto Valley suggests that this process of developing social complexity was highly varied and mediated by local social dispositions. Comparative analysis of ceramic assemblages from several Late Valdivia sites highlights differences in ceramic use and assemblage composition that indicate diverging ways of fomenting community through participation in communal eating. These differences point to the negotiated character of communities and highlight the contingent nature of increasing social complexity within Valdivia society. This variation further emphasizes the need for locally-developed and historicized examinations of social practices to understand changes in the Valdivia period.

Chair

Rowley, Charlotte [17] see Little, Aimee

Home on the Range: An Environmental History of Land Use Changes at Paa-ko, New Mexico

By using multiple lines of evidence from the archaeological material record, as well as from the environmental pollen record, this paper will explore the history of anthropogenic landscape changes at one particular site in the Galisteo Basin of New Mexico. Located on the margins of the Spanish mission system, the ancestral Pueblo site of Paa-ko and its surrounding field systems present an ideal opportunity to tease out the thread of colonial influences on local communities, particularly with the introduction of livestock into the region. The impacts of grazing continue to be felt into the present, as the eastern field systems are currently a privately owned ranch with small herds of cattle and horses. The transition from an exclusively agrarian landscape to an agropastoral landscape had dramatic and long-lasting social and physical consequences, and these dynamics will be the focus of this study. This project will explore the details of this physical transformation and examine these ecological shifts within the context of changing economics, politics, and aesthetics.

Chair

The Development and Modification of a Hydraulic Urban Space at the Classic Maya Site of Xultun, Guatemala

In order to better understand the use history of the central reservoir at Xultun an investigation was performed during the 2012 and 2014 field seasons. ArcGIS 10.1 was used to model the site’s hydrology and excavations were performed both within the reservoir and on architecture within the catchment area to the north. The reservoir was built from a modified quarry and in use since the Late Preclassic. The larger architecture associated with collection and management of this resource was not added until the Early Classic. A series of depressions within the catchment area led to the discovery of a large sub-plaza drainage canal. This feature and the sacbe to the east of the reservoir were used to divert water from Plaza B into the reservoir. An elite administrative neighborhood was positioned between these two collection points. The reservoir was modified over time being dredged and expanded in the Late Classic. The use of the canal also changed through time having surface collection points added and eventually being filled in and abandoned. Hydrological strategies employed by the Maya were adaptive, changing with population pressure.

Rubin de Rubin, Julio Cezar [155] see Silva, Rosicler

Rubinson, Samantha
Rubinstein, Emily (Hamilton College), Nathan Goodale (Hamilton College), Alissa Nauman (Hamilton College), David Bailey (Hamilton College) and Bruce Wegter (Hamilton College)


Elemental Analysis-Isotope Ratio Mass Spectroscopy (EA-IRMS) has been used to analyze the elemental compositions of materials from archaeological settings, but work done specifically on culturally modified sediments is limited. In this study, we explored EA-IRMS as a technique for characterizing anthropogenic sediments to establish spatial organizations of past living spaces as well as possible changes in environmental conditions over the past 2,700 years. Using EA-IRMS techniques, we examined $\delta^{13}C$ and $\delta^{15}N$ levels in floor sediments from the Slocan Narrows Pithouse Village in the interior Pacific Northwest of North America. Samples for this study include floor sediments systematically collected from Housepit 6 (n=118), samples associated with specific features in Housepit 9 (n=23), and control samples collected from local (but off-site) non-culturally modified sediments (n=11).

Modelling Group Formation in Small Scale Societies

Several human activities require an optimal number of individuals to maximize their utility, often leading to the coexistence of positive and negative frequency dependence. This generates unstable equilibria, as group close to the optimal size will be invaded by joiners who will increase their fitness by becoming new members, leading either beneficial or detrimental effects to the incumbent members. If a group is optimally sized, incumbent member will experience a decline in fitness, while joiners will increase its fitness by joining the group. This leads to an Evolutionary Stable Strategy (ESS) where group sizes are greater than the optimal size in the case of ideal free individuals. This outcome will be different if the acceptance of a new member can be blocked by the receiving group. The group members will face a volunteer's dilemma, as any cost of rejecting incoming individuals will be benefited by the entire group. This paper examines the role of this ESS in group formation dynamics. The decision-making process of individuals is explored, focusing on situations where members of a group can choose to reject new members for a given cost. Different scenarios are considered, including individual and shared costs, and macro scale implications are discussed.

Determining Hominid Handedness in Lithic Debitage: A Review of Current Methodologies

Lithic analysis is of great value for understanding hominid biological, cognitive, and cultural evolution, but analyses of handedness in lithics are rare, despite their potential to elucidate the evolution of human lateralities in the body and the brain. This paper will present results of an experiment to determine handedness in lithic materials. In a blind study on debitage (n=631) from Acheulean handaxes created by right- and left-handed flintknappers, several flake characteristics significantly indicated handedness, with a binary logistic regression correctly predicting handedness for 71.7% of the flakes. However, some characteristics were indistinguishable for handedness, and regressions account for little variability in the data overall. This is likely a result of personal knapping styles, as additional analyses show that individual knappers associate to discrete features better than handedness does. These results are congruent with general issues in analyzing evidence of handedness, but are more conclusive than many of the previous studies. Continued improvement of these methodologies will enable analysis of Paleolithic assemblages in the future, with the ultimate goal of tracking population-level hominid handedness rates through time and using them as a proxy for cognitive development and language evolution.
Exposed Again: Current Environmental Impact on Dugout Canoes---Their Research and Care!

Across Florida, severe drought in recent years lowered water levels, especially in 2000 and then again a decade later. Both times this resulted in the exposure of dozens and dozens of ancient dugout canoes. This trend occurred not only in Florida, but also the greater southeastern U.S. This paper discusses the concerted efforts of state and local agencies as well as private stewards to document the environmental impact on these canoe finds, as exposure to sun and elements accelerated their degradation. This destructive process nevertheless provided an opportunity to again record, map, photo, sample, identify, analyze and even preserve a few of these remains. Results of this analysis include many new C-14 dates that reveal insights about paleoenvironmental impacts, waterscapes, settlement change, economies, and overall significance of these typically overlooked yet unique artifacts. In addition, initiatives to exhibit and preserve selected dugout canoes has given way to innovative, green methods for their stabilization and care.

Color and Technology: A Legacy of Painted Burial Objects at Nuvakwewtaqa (Chavez Pass, Northern Arizona)

Known to the Hopi as Nuvakwewtaqa, the Chavez Pass pueblo complex (13th-15th CA.D.) was excavated in part by researchers from Arizona State University from 1976 through 1982. Before these excavations, the site had been subjected to decades of looting, especially in burial contexts. A recently completed Forest Service sponsored NAGPRA project provided the opportunity to photograph and analyze the exceptional artifacts found in burial contexts prior to repatriation. This poster discusses new insights gained from examining a clay-lined, painted basket as well as painted wood artifacts which demonstrate specialized craftsmanship and knowledge. As part of the repatriation process, we present our research and documentation of these items as a legacy for future research. The clay-lined, painted basket found at Chavez Pass is one of less than fifty known examples of these types of baskets, arm bands, and hats from archaeological contexts in the American Southwest. When considered with the painted prayer sticks, wands, and staffs from the same assemblage, a vibrant image of social life at Nuvakwewtaqa emerges. Through their use of color and technology, it is evident the people of Nuvakwewtaqa were engaged with regional stylistic traditions and, at the same time, creators of their own local style.

Insights into the Context, Mode, and Timing of Potato Domestication through Microfossil and Ground Stone Analyses at Jiskairumoko in the Western Titicaca Basin

[33] Chair

Ruck, Lana [246] see Colón, Justin

Rucker, Collin [155] see Rowe, Robert

Ruebens, Karen [389] see Dogandzic, Tamara

Ruhl, Donna [166] see Walker, Karen

Ruhl, Donna (Florida Museum of Natural History)

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Rühli, Frank [264] see Bouwman, Abigail

Ruiz Y Costello, Donna (Arizona State University) and Sarah Striker (Arizona State University)

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Ruiz-Correa, Salvador [346] see Jimenez, Diego

Ruiz-Perez, Javier [176] see Madella, Marco

Rumold, Claudia (USFS)

Insights into the Context, Mode, and Timing of Potato Domestication through Microfossil and Ground Stone Analyses at Jiskairumoko in the Western Titicaca Basin
The data presented in this poster provide novel and direct microfossil evidence for the exploitation of potato (Solanum tuberosum) approximately 5000 years ago at Jiskairumoko, an early village site in the south-central Andes. In the Andes, elucidating the trajectory of potato domestication is central to an overall understanding of the development of agriculture, as this crop was perhaps one of the most important of the autochthonous highland Andean suite. Nevertheless, efforts to elucidate the timing, mode, and context of its domestication have been hindered by the paucity of direct macrobotanical evidence. The results of this study demonstrate the combined effectiveness of starch grain and grinding tool analyses in addressing questions relating to the chronology and context of domestication for the potato. Forty-one starch grains derived from 14 grinding tools are identified as consistent with domesticated potato. Some archaeological Solanum starches may reflect the role of grinding in detoxifying potatoes and catalyzing the domesticatory process. Additionally, use-wear analysis of 98 grinding tools indicates women’s intensive use of this technology throughout the Late Archaic-Early Formative Period occupation of Jiskairumoko. These results are taken as indicating plant resource intensification reflecting low-level food production.

Runggaldier, Astrid [244] see Brouwer Burg, Marieka

Runken, Zhou [179] see Lina, Zhuang

Rupp, Elizabeth
[29]  The Promise and Pitfalls of Geophysical Survey at Valley Forge NHP

The use of geophysical survey techniques to identify potential archaeological deposits has a long history at Valley Forge NHP (VFNHP). As early as 1974, while it was still a state park, Dr. Bruce Bevan conducted magnetometer and GPR surveys of some of the brigade areas. Since 2011, archaeologists at VFNHP have undertaken a series of geophysical surveys aimed at identifying possible encampment related features. The surveys produced a series of promising anomalies, many of which have been tested through excavation. Although no definitive encampment-era remains have been identified as a result of these recent surveys, the anomalies did correspond to deposits from other cultural periods. The results of these surveys have demonstrated that, when combined with historical research, geophysical techniques are useful tools to identify areas likely to contain archaeological features at VFNHP.

Rush, Laurie [43] see Schulz, Margaret

Rusk, Mark [311] see Margaris, Amy

Russell, Will [324] see Starr, Isabel

Russell, Bradley (College of Saint Rose)
[338]  Of Cenotes and Serpents: Modern and Ancient Cave Ritual at Mayapán, Yucatán, Mexico

The pairing of ritual architecture with sacred underground spaces is common throughout Mesoamerica and makes clear the importance that ancient inhabitants of the culture area placed on caves and cenotes. These spaces were home to powerful forces. The Late Postclassic Maya center of Mayapán (1150-1450 A.D.) is known for its clear spatial associations between temples and cenotes. These temple/cenote complexes have been found both within and outside of the large defensive city wall. Cenote Sac Uayum, located south of the city wall is still believed to be guarded by an enormous feathered serpent with the head of a horse, an easily angered chimera. Underwater exploration of the feature has revealed at least 17 ancient skeletons within. Cenote San Jose, also located south of the wall contains dozens more burials. Several cenotes in the area currently serve as the focus of rain or other rituals. Some cenotes are said to be “alive”. They are considered the source of winds, both good and bad, that can bring disaster or prosperity to individuals and the community. This paper will examine several examples of archaeologically known cave ritual at the site and compare those to modern practices still evident at the nearby village of Telchaquillo.
Russell, Will [278] see Zanotto, Hannah

Russo, Michael (National Park Service SE Archeological Center) [284]  
*The Archaeological Dynamic Friction Cone Penetrometer*

Archaeologists have used metal probes for centuries, and, more recently, their digitized descendant, the penetrometer, to locate artifacts and features that yield greater resistance in the soil. Most recently, geological miners and agricultural technologists have added additional instrumentality to the penetrometer to measure both resistance and friction. To determine if archaeological soils and other midden features could be distinguished using a penetrometer employing both resistance and friction metrics, a prototype archaeological friction cone penetrometer was constructed and tested on a known archaeological midden in northwest Florida. The results of those tests are presented here.

Rutecki, Dawn (Indiana University South Bend) [269]  
*AmbiguousIconography: Queering the Shell Game*

This paper queers archaeological interpretation by unpacking and destabilizing underlying assumptions in Southeastern iconography. While not focusing expressly on sexuality or gender in these representations, this research discusses the ways ambiguities in engraved shell iconography, more broadly, have been dismissed, glossed, and deemphasized. In part, this exclusion is unintentional and results from the amount of research that remains to be conducted on the vast body of images, but we need to more fully consider the implications of these monolithic interpretations. Using iconography from Spiro Mounds, Oklahoma, this paper begins to bridge the gap through feminist and queer readings of these images, providing alternative possibilities for their interpretation and a better understanding of their use in Spiro society.

Discussant

Rutherford, Allen (Tulane University) [227]  
*Forming Bonds in the Late Intermediate Period Huaura Valley and Central Coast of Peru*

This paper will examine the ceramic forms from excavated contexts at Cerro Colorado de Huacho, Huaura Valley, Peru in order to address conflict, cooperation, and exchange on the central coast of Peru in the Late Intermediate Period (LIP) (A.D. 1000-1450). Though dominated by Chancay black-on-white and Lauri impressed ceramic styles, the range of diversity in forms from Cerro Colorado is sizable. The diversity of these forms will be compared and contrasted to ceramics from contemporaneous central coast and highland sites as a means of identifying potential interregional exchange networks and sociopolitical affiliations and how they were developed.

Rutz, Matthew (Brown University) [14]  
*Mental Topographies of Ancient Mesopotamia: Textual Perspectives on Learned and Lived Highland-Lowland Interactions*

Textual sources from southern Iraq’s early historical periods constitute a surprisingly rich body of material for exploring highland-lowland interactions in ancient southwest Asia. Cuneiform inscriptions typically convey only one perspective on these interactions, namely, that of the elite inhabitants of city-states and territorial polities of the southern Mesopotamian alluvium. However, these decidedly one-sided representations were hardly monolithic, and in this paper I explore the various views found in the written record by attending to the archaeological and historical contexts in which the texts were produced. First, focusing in particular on the third and early second millennia B.C.E., I briefly survey the prominent literary topoi, historical episodes, and epigraphic/iconographic landscapes that shed light on long-term trends in how mountainous regions and their populations were imagined by Babylonian states and their scribes. I then look in specific at the ways in which early second-millennium educational practices at sites such as Nippur and Ur created geographic knowledge. By treating textual remains as material culture it is possible to ground the ancient production of literature in practices of cognitive socialization.
Ruvalcaba, Jose Luis [399] see Alonso-Olvera, Alejandra

Ruvalcaba, Jose (Instituto de Fisica UNAM) [399] Discussant

Ruvalcaba Sil, José Luis [194] see López Luján, Leonardo

Ryan, Susan (Crow Canyon Archaeological Center) [22] Rooting the Kiva: The Placement of Coal in Ancestral Pueblo Construction Rituals

Architectural construction is the process by which material and non-material elements and overall spatial setting are made fixed. Consideration of the ways in which physical space-defining elements function can provide insights to the ways in which space was used and understood by the occupants or builders. This study illuminates how ancestral Pueblo kiva construction rituals were integrated within Pueblo worldview concepts in the northern Southwest during the Pueblo II (A.D 1050-1150) and Pueblo III (A.D. 1150-1280) periods. The placement of coal, or lignite, below kiva features and floors followed strict principles of spatial composition referencing axes that ordered space and served as symbolic representations of the layered cosmos. Moreover, the placement of coal during construction rituals ensured the strength of the house, long life, fertility, and good health of its occupants, the fertility of crops, abundant rain, and provided for the general welfare of occupants in the larger village.

Ryan, Susan [85] see Coffey, Grant

Ryan, Joseph (Osaka University) [145] The Role of Iron Weaponry and Martial Ideology in the Political Consolidation of Early Japan

In addition to their functional role as military implements, weapons can also serve as material representations of martial ideology. Research on weapons burials must therefore take into consideration the multifaceted nature of weaponry within a society. During the majority of Japan's Kofun period (mid-3rd century to early-7th century), the archipelago relied on the importation of finished iron products and raw iron materials from the Korean Peninsula. This formed an intimate connection between elite power, which was capable of conducting long-distance trade, and iron products (weapons, tools, and agricultural implements). Iron weapons, which facilitated elite control, also functioned domestically as symbols of sociopolitical legitimation. While weapons burials are a defining feature of the Kofun period, there are almost no other archaeological correlates of widespread warfare or conquest. This apparent contradiction can be resolved by interpreting the archipelago-wide spread of weapons burials as representing the formation of a confederacy of elites bound by a common martial ideology. A diachronic analysis of the changing nature of weapons and weapons burials reveals the conditions behind the formation and spread of these authority symbols among the elite.

Ryan, Stacy (Desert Archaeology, Inc.) [278] Technology and Typology in the Upper Gila: Flaked Stone from the 3-Up and Fornholt Sites, Mule Creek, New Mexico

Several seasons of field school excavations at the late Pueblo period 3-Up and Fornholt sites in Mule Creek, New Mexico, have produced a substantial number of flaked stone artifacts. Because these sites are located adjacent to the extensive Mule Creek obsidian source, and were occupied at a time when Mule Creek obsidian was widely distributed, the collections provide information about lithic technology at sites with immediate access to the material. Obsidian composes a large proportion of the artifacts, and projectile points are almost exclusively made from this material. Although occupations at these sites may have overlapped, the Tularosa phase (A.D. 1200-1325) Fornholt site produced a more diverse set of projectile point types than those recovered from 3-Up, where a late 13th to 14th century probable Kayenta migrant enclave and a later Salado occupation have been identified. This poster summarizes the obsidian core reduction and tool production patterns at 3-Up.
and Fornholt, and illustrates the stylistic variability of the projectile point types from these sites. The points are compared with late pre-contact typologies from southwestern New Mexico and southern Arizona to make inferences regarding their temporal and cultural affiliations.

Ryan, Ethan, Thomas A. Foor (The University of Montana), Kristen D. Barnett (The University of Montana), Pei-Lin Yu (Boise State University) and Matthew Schmader (The City of Albuquerque)

[312] Household Hearth-Centered Activity Areas at the Bridge River Site, British Columbia: Formation Processes and Site Structure

Archaeological investigations at Housepit 54 within the Bridge River site have identified approximately 15 discrete floors dating between 1500 and 100 years ago. In this poster we draw data from a Bridge River 3 (ca. 1300-1000 cal. B.P.) period floor to examine the formation of activity areas with a larger goal of reconstructing “site structure” in a constrained space. We address questions specifically directed at formation processes as well as potential relationships between at least two hearth-centered activity areas by examining variability in artifacts, faunal remains, and features. More specifically, we examine feature form and function, lithic tool production and maintenance, animal and plant processing, taphonomic processes, and potentially, ritualistic practices to reconstruct the means by which the items in each activity area came to be co-associated. From these studies, we draw conclusions regarding the roles of these spaces on the house floor. We then seek to address potential relationships between activity areas by application of re-fitting analysis and examination of inter-assemblage variability. Results of this research permit us to develop a range of implications regarding household occupational history and sociality.

Sablin, Mikhail V. [28] see Germonpré, Mietje

Sabloff, Jeremy (Santa Fe Institute)

[344] Discussant

Sabol, Donald [8] see Buck, Paul

Sacks, Ben [28] see Brown, Sarah

Safi, Kristin [8] see Simon, Katie

Safi, Kristin (Washington State University), Adam Wiewel (University of Arkansas), Katie Simon (Center for Advanced Spatial Technologies) and Andrew Duff (Washington State University)

[287] Mapping the Monumental Architecture of the Largo Gap Great House

This study combines spatial technology with traditional field methods to accurately identify and map the monumental architecture of the late Pueblo II Largo Gap great house. Although previous visits by early researchers to the site identified monumental architectural characteristics typically associated with Chaco-style great houses (primarily the presence of a great kiva), the surface expression of such features is currently lacking. Rubble present along the steep slopes of the knoll upon which Largo Gap is situated suggests not only a lack of major external architectural features but also an atypically small overall architectural footprint. We present a case study utilizing multiple data lines (aerial thermography, ground penetrating radar, surface mapping, and limited excavation) to obtain surface and subsurface architectural signatures for the great house. We use these data to counteract the impacts erosion, significant historic stone borrowing, and modern ranching have had on understanding the structure’s surface expression, and to identify monumental architecture through minimally invasive means. Our approach is balanced between obtaining specific architectural signatures relevant to determining identity and participation in the Chaco Regional System while also broadening our spatial and analytical scope to expand beyond using surface wall alignments to form socially contextualized interpretations for the site.
Sagebiel, Kerry
[147] Dragons through a Ceramic Lens: Evidence for a North-Central Belize Ceramic (Sub)Sphere
As viewed through a ceramic lens, it is becoming evident that North-Central Belize was distinct from surrounding areas. Starting in the Middle Preclassic, the ceramics of the Swasey/Bladen Sphere of North-Central Belize are notably different than those of adjacent areas of the Belize Valley, Peten, and Yucatan. The extent of the Middle Preclassic Swasey/Bladen Sphere is becoming clearer with work at Ka’Kabish and the surrounding area. Similarly, the Terminal Classic/Early Postclassic ceramics of Lamanai and Ka’Kabish have unique attributes when compared to those of adjacent areas. The time periods in between — the Early Classic and Late Classic — still need further investigation in order to determine if they are also ceramically outstanding. Possible implications of a coherent North-Central Belize ceramic sphere or sub-sphere for political and cultural interaction/entanglement and shared identity will be explored.
[147] Chair

Sagebiel, Kerry [147] see Lockett-Harris, Joshuah

Sahle, Yonatan (Human Evolution Research Center, University of California, Berkeley)
[174] Assessment of Projectile Use at Aduma (Middle Awash, Ethiopia)
There is not yet clear evidence for the beginning of complex projectile technologies (propulsion via mechanical aid). Morphological attributes and miniaturization of stone points at Aduma have been used to suggest early complex projectile use ~100,000-80,000 years ago. Hafting traces on stone segments and geometric pieces were presented as better indications of early complex projectile use at Sibudu Cave, South Africa, ca. 64,000 years ago. However, neither point shape/size nor evidence for hafting unequivocally imply the existence of complex projectile technologies. With only the lithic component of complex projectile technologies so far recovered from the African Middle Stone Age, confident reconstruction of the entire armature system (based on ethnographic analogues) requires unambiguous evidence, such as fracture propagation velocity on stone points damaged from impact. Unfortunately, this method has extremely limited applicability. Given these facts, the use of multiple lines of circumstantial evidence is the best approach to a sound assessment of complex projectile use. This study examines morphological attributes and macrofracture damage patterns on the Aduma assemblages. In so doing, it re-assesses previous suggestions for the points’ use as tips of early complex projectiles.

Sahlen, Daniel (Stockholm University)
[89] Non-Ferrous Casting Molds and Technical Logic: What Can the Technical Differences between the Bronze Age and Iron Age Molds Tell Us about the Technological Development of Metalworking?
Studies of technological changes in non-ferrous casting during the shift between the Bronze and the Iron Age in Europe have particularly looked at changes of crucible manufacture or the use of different alloys, while technology of the casting mold has not been studied to the same extent. Mainly three types of molds were used during the prehistoric period — single piece, two-piece, and investment. The first two types were made in clay, stone and occasionally metal, while investment molds were only made from clay. These differences are often discussed as a chronological evolution of technical complexity. However, all three types were used at least during the Iron Age and would have been part of the skill set of the caster; the choice of mold would rather relate to the object to be cast. The purpose of this presentation is to use microscopic and elemental analyses to examine the technological changes of the manufacture of casting molds from the Bronze Age to the Iron Age. This makes it possible to highlight technological choices and to recreate craft practice on macro- and micro-levels. Material from Scotland will be in focus, though assemblages from other parts of northern Europe will also be discussed.
ABSTRACTS OF THE SAA 80TH ANNUAL MEETING 884

Sailors, Damion
[233] Ring Graph Analyses of Early Communities on Rapa Nui Measuring the Distribution of Stone-lined Earth Ovens (umu)

Agricultural societies are commonly thought to have begun as small, kinship-based groups of people that eventually extended their social interaction beyond the household level and intensified their adaptive efforts through a variety of means. Most of these early, sedentary communities began to demonstrate aspects of social inequality and had cooperative, centralized settlements that have left a detectable pattern in the archaeological record. For this paper, stone-lined earth ovens from the remote Pacific island of Rapa Nui were chosen for a spatial analysis of settlement patterns using a ring graph technique developed by Drennan and Peterson (2008). Ring graphs are derived from the more traditional approaches of rank-size graphs and histograms which have been used for the last several decades to study settlement distributions and to determine the nature of stratification and interaction in sedentary, agriculturally based societies. The results of this analysis were used to investigate the possible centralization of early Rapa Nui communities. An emphasis on the intra-regional variation in settlement dynamics exhibited by the colonizers of this isolated island were discussed within a behavioral ecological framework.

Sajantila, Antti [78] see Guevara, Evelyn

Sakai, Masato (Yamagata University), Jorge Olano (Yamagata University), Yoichi Watanabe (Yamagata University) and Kaoru Honda (Yamagata University)
[31] Nasca Lines, Ceramic Sherds, and Social Changes: Recent Investigation at the Nasca Pampas, Southern Coast of Peru

The objective of this study is to discuss the social changes of the societies in the Nasca region, the south coast of Peru through the analysis of ceramic sherds distributed near the lines and line centers. In 1926 the Nasca lines had been discovered by Alfred Kroeber and was investigated archaeo-astronomically by Paul Kosok and Maria Reich. At the 1980's Anthony Aveni and his colleagues carried out investigation at the pampas and contributed to reveal the details of the Nasca lines and centers. Since the year 2010 Yamagata University have conducted field research at the pampas. We have tried to investigate thoroughly the archaeological remains at the pampas, which Dr. Clarkson had carried out a preliminary study in the 1980's. In our research, more than ten thousand sherds were recognized in association with lines and centers. Interestingly, their chronological position varies from Late Ocucaje to Ica Period and they were intentionally smashed at the lines and centers. In this presentation we will not only report a result of these ceramic analyses, but also discuss the diachronic social changes around the Nasca pampas for two thousand years.

Sakai, Sachiko [133] see Garfin, Timothy

Sakai, Sachiko (California State University Long Beach), William Krill (California State University Long Beach), Hector Neff (California State University Long Beach), Hazwan Faizul (California State University Long Beach) and Desiree Shahbazkhani (California State University Long Beach)

Recently, optically stimulated luminescence (OSL) dating of sediment has been used increasingly in the study of human occupation history in archaeology. This paper employs OSL to date the Little Springs Lava Flow, a lava flow near Mt. Trumbull, northern Arizona, thought to have erupted about 1000 years ago. The accepted dates are based on cosmogenic helium dating. This lava flow covers some of the most productive agricultural land in the Mt. Trumbull area. Previous archaeological surveys revealed multiple structures built on the top of this lava flow and potentially suggested that their construction was for defensive purposes. In this paper, we re-evaluate the timing of the eruption of the Little Springs Lava flow using OSL dating of sediments from just beneath the lava. One goal of this study is to compare OSL dating of the sediment vs cosmogenic helium dating for determining the age of lava flows. Second, understanding the timing of the eruption or eruptions will contribute to a
better understanding of their impact on the Ancestral Puebloan people who inhabited this marginal agricultural environment.

Sala, Nohemi and Juan Luis Arsuaga (Centro Mixto UCM-ISCIII Evolución y Comportamiento)  
[87] Taphonomy and Actualistic Studies of Carnivores: Applications to Understanding Sima de los Huesos (Atapuerca) and other Pleistocene Sites in Spain  
The study of carnivore activity on bones is crucial to understand the role of the carnivores in site formation since some carnivores are able to accumulate bones in cave dens. The studies of Professor Haynes reveal that actualism is a very useful tool for taphonomic studies, as it allows understanding the behavior of the fauna in the past. In Spain there are several Pleistocene sites with evidence of carnivore activity. The Sima de los Huesos (SH) is the site with the largest accumulation of human remains from the Middle Pleistocene. Studies in the last two decades have proposed different hypotheses to explain the origin of the SH hominin accumulation, carnivores being one of them. We have approached the taphonomic study of SH through actualistic research with living carnivores (ursids, canids, and large felids). The comparison of bone modification patterns at SH to actualistic data allows us to suggest that bears were likely to have been the carnivore responsible for the modification observed on human fossils but we discard the carnivores as the accumulation agents. The research developed by G. Haynes was decisive in this study since it was the framework of our actualistic experiments.

Salazar, Diego (Universidad de Chile), carola flores, laura olguin (Universidad de Tarapacá), Cesar Borie (Universidad de Tarapacá) and Valentina Figueroa (Universidad Católica del Norte)  
[2] Environment, History and Resilience of Archaic Coastal Hunter-Gatherer-Fishers from the Atacama Desert, Northern Chile  
The coast of the Atacama Desert in northern Chile is one of the most extreme environments of the Andean area. However, the high productivity of the Pacific Ocean facilitated the peopling of this territory as early as 12,000 years cal BP and also a continual occupation of hunting-gathering-fishing communities throughout the Holocene. In this paper we discuss significant environmental changes during the Middle Holocene, as well as the systematic interaction of local communities with inland agropastoral groups during the Late Holocene. We are especially interested in exploring the resilience of local economy in the face of these important external conditions and transformations, making them one of the few cases in the coastal Andes where a hunter-gatherer-fisher economy was maintained until at least the 19th Century.

[180] Chair  

Salazar, Julian (Universidad Nacional de Cordoba - CEH Segreti - CONICET) and Jordi A. López Lillo (Àrea d’Arqueologia, Universitat d’Alacant (Spain))  
[62] Early Village Dwellings and the Reproduction of South Andean Formative Communities  
Agriculture was adopted by in northwestern Argentina around 3500 BP as part of a complex process of macroregional population reorganization, economic intensification and increase of territoriality. This transition was followed by a rapid introduction of large and solid buildings that became the major and most visible features in the village arrangements after 2500 BP. Thousands of multi round-room compounds were built and inhabited by several generations all over several high valleys, like Tafi, Anfama, Yocavil and Cajón, creating continuous and centrifugal village landscapes. This particular spatial configuration has been interpreted as the material traces of fluid and heterogeneous communities built up by largely autonomous extended households. Taking some remarks from "symmetric archaeology" we address the relations between humans and the material settings of daily life, considering how these relations allowed the emergence and reproduction of household and communities within the conflictive medium of early village societies. We include GIS landscape and space syntax analyses for both outdoor village space and indoor inhabited place, and a study of quotidian practices carried out within house occupation.

Salazar, Diego [152] see Figueroa Larre, Valentina

[415] Plant Food Consumption among Modern Foragers Informs Paleolithic Dietary Ecology
Reconstructing hominin diets is hindered by biases in the methods used to recover dietary information, and by our narrow interpretations of modern forager behavior. A better understanding of these limitations necessitates re-examination of dietary evidence in the archaeological record. Zooarchaeological and stable isotope data suggest that medium and large game dominated the diets of Middle and Upper Paleolithic foragers, and environmental reconstructions indicate that energetic returns from large game far exceeded returns from plants and smaller animals. Yet our studies of dental calculus from several Paleolithic populations demonstrate consumption of starchy plant foods. Furthermore, our data on plant food consumption among Hadza foragers of Tanzania and Twe foragers-horticulturalists of Namibia demonstrate that 1) caloric and biological value (digestibility) of plant foods are not always predictive of foraging strategy, and 2) microfossils in dental calculus present an incomplete record of plant consumption. These results indicate that we continue to underestimate the importance and presence of plants in ancient diets. We suggest that calories must have come from both plant and animal origin in Paleolithic Eurasia, not only to enable macronutrient balance, but also to ensure acquisition of essential micronutrients in the diet despite the lower energetic returns of plant food resources.

Saldaña, Julio (Pontificia Universidad Catolica del Peru) and Luis Jaime Castillo Butters (Pontificia Universidad Catolica del Peru)

[60] Is It a Priestess? Preliminary Analysis of the Excavations of a Late Moche Chamber Tomb from San Jose de Moro, North Coast of Peru
San Jose de Moro, located in the North Coast of Peru, is a well-known ceremonial site where ritual practices were held over a span of 1000 years. This, in relation with the burial of high rank individuals whom are believed to have performed important roles within Moche society, especially during the Late Moche Period, places this site as one of high importance for the understanding of the Moche society along with its region. This paper will present the results of excavations held in 2013, when we uncovered a Late Moche Chamber Tomb in which we found the main individual within a coffin covered by copper plaques with maritime designs. This individual was surrounded by 7 other individuals as well as an astonishing quantity of funerary offerings like raw architectural models, beads from semiprecious rocks, spondylus and over 102 ceramic vessels. The aim is not only to show the excavation process and its findings, but also to try to figure out through osteological and material analysis whether this main individual was buried as an actual priestess, as the tradition at the site indicates, or whether we can identify a new type of high ranking individual from Moche society.

Saldaña, Melanie [355] see Bueno, Marilyn

Salesse, Kevin [207] see Bruzek, Jaroslav

Saletta, Maria José [251] see Nuevo Delaunay, Amalia

Salgán, Laura (CONICET/IANIGLIA Museo de Historia Natural de San Rafael), Paz Pompei (IANIGLIA Museo de Historia Natural de San Rafael), Adolfo Gil (CONICET/IANIGLIA Museo de Historia Natural de Sa) and Gustavo Neme (CONICET/IANIGLIA Museo de Historia Natural de Sa)

[91] Technological Approach of Obsidian Sources in North Patagonian: Comparative Studies between Plain and Highlands Sources
Obsidian sources in northern Patagonian reflect early use (ca. 8000 years BP). Provenance studies
conducted so far realize that obsidian sources located in the Andes even with limited access (only during the summer) are those that reflect a wider spatial dispersion and more continuous use than those located in the plains. In this way, the sources located in the plains reflect local use for the last 1000 years BP. This presentation compares the results of the technological studies that have been sampled in the mountainous source “Las Cargas” and in the plain source called “El Peceño”. The results obtained from both sources show differences in procurement activities carried out and allow discuss models proposed for southern Mendoza.

Salinas Acero, Jennifer (UC Berkeley)

Paleoethnobotanical Analysis of Preceramic Sites in the Sabana de Bogotá

The Sabana de Bogotá is one of the most extensively studied regions of preceramic archaeology in Colombia. Many of these projects were carried out by or in conjunction with Dr. Gonzalo Correal (UNAL) and contributed a wealth of information on the period including paleoenvironmental data, tool use, and faunal data. However, few botanical remains have been recovered which resulted from the sieving of a few small samples or were found in-situ. Recent excavations conducted at rockshelters and open-air sites revisited several sites in the in the region that had yielded macrobotanical evidence when excavated by Dr. Correal. These excavations resulted in the systematic collection of column samples for flotation and microbotanical analysis affording the first opportunity to fully examine the use of plants in the preceramic period of this region. This presentation provides a preliminary summary of the paleoethnobotanical analysis of this preceramic assemblage. An assemblage that will eventually serve as a baseline for understanding diachronic changes in foodways and contribute to an understanding of human-environmental interactions in the preceramic period of the Sabana de Bogotá.

Salmon Schreck, Kelsey (College of Wooster) and P. Nick Kardulias (College of Wooster)

The Domestication and Migration of Zea mays L. in Association with Holocene Climatic Variance

Maize is known to have originated in Mesoamerica from which it spread north and south adapting to many varied climatic and environmental conditions. This study details the origin of the species Zea mays L. The teosinte hypothesis and the concepts of seasonality and scheduling are used to discuss the domestication of maize by means of human selection. This information is used to highlight the basic circumstances necessary within a human population for maize agriculture to be adopted. Furthermore, climate is examined through the minimum and ideal environmental conditions needed for the successful growth of maize. Environmental cues play a profound role in the phenotypic characteristics a species exhibits; therefore, Holocene climatic events are examined in areas with extensive evidence of maize domestication. The minimum requirements for maize growth are compared against the actual conditions during periods of significant climatic change (Little Ice Age, Medieval Warm Period, etc.). By comparing the ideal versus realized conditions over time, a model for the diffusion of maize from Mesoamerica into North America, with a particular focus on the Southwest and Ohio Valley, is developed.

Salomon, Hélène [181] see Bon, François

Salpeteur, Matthieu [73] see Lancelotti, Carla

Saltonstall, Patrick [311] see Margaris, Amy

Saltzman, Teresa

Issues Involved in the Recording and Protection of a Previously Unknown Rock Art Site in Northern California

This paper will discuss the interaction between an archaeologist, a Native American who is a most likely descendent from the archaeological site, and a municipal government agency in the
rediscovery, documentation and eventual repatriation of indigenous knowledge of a previously unrecorded rock art site. The rock is located in Northern California, on the lake bottom of a municipal water district water property. How should the rock be recorded? Does anyone really “own” that information? Who determines whether it could be sacred or the meaning of the symbols in the context of a cultural tradition? Only through the accumulated data base of site reports and studies can more possible cultural patterns be uncovered and help in the continued search for the more of these little known or understood early rock art sites. By working with the all three interested parties, protocols could be developed for future rock art site discoveries that would establish a consistent documentation and protection plan for these cultural resources.

Salyers, Kimberly (University of California, Santa Cruz)

Resource Procurement at the Local Level in Classic Maya Chinikihá (A.D. 600-900)

Resource procurement is a topic traditionally approached from a geographic macro scale. In the Maya area, this refers to the scale of settlement patterns or the landscape, involving the territory inhabited by a large number of people living in different settlements. What this scale often misses is the role that commoner households play in these processes. This presentation will discuss how geographic setting and access to resources not only shaped the daily lives of Maya commoners but the role households play in local polities, like those at the Classic period site of Chinikihá, Mexico. Through the use of GIS analysis and analysis of material recovered from household excavations, this presentation demonstrates changes in understanding of the procurement of local resources.

Possible applications such as fauna, ceramics and lithics will be considered.

Samei, Siavash and Karim Alizadeh (Department of Anthropology, Harvard University)

Craft Production and Specialization in the Transcaucasian Early Bronze Age: A View from Köhne Shahar, NW Iran

A common image of the Kura Araxes Cultural Community (KACC) of Transcaucasia is one of egalitarian and mobile groups of pastoralists. While mobility and pastoralism are important aspects of KACC, this generalization dampens what in reality is a more complicated picture of the Early Bronze Age of Transcaucasia. Recent investigations in Transcaucasia, including the site of Köhne Shahar (KSH) in northwestern Iran, present a much more nuanced image of social and economic interactions in this time period. In this paper we contend that KSH served as a locus of craft specialization in the region, focusing on the large-scale production of such goods as metal and antler tools and ornaments. Finally, we discuss the importance of KSH and its economic and productive activities within a broader regional framework, including the relationship between the Caucasian highlands and the steppe communities to its north and Mesopotamia to its south.

Samillán Torres, César [371] see Szumilewicz, Amy

Samiratedu, Mehmet [178] see Bishop, Gale

Samolczyk, Mary [155] see Grooms, Michael

Sampson, Christina (University of Michigan)

Lines and Legacies: Ceramic Assemblages from the Weeden Island Site (8P11)

The Weeden Island site (8P11) is perhaps best known for its connection to the eponymous Woodland period culture, found in Alabama, Georgia, and Florida, and characterized in part by the use of a specialized class of decorated mortuary wares. In the Tampa Bay area, both the regional movement and local production of pottery contributed to the adoption of new ceremonial practices in the late Woodland period. I present here a study of ceramic collections from early 20th century work at the Weeden Island burial mound in the context of archival materials and new excavations of off-mound portions of the site.

Samson, Alice [288] see Cooper, Jago
San Roman, Manuel (Universidad de Magallanes), Jimena Torres (University of Paris I Panthéon-Sorbonne, UMR 7041-) and Flavia Morello (Universidad de Magallanes, Instituto de la Patagon)

[251] Offing 2 Locus 2 Archaeological Site (Dawson Island, Patagonia, Chile), Marine Hunter-Gatherers and Interaction during the Late Holocene

The results from Offing 2 Locus 2 archaeological site are presented and used to discuss broader implications for Patagonia hunter-gatherer contexts during Late Holocene. The site is located near Dawson Island, in a strategic geographical position between Fueguian-Patagonian archipelagos and the South America mainland. Radiocarbon dating suggests occupation around 800 BP. Evidence is characteristic of shell midden deposits and chronological evidence indicates a short occupational sequence. Lithic technology includes the use and transport of green obsidian with predominant use of local rocks, and a wide typology of instruments such as end-scrapers, side-scrapers and knives, common along the macro-region. As for projectile points they are predominantly stemmed but varied in typology and small size points are identified with bow-arrow weapons similar to those described for ethnographic collections. Bone instruments considered wedges, retouchers and awls, among others, but the key characteristic instruments are harpoon points of one barb and simple-tenon base that are detachable, also described in historic-ethnographic times. Other fauna elements include guanaco bone remains (Lama guanicoe) and scallop shells (Chlamys sp.) (both of exotic origin) and decorated bird bone pendants. Subsistence strategies are dominated by pinniped exploitation, sea birds and fishing. Results are discussed in relation to cultural traits and interaction evidence.

San Roman, Manuel [251] see Morello Repetto, Flavia

Sanchez, Gabriel (Department of Anthropology, University of California Berkeley)

[103] Testing the Association of Chipped Stone Crescents with Wetlands and Paleo-Shorelines of Western North America: A GIS-based Spatial Analysis

We use ArcGIS and spatial analysis to quantitatively test a proposed association between chipped stone crescents and wetland environments in western North America. Dating between ~12,000 and 8,000 cal BP, crescents are often found in association with stemmed points of the Western Pluvial Lakes or Western Stemmed traditions. Many scholars have suggested that crescents served as transverse projectile points for hunting waterfowl, others have viewed them as more generalized and multi-purpose tools, possibly associated with wetland resource processing. In this paper we provide the first quantitative analysis of the proposed association between crescents and wetland habitats—testing their proximity to ancient pluvial lakes, marshes, rivers, estuaries, and islands using a GIS-based model. During the Terminal Pleistocene and Early Holocene, coastal habitats were highly dynamic and the Great Basin was cooler and moister than today, with numerous lakes and much more abundant marsh habitat. 8,000 years ago, environmental changes led to significantly drier conditions in the Great Basin, reducing lake and marsh habitat. Our results will help evaluate previous theories about the ecological association of crescents, as well as their function.

Sanchez Miranda, Guadalupe (INSTITUTO DE GEOLOGIA-UNAM) and John Philip Carpenter (Centro INAH Sonora)


Funerary traditions reflect social behaviors that contain important information about the integration of several social groups. Funerary practices seem to persist over time because they comprise an integral aspect of group identity. In this paper we discuss the funerary practices known for the identified late prehispanic Sinaloan archaeological traditions. Specific locations to bury the dead appear to be the usual practice for the Aztatlán and Huatabampo traditions. Funerary mounds with extended burials appear to be associated with the Huatabampo/Guasave tradition and are present on the Pacific coastal plain of northern Sinaloa and southern Sonora. During the northern expansion of the Aztatlán tradition (between 900-1400 C.E.) urn burials, along with several commodities, expanded into northern Sinaloa; the northernmost urn burial known is located on the Bahía Agiabampo adjacent to the Sonoran border. Additionally, we discuss the evidence for interaction and integration of the Sinaloan archaeological groups based upon funerary practices, trade goods and
social identity.

Sand, Christophe (Institute of Archaeology of New Caledonia and the Pacific (IANCP)), Jacques Bolé (Institute of Archaeology of New Caledonia and the ), David Baret (Institute of Archaeology of New Caledonia and the ), André-John Ouetcho (Institute of Archaeology of New Caledonia and the ) and Tautala Asaua (Center for Samoan Studies, National University of )

[77] Geological Subsidence and Sinking Islands: The Case of Manono (Samoa)

W. Dickinson, as part of his wide study of the geological history of Pacific islands, has proposed in a series of papers to explain the unique case of the deeply submerged Lapita site of Mulifanua in Western Upolu (Samoa) as linked to the slow subsidence of Upolu Island. Recent archaeological research on the neighboring small island of Manono has brought new and detailed data on this geological process. A series of dates aid in chronologically defining the speed of the subsidence as well as the massive environmental changes to which the local population had to adapt over the past 2500 years.

Sand, Christophe [77] see Chiu, Scarlett

Sandberg, Paul [410] see Hepp, Guy

Sanders, Thomas

[30] The Hindquarters of God, Seeing the Sacred in a Landscape

As the needs of our expanding society increasingly refashion our natural environment, we struggle to maintain healthy habitats and our sacred places. Archaeologists, land developers, lawmakers, theologians, and indigenous practitioners of traditional spirituality all struggle with conflicting views of what do we mean when we declare that something is sacred and how do we recognize and preserve sacred places. The burning questions at the heart of this struggle are seemingly unanswerable: “What is sacred and what is not sacred.” If something is sacred, can we interact, alter or develop it? If everything is sacred what can we develop, consume or even study in an academic setting? Dakota Elder Tom Ross taught that the sacred cannot be defined. He believed that the more we defined the sacred, the further we got from understanding it. Tom was taught by elders how to think about the sacred. He was taught how to recognize what could not be defined. This paper briefly outlines the teachings on the sacred and sacred places of some Dakota, Cheyenne, Arapaho and Shoshoni elders.

[30] Chair

Sanders, Mariana (University of Guam), Stephen Acabado (Adviser) and John Peterson (Adviser)

[119] Climate Change and Subsistence Shifts: Wet-Rice Agriculture in Ifugao, Philippines

The Little Ice Age was a global phenomenon beginning in the late 13th century A.D. that impacted the northern Philippines by creating more arid conditions. This was more evident in the eastern lowlands of Luzon where northeastern trade winds were typically dry. Conversely, the central highlands of Ifugao and the Cordilleras were relatively more humid due to orographic relief. These conditions, caused by periodic volcanism cooling the northern hemisphere, forced the Inter-Tropical Convergence Zone south to 0-5° north latitude, exposing the northern Philippines to 5-15° north latitude to drier conditions. This may have sent lowland farmers in search of humid highland terrain, documented around 3,200 years before present in the Cagayan lowlands of Luzon, allowing for the rise of wet-rice farming after its introduction into the Philippines ca. 1400-1500 A.D. As recent research shows, the rice terraces were not 2,000 years old but date to 1400 A.D., corollary to Spanish settlement in the lowlands and emergence of mountain settlement by Ifugao and other farmers. Spanish colonialism in the 16th-17th centuries A.D. led to the rise of extensive wet-rice farming in regions peripheral to Spanish governance.
Sandgathe, Dennis [35] see Goldberg, Paul

Sandgathe, Dennis (Dept. of Archaeology, Simon Fraser University), Vera Aldeias (Department of Human Evolution, Max Planck Institut), Harold Dibble (Department of Anthropology, University of Pennsylvania) and Shannon McPherron (Department of Human Evolution, Max Planck Institute)

[190] A Most Interesting Career: Paul Goldberg's Other Contributions to Life and Science
Many people are familiar with Paul Goldberg's contributions to archaeological research around the world through micromorphological analysis. Many are also familiar with his innovations in this area of analysis. However, few may know of his many other contributions. Applying his notable skills and talents to a wide range of practical applications, scientific and otherwise, Paul has made major contributions to life as we know it. His has been, and continues to be, a most interesting career.

Sandor, Shana [12] see Crebbin, Kyle

Sandor, Jonathan (Iowa State University, Agronomy Department) and Jeffrey Homburg (Statistical Research, Inc.)

[180] Approaches to Assessing Anthropogenic Soil-Landscape Change in Ancient Agricultural Systems
Farming alters and can wholly transform landscapes and soil properties, through both deliberate management and unintentional trajectories. The archaeological record of agriculture holds important long-term evidence about land management and change relevant to archaeology and current agriculture. Quantitative assessments of soil change in ancient fields are relatively few because of methodological challenges, soil's dynamic nature, and post-agricultural imprints of environmental change and land use. This paper discusses approaches to measuring and interpreting soil change through examples, identifies potentials and pitfalls, and considers new methods. Evaluating soil change requires baseline reference data. Inferring soil change is commonly based on a “space-for-time substitution” method in which agricultural soils are compared with uncultivated reference soils in similar geomorphic and pedogenic settings. Because soils are dynamic, reference soils do not represent original soils, but rather what cultivated soils would be like now had they not been farmed. Another way to detect soil change is to identify anthropogenic properties outside the range found in natural soils. Most comparative studies involve soils farmed during one period in the past, but there are examples involving multiple periods that allow studies of soil change pathways. Soil change outcomes range from degradation to enhancement of soil productivity.

Sandoval, Cindy (Arqiga, Cindy Sandovaí), José Luis Punzo (Dr. en Arqueología) and Héctor Víctor Cabadas (Dr. en Geología)

[231] Petrographic Analysis of Ceramics and Construction Materials: The Dwellers of Cueva del Maguey in the Sierra Madre Occidental and the Ferreria site of the Guadiana Valley in Durango, Mexico
The archaeological site of the Ferreria (550-1350 d.C.) is undoubtedly the most important prehispanic settlement of Chalchihuites Culture in the Guadiana valley in Durango. The work done was based on a chronology made for Charles Kelley who divides into two main branches (Súcil and Guadiana). The presence of archaeological materials allowed reconsider the provenance of ceramics Madero Fluted type in the Guadiana valley and the Sierra Madre Occidental, activities and tasks has been important in the travel of materials, objects and ideas. The operational chains are the join of operations that were made to transform some materials in a product and that chains interfere jointly in the traditional knowledge lapsed socially and the experimentation. The ability of the constructors in the sierra allowed the use of constructive strategies for the edification of masonry. The traditional methods include itself the transmission of knowledge and the concept of learning (Castrellon, 2009:79). At the same time the presence of materials associated with the phase Tunal and Calera (1000-1350 d.C.) in Durango and the exchange with the dwellers of the sierra, reveal the deep cultural continuity that exist in the groups of La Ferreria and the Cueva del Maguey site.
Sandoval Mora, Cindy Cristina [156] see Ortiz Barrera, Rosa

Sands, Robert [199] see Megarry, Will

Sandstrom, Alan (Indiana University-Purdue University Fort Wayne (IPFW))

[194] Why Pilgrimage? The Ethnography and Archaeology of Journeys to the Center

Pilgrimage is a “dynamic concrete isolate” found throughout the world at all levels of socio-cultural integration. Pilgrimage involves a journey to a significant geographic location and a return to the place of origin. Pilgrimage shades into tourism and a pilgrim’s destination may range from the site of a miraculous appearance of a deity to Graceland. In Mesoamerica, pilgrimage has become a major focus of archaeological research. Sites with ritual associations and little evidence of habitation are routinely interpreted as pilgrimage centers. Pilgrimage and the meanings attached to it are also a recent focus of our own ethnographic research among Nahua people of the Huasteca. Contemporary indigenous and as well as non-indigenous participants continue the ancient pilgrimage tradition throughout Mesoamerica. We see pilgrimage as a means for people to escape the confines of a rigid social structure, introduce innovation into the system, and reset social relations without threatening the overall system. Pilgrimage has the potential to allow people to escape a social straitjacket while at the same time demonstrating commitment to cultural values embodied in a significant site. We dedicate this presentation to the ethnographic researches of Frannie Berdan, and especially her work among Nahuas in the Sierra Norte de Puebla.

Sandweiss, Daniel (University of Maine)

[334] Floods, Famines, and Fagan: Recent Research on El Niño in the Age of Andean States and Empires

In 1997-98, the first mega-Niño of the internet age devastated vast regions of the equatorial Pacific basin and altered weather throughout the globe; El Niño became a household term. Within two years, Brian Fagan had published “Floods, Famines, and Emperors: El Niño and the Fate of Civilizations”, calling global attention to potential impacts of the phenomenon in prehistory. The Peruvian coast is ground-zero for El Niño, and Fagan included a chapter on Peru in his book. Over the last 15 years, new research has increased our understanding of the timing, frequency, and potential impacts of this climatic perturbation in coastal Peru. In this paper, I review the most salient new results on climate and civilization over the last two millennia, when complex states and empires controlled the Central Andes. Niño-related topics include landscape alteration and monument location, cycles of temple abandonment, population displacements, and the effects of the Spanish Conquest on coastal change, among others.

Sanger, Matthew C. [178] see Napolitano, Matthew

Sanger, Matthew (American Museum of Natural History)

[400] Animate Landscapes and the Transference of Authority: Resistance to hierarchy among Hunter-Gatherers of the Eastern Woodlands

Traditional conceptions of power, hierarchy, and inequity focus on the relations between and among human communities. To a certain extent, objects and places are considered important aspects of human relations, but they are largely framed as inanimate tools wielded by human actors. This prevalent view is threatened by a rich body of research among non-Western societies that shows non-human things, places, and animals are often considered to be powerful beings imbued with agency and efficacy. Drawing from this research, this paper investigates the societal structure of hunter-gatherer groups who inhabited the Southeastern American coastline during the Late Archaic (5000-3000 B.P.). Several of these groups had all of the components thought to lead to social inequality, including sedentism, amassed resources, and long-distance trade, yet there is no evidence of entrenched status differentiation. Considering the likelihood that non-human actors were important members of this past community, it is suggested that certain aspects of emergent elitism, including ownership over material goods, were transferred out of human hands and instead emplaced within particular places on the landscape thereby reducing the threat of intra-human
dominance and inequity.

[400] Chair

Santana Cabrera, Jonathan (Prometeo Researcher. State University of Santa Elena. La Libertad, Ecuador.), Jo Appleby (School of Archaeology and Ancient History. Uniers) and Krish Seetah (Anthropology. University of Stanford. Stanford, Un)

[116] The Price of Freedom: Health Status in a Freed Slave Community in Le Morne (18-19th Centuries, Mauritius)

This contribution presents the preliminary results of an osteobiographical approach to the life conditions of a slave/ex-slave population from Le Morne cemetery (18-19th centuries, Mauritius Island). We evaluate the incidence of several stress indicators/pathologies on the human remains that are the result of environmental conditions during life. Dental health, infectious diseases and physical activity markers were analyzed to address the daily life of this population. Our results indicate high incidences of caries, periodontal disease, dental calculus, antemortem losses and dental enamel hypoplasia. In addition, a nonspecific infectious disease in form of osteomyelitis was recorded on bones from four of the individuals. Evidence of stress from physical activity was also observed in the sample. These markers are enthesopathies, Schmorl's nodes, herniated disks, osteoarthritis in the spine and appendicular skeleton, bilateral spondylolysisises and fractures of the secondary ossification centers in some ulnae and calcaneus. The osteobiographical profiles documented in the population from Le Morne suggest poor health conditions, consistent with historical data. In this regard, osteobiographical research on this population contributes to recovering the historical memory of this community.

Santana Sagredo, Francisca (Research Laboratory for Archaeology and the History of Art, University of Oxford), Julia Lee-Thorp (Research Laboratory for Archaeology and the History), Rick Schulting (Research Laboratory for Archaeology and the History) and Mauricio Uribe (Departamento de Antropología, Universidad de Chile)

[378] “Diet and Connections among Cultural Groups in the Atacama Desert during the Late Intermediate Period (A.D. 950-1450)

The Pica-Tarapacá and the Atacama cultures appeared in northern Chile during the Late Intermediate Period, after the decline of the Tiwanaku state. Archaeological data suggests that both groups practiced maize agriculture and pastoralism to variable degrees, but their trade and exchange links differed significantly. Interaction with coastal groups, in the form of fish and other marine resources is common in the Pica-Tarapacá sites. The Atacama groups, who occupied the Atacama oases and pre-cordilleran area, seemed to have directed their networks towards the highlands instead. Here we applied stable isotope ratio analysis of carbon, nitrogen and oxygen to test the archaeological reconstructions of their dietary patterns and residential mobility. Our results show that diet amongst Tarapacá and Atacama cultures differed significantly: the Atacama group was mainly based on the consumption of terrestrial resources, while values for the Tarapacá group indicate consumption of both marine resources and maize. Oxygen isotope values from at least five individuals strongly suggest the presence of foreigners in the cemetery associated with the Pica-Tarapacá culture, consistent with evidence for high mobility patterns during this period. This evidence for human mobility accompanies the high levels of trade and interaction observed in the archaeological record.

Santarone, Paul [361] see Cannon, Kenneth

Santasilia, Catharina (PhD student, University of California, Riverside) and Jaime Awe (University of Arizona, Flagstaff)


Between 2011 and 2014, the BVAR Project focused considerable attention on the excavation and preservation of the site’s Eastern Triadic Shrine (a.k.a. E-Group). In addition to revealing important information on the evolution of the architectural complex, our investigations also uncovered a series of burials that span from the Preclassic to the Terminal Classic periods. The burials, particularly
those discovered in Structure B1, the central structure of the eastern triadic complex, reflect considerable wealth and an astonishing assemblage of unique artifacts that has contributed to a better understanding of the elite Maya who lived at Cahal Pech. The grave goods in the elite burials within Structure B1 also provide evidence for interregional trade and interaction, and serve to position Cahal Pech as one of the most important socio-political centers in the upper Belize River Valley.

Santasillia, Catharina [338] see Novotny, Anna

Santiago, Rey [238] see Bolunia, Mary Jane Louise

Santini, Lauren (Harvard University) [193] Preliminary Results of Wood Charcoal Analysis for Household Groups in San Bartolo
This paper presents preliminary results of analysis of charcoal remains recovered from well stratified household middens at the Maya archaeological site of San Bartolo located in the Department of the Peten, Guatemala. It presents reconstructed use patterns of local trees for typical San Bartolo residential households, as well as a discussion of how these patterns changed over time, and what factors, cultural and environmental, may have influenced these changes using secondary evidence.

Santos Ramírez, Víctor Joel [156] see De La Torre Vázquez, Jesús

San, Jenna [41] Ancient Starch Research In California: Results from CA-SBA-53
Acorns were an essential foodstuff across prehistoric California; the transition to acorn use is currently being investigated. CA-SBA-53, a single-component Middle Holocene site on the mainland coast near Santa Barbara, contains an assemblage fairly evenly split between mortars and pestles, traditionally associated with acorn processing, and manos and metates, generally associated with seeds; furthermore, these mortars and pestles are some of the oldest known in California. By extracting and analyzing ancient starch grain extracted from ground stone tools, we can study subsistence shifts and associated shifts in technology. Such analyses can further illuminate issues of technological transitions and resource intensification during this period. Final results, presented here, suggest that this method could be very useful in reconstructing ancient foodways in prehistoric California, even though there remains much work to be done, particularly in regards to identification.

Sarich, Steven (Michigan Technological University) and Timothy James Scarlett (Michigan Technological University) [126] Physical Characterization of Stoneware Ceramic Materials
The Davenport Pottery manufactured earthenware and stoneware in Utah, between 1853 and 1888. This poster uses data from a broad range of analyses, including XRF, INAA, petrography, and mechanical stress testing to develop profiles of the outcomes of technical processes at the pottery shop. These characteristics then provide insight into various key research topics in archaeology, including pottery systematics, life-expectancy and depositional time lag, experimental archaeology, and the applicability of RHX dating techniques on high-fired ceramic samples.

Sartin, Sunnie (New Mexico State University), Winona Patterson (New Mexico State University), Kristen Corl (New Mexico State University), Todd Scarbrough (New Mexico State University) and Angel Pena (New Mexico State University) [273] Twin Pines: Looking Beyond Mimbres Valley
The Twin Pines site, located in the Gila National Forest, New Mexico, is a large Mimbres site that shows signs of multiple occupational periods spanning the Late Pithouse Phase (A.D. 550-1000) through the Mimbres Classic phase (A.D. 1000-1130). On the basis of recent mapping and reconnaissance, the Twin Pines site can provide crucial information about the Mimbres culture. First, it is a large Mimbres site which lies farther north of the extensively studied Mimbres Valley and most
other sites of the same period. Investigating the site allows us to understand the interaction and affiliation between the people from Chaco Canyon and the Mimbres areas. Second, the site is a source of several interesting artifacts, including copper bells, a copper effigy, an abundance of turquoise, and obsidian flakes. Tracing these artifacts to their source allows us to understand and reconstruct trade between people in the Upper Gila and other areas in the American Southwest. Finally, the site is of interest because it features rock art panels, which include several mortar holes. Understanding these features allows us to better understand the social landscapes and how people interacted in the Mimbres region.

Sartin, Sunnie [273] see Scarbrough, Todd

Sasaki, Ken-ichi (Meiji University)

[145] Adoption of Horse-Riding Practices in Fifth-Century Japan and Its Political Significance

A practice of horse-riding was introduced to Japan from the late fourth century and after. Since horses were not native to Japan, Korean specialists of raising and breeding horses were invited. Recently, fifth-century evidence for raising horses has been excavated at various places in Japan. In the central Osaka Prefecture near where the central polity was located, horses were carefully buried at the foot of small fifth- and sixth-century circular burial mounds, and Korean ceramics were discovered at nearby settlement sites, along with pottery specially used for salt production. A situation is very different in the central highlands of Japan. There, we found numerous fifth-century cairns, which is very unusual in Japan and suggests that descendants of Korean immigrants were buried. A few ceramic figurines of horses were offered, but no horse burials at the foot of burial mounds and nor Korean ceramics. It seems likely that local elites who might be descendants of Korean immigrants introduced methods of producing and raising horses quite independently from the central polity. It might be the case that the central polity in the fifth century did not fully monopolize the diplomatic rights.

[145] Chair

Sassaman, Kenneth [348] see Gilmore, Zackary

Sassaman, Kenneth (Univ of FL - Anthropology)

[400] Discussant

Satterlee, Ashton (University of Idaho) and Andrew Duff (Washington State University)

[274] Further Analysis on Vessel Size and Feasting in Three Chacoan Great House Communities

Examining rim sherds and identifying ceramic vessels size is one method of investigating feasting practices. Larger vessels may indicate larger scale food preparation and consumption than found at normal households. Chacoan Great Houses are thought to have been used as gathering places for local communities to serve as the locus of ritual and feasting activities. The temporal element is expanding the research by using general ware types as temporal indicators on the ceramics recovered from Pueblo II sites in New Mexico’s southern Cibolan communities of Cox Ranch Pueblo, Cerro Pomo, and Largo Gap.

Saturno, William

[303] Presenting Order: Painting as Mythic Past and Mathematical Future in the Murals of San Bartolo and Xultun, Guatemala

Though the murals of San Bartolo and Xultun are located only 8km apart in the lowland forests of Guatemala, they are separated by more than 800 years of Maya history and reflect very different relationships between society and the cosmos as well as between the artworks and their intended audiences. Where one publicly recounts episodes of Maya mythology and the idealized roles of both gods and kings in the creation and maintenance of cosmic order, the other, painted within a private household, illustrates the king and members of the court as the background for the scholarly calculations of cosmic cycles themselves. This paper uses the excavation, conservation, and
interpretation of these two remarkable examples of Maya mural painting as a point of departure for discussing the evolving role of Maya muralists and the continued use and alteration of these paintings long after their initial renderings.  

[193] Discussant

Saturno, William [350] see Griffin, Robert

Sauedo, Ricardo [151] see Macias, Jose Luis

Sauza, Maximiliano and David Gárate (Universidad Veracruzana)  

[144] Perceptions of the Matacanela Archaeological Site by the People of Zapoapan de Cabañas

The town of Zapoapan de Cabañas, located south of Lake Catemaco, Veracruz is adjacent to the archaeological site of Matacanela. Even though little historical continuity exists between the archaeological site and the contemporary settlement, perceptions that Zapoapan's inhabitants have about the site are informative because they suggest how the site is internalized and integrated into daily life. The historical memory of the inhabitants of Zapoapan de Cabañas, through oral tradition and the reuse of space, is a cultural phenomenon that links the daily landscape with the past. Archaeologists play an important role in how the community's perceptions of the past are shaped. We present some findings from preliminary ethnographic research into their ideas of the past and how they relate to it on a daily basis.

Savage, Dan [48] see Cheong, Kong

Savage, Daniel (Trent University), Gyles Iannone (Trent University), James Conolly (Trent University) and Jack Barry (Trent University)  

[316] Keep your Boots on: LiDAR as a Reconnaissance and Survey Tool on the Vaca Plateau, Belize

Recent studies have demonstrated the revolutionary potential of LiDAR as a means of mapping archaeological features within densely forested and/or inaccessible landscapes. In a matter of days, aerial LiDAR scans can survey swaths of forest which would take decades to map on foot. However, in order to effectively exploit the analytical potential of LiDAR datasets, we must understand how the spatial information captured by these systems compares with those produced by traditional ground survey. To this end, we employ a blind-test to examine our ability to identify and classify known archaeological settlement features on a LiDAR map. The results of this blind test expose a number of limitations which may bias LiDAR based settlement surveys. Nevertheless, we emphasize the value of this technology as a means of targeting high potential areas for further exploration, as well as reconnaissance of isolated regions.

Sawyer, Alicia (Department of Archaeology, Boston University) and Justin Holcomb (Department of Archaeology, Boston University)  

[9] Interpretation of Midden Formation Processes at Three Farms in Skagafjörður, Northern Iceland Using Thin Section Micromorphology and pXRF Chemostratigraphy

Skagafjörður, northern Iceland is a fertile valley bottom where farms established during the Landnám in the late 9th century are still occupied today. In this study, we examine middens from three farms: Reynistaður, Syðra-Skördugil, and Stóra Seyla. The middens show deposition from the Landnám through the Medieval Period. This research answers four questions: What is the sediment composition of the midden fill? What are the main modes of deposition? How do these deposits contribute to the chemostratigraphy of the site? Given these data, what assessments can be made as to the formation of these middens? To answer these questions, we applied a combination of thin-section micromorphology and portable x-ray fluorescence spectrometry (pXRF) to sediments from three sites in the local area. By generating a chemostratigraphic framework targeted on sampled areas, a predictive in-field approach via pXRF can be obtained for future application throughout the study areas.
Sayre, Matthew (University of South Dakota) and Daniel Contreras (Kiel University)  
[186]  
Lessons from the Tello Obelisk- Domestication and Plant Use at Chavin de Huantar, Peru  
The work of Dolores Piperno has significantly advanced our understanding of the rise of agriculture in the tropical Americas. Her work has been fundamental in the development of microbotanical techniques used to understand the use of plants in the past. This paper builds off of Dolores’ analysis of plants depicted on the Tello Obelisk, at the site of Chavin de Huantar in Peru, in order to consider the role that plants from distinct ecological zones across the Andes played at the temple site. This analysis is presented in conjunction with a discussion of how the agricultural community at Chavin managed the landscape that surrounds the temple site. New phytolith data will be presented in conjunction with macrobotanical data in order to reach a more nuanced understanding of how the inhabitants of Chavin varied their plant use across the different sectors of the site. Data will be presented from a hearth in the West Field, from the Wacheqsa area near the monumental center, and from the La Banda domestic sector.

Sayre, Matthew [347] see Mayer, Aaron

Scales, Mary  
[8]  
Learning from Disturbance: A Late Woodland-Early Mississippian Site in the Georgia Piedmont  
Between 2012 and 2014, the University of Georgia field school in archaeology undertook investigations at Raccoon Ridge, a highly disturbed Late Woodland-Early Mississippian site in the Georgia Piedmont. Systematic surface collections and shovel tests were used extensively to define the site’s geographical footprint. Geophysical survey, including shallow magnetic gradiometry and susceptibility, together with phosphate analysis were also utilized. Anomalies detected with these methods were investigated by test excavation, with mixed results. Following the 2014 season, our findings have revealed a more intricate picture, as the site is more highly disturbed than anticipated. Ultimately, what we thought was a single large site was determined to consist of two separate occupations. The importance of disturbed sites, whether existent on private or public lands, is discussed here. Conclusions regarding this site and the findings of each season are compiled briefly to address how the investigation of sites that may be overlooked or written-off because of extensive destruction, intentional or otherwise, can contribute to the archaeological record.

Scaramelli, Franz [371] see Navas, Ana

Scarborough, Vernon [295] see Dunning, Nicholas

Scarborough, Vernon (University of Cincinnati)  
[334]  
Crosscultural Archaeology and the Role of the Tropics in Informing the Present  
The ancient Maya and Khmer developed in semitropical environmental settings, both having not dissimilar chronologies. Tropical ecological rhythms dictated their respective dispersed land-use patterning. To cope with seasonal abundant precipitation followed by 4-5 months of drought-like conditions, the Maya accepted cropping designs based on the limitations of extended ground storage while the Khmer located resources to elevated reaches of stilted housing; approaches conditioned by accelerated organic decomposition and pest infestation. To accommodate rapidly grown and harvested food, though subject to the vagaries of regional rainfall, extensive roadways and canal transport connected groups and polities into elaborate exchange networks coordinated by sizable centers and their calendrical scheduling. The effects of climate, both at the nuanced seasonal level and at more course decadal levels, resulted in environmental adaptations which provide a potential picture of our own. Internet connectivity to resource-specialized communities located in hinterlands away from urban aggregates and physically linked by light-rail would mimic the successes of past tropical socioenvironmental systems. Urban hubs would continue to prosper as coordinating centers for global socioeconomic supply/demand, but rural communities would be prized and elevated in their importance and influence. Community-based cooperatives today would have a global reach not
apparent in antiquity.

Scarborough, Todd [273] see Sartin, Sunnie

Scarborough, Todd (New Mexico State University), Kristin Corl (New Mexico State University), Dylan Clark (New Mexico State University) and Sunnie Sartin (New Mexico State University) [273] Burning as Ritual in the Jornada Mogollon

What is the significance of multiple burning events at Cottonwood Spring Pueblo (LA 175) an El Paso Phase (A.D. 1300-1450) Mogollon village in Southwest New Mexico? What do these burning events tell us about the life history of the pueblo? When did they occur? How do they compare to burning events at contemporary sites in the American Southwest? Contextual evidence suggests they are separate ritual events. What purposes did these events serve? How do they differ from other purposeful pueblo burning? This poster explores these questions through a case study of one of the largest villages in the region. We employ multiple chronological methods (stratigraphic superposition, dendrochronology, radiocarbon and archaeomagnetism) to contextualize burning within the site for our comparison. This pueblo straddles a cultural boundary between the Jornada and Mimbres branches of the Mogollon offering a good case study in this understudied region and phase. We found burning events in 16 of the 18 rooms and at least two areas with evidence of superimposed burning events. Our poster argues that the burning appears to have resulted from a combination of retiring particularly important ritual rooms, remodeling phases, and the final abandonment of the site.

Scarlett, Timothy James [126] see Zhao, Shan

Scarlett, Timothy James (Michigan Tech University) [126] Multi-Lab Collaborative Experiments with RHX Dating

Michigan Technological University, California State University-Long Beach, and Arizona State University scientists have been collaborating on a critical assessment of the novel RHX Dating technique, pioneered by Wilson et al. (2009). This chronometric technique, if proven reliable, will transform archaeological dating practices. We have conducted multiple trials with a wide range of ceramic types from Neolithic through Early Modern, using varied set ups of instrumentation and thoughtful lab protocols. We continue to refine models of the rehydration and rehydroxylation processes; explore the relationship between relative humidity and RHX behaviors and other water crystallization systems; examine different lab practices and protocols; and assess other mechanisms of mass loss and gain, such as decarboration, carbonization or organic contaminants, and decomposition of sulfates and salts. At this time, analytical trials of 50% of our samples yield dates close to expected dates of manufacture while the other 50% remain inaccurate. We are cautiously optimistic for the ongoing development of this dating technique, but many very important questions remain to be answered.

[126] Chair

Scarre, Chris [334] The Comparative Archaeology of the Channel Islands

Brian Fagan’s long fascination with the sea and sailing gives special resonance to his studies of coastal communities and human adaptation. In Before California he studied the Chumash peoples and the prehistoric settlement of the Channel Islands of the Santa Barbara Channel. In recognition of Brian’s evocation of broad-scale cross-cultural comparisons, the postglacial communities of the Californian Channel Islands are here contrasted with patterns of settlement and social change in the Channel Islands of the English Channel. Despite many differences in technology and social organization, both sets of communities were dependent on maritime connectivity and both subject to the vulnerability imposed by their coastal environments. This study will demonstrate the value of cross-cultural comparison in throwing new light on even such disparate prehistoric settings as the
islands of western North America and those of northwest Europe.

Scattolin, María (Museo Etnográfico, Buenos Aires)[371] Before Calchaquí. The Formative Period and Middle Horizon ceramics in Northwest Argentina

This paper gives a characterization of the ceramic styles as well as the forms and functions of vessels and, broadly, the production of pottery in the village societies that inhabited the southern Calchaquí Valleys (Northwestern Argentina) during Formative period and Middle Horizon (first millennium A.D.). The study of ceramics in Northwestern Argentina has traditionally been centered on descriptions, taking decorative motives as fundamental evidence in the definition of styles and periodization. From this perspective, style is generally understood more from the point of view of an observer than from the perspective of the potter. Following an examination of the main settlements of these periods, the extent of styles recognized until now is considered. Then, results of new chronological-stylistic analysis based on the study of museum collections are offered. Changes in the main traditions are discussed as well as correlation and disjuncture from previous classifications. Morpho-functional and petrographic studies recently performed on fragments and vessels found at excavations in Cajón and Santa María Valleys are then provided. Pottery manufactures are compared with those from other sites in the region to display an overview of ceramic production of prehispanic agro-pastoral societies that inhabited the Southern Andean Area previous to the Calchaqui populations.


We present a brief history of rock art research in North America, identifying some of the social forces and schools of thought that have shaped these studies within and outside of the confines of traditional archaeology. Among relevant issues within academia are prevailing paradigms that aspire to specific goals and interests that orient archaeological research. Even when these interests and concerns would benefit from the analysis of prehistoric images made by the socio/cultural groups under investigation, rock art is often ignored or left up to the purview of active amateur rock art groups, who have enthusiastically embraced these endeavors, thereby creating a social division in the field of rock art research in North America. Also because rock art is an artifact of worldviews and social practices, in cases where there are living descendants, issues regarding interpretation and preservation have arisen. Problems encountered in these areas are considered.

Schaafsma, Polly (Research Associate, MIAC/LOA)[189] Some Observations on Hohokam Figurines: Implications for Early American Southwest Connections with West Mexico

Hohokam anthropomorphic figurines differ in style, mode of manufacture, and meaning with most, if not all, other figurine traditions in the American Southwest which appear to be regional in their derivation. In contrast, clay Hohokam figurines have often been cited as evidence of early cultural relationships between southern Arizona and Nayarit and adjacent regions. Between the Formative/Pioneer Period and prior to ca. 800 C.E., simple Hohokam figurines display distinctive stylistic norms that nevertheless link them to the slightly earlier and much more elaborate and sophisticated clay shaft tomb sculptures of West Mexico. Many scholars have postulated that early Hohokam figurines had roles in household rituals pertaining to fertility and the ancestors, the latter further supporting a West Mexican connection. These early parallels with West Mexico presage events between 800 and 950 C.E. when rapid changes in Hohokam ritual and socio-political organization included the appearance of ball courts and trade items manufactured in the West Mexican highlands. Simultaneously new stylistic developments of the figurine complex with strong Mexican affinities are found associated with formalized and public mortuary rituals seemingly adding a political role to ancestor veneration among the Hohokam.

Schaafsma, Polly [137] see Schaafsma, Curtis
Schaan, Denise [157] see Watling, Jennifer

**Schach, Emily (Arizona State University) and Jane Buikstra (Arizona State University)**

[378]  *“Feeding the Dead” at Chiribaya Alta*

The inclusion of foods and eating utensils within graves at Chiribaya Alta, a Late Intermediate site ~5 km from the mouth of the Osmore river, suggests that “feeding the dead” during funerary rites was a common practice within the Chiribaya polity. Thus far, however, these foods have not been systematically considered in relation to funerary practices. This study examines food items placed within tombs at Chiribaya Alta (n=307) and considers their potential symbolic meanings within funerary practices, as informed by documented ethnographic and ethnohistoric cases. We compare the foods included within graves to the aggregate diets of skeletal individuals as determined through previously published carbon and nitrogen isotopic analyses. This study will allow for a consideration of the importance of symbolic foods within the daily diet of Chiribaya individuals.

**Schachner, Gregson (UCLA)**

[335]  *Seeking New Metaphors for Communities and Households in the Ancestral Pueblo Southwest*

Investigations of households and communities have long been strengths of archaeological research in the American Southwest. As the spatial breadth and temporal resolution of these studies has improved, the archaeological record has raised key challenges to our preconceptions of the scale, stability, and structure of Ancestral Pueblo communities and households. Newer models must reconcile evidence for the frequent movement of individuals and households with contrasting data attesting to long-term use of residential and non-residential locations and the complexity of local economies. These new models must also directly confront the fact that the archaeological record has a temporal and spatial depth that is rarely present in models of community and household derived from ethnology. In this paper, I explore multiple examples of community organization and household strategies in the Western Pueblo region in order to illustrate the benefit of shifting the spatial scales of our analyses and argue for the adoption of models that more fully embrace the temporal rhythms of the archaeological record.

**Schaeffer, Bryan (Florida State University)**

[259]  *Interaction as Movement, Movement as Interaction: The Tripod Vessel in the Maya Region*

Interaction between the central Mexican city of Teotihuacan and the Maya region, and the subsequent influence of Teotihuacan on Maya material culture, has been much discussed. Although many scholars have noted the tripod cylindrical vessel as a diagnostic trait of Teotihuacan and as evidence of interaction and/or influence in other areas of Mesoamerica, further examinations of the tripod ceramic vessels and their imagery found in the Maya area have not been fully developed. The tripod vessel has even been questioned as a characteristic solely of Teotihuacan. A few scholars postulate that the tripod form originated in the Gulf Coast cultures of Veracruz. Previous examinations of these vessels have not adequately explained their presence in various Maya cities, from the highlands of Guatemala, to the southern lowlands of the Petén region, to the southern-most Maya city of Copán. This paper examines the movement of a stylistic form closely associated with Teotihuacan and the interactional dynamics of a culturally appropriated artistic form. Several ceramic tripod vessels from the Maya region demonstrate a fusion of Maya and “Teotihuacanoid” elements, underscoring an artistic exchange that traversed divergent Mesoamerican regions.

[259]  *Chair*

Schaeppe, David M. [162] see Kasper, Kimberly

Schaetzl, Randall [280] see Hambacher, Michael

**Scharf, Elizabeth (University of North Dakota)**
[162] Weediness: Modern, Historic, and Prehistoric Plants at Poverty Point, LA
With construction beginning about 3,700 years ago, Poverty Point (16WC5) in northeast Louisiana is one of the earliest and largest sites of its kind in the United States. What were conditions like when people began constructing the mounds? What kind of environment did they live in? How did this change (or not change) over time? This poster presents lithological and palynological evidence covering the period before, during, and after prehistoric occupation at this site. Comparing and contrasting prehistoric with historic and modern vegetation in the area reveals how vegetation has changed over the last half of the Holocene, putting both past and present environmental conditions into perspective.

Scharlotta, Ian

[391] Trade Routes and Contradictory Spheres of Influence: Movement of Rhyolite through the Heart of the Western Mojave Desert
Provenance analysis of obsidian and rhyolite artifacts from four Late Prehistoric sites located on the edges of the western Mojave Desert suggest direct procurement practices and the presence of a trade network through the Antelope Valley. Less clear is whether evidence for the movement of materials can effectively be used to infer particular cultural territories or specific cultural interactions. Ethnographic work in the Antelope Valley suggests that areas surrounding rhyolitic formations may have been controlled by different groups. The boundaries described by ethnographers may not have accurately reflected the prehistoric territories of groups in the area, as Mission contact likely altered regional populations prior to recording. Notes from early missionaries and explorers provide conflicting information regarding the location of villages, native groups, and associated territories within the Antelope Valley. Furthermore, reports suggest that enmity/amity relationships varied between regional groups over time, and that open conflict occurred near Santa Clarita, California during the 1770s. These actions likely inhibited trade networks between the western Mojave and coastal Chumash populations. The movement of lithic artifacts is examined in light of the different lines of evidence to infer modification of previous trade networks and territorial boundaries in the Antelope Valley.

Scheder Black, Ash (University of Arizona)

Geospatial and temporal mapping technologies continue to rapidly evolve, making possible archaeological visualizations capable of revealing patterns in the past from new and potentially dramatic perspectives. The TemporalMapping.org project, now in collaboration with the University of Oxford's PalaeoChron.org, will share techniques and research results from data visualization efforts including a global 30-arc second resolution model of sea level change from 475,000 BP to Present and a high resolution animation of Neanderthal/Anatomically Modern Human interactions based on research published in August, 2014. Details of current modelling processes and programming methods will be discuss along with a brief introduction to using similar techniques and freely available tools to craft bespoke visualizations, and the potential for archaeological applications of emergent technologies originally designed for Business Intelligence.

[5] Discussant

Scheffran, Jürgen [73] see Balbo, Andrea

Scheiber, Laura [361] see Burtt, Amanda

Scheiber, Laura (Indiana University)

[406] The Future of Zooarchaeological Collections in Twenty-First-Century Scholarship
Zooarchaeological research is nearly impossible without comprehensive comparative collections that aid in the identification and analysis of archaeofauna. Throughout her career, Diane Gifford Gonzalez has been a strong proponent of developing and maintaining comparative research
collections of modern and ancient vertebrate specimens. In this paper, I discuss the current state of zooarchaeological collections in twenty-first century scholarship. I highlight the William R. Adams Zooarchaeological Laboratory at Indiana University, which contains over 10,000 modern specimens from all over the world. The lab recently completed a massive overhaul of its curation facilities, with the help of a large award for capital improvements from the National Science Foundation. The investment in comparative collections by the National Science Foundation demonstrates the fundamental importance of these resources. Quality comparative collections are the foundation of zooarchaeological research, and the strength of the research is directly limited by the types of comparative resources available. Efforts have now turned to three-dimensional scanning of the comparative collection in order to help overcome a major hurdle in zooarchaeological research. These bring irreplaceable research collections and comparative collections together from disparate geographic locations. I will also discuss digitization results within the context of broader anthropological and ecological research goals.

Scheiter, Simon [294] see Potts, Alastair

Schelberg, John and Carla Van West (SRI Foundation)  
[282] The Civilian Conservation Corps in Chaco Canyon, New Mexico
In 1937, a unique Civilian Conservation Corps (CCC) sponsored “Indian Mobil Unit” was established in Chaco Canyon. The camp was located east of Pueblo Bonito and the goal was to train Navajo men and a woman in stone masonry, ruins stabilization, drainage control, archaeological excavation, and associated administrative tasks. In 1939, under the direction of National Park Service (NPS) archaeologist Gordon Vivian, men from the Indian Mobile Unit excavated a small village site in advance of the construction of CCC camp NP-2-N, designed to house a regular 200 man unit. Camp NP-2-N was closed in 1941 and the Indian Mobile Unit was closed in 1942. The success of the Mobile Unit program resulted in the establishment of permanent Ruins Stabilization Units at parks in the Southwest. The 1939 excavation of the archaeological site, the CCC Site, exposed nine rooms and associated sheet trash. In 1949, two deeply buried kivas were excavated by the NPS. In the mid 1970s, the Chaco Project re-excavated portions of the two kivas and Room B in order to obtain archaeomagnetic dates.

Schelberg, John [354] see Akins, Nancy

Scher, Sarah (Upper Iowa University)  
[187] High and Low: Highland and Coastal Dress in the Andean Region, 100-800
Dress can be a key aspect of stating a cultural or ethnic identity. Garment shapes, textile techniques, and accessories all contribute to creating a particular ensemble that can define a group identity. This effect can be heightened in the representation of dress, as the artist and patrons decide what are the essential elements that are worth depicting, and as the medium of representation dictates what can and cannot be conveyed visually. This paper examines the similarities and differences in the representation of dress in ceramic effigy vessels among the Moche, Nasca, and Recuay cultures of Peru. These cultures overlap in time, providing a chance to understand what were considered important elements of the cultures themselves, and whether commonalities in coastal dress styles noted by A. Rowe (1990) and others (Frame 2003, Horié 1991) persisted in the representation of costume in ceramic. Similarities and differences in garment forms, decorative motifs, and accessories are all used to analyze the statement of identity and difference made by these pieces.

Chair

Scherer, Andrew K. [86] see Schroder, Whittaker

Scherer, Andrew (Brown University)  
[158] To Burn like the Sun: Rituals of Fire and Death among the Classic Maya
The dichotomies of hot and cold, light and darkness were essential to Classic Maya cosmology. The celestial and underworld journey of solar deities offered a fundamental mythic charter, and fire was the ultimate transformative force, providing a bridge between earthly and otherworldly realms. Such ideology is especially patent in rites of death, sacrifice, and veneration. Monuments from western kingdoms describe censing rituals performed months, years, and even decades after the death of important personages. Work at Piedras Negras demonstrates that even the long cold remains of the kings were activated by exposure to flame. In other kingdoms, fire was used to transform the most precious of mortuary offerings: the corporal remains of mourners and the bodies of sacrificed youths.

Chair

Schick, Kathy [215] see Zipkin, Andrew

Schieber de Lavarreda, Christa [242] see Vázquez De Ágredos Pascual, Marisa

Schieber de Lavarreda, Christa (National Archaeological Park Takalik Abaj)

[242] The Universe of Ritual Manifestations at Tak'alik Ab'aj

The archaeological record of 27 years of research at the ancient site of Tak'alik Ab'aj at the southwestern pacific piedmont of Guatemala has summed up evidence of a wide range of different ritual activities and patterns, which are represented through a huge diversity of materials and artistic or handicraft skills. The pivotal role of Tak'alik Ab'aj as a long distance trade center and precocious cultural and religious “mecca” with “international flair” is reflected in the materials and artifacts employed in its rich ritual tradition. With a rapid overview of its ritual manifestations, it will come apparent that these are present at Tak'alik Ab'aj in almost every aspect of common life and ruler-ship, and repeatedly employ powerful messages, as well as ritual protocols, which trespass time, space and materiality.

Chair

Schieppati, Frank [352] see Hayward, Michele

Schier, Wolfram [348] see Whittle, Alasdair

Schiffer, Michael (School of Anthropology, University of Arizona)

[241] Social Processes and Technological Change

Archaeologists are much concerned with, and often have evidence for studying, the effects of technological change on social processes. In this paper, I reverse the causal arrow and examine social processes that can initiation technological change. Among these varied social processes, I discuss here peer competitions; social role expectations; new social groups, social roles, and activities; and maintaining a system of status differentiation. Each of these processes can serve as fillips to invention and, perhaps, initiate processes of development, manufacture, and adoption.

Discussant

Schilling, Tim [29] see Vawser, Anne

Schilling, Timothy (Midwest Archeological Center)

[29] Challenges and Opportunities of Archaeology in Urban Parks: an example from the Arch

Jefferson National Expansion Memorial is an anomaly in the National Park Service. The park was designated in 1935 as the first national historic site, memorializing America’s westward expansion, yet it is best known for the Gateway Arch, a modernist monument that towers over the city. Archaeological information from the St. Louis riverfront is sparse, but the park is located in an area that was densely settled from prehistory to the beginning of the twentieth century. In the late 1930s, NPS razed the historic city and then for the next half century completely recontoured the grounds in
a series of cut and fill stages as the monument was built. In the past, archaeologists have documented a few historical items encountered during construction, but intact features are rare. The CityArchRiver 2015 project along the riverfront will involve deep and extensive excavations potentially exposing early undisturbed landscapes and features. Other aspects of the project may expose historically sensitive deposits within the Old Courthouse. The scale and extent of this project are atypical for the NPS. In this paper, I discuss how the Midwest Archeological Center is partnering in innovative ways with multiple stake holders to preserve archaeological resources during this project.

Schilt, Flora (University of Tübingen, Germany), Susan Mentzer (University of Tübingen, Germany), David Wright (Seoul National University, South Korea), Jessica Thompson (Emory University, USA) and Elizabeth Gomani-Chindebvu (Malawi Ministry of Tourism, Wildlife, and Culture)

[155] Micromorphology of Middle to Later Stone Age Sites at Mwanganda's Village, Northern Malawi

The Mwanganda's Village site, northern Malawi, was first excavated in 1965-1966 under the direction of J. D. Clark, who reported the recovery of early Middle Stone Age (MSA) stone tools in possible association with the remains of an elephant. New work in 2009-2012 revealed that the elephant and the artifacts were not likely to have been behaviorally associated. The site lies within a series of river terraces dating from the Middle Pleistocene to the Holocene. Near the top of the sequence an in situ Middle to Later Stone Age deposit dates to before and during the Last Glacial Maximum, providing an opportunity to examine human behavior in light of changing paleoenvironmental conditions.

Micromorphological analysis is employed to reconstruct a detailed site formation history of the sequence at Mwanganda's Village. Post-depositional features observed in thin section are especially informative about the paleoenvironment, as they are associated with ancient water tables and soil formation. Data from sediment cores collected in Lake Malawi indicate a series of mega-droughts during the Late Pleistocene. The association of terminal MSA artifacts with depositional and post-depositional features linked with riparian environments shows an emerging pattern of wetland adaptation during the MSA in central Africa.

Schjellerup, Inge

[78] Landscapes under Chachapoya and Inca Presence in the Chachapoya Region

The Chachapoya and the Incas had different perceptions of the landscape concerning settlement, agriculture, and communication and each of them transformed the original landscape into a cultural landscape with the construction of monumental architecture and enormous investment in agricultural intensification in the form of various types of terraces. The objective is to illustrate how historical sources and archaeological investigations together contribute to the understanding of the nature and impacts of Chachapoya and Inca control on the eastern slopes of the northern Andes of Peru.

Schlagheck, John, Dave Casebolt (National Park Service) and Eloise Warren (National Park Service)


In 2013, WSA recovered a well-preserved Gold Rush Era lighter from the original shore of Yerba Buena Cove. This class of boat, used to load and unload ships where there is no adequate harbor, was used extensively in San Francisco prior to the completion of sufficient deep-water wharfs in the 1860s. This paper contextualizes the use of lighters in frontier San Francisco and presents new insights into the construction of the recovered lighter gained from the creation of a 1:12 scale model. The authors also describe the methods and results of the conservation effort undertaken by the National Park Service to stabilize the lighter for future study and possible public display

Schleher, Kari (Crow Canyon Archaeological Center), Jamie Merewether (Crow Canyon Archaeological Center) and Grant Coffey (Crow Canyon Archaeological Center)
Material Culture of Communities: Temporal and Spatial Patterns in the Material Culture of the Goodman Point Community

In this paper, we explore temporal and spatial patterns present in the material culture of the Goodman Point Community. The Goodman Point area of southwestern Colorado was home to ancestral Pueblo peoples from the A.D. 600s until depopulation of the broader region around A.D. 1280. Recent laboratory analyses by the Crow Canyon Archaeological Center have produced a large data set of the material culture within the later Goodman Point Community, including data on over 95,000 sherds and 75,000 lithic artifacts primarily dating from the A.D. 1000s through A.D. 1280. In this paper, we discuss this robust assemblage focusing on types of artifacts, including pottery, pottery tempering materials, stone tools, and exotics, to evaluate both contemporaneous and diachronic artifact patterns to assess social connections within the community and to other peoples further afield. These patterns are compared to other material signatures recorded for contemporary communities in the region, including the Sand Canyon Community.

Schlerer, Kari [121] see Barker, Andrew

They Had So Many Stones to Hurl: Evidence of Inter-Indigenous Conflict on the Vázquez de Coronado Expedition, 1540-1542

In 1540, Francisco Vázquez de Coronado led one of the largest expeditions ever assembled by the Spanish crown into the present-day American southwest. The expedition had 375 European men and was supported by a large contingent of at least 1,300 native Mexican soldiers from various ethnic groups. The native Mexican soldiers likely did much of the advance work, hand-to-hand fighting, guarding, and other military detail. The whole expedition was not well-equipped with European military technology and had to rely on native weaponry to a great extent. Upon its arrival in the Rio Grande valley of central New Mexico, the expedition took over native villages for shelter and engaged in several battles with indigenous pueblo people. In so doing, the fighting that broke out between native Mexican soldiers and pueblo people is a rarity in the cultural history of the American southwest. Physical evidence of this conflict from a pueblo site in New Mexico is examined. Slingstones, projectile points, and obsidian flakes are possible links to the Mexican soldiers. These artifacts are intermixed with European items such as crossbow points, musket balls, horse shoe nails, and personal gear. The pattern of artifacts and apparent puebloan defense of their village is described.

Schmader, Matthew (University of New Mexico)

Home Is Where the Herd Is: Social Factors and Mobility Patterns in Prehistoric Kazakhstan

Our understanding of the structure of pastoralist societies in prehistoric Eurasia is currently being reevaluated in light of new data from a range of sources. I present the results of a cementum annulation study done on domestic sheep teeth from prehistoric pastoralist communities in Semirech’ye, Kazakhstan. These data provide evidence that past mobility patterns were not necessarily rigidly dictated by seasonal climate conditions. Rather, although the environment was certainly a major factor in people’s decisions about when and where to move, there was a good deal of flexibility in migration patterns. Even in a difficult environment, a range of social and cultural factors influenced people’s decisions about what was best for their herds. On the other hand, some of these factors also seem to have been resilient in the face of larger social influences. Flexibility in the timing and location of migrations pertained throughout the Bronze Age and the Iron Age, even during a transition to a more stratified society. The social changes that took place during this time do not seem to have influenced herding practices. I consider possible explanations for this continued flexibility that take into account both social and environmental factors.
Schmid, Magdalena (University of Iceland)  
[321]  Colonization Models of Iceland: New Archaeological and Environmental Data  
This study aims to improve the dating resolution of archaeological and environmental data from the earliest sites of human occupation in Iceland in order to understand better the timing, scale and rate of the colonization of Iceland. This can be achieved through critical examination of the whole corpus of approximately 650 sites which is now accessible; through cross-referencing of different dating methods – primarily tephrochronology, radiocarbon dating and typology – and through application of new statistical methods of analysis, such as Bayesian statistics which in turn allow testing of specific colonization models. A key motivation for this research is the idea that Iceland is located in the deep ocean, where in the ninth century neither indigenous people nor land-mammals lived, and agriculture had not yet been practiced making this volcanic island the most extreme case study to test colonization models.

Schmidheiny, Martin (MIT)  
This project develops a basic material characterization of pre-mechanized, handmade bricks excavated at the site of Sylvester Manor on Shelter Island, New York. In the early Manor period of 1650-1690, this early Northern provisioning plantation supplied Barbadian sugar operations and pursued mercantile interests independent of state control. The technology and processing of pre-mechanized brick and other architectural ceramics have received comparatively little attention in historical archaeology. Here, qualitative visual analysis on different scales as well as petrographic thin-sections were used to characterize the internal composition, variation, and production evidence in the bricks. Accounting for the range of production defects and fabric properties of the bricks demonstrates an unappreciated diversity of the brick material, and further suggests on-site or local manufacture as a regional ceramic industry developed in Long Island Sound in the 17th and 18th centuries. Interpreting the results of this analysis offers alternatives to the assumptions about building materials on the site. Moreover, it identifies different material experiences of regulated, municipal brick-making versus home-grown industries utilizing expedient resources. Thus, the project advocates an active role of material science to assess the complex contribution of building materials to a changing landscape and urban development.

Schmidt, Mary [94] see Heller, Abigail

Schmidt, Caroline and Ryan Parish (University of Memphis)  
[292]  Determining Implications of Lithic Selectivity in the Early Historic European Trade of the Central Mississippi Valley  
Exchange between Protohistoric Period Native American and European traders in the Central Mississippi Valley reorganized the lithic industry to focus on hide processing. The most distinctive markers of this industry, thumbnail scrapers, increased as participation in the regional trade intensified and gradually led European-made goods replacing traditional tools. Although several avenues concerning the implications of thumbnail scrapers have been investigated, their raw material source remains inconclusive across the region. Verifying material source will shed light on possible shifts in lithic procurement strategies, mobility patterns, and interregional relationships following participation in the skin trade economy. Additionally, variations in lithic selectivity may be a factor in certain groups’ success or failure in the trade. Using reflectance spectroscopy, the chert type and source will be non-invasively determined for a collection of thumbnail scrapers from various protohistoric sites in the Central Mississippi Valley.

Schmidt, Peter (University of Florida)  
[340]  Co-practice amongst Non-Western Peoples: Abandoning Theory at Center Stage  
Theory as Western performance in archaeology has hogged center stage so long that other actors standing in the wings ready to play their roles are not included in the drama. Indigenous theories of knowledge have been relegated to permanent off-stage status. Yet those who have had the privilege
to work with and collaborate with historically-minded counterparts in other cultures have incrementally accumulated local beliefs and have, both consciously and unconsciously, woven local epistemologies into interpretation. These new interpretative tapestries are not ethnographic uses of best inference, but constructions drawing on meanings arising out of mutual co-practice that lead us in new theoretical directions. Discourses arising out of co-practice in heritage work in NW Tanzania capture how heritage is theorized today. Embodied experiences, such as building shrines, bring multiple meanings to the surface—including human rights claims and religiously informed ethical principles pertaining to sacred places—that differ significantly from how indigenous heritage was previously theorized and how the West theorizes heritage today. Acceptance of indigenous theories of heritage requires moving off center stage, embracing local practice, and discovering how co-practice may enrich Western theory.

Chair

Schmitt, Dave (Desert Research Institute) and Karen Lupo (Southern Methodist University)

Is Bigger Always Better? Body-Size, Prey Rank, and Hunting Technology

Zoological applications of rationale derived from the Prey Choice Model (PCM) are based on the assumption that prey body-size is a robust proxy for prey rank and post-encounter return rate. The PCM predicts dietary expansion and contraction in response to the encounter rates with large-sized and highly ranked game. In zoological assemblages, co-variation in the abundances of large and small-sized prey are often viewed as reflecting changes in foraging efficiency and are usually attributed to resource depression or other processes that influence the encounter rates with large-sized, high-ranked prey. However, changes in hunting technology and techniques can greatly alter the efficiency of hunting different prey. Using empirical data from ethnographic sources we show how snaring and other techniques used to procure smaller-sized prey can be more reliable and productive than hunting certain large game. We then use archaeological data from Holocene sites in the Bonneville basin of western North America to show that leporids were more frequently targeted than larger-sized and presumably high-ranked game, even when the latter were abundant on the landscape.

Schneider, Tsim (University of California, Santa Barbara)

Making Community in the Colonial Hinterland of Coastal Marin County, California

From the first baptism in 1783 to the last recorded baptism in 1832, at least 2,800 Coast Miwoks from the Marin Peninsula entered Spanish missions in the San Francisco Bay area. Understandably, and like most accounts of Indian entanglements with Spanish missions, the story of Coast Miwok missionization and assumed cultural loss is told through the documents and trowel work at Spanish missions. Comparably less is known of the world beyond the mission walls and in the hinterlands that took shape during the mission-era and afterward. After discussing the hinterland landscapes of Spanish missions in the San Francisco Bay—including the places where Coast Miwok fled to escape missions and other places where some kept to themselves—I borrow the concept of a "littoral borderland" to showcase community-making at shoreline zones away from the eyes of missionaries. In doing so, I present archaeological and historical research underway examining Coast Miwok communities of the Tomales Bay region forged in the wake of consecutive waves of colonization.

Schneider, Anna (University of Colorado, Boulder)

A Preliminary Analysis of Chipped and Ground Stone Artifacts from Garden Canyon Village

Garden Canyon Village is a large multi-component site located in southeastern Arizona. The main occupation dates to the Classic Period, but the rich resources of the Huachuca Mountains drew ancient people to the site from Preceramic times through the end of the Prehistoric Period (A.D. 1450). Located 10 miles north of the U.S.-Mexico Border and 65 miles southeast of the Tucson Basin, Garden Canyon Village was located on the frontier of the Hohokam, Mogollon, Mimbres, and Trincheras culture areas. This poster presents an overview of Garden Canyon Village as well as a preliminary analysis of chipped and ground stone artifacts from the site. The sample consists of chipped stone tools and ground stone from two excavation areas: the E75 complex, a residential area with two adobe-walled structures, and the E100 complex, a courtyard with two adobe-walled
rooms. In addition to providing insight into raw materials, lithic technology, subsistence strategies, and regional trade, this project addresses Garden Canyon Village's position in the larger Southwest and the cultural affiliation of its residents.

**Schnell, Joshua (Department of Anthropology, Michigan State University)**

[204] *Three-dimensional Osteometry: A Comparative Study of 3D Model Generation Techniques for Cranial Osteometry*

The recent proliferation of three-dimensional scanning devices and model generation techniques has made the use of 3D models in bioarchaeological research a reality. Despite the numerous applications of 3D modeling both in the field and in the lab, the existing body of research and published literature about constructing, analyzing, and sharing these models within archaeology is slim. The primary goal of this study is to test the accuracy of two of the most popular techniques for digital osteometry. A sample of crania was digitized using a NextEngine 3D Laser Scanner and 3D models were created with the accompanying ScanStudio HD software. The same crania were then modeled with a photo capture/photo stitching technique using Agisoft PhotoScan Professional software. Standard measurements were taken from each of the models after generation according to major osteometric cranial measurements and subsequently compared to results taken from the original crania using traditional osteometric instruments. We present the results of these comparisons and discuss the relative utility and efficiency of each technique.

Schnieder, Joan [418] see Hadel, Patrick

Schnorr, Stephanie L. [415] see Salazar-García, Domingo Carlos

**Schober, Theresa (University of Florida)**

[372] *Perishable Disparity: Mortuary Treatment in Baja California Sur*

Missionary and explorer accounts document status differences in adornment, possession of ceremonial items, and body proportions in the marine foraging populations of the Cape Region, Baja California Sur, Mexico. The antecedent and concurrent Las Palmas Culture (ca. A.D. 1200 to 1700) was originally defined by William Massey based on excavation of small exclusive-use mortuary caves. Each cave held one or two primary interments and several secondary bundle burials representing both sexes and all ages. Skeletal elements in bundle burials were typically painted with ochre before being bound in sewn palm fiber mats or less frequently, animal hides. Both burial types have produced a diversity of largely perishable grave offerings, particularly in child burials and adult primary interments. Other mortuary programs occur in some coastal sites with interments directly in sand dunes with more frequent association of utilitarian objects. Previous research has demonstrated mortuary patterning does not correlate with differential access to food resources based on stable isotope analysis of bone collagen and apatite carbonate. Formal disposal areas with excellent preservation of burial items, in conjunction with bone chemistry data permit an investigation of differing interpretations of social identity and equality when perishable objects are included and removed from analysis.

Schoeman, Maria (University of the Witwatersrand)

[177] *History Runs Through It: A Biography of Gorges in Bokoni, South Africa*

Stonewalled enclosures and associated terraces embody the intersection of Bokoni gorge biographies and broader social history. The complex biographies of the gorges include being ritual spaces marked by rock art, iron smelting sites, refugia and strongholds. Many of the uses did not substantially alter the gorges, but in the troubled times of the eighteenth and nineteenth centuries in southern Africa, pre-colonial farmers used stonewalling to reconfigure several gorges in Bokoni. The stonewalled enclosures and associated terraces, however, materialized ideas about ‘home’ that had developed at earlier sites configured around ideas about livestock and farming. While the older ideals and ways of living materialized in the stonewalled architecture were no longer feasible. Being a person of Bokoni had become entangled with a specific pattern of configuring stonewalls, and people attempted to transfer these ideas onto gorges. They, however, were simultaneously informed
by the existing meanings and identities of gorges, and this shaped the specific configuration of gorge enclosures and terraces.

Schoenemann, P. (Indiana University) and Lindsey Kitchell (University College London)

[33] **Handedness and the Evolution of Tool Use in Humans**

The right-handed bias in humans is significantly stronger at the population level than what has been found for other primates. The functional connection this might have with the elaboration of tool use in general, and stone tool making in particular, has long been of interest. Tracing the development of handedness in the fossil record would allow for an assessment of the degree to which handedness is associated with technological advances evident in the archaeological record. The extent to which handedness can actually be assessed in fossils is a first step towards understanding this relationship. Research relevant to this question will be reviewed, including a study of 71 healthy human subjects for which brain asymmetries were first assessed from MRI, followed by an analysis of whether these correlated with handedness and throwing accuracy. A number of areas showing significant brain asymmetry were found, including primary motor areas devoted to the hand, left occipital and right frontal petalias (protrusions), and cerebellar areas involved in motor coordination. The extent to which these asymmetries correlate with handedness and throwing accuracy will be discussed, and will be integrated into a review of what is known about fossil hominin brain asymmetries.

Schoeninger, Margaret [110] see Somerville, Andrew

Schoepflin, Lisl [247] see Bryan, Adrienne

Schofer, Jeanne (Coconino National Forest) and Peter Pilles (Coconino National Forest)

[282] **The Legacy of New Deal Programs to Northern Arizona and Southwest Archaeology**

During the 1930s, federal New Deal programs financed and supported a number of archaeological projects in northern Arizona. Within National Parks and Monuments, surveys and excavations were undertaken so that people could see archaeological sites, and visitor centers were constructed to display and interpret archaeology for the public. Several major expeditions by the Museum of Northern Arizona were also supported by New Deal programs. Excavations from 1933 to 1939 were directed by professional archaeologists employed by the Museum with laborers and students financed by the U.S. Civil Works Administration, Federal Emergency Relief Administration, and the Works Progress Administration. This work took place during a time when little was known about the prehistory of northern Arizona and the field of Southwestern archaeology was relatively new. The Museum’s excavations formed the basis for numerous publications by Harold S. Colton and his colleagues that greatly influenced the next 80 years of archaeological research and National Park Service interpretation. This paper explores the relationship of archaeological research conducted by the Museum with federal New Deal Programs and its enduring legacy to the archaeological profession and the American public.

Schollmeyer, Karen [34] see Huntley, Deborah

Schollmeyer, Karen (Archaeology Southwest)

[334] **Farmers’ Responses to Resource Stress and Climate Change in the Prehistoric US Southwest**

Researchers in the semi-arid US Southwest have long linked abandonment, mobility, and other high-visibility culture changes to climate change, particularly shifts in precipitation patterns. Early researchers used synchronicity to infer causal relationships between cultural changes and climatic shifts. Recent work indicates a more complicated pattern in which some climatic shifts are contemporaneous with periods of population movement and upheaval, while other equally severe shifts are not accompanied by substantial archaeologically visible human responses. In this paper, case studies from the region demonstrate that prehistoric farmers adjusted their settlement and land
use strategies in response to their own perceptions of below-average conditions, sometimes well below thresholds modern researchers might identify as causing food stress or other resource acquisition problems. Climate changes are one component in a complex relationship between human population size, history and intensity of landscape use, and social factors involved in farmers’ decisions to move or make other changes in their land use practices, and the strength of prehistoric reactions relative to different levels of stress varied widely. The importance of people’s perceptions of changing conditions in decision-making has implications both for understanding past culture changes and for planning effective responses to modern climate change.

Scholnick, Jonathan (UC Davis), Matthew Looper (California State University, Chico), Jessica Munson (UC Davis), Yuriy Polyukhovych (California State University, Chico) and Martha Macri (UC Davis)

Using Glyphic Variation to Infer the Social and Spatial Scale of Learning among Classic Maya Scribes

This study uses Maya hieroglyphic inscriptions to trace the evolution of alternative writing conventions during the Classic period (ca. 250-900 C.E.). The third person ergative pronoun u- is represented by up to a dozen different graphemes in Classic Maya writing. These glyphs are also the most common set of signs found in the corpus of hieroglyphic inscriptions, regardless of media. The variation and frequency of these signs provide data to model cultural forces that shaped this writing system. We evaluate diversity in u glyphs to examine changes in the make-up of scribal traditions during the Classic period. Some have suggested that antagonistic polities used different signs to denote u glyphs. We evaluate this claim with antagonistic and other social networks using a comprehensive dataset of texts and network ties. In addition, we evaluate the role of geographic space in structuring choice between alternative u glyphs. These analyses contribute to our understanding of the social and spatial scales of learning among the Classic Maya.

Scholnick, Jonathan [248] see Looper, Matthew

Scholze, Gary [41] see Pierce, Wendy

Schomberg, Roman [87] see Scott, George

Schon, Robert (University of Arizona)

The Performativity of Measurement

This paper examines the archaeological traces of measurement in light of the roles of mensuration in quotidian rituals. Most archaeologies of performance emphasize public spectacle, coordinated by elites, usually taking place in highly visible ceremonies. While some instances of measurement do fall under this rubric, most occur with less fanfare. Nevertheless, even mundane acts of measuring may be accompanied by some amount of pageantry. Differences in context, furthermore, yield varying archaeological traces. For example, the act of weighing goods privately requires little more than a somewhat accurate scale. The act of weighing in a public market, on the other hand, requires instruments of greater precision. More importantly, these instruments must appear standardized and precise in order to maintain trust between exchange partners. They may even show signs of verification by third parties, such as agents of a state authority. By considering the contexts and materiality of acts of measurement using cases from the Old World Bronze and Iron Ages, this study aims at improving our understanding of ancient metrology as well as the public performance of daily ritual.

Schortman, Edward (Kenyon College)

Through a Smoke Cloud Darkly: The Possible Social Significance of Candeleros in Terminal Classic Naco Valley Society
Candeleros, fired clay artifacts with one to over 20 chambers, are widely distributed across Terminal Classic (A.D. 800-1000) contexts in the Naco valley of northwestern Honduras. Though reported from other parts of Mesoamerica, little is known about the varied ways this distinctive artifact figured in tasks engaged in by people of diverse ranks and might have been used in negotiating interpersonal transactions. This presentation provides initial responses to these queries based on a functional and distributional analysis of 150 candeleros derived from Terminal Classic contexts at the Naco valley political center of La Sierra. The items in question were retrieved from three residential complexes of varying sizes, levels of complexity, and involvement in different crafts. Patterns identified in the course of this work allow us to assess the extent to which candelero use correlated with socioeconomic status, domestic affiliation, and occupational specialization. As one of the only systematic studies of candeleros conducted in southern Mesoamerica, these analyses offer hypotheses concerning the artifact’s social, economic, and political significance that can be evaluated in other settings.

Schortman, Edward [314] see Del Giudice, Caroline

Schott, Amy (University of Arizona, Petrified Forest National Park)

Understanding Formation Processes of Archaeological Sites in Eolian Settings in the Petrified Forest National Park

Located on the southern edge of the Tusayan Dune Field in northeastern Arizona, the Petrified Forest National Park contains abundant archaeology sites located in dune settings. Past and recent archaeological survey has shown an apparent correlation between archaeological site locations and eroded dune blowouts. It is likely that sites are located in dune settings due to their favorable environmental setting; however, it is not clear if the apparent distribution of visible sites in relation to eroded dunes relates most closely to cultural behaviors, or is more closely tied to exposure through post-depositional dune movement. This study uses spatial analysis of dune landscapes in several study areas to better understand the formation processes of archaeological sites in these dune environments. The relationship between archaeological site location and geomorphic landforms is explored to determine whether there is a significant correlation between site location and areas with dunes or dune blowouts. In addition, statistical analyses are used to explore whether geomorphic patterning is due to behavioral processes or due to natural processes of erosion and deposition. This is a first step in understanding formation processes, distribution, and visibility of sites in eolian settings in the Petrified Forest National Park.

Schoville, Benjamin (Institute of Human Origins, Arizona State University), Kyle Brown (University of Cape Town) and Jayne Wilkins (University of Cape Town)

Patterns of Lithic Edge Damage from the Open-air Middle Stone Age Assemblages at Vleesbaai and Oyster Bay, South Africa

Much of our understanding of the South African Middle Stone Age (MSA) comes from deep sequences recovered from caves and rockshelters. These discreet, enclosed contexts represent one aspect of a foraging continuum; where many other activities take place on the continuous, open landscape. A different suite of taphonomic processes are also more likely to occur on open landscapes, complicating comparisons between site contexts. Developing meaningful inferences regarding past human behaviors requires testing models of both taphonomic and behavioral processes that influence observed archaeological patterning. Here we use assemblage-scale lithic edge damage patterning coupled with tool morphology (shape, size, and edge angle) to analyze two open-air MSA assemblages along the southern coast of South Africa. These assemblages contain components of microlithic, Howiesons Poort-like industries, which are poorly understood from open-air contexts. The archaeological edge damage distributions are compared to a long-term lithic trampling study undertaken over six-months at a small farm in Northern California, a fluvial tumbling experiment, as well as butchery and projectile experiments. We place our results within the context of a Paleoscape foraging system, where caves and open-air sites may represent different aspects of a transport, use, and discard spectrum.
Schoville, Benjamin [356] see Oestmo, Simen

Schrader, Sarah (University of California, Santa Cruz) and Michele Buzon (Purdue University) [205] A Bioarchaeological Assessment of Diet and Dental Health During the New Kingdom/Napatan Transition in Ancient Nubia (Tombos, Sudan)

Nubia, once colonized by the Egyptian Empire during the New Kingdom Period (ca. 1550-1070 B.C.E.), became increasingly independent and powerful with the rise of the Napatan State during the Third Intermediate and Napatan Periods (ca. 1070-664 B.C.E.). This research addresses the social impacts of the New Kingdom/Napatan political and economic transition via the bioarchaeological examination of diet (carbon and nitrogen stable isotope analysis) and dental health (ante-mortem tooth loss, caries). We focus on skeletal remains from the archaeological site of Tombos due to the unique cultural and geopolitical positioning at the Third Cataract of the Nile River, but also make comparisons with other Nubian populations. The assessment of dental health (n=66) suggests a decrease in negative health indicators between the New Kingdom and Napatan Periods, indicating an improvement in overall health. Dietary reconstruction at Tombos is less conclusive; tentatively, the local Tombos diet does not appear to have changed substantially between the two periods (n=11); however, further testing is necessary. In conclusion, the local Tombos population appears to have maintained similar dietary habits and good health during the New Kingdom/Napatan transition.

Schreg, Rainer [93] see Harris, Susan

Schreiner, Thomas (University of California Berkeley), Enrique Hernandez (Mirador Basin Project), David Wahl (USGS) and Richard Hansen (FARES, University of Utah) [408] Preclassic Causeways of the Mirador Basin, Guatemala

A vast system of inter-site highways (sacbes or sacbeob) traversed an inhabited countryside between the major urban centers of the Kan kingdom in the Mirador Basin. Development of this system began during the Middle Preclassic period and continued throughout the Late Preclassic period (ca. 600 B.C.–A.D. 150). Over time, these transportation routes branched and transformed within densely populated centers to become a network of elevated causeways, processional boulevards with ritual and cosmological significance, thoroughfares, and secondary roadways. In addition to transportation, communication, and ceremonial aspects inter-site and intra-site causeways functioned as critical elements of regional and localized water management strategies that integrated with upland terrace and wetland margin agricultural systems. Here we present some results from ongoing mapping and excavations of these impressive features of ancient Maya civilization that were conducted by the Mirador Basin Project during the past two decades of field study.

Schreiner, Thomas [408] see Hernandez, Enrique

Schrenk, Alecia [299] Using the Index of Care on a Bronze Age Teenager with Poliomyelitis: From Speculation to Strong Inference

Bioarchaeology has come a long way in using differential diagnosis, attending to the Osteological Paradox, using biocultural frameworks to integrate different levels of analysis, and developing ways to work with small sample sizes and fragmentary remains. Designed by Lorna Tilley (U. Auckland), the Index of Care offers a new scientifically-based and systematic tool to collect and integrate a range of information on life history, disease processes, and cultural context. This online tool tests hypotheses using multiple lines of evidence with a rigorous four-step process for describing pathologies, determining disabilities, constructing a care model, and examining caregiving implications. In this study the Index of Care is applied to a previously described and published 18-year-old female from the Bronze Age site of Tell Abraq (UAE). The application of this tool provides a much more nuanced and complete interpretation of past pathology and caregiving. This study highlights the usefulness of the Index of Care in using strong inference and hypothesis testing on ancient cases of unusual and extreme diseases.
Schriever, Bernard [274] see Taliaferro, Matthew

Schroder, Whittaker (University of Pennsylvania), Charles Golden (Brandeis University), Andrew K. Scherer (Brown University) and Jeffrey Dobereiner (Harvard University) [86]  

Stop and Go Traffic: Power, Movement, and Emplacement in the Piedras Negras and Yaxchilan Kingdoms

This paper explores the many sides of the natural and supernatural landscape surrounding the Classic period Maya kingdoms of Piedras Negras and Yaxchilan with a particular focus on how the rulers of these polities struggled with one another for control of movement across the broken terrain of hills, cliffs, valleys, swamps, and rivers that define the Middle Usumacinta River basin. The standard image of a rather homogenous landscape in the Maya lowlands is quickly dispensed with in the Middle Usumacinta, and the challenges of transporting goods and conducting warfare across such a terrain was made all the more difficult by a complex network of defenses that regulated movement. Exploring the archaeological and epigraphic sources from Piedras Negras, Yaxchilan and their surrounding noble courts and hinterland settlements we can begin to envision and experience the dynamic sense of place that was central to the political lives in the Maya west.

Schroeder, Hannes [116] see Fregel, Rosa

Schubert, Ashley (University of Michigan) and Timothy Horsley (Horsley Archaeological Prospection, LLC, Department) [173]  

Determining Village Extent and Layout Utilizing Geophysical Survey and Excavation at the Mississippian Site of Cane River, North Carolina

Geophysical techniques can help to clarify the extent of a site and show spatial relationships between structures, therefore guiding research and excavation strategies. When monuments and larger structural elements are absent, feature density can be a reliable proxy for occupation areas and village boundaries. Utilizing a combination of magnetometry and ground-penetrating radar survey at the Cane River site in North Carolina, we were able to locate borrow pits, storage pits, structures, and hearth features that are not readily detected using traditional archaeological methods. Subsequent coring and excavations over these geophysical anomalies provided evidence for continuity in village layout and allowed us to sample a variety of feature types, illuminating temporal and spatial patterns in community activities. This research has implications for understanding regional variability in Mississippian community social practices throughout the Appalachian Summit of North Carolina.

Schubert, Blaine W. [370] see Arroyo-Cabrales, Joaquin

Schuldenrein, Joseph [155] see Turck, John

Schulting, Rick, Angela Lieverse (University of Saskatchewan), Vladimir Bazaliiskii (Irkutsk State University) and Andrzej Weber (University of Alberta) [131]  

Interpersonal Violence among the Prehistoric Hunter-Gatherers of Cis-Baikal, Southern Siberia

The large number of mid-Holocene cemeteries from Lake Baikal and its surrounding river valleys provide an unrivalled archaeological resource for the study of northern Eurasian hunter-gatherers. In this paper we present an overview of the skeletal evidence for interpersonal violence, comparing the Early Neolithic (7550–6800 cal BP) and Late Neolithic/Early Bronze Age (5700–3700 cal BP), two broad periods exhibiting different mortuary traditions and subsistence practices. Despite the nomenclature, which refers to material culture, these societies relied entirely on hunting, gathering, and especially fishing. Evidence for conflict takes the form of cranial trauma and projectile injuries. With the exception of a probable massacre event in the Early Bronze Age at the site of Shamanka II, levels of violence are not particularly high, and likely relate to both occasional disputes within
communities, and to sporadic conflicts between communities. The latter are not unusual among semi-sedentary hunter-gatherers, and could relate to contestations over the control of particularly productive fishing and sealing locations.

Chair

Schulting, Rick [378] see Santana Sagredo, Francisca

Schultze, Carol (HRA-Seattle / Collasuyo Archaeological Research Institute (CARI-Peru))

Macro-Regional Cultural Development of the Interior Columbia Plateau

Despite a wealth of data and continued opportunities for data collection, the prehistory of the Interior Columbia Plateau of the Northwestern United States continues to be organized and discussed on the basis of a handful of local regional chronologies. Many of those popularly in use were created decades ago and (in spite of a few notable exceptions) there remains a need for the archaeological community to generate a more synthetic chronology. This paper tests the premise that cultural evolutionary and political economy frameworks can be used to organize these regional chronologies into an overarching model for human culture history across the Plateau.

Schulz, Margaret (Colorado State University), Laurie Rush (US Army, Fort Drum, NY) and Duane Quates (US Army, Fort Drum, NY)

And Then Sometimes, The Public Engages You

At Fort Drum, our responsiveness to public engagement has been a key element in creating scenarios that have benefited not only the program but the installation and the resource itself. In one example, pressure from Range Control and comments from the public resulted in the conversion of an off limits archaeological district into a training asset and further led to the site’s use in global stewardship training. In a second example, a seemingly ordinary visit from a family member of a soldier killed on the installation during a training exercise led to the identification of a potentially National Register eligible site under Criterion A. Data recovery, public involvement, a historic marker and a ceremony were employed as a form of mitigation against the possibility of future development of the area. In both cases, compliance with the law and preservation of sites and the information they hold were coupled with public involvement to create a winning situation for all parties.

Schulze, Niklas [259] see Maldonado, Blanca

Schulze, Niklas (FCSyH-UASLP)

Copper Bells from the Templo Mayor of Tenochtitlan - Imports or Local Production?

The studies of the offerings of the Templo Mayor of the late postclassic Aztec capital of Tenochtitlan have shown that these concentrate objects of many different materials, styles and origins. The question of how these objects reached the offerings has probably more than one answer, reflecting the complexity of the postclassic economic system. However, recent research has shown that several artifact groups that were thought to be imports were probably produced in strictly regulated workshops in, or close to, Tenochtitlan. Copper bells are a case in point: the bells - and copper objects in general - were often automatically associated with a West Mexican origin. However, the analysis of the copper bells from the offerings of the Templo Mayor has shown that their morphology and compositional homogeneity seem to indicate an origin from a limited number of workshops. Comparison with bells from collections of other regions of Mesoamerica make it increasingly probable that the Tenochtitlan bells were locally produced, forming part of what is referred to in the context of this session as the Imperial Style.

Schumacher, Michael [29] see Vawser, Anne

Schurr, Mark (University of Notre Dame), Patrick Donohue (University of Notre Dame) and Antonio Simonetti (University of Notre Dame)

Multi-Element Characterization of Early Nineteenth Century Pottery Sherds from Native
ABSTRACTS OF THE SAA 80TH ANNUAL MEETING

American and Euro-American Sites

Fine earthenwares imported from England are a distinctive type of artifact frequently found on early nineteenth century Native American and Euro-American sites. Relatively rapid changes in decorative motifs and technologies can easily be identified by eye and provide information about site chronology and economic status. However, visual analyses of sherds usually can usually provide only general information because of the fragmentary nature of most assemblages. For example, transfer printed pottery can be dated and assigned to a specific manufacturer if the pattern name can be identified, but sherds are usually too fragmentary for such identifications. We present data about the chemical composition of sherds from two sites occupied during the first half of the nineteenth century: Pokagon Village, a Native American site (southwestern Michigan); and Collier Lodge, a Euro-American site (northwestern Indiana). Multi-element compositions determined by electron microscopy, micro X-ray fluorescence (µ-XRF), and laser-ablation-inductively coupled mass spectrometry (LA-ICP-MS) show that sherds with the same decorative methods from the two sites have different chemical compositions, indicating that different manufactures produced the pottery, and that manufacturing compositions changed over time. We show that multi-element characterization has the potential to produce new information about manufacturing sources, technology, and dating from very small sherds.

Schurr, Mark [165] see Bush, Dominic

Schwadron, Margo [83] see Doering, Travis

Schwadron, Margo (NPS-Southeast Archeological Center)

[333] Battling the Rising Sea: Investigation and Protection of Turtle Mound, Castle Windy and Seminole Rest Shell Mound Sites

Massive shell midden mounds were once common in the Canaveral region, but since the 1880s an estimated 68% of these sites have been destroyed. The shell mounds preserved within Canaveral National Seashore include one of North America’s tallest shell mounds (Turtle Mound), one of the last remaining vestiges of an extensive shell mound culture that inhabited the region. Recent investigations of Turtle Mound, Castle Windy and Seminole Rest inform about interactions and influences between people, environment, coastal landscapes, and climate change (past, present and future). Unfortunately, these sites are undergoing severe erosion due to sea-level rise and climate change impacts. The development of a successful program combining ecosystem restoration, living shorelines and soft stabilization techniques to protect sites is presented, recognizing that a key component to this success is youth and civic engagement, and public outreach for community support.

Schwartz, Christopher (Arizona State University), Hannah Zanotto (Arizona State University), Ben Nelson (Arizona State University) and David Abbott (Arizona State University)

[273] Intersite Difference in Distant Interactions, Hohokam Canal System 2, Phoenix Basin, Arizona

Material evidence of interaction between prehispanic peoples in the U.S. Southwest and Mesoamerica is first detected ca. 2000 B.C.E. with the introduction of maize, figurines, and ceramics. Such markers of long-distance interaction, including copper bells, scarlet macaws, and other objects and symbols, increase in diversity and abundance in later periods. These objects and symbols moved up to 2000 km by social actions and mechanisms that remain obscure. Although the Hohokam had the strongest ties to Mesoamerica of any region in the U.S. Southwest, more could be done to examine local variation in that interaction. Also unclear is what role such distantly acquired objects might have played in water control practices. For example, were sites located near headgates more engaged in distant acquisitions than other sites in the canal systems? Scholars believe that these canal systems constituted relational communities. In this study we evaluate whether villages within Phoenix Basin Canal System 2, including the well-documented sites Pueblo Grande and Las Colinas, were differentially involved in distant interactions and how their involvement changed over time. This analysis of the distribution of interaction markers within a canal system
provides evidence about how individual sites and actors were differentially engaged with distant partners in Mesoamerica.

Schwarz, Kevin (ASC Group, Inc.)

Censer Fragmentation and Life History: Rural Domestic Settlement Enchainment and Accumulation Activities and the Classic-Postclassic Transition of the Petén Lakes Region, Guatemala

Fragmentation theory is premised on the notion that actors purposefully broke valued goods, deposited fragments of them in meaningful places, and enchain other social beings in relationships with gifts and exchange of them. They also accumulated whole objects in caches. This presentation examines the fragmentation premise for censers and non-slipped utilitarian ceramics in and around architectural spaces at the Quexil Islands, Guatemala. The site is a Terminal Classic-Late Postclassic Maya settlement in the Petén Department. The Classic-Postclassic transition features a transformation in architecture and social use of space in rural settlements and the use, taphonomy and life histories of these ceramics appear to shift as well. Whereas in the Late Classic period, the rural Maya were part of hierarchical society and their use of architecture and ceramic media reflected that hierarchy, in the Postclassic period there emerged a different pattern. Small, seemingly rural settlements, such as the Quexil Islands, had the ability to conduct censer ritual in the Postclassic. An epicentral ceremonial architectural pattern has substantial censer deposits, while a peripheral pattern of small censer fragments and other non-slipped ceramics predominates in residential contexts. The presentation concludes by considering evidence of up-network and down-network enchainment and accumulation activities.

Schwendler, Rebecca (PaleoWest Archaeology)

A Re-examination of Magdalenian Social Organization Ten Years Later

A decade ago this author completed a synthesis of information about the circulation of exotic lithic raw materials, items of personal ornamentation, and portable decorated objects across western Europe during the Magdalenian ca. 17,000 to 12,000 B.P. Tests of hypotheses about the relationship between population density and visual display suggested that population density was probably not the sole driving force behind the types and intensities of visual displays used by generations of Magdalenian people. Rather, the unique social dynamics surrounding human colonization of new areas likely played a key role in people's choices about the kinds of materials and decorative forms they used. Furthermore, differences in social organization—specifically degrees of enforcement of social equality—probably contributed to the regionally and temporally diverse patterns of visual displays seen in the archaeological record. This paper uses information gleaned from the last 10 years of Magdalenian research to re-examine the author's original interpretations of Magdalenian social organization. By reflecting on how our understanding of Magdalenian lifeways has and has not changed over the last decade, we can identify vital future directions of investigation.

Schwert, Donald [260] see Radermacher, Matthew

Schyle, Daniel [64] see Olszewski, Deborah

Scott, George (University of Nevada Reno) and Roman Schomberg (University of Nevada Reno)

Sinodonty and/or Sundadonty: Revisiting the Three-Wave Model for the Peopling of the Americas

Starting with a single root trait, C.G. Turner II developed a model for the peopling of the Americas that involved three migratory waves: (1) Amerind; (2) Na-Dene/Northwest Coast; and (3) Eskimo-Aleut. After expanding to 29 variables, he found the same general pattern and contended that all New World populations were derived from Sinodont groups in Northeast Asia. Recently, researchers have challenged the three-wave model on genetic, archaeological, and dental grounds, including the notion that some groups are derived from Sundadonts (Southeast Asians) rather than Sinodonts (Northeast Asians). To reevaluate the three-wave model and Sinodont origins of New World groups,
23 crown and root traits were analyzed in 31 large samples, including Southeast Asians (4), Australians (4), Northeast Asians (4), North American Indians (4), South American Indians (5), Mesoamericans (2), Na-Dene/Northwest Coast (4), and Eskimo-Aleuts (4). Unrooted neighbor-joining trees and ordinations exhibit the same pattern. At the two extremes are Australians and Native Americans. Southeast and East Asians fall between the extremes with Southeast Asians closer to Australians and East Asians closer to Native Americans. This analysis reveals no hint of Sundadont ancestry in Native Americans and supports the notion that the New World was peopled in three major waves.

Scott, David [121] see Warmlander, Sebastian

Scott, Elizabeth (Illinois State University/Illinois State Museum) [154]  
Consuming the French New World
All of France’s New World colonies were based on relationships with particular geographies, from eastern New France, to the western Great Lakes, to the Illinois Country, to Lower Louisiana, and to the Caribbean, according to the particular products and resources desired by the Crown, which may be thought of as the ultimate “consumer” of French colonial landscapes. Colonists and French descendant communities engaged with these different landscapes for both commercial and family subsistence purposes. Obtaining, producing, and moving such resources as furs, wheat and flour, hams, bear oil, salt, and sugar required a variety of social networks and power relationships among Europeans, Native Americans, and Africans. The cultural landscape of house lots, towns, agricultural lots, shipping routes, and resource procurement sites reflect how people perceived and interacted with the land and each other. Food traditions brought from France combined with local food resources in each region to produce foodways that reflected a particular colonial engagement with the landscape. Even with such differences, however, foodways were also similar among French communities, especially when compared to British and Anglo-American foodways in the same locations. This paper draws on zooarchaeological, archaeobotanical, ceramic, and archival data to address these topics.

Scott, Lindsay (Department of Anthropology, The University of Montana, Missoula MT), Anna Marie Prentiss (Department of Anthropology, The University of Mont) and Matthew J. Walsh (Department of Anthropology, The University of Mont) [228]  
Macroevolutionary Archaeology in 2015: Testing Historical and Evolutionary Hypotheses, for Example, about Arctic Migration Pulses
Macroevolutionary archaeology seeks to examine cultural evolutionary processes at multiple hierarchical scales spanning artifact technology to economic, social, and political strategies. This approach offers the opportunity for scholars to test general hypotheses about tempo and mode of evolutionary change and it also lends itself to the development of formal tests of general hypotheses about human history in the longue durée. In this paper we present a review of current research in macroevolutionary archaeology and follow with a case study testing the independent (Paleoeskimo and Neoeskimo) arctic pulses hypothesis using archaeological data. It provides an opportunity to discuss the challenges and prospects of this research strategy. It also permits us to engage in a rigorous examination of a major hypothesis regarding human cultural and biological history, so far only rigorously tested using genetic data. Our approach incorporates a variety of phylogenetic and network models to assess potential cultural factors associated with arctic migrations during the past 5500 years. We seek to offer implications for understanding arctic migrations as case studies in cultural macroevolutionary process.

Scott, Sara (Montana State Parks) [300]  
Deciphering WPA Archaeology on the Northwestern Plains: Another Look at the Cultural Chronology of Pictograph Cave
Pictograph Cave (24YL0001) located in south-central Montana was excavated by Works Progress Administration (WPA) crews between 1937 and 1941. Excavations extended to depths of 23 feet, yet no radiocarbon dates for the site were available until recently. Efforts to re-catalog and process the
artifact collection to professional standards were undertaken along with the creation of three-dimensional models of the excavations rendered from WPA stratigraphy maps. Newly created databases allowed for artifacts from the cave’s lower levels to be easily identified and subsequently submitted for radiocarbon analyses providing chronometric dates for the sequence of human occupation in the cave. This paper discusses the results of radiocarbon dating analyses which indicate the earliest occupation of Pictograph Cave dates to the late Middle Archaic period, conflicting with the much earlier chronological sequence developed by William Mulloy in 1958. The cave’s location on the landscape and its proximity to major travel routes along the Yellowstone River are also examined.

Scott, Rachel (DePaul University) and Finola O’Carroll (Irish Archaeology Field School)

Catholic Burial as Native Resistance in Post-Dissolution Ireland

The Dominican friary in Trim, County Meath, Ireland, was founded in A.D. 1263 by Geoffrey de Geneville, Lord of Trim. An important religious center, the Black Friary was used for burial during the late Middle Ages both by the Dominican friars and by lay individuals living around the town. In 1540, as part of the dissolution of the monasteries, the commissioners of King Henry VIII suppressed the friary and sold its lands, buildings, and goods. However, although the site no longer possessed formal religious status, local Catholics still believed it to be holy ground and continued to inter their dead within the church and cemetery. In this paper, we consider the practice of post-Dissolution burial at the Black Friary, arguing that it not only reflected the deep attachment of the Catholic population to ancestral burial places but also constituted a form of native resistance to the imposition of English government and Protestant religion. Indeed, the right to burial in holy ground with appropriate funerary rituals later became a touchstone for Irish nationalism in the 18th and 19th centuries. The evidence for resistance at the Black Friary and similar sites thus foreshadows the contentious political and religious landscape of modern Ireland.

Scott Cummings, Linda [62] see Varney, R.

Scott Cummings, Linda (PaleoResearch Institute, Inc.)

Tracing Zea mays through the Americas Using Maize Cob Phytoliths

Dolores Piperno has addressed the origins of maize agriculture in the Americas through examination of samples from MesoAmerica. Ultimately, maize diffused throughout the world. Prior to globalization, maize spread throughout the Americas. Zea mays is represented by over 100 races in North America alone. My work has focused on the spread of maize agriculture, rather than its origins. Identifying races of maize is a daunting task for any region of the Americas. The most informative remains for this task, beyond ancient DNA, are phytoliths. Extracting phytoliths from cobs provides a record free of contamination by phytoliths of other origin. Measuring individual phytoliths to obtain population averages uses computer-assisted morphometrics to establish signatures for maize races that may they be traced through time and space. Statistical comparison of signatures obtained for existing races with signatures from archaeological samples first associates the archaeological signatures with those from existing races. Archaeological signatures then are placed geographically and back through time, suggesting contact between peoples and/or movement of people across the landscape. The results of statistical analysis suggest associations of existing races with archaeological assemblages. This association suggests our ability to assign race names to statistically similar races from the archaeological record.

Scott-Ireton, Della (Florida Public Archaeology Network) and Jennifer McKinnon (East Carolina University)

Diving to a Flash of Education: Archaeological Tourism at Maritime Sites

Underwater archaeological sites around the world draw thousands of diving tourists lured by the
excitement of shipwrecks and the beauty of the marine environment. Through scientific research and beguiling information, archaeologists have the opportunity to educate these visitors about the history of the sites and, perhaps more importantly, about the need for preservation. Effective interpretation leads to appreciation of submerged cultural sites as links to our past, rather than simply as mines of “treasure” to be salvaged for personal gain. This paper describes a variety of interpreted maritime sites to show how archaeological tourism results in changed mindsets, engaged emotions, and informed visitors.

Scott-Ireton, Della [261] see Lees, William

Scribner, Zach [362] see Adams, Jesse

Seaberg-Wood, Forest [30] see Hoffman, Brian

Seager-Boss, Fran, Alfred Theodore (Knik Tribal Council), Kathryn Krasinski (Matanuska-Susitna Borough and Fordham University), Brian Wygal (Adelphi University) and Richard Martin (Knik Tribal Council)

[72] Public Archaeology at Cottonwood Creek

In Southcentral Alaska, Matanuska-Susitna Borough is among the Nation's most rapidly growing regions. At the cost of losing indigenous archaeological settlements, subdivision activities have mushroomed in response to increased population. Collaboration with the Knik Native Dena'ina Tribe is tantamount to saving numerous proto-historic settlements where inland rivers confluence with Knik Arm in Upper Cook Inlet. Working with the State and Knikatnu Tribal Corporation, who own sites adjacent to Cottonwood Creek above Knik Arm, the borough is listing them in the National Register of Historic Places as an archaeological district. Long abandoned, the sites hold a key to ancestral living patterns for today's Native Dena'ina community. Archaeological surveys of the district resulted in discovering 14 semi-subterranean houses and 333 cache features. Members of Knik Tribe have been integral in locating, describing, and interpreting cultural features in addition to sharing information on their ancestral life-styles with school groups. The district designation will enhance current outreach educational plans the Knik Tribe is developing for youth and adults, including participation in excavations, conducting ceremonies, demonstrating fish harvesting and native plant use, and erecting interpretive signs. This presentation provides an overview of the collaboration between archaeologists and a Native Alaskan community.

[223] Discussant

Seager-Boss, Fran [302] see Martin, Richard

Seale, Heather [144] see Leon Estrada, Xochitl

Sealy, Judith (University of Cape Town), Navashni Naidoo (University of Cape Town), Julia Lee-Thorp (Oxford University), Emma Loftus (Oxford University) and Tyler Faith (University of Queensland)

[294] Stable Carbon and Oxygen Isotopes in Faunal Tooth Enamel from Boomplaas and Nelson Bay Cave Record Late Pleistocene/Holocene Environments in the southern Cape, South Africa

The Pleistocene paleoclimates and paleoenvironments of southernmost Africa are important in both global climate studies and studies of human evolution, but remain poorly documented through time and space. In order to contribute to this project, we have analyzed δ13C and δ18O in approximately 350 samples of faunal tooth enamel from Boomplaas Cave and Nelson Bay Cave, in the southern Cape, South Africa. The Boomplaas samples span the last ca. 70 kya, and show fluctuations in δ13C indicating C3-dominated vegetation ca. 65 kya, between 26-20 kya and in the early Holocene. C4 grasses are markedly more common during the warm interval ~ 36-38 kya, corresponding to Antarctic Isotope Maximum 8, and between 18-14 kya. The Last Glacial Maximum shows a strongly
C3 signal, confirming the pattern in the nearby Cango speleothem. The faunal record from Nelson Bay Cave extends back only as far as OIS 2, but there is less variation in δ¹³C through the sequence, indicating a mixture of C3 and C4 grasses from the LGM through to the Holocene. Comparison of records from multiple sites will help us to understand the extent to which patterns are regional or local, and perhaps shed light on the dynamics of climate systems.

Sealy, Judith C. [372] see Pfeiffer, Susan

Searcy, Michael [245] see Pitezel, Todd

Seay, Michael (Brigham Young University)
[409] Navigating the FAA's Turbulent Airspace in the United States Regarding UAVs
There has been a significant increase in the use of UAVs throughout the world to aid in archaeological investigations. Unfortunately the current U.S. Federal Aviation Administration has enforced strict policies that prohibit most institutions and private firms to use these aerial vehicles. As a result archaeologists in the United States are falling behind in implementing an important tool in archaeological reconnaissance. This paper outlines the progress made thus far by the FAA to reform these regulations.
[409] Chair

Sears, Erin [86] see Bishop, Ronald

Sears, Erin (University of Kentucky)
[193] Willfully Obscured: Figurines and Caves in the Maya Late Classic Period
As both space and material are used to create interpretations or infer ancient ritual meanings concerning the Late Classic Maya, the consideration of caves and ceramic figurines provide interesting comparators as they evoke restrictions of intent and imagery within a regional setting. Opportunistic sampling of figurines from cave contexts for compositional analysis has resulted in chemically-based patterns from which one can glimpse directional patterns of movement from resource area to recovery context. The compositional data for the figurines obtained through neutron activation is interpreted with a perspective obtained through decades of similar analyses of ceramics from both lowland and highland Maya sites. This presentation provides variably robust vignettes involving figurines in caves, with specific reference along the Pasión river system, that contain aspects of both local performance and assumed trade.

Sebastian Dring, Katherine [34] see Silliman, Stephen

Sebbillaud, Pauline [49] see Tang, Zhuowei

Sechrist, Laura [394] see White, Carolyn

Sedig, Jakob (University of Colorado)
[262] Reevaluating Mimbres Late Pithouse to Classic Period Transformations of the Upper Gila
Professional archaeological research has been conducted in southwest New Mexico’s upper Gila valley since at least 1929, when Burt and Hattie Cosgrove completed a survey of archaeological sites. Projects of various scales have been carried out periodically since then, however minimal research has occurred at Woodrow Ruin, one of the region’s largest sites. This paper presents new information from my recent dissertation research at Woodrow Ruin that is helping to redefine the Late Pithouse-Classic period occupation of the upper Gila. While Woodrow Ruin was previously noted for the number of surface Classic period rooms, it now seems that Woodrow Ruin also had a substantial Late Pithouse occupation, and was likely the hub of the upper Gila during the Late Pithouse and into the Classic. Analyses of artifacts from the site, particularly a ceramic NAA study,
have helped to demonstrate how trade and interaction changed through time in the upper Gila. New
data have also demonstrated that Woodrow’s influence in the upper Gila continued into the 11th
century, although social organization changed substantially between the Late Pithouse and Classic
periods.

Sedov, Sergey [141] see Ibarra, Georgina

Seebach, John (Colorado Mesa University)
[148]  
*Folsom Toolkit Replenishment at Chispa Creek, Texas: Comparing Bifacial to Unifacial Technologies*

Folsom technology has been characterized by Ingbar and others as employing a “serial replacement”
strategy, where toolkits are replenished on a more or less continuous basis based on the proximate
taskscape. Such replenishment is in evidence at Chispa Creek, a west Texas lithic workshop
repeatedly occupied by Folsom foragers. Similar to Hanson, Wyoming, at least three local toolstone
sources were used at Chispa to manufacture projectile points and a large number of unifaces. These
occupations also saw a small number of depleted non-local tools left on site. Analyses of raw
material use for both bifacial and unifacial tools, when compared to the size and state of tools at
discard, illuminate the technological decisions being made at Chispa Creek, and allow us to test
whether all components of the Folsom toolkit are serially replaced or whether such replenishment is
related more to weaponry.

Seetah, Krish [116] see Fregel, Rosa

Seetah, Krish (Stanford University)
[116]  
*Objects Past, Objects Present: Materials, Resistance and Memory from the Le Morne Old
Cemetery, Mauritius*

This presentation centers on two distinct material assemblages, both representing resistance, but in
markedly different ways and at different times. It also introduces a new regional comparative of
African religious syncretism, longanis, a belief system that developed within slave communities, and
offers both insightful similarities to Atlantic counterparts, as well as unique features in its own right.

The article, undertaking a first such appraisal for the Indian Ocean, applies an archaeological
viewpoint to African burial and African belief practice, to both ancient and modern assemblages, in
order to better assess the role that materials have played in serving as proxies for African toolkits
and memory.

Segal, Irina [64] see Ekshtain, Ravid

Segura-Llanos, Rafael [155] see Bettencourt, Nichole

Seidemann, Ryan (Louisiana Department of Justice) and Christine Halling (Louisiana
Department of Justice)
[19]  
*The Forensics of Commodification: Examples from Louisiana of the Acquisition, Analysis,
and Legal Problems Related to Trophy Skulls Seized from Illegal Sales*

Since the inception of the Louisiana Department of Justice’s human remains acquisition program in
2007, two Tibetan kapalas have been recovered from illegal sales. This commodification of human
remains constitutes technical violations of the law, but the nature of the remains makes for an
awkward fit to the existing laws. The forensic, bioarchaeological, and cultural analysis of these
remains are difficult due to their altered nature, leading to problems of disposition. Questions
inherent in the disposition of these remains include: have these human remains been ritually
transformed into religious relics to which the law forbidding remains trafficking no longer applies? If
such law does apply, what is a proper disposition of such remains? These questions and a review of
the two acquired specimens are the subject of this presentation.
Seidemann, Ryan [220] see Halling, Christine

Seidensticker, Susanna [169] see Bongers, Jacob

Seinfeld, Daniel [8] see Nowak, Jesse

Sejas Portillo, Alejandra (University of Pittsburgh) [250]

Primary and Secondary Chiefdom Emergence: A Comparative View from the Titicaca Basin

The main hypotheses that explain the collapse of the Tiwanaku state, which flourished between A.D. 400 and 1250 in the Titicaca Basin, refer to the internal factional competition that destabilized its governance over the years, summed to agricultural production decline caused by drought episodes in the region. It is of great interest to compare the processes of political reconfiguration and the emergence of the post-Tiwanaku Pacajes chiefly polities with the formation of “primary” chiefdoms in this part of the Titicaca Basin. The aim of this poster is to assess this comparison through the study of the supra-local community scale, supra-local community centralization, demographic density, public works investment, and conflict, observing the trajectory of the polities from the Formative Period (1500 B.C.-A.D. 800), to the Late Intermediate Period (A.D. 1150 -1470).

Šejnohová, Marie [12] see Láznicková-Galetová, Martina

Sekedat, Bradley (UC Davis) [398]

Craft, Industry, and Landscape, in the Roman Imperial Marble Trade

This paper provides an introduction to the session and its associated topics, while also presenting a case study of marble quarries in the Roman empire. Long regarded as an example of imperial power shaping craft production in provincial settings, the case study presented here explores these political and social relationships as located practices that play out in a landscape context. The dynamic interplay between local environmental conditions, existing social practices, and political power demonstrates a marked influence on the creation of a coordinated imperial industry – the Roman marble trade. The development of an imperial craft or industry runs alongside substantial changes to settlement dynamics and changes to the very landscape itself. These changes to industrial landscapes and to the coordination of skilled and unskilled labor, however, operate in a fashion dissimilar to how other parts of the Roman provinces were incorporated into the imperial polity, while also demonstrating variability between stone-working sites. This paper therefore explores the influence of landscape and social context on the form of imperial craft production.

[398] Chair

Selden, Robert (Stephen F. Austin State University), Timothy Campbell (Texas A&M University), Suzanne Eckert (University of Arizona), Michael O’Brien (University of Missouri) and Mara Vasconcelos (Universidade Federal da Bahia) [124]

Geometric Morphometrics & Elliptic Fourier Analysis of 3D Ceramic Data

We demonstrate two quantitative methods for potential inter- and intra-group comparisons of archaeological ceramics. For 3D morphometrics, we define a single stable landmark that is consistent throughout our ceramic data, and employ opposing curves populated by semi-landmarks to capitalize on the shape variation that occurs in coil-built ceramics. Eight such curves are used to capture four complete profiles. The landmark data are then subjected to generalized Procrustes analysis (GPA) and principal components analysis (PCA). Additionally, we conduct an Elliptic Fourier Analysis (EFA) of 2D profiles produced from 3D scans of the vessels, decomposing outlines into a series of size invariant harmonics (shape variables). Results are paired with additional qualitative attributes (temper, firing, decoration, etc.) to better characterize the range of variation that occurs throughout the dataset. Ultimately, data such as these can be analyzed in terms of both temporal and spatial dynamics as a means of exploring various social behaviors.
Seligson, Kenneth, Tomás Gallareta Negrón (INAH, Universidad Autónoma Regional de Yucatán) and Rossana May Ciau (INAH)

[399] *Ring Structures and Lime Production at the Ancient Maya Site of Kiuic*

Powdered lime was one of the most important materials produced and utilized by the ancient Maya. It was a key ingredient in the mortar used to construct monumental edifices and residential structures, as well as in the lime plaster that coated the facades, floors and interior walls of these structures. Lime was even crucial for maintaining a viable maize-based diet through the nixtamalization process. By soaking maize in lime-infused water the ancient peoples of Mesoamerica not only softened the kernels for grinding but also unlocked the essential nutrient niacin for uptake into the body. Despite the obvious importance of lime to daily life in the ancient Maya world, there remains a relative lack of evidence concerning the ancient methods for producing this crucial material. Recent investigations of ring-like kiln structures in and around the ancient site of Kiuic in the Puuc region of the Yucatan peninsula contribute new evidence to the study of ancient lime production. This paper presents the preliminary results of the latest fieldwork at Kiuic and discusses the importance of the lime industry with regard to the local economy and resource management leading up through the peak of Terminal Classic Puuc society.

[399] *Chair*

Sellami, Farid [181] see Lejay, Mathieu

Sellen, Adam (Universidad Nacional Autónoma de México)

[58] *Using X-radiography to Reveal an Ancient Zapotec Urn*

Since the inception of thermoluminescence dating we have known that a significant number of Zapotec effigy vessels in museum collections are fakes, manufactured sometime in the early twentieth century. Some of these forgeries are composites that combine ancient and recent materials, but it is not clear how they were assembled, or how a conservator could restore such an object. In order to fully understand how these composites were manufactured and in what way they differ from ancient ceramics, we used X-radiography to analyze composites, fakes and ancient artifacts in a collection at the Royal Ontario Museum, in Toronto, Canada. Part of a broader study, we hope to find out more about the nature and origin of these creations from Oaxaca, products of a clandestine industry that has injected great quantities of fakes into the world market.

Sellet, Frederic (University of Kansas)

[148] *Discussant*

Sellier, Pascal [207] see Bruzek, Jaroslav

Semon, Anna (University of North Carolina) and Victor Thompson (University of Georgia)

[178] *David Hurst Thomas and the Guale Problem: Rethinking Late Prehistoric Mobility along the Georgia Sea Islands*

In his research along the Georgia Coast, David Hurst Thomas identified the "Guale problem" as one of the key issues for late prehistoric research in the region. The problem centers on the relative degree of Guale mobility and subsistence during the pre- and postcontact eras. One view is that these were highly mobile, moving seasonally as they exhausted resources. Alternatively, others posit a more sedentary existence where the rich estuarine environment supplemented by maize agriculture supported large relatively stable year-round villages. Here, we provide a retrospective on the contributions that Thomas and colleagues have made in resolving issues related to Guale mobility. As a rejoinder, we explore contemporary research on the issue and provide commentary on what exactly we know and future avenues of inquiry regarding late prehistoric mobility and village life along the Georgia Coast.

Seong, Chuntaek [80] see Choi, Seonho
Seong, Chuntaek (Kyung Hee University) and Jae Hoon Hwang (Seoul National University)

Late Neolithic to Early Bronze Age Transition in Korea: Implications from the Evaluation of Radiocarbon Dates

The present study attempts to reconsider the late Neolithic and early Bronze Age transition in central Korea based on evaluation of available radiocarbon dates. Issues regarding reliability of the radiometric dating and its implications on the reconstruction of occupational density are addressed along with methods of evaluating a large set of radiocarbon dates falling between 2000 B.C. and 1000 B.C. This in turn provides a basis for testing common assumptions of the transitional period in Korea. First, the current data suggest a significant drop of available radiocarbon dates during the final Neolithic and toward the Bronze Age, 2000 to 1500 B.C. Second, the number of available radiocarbon dates began to rebound from 1500 B.C., and there is a remarkable increase toward 1000 B.C. The sharp increase of the radiocarbon dates, archaeological sites and occupations during the early Bronze Age may be compatible with an assumption of a series of migrations from the north. We also attempt to test the sequential chronology of early Bronze Age assemblage types and present coexistence of different cultures in the central Korean Peninsula.

Sereno-Uribe, Juan and Mario Córdova Tello (INAH Morelos)

Archaeological Project Amacuzac, Morelos and Guerrero Mexico

In this poster, we present the results of the work carried out in the Mexican State of Morelos, which serves as a basis for the study of a wider region along the Guerrero-Morelos frontier. Since 2003 the archaeological project of Chimalacatlán has researched the southern section of the state of Morelos, in the region known as the Huautla highlands. The archaeological importance of the area was demonstrated by the work Florencia Müller in 1943. Our project first focused on the conservation of various architectural structures within the site, especially buildings that were heavily damaged. Then, we conducted intensive surveys to record all the archaeologically significant architectural elements found in the greater region, and many more sites were discovered around Chimalacatlán. Therefore, we think that it is imperative to extend the study region between the states of Morelos and Guerrero, to continue with surveys and follow-up excavations of the different sites established all along the river Amacuzac, the actual frontier between Morelos and Guerrero. Doing so we will be able to develop a better archaeologically understanding a wider region.

Serra Puche, Mari Carmen (IIA-UNAM)

Ethnoarchaeology of Productive Activities Xochitecatl-Cacaxtla

The archaeological site Xochitecatl-Cacaxtla gave ample evidence of productive activities in different residential areas of the settlement. The research has been enriched with ethnoarchaeological studies we have conducted on the current production of handmade ceramics, textiles, lapidary and mezcal in the communities of the region of Tlaxcala. This diversity of productive activities allows us to create a map of the "city" of Xochitecatl-Cacaxtla distinguishing areas specializing in the production of consumer goods and trade.

Serrudo, Eberth, Lawrence Coben and Erika Cabello

The Inca Incorporation of the Canete Valley, Part 2: Strategies and Responses, Excavations at Huaca Daris

Field research by the Canete Archaeological Project (CAP) has begun to unveil rich data regarding the Inca incorporation of the Middle and Lower Canete Valley. Utilizing both systematic survey and excavations, our work suggests a complex but intensive interaction between the Inca and those who occupied the valley before them. In this paper, we begin to tease out the imperial strategies of incorporation and local responses to them.

Sevara, Christopher (VIAS, University of Vienna) and Brenda Baker (Arizona State University)
[240] Death from Above: Using Remote Sensing Data to Examine Mortuary Landscapes along the Nile 4th Cataract

The Bioarchaeology of Nubia Expedition project area stretches for over 30 kilometers along the right bank of the Nile in northern Sudan, from the modern village of Abu Tin at the top of the Great Bend west to the area across from Shemkiya. Many of the numerous archaeological resources located within the concession have principal funerary components from multiple time periods, and their placement in the landscape with regard to specific topographic and environmental features is difficult to ignore. We use a combination of 2- and 3-dimensional historic and modern remote sensing data combined with in-field survey and excavation results to examine issues such as topographic prominence, intervisibility, and other spatial and contextual relationships between archaeological objects and the natural environment in our study area. Combined with a GIS-based, broad-brush style interpretation of modern land use based on historic landscape characterization approaches, these methods allow us to begin situating funerary monuments in the wider context of the landscape. This work, in turn, helps us understand archaeological resources in the region as interconnected components of a larger cultural dynamic with complex relationships to people and the environment in both the present and the past.

Sever, Thomas L. [199] see Sever, Thomas

Sever, Thomas (U. of Alabama, Huntsville), Thomas L. Sever (University of Alabama, Huntsville) and Robert Griffin (University of Alabama, Huntsville) [199] A Satellite-Based Perspective on Ancient Climate in Tropical and Desert Regions

This research documents the effects of human activity upon tropical forests and desert landscapes. The investigation uses both satellite and airborne imagery to understand the dynamics of human adaptation and interaction upon these landscapes, and the role of natural and human-induced past and present changes to climate variability. These two subjects are highly interrelated since human-induced landscape changes can have strong impacts on climate, while natural climate variability can in turn exert strong pressures on the landscape, potentially exacerbating human-induced effects. Special emphasis will be placed upon the Maya lowlands of northern Guatemala and Belize, areas that are threatened by current deforestation and land use changes. It was in this region that the ancient Maya civilization began, flourished, and abruptly disappeared beginning around A.D. 800. Preliminary research suggests that the destruction of the landscape by human activity contributed to this collapse. These satellite-based techniques are also being applied to the northern desert of Peru.

Seyler, Samantha (New College of Florida) [208] Belt-Making Traditions and Identity at the Site of Uraca, Majes Valley, Peru

This poster examines belt fragments recovered from the mortuary site of Uraca in the Majes Valley, Arequipa, Peru. The textiles utilized in this analysis were recovered during excavations in Sector I to the south, where interments were placed on a high bluff, and Sector II to the north, where interments were placed closer to the valley bottom. These sectors are not only defined by their geographical separation but also the variation in artifact and skeletal assemblages present between the two sectors, though presently it is not known if these variations are due to temporal or cultural differences. Through the analysis of technical attributes and design motifs of belts from both sectors, I define the tradition of belt-making that is represented at the site of Uraca and compare it to other textile traditions in the Majes Valley. These considerations are expected to provide information about whether the populations buried at this site are local or representative of people from different regions, as postulated in studies by other investigators working at Uraca. I examine the development of weaving practices in the Majes Valley and explore what they suggest about the dynamics between local groups and the Wari during the Middle Horizon.

Sgarlata, Cosimo (Western Connecticut State University) [171] What Goes Up Must Come Down: The Contribution of Upland Archaeology in Connecticut’s Trap-Rock Ridges to Late Archaic Cultural Prehistory

This research involved survey of West Rock Ridge, one of many Triassic “trap-rock” ridges in
Connecticut’s Central Valley. These very rugged Triassic landforms are made entirely of basalt or diabase and rise like long linear spines above Connecticut’s otherwise level and fertile Central Valley. The question of the research was whether data from this new and untested setting could contribute new insights into Prehistory of South Central Connecticut. Lithic analysis of numerous Late Archaic sites indicated not only intensive utilization, but also a wide variety of site types including ambush hunting, lookouts, seasonal camps and quarrying. Sources of lithic raw material included quartz, hornfels, and basalt from the ridges, but also a previously unknown high quality chalcedony originating from the geological processes which from which the ridges formed. Both the intensity and variety of Late Archaic occupation, in the absence of significant information from other cultural periods, accords well with a model postulating intensification of land use along with incorporation of more marginal environments; in coincidence with increasing population density for Late Archaic foragers, and packing of local territorial groups.

Sgouros, Rebecca [362] see Stirn, Matthew

Shackley, M. (UC, Berkeley) and Leah Morgan (Scottish Universities Environmental Research Centre)

Elemental and Isotopic Variability in Mogollon-Datil Province Archaeological Obsidian, Western New Mexico

The Mogollon-Datil Volcanic Province in western New Mexico has been a subject of geological and geoarchaeological research for over three decades. These Tertiary Period major events incorporated significant areas of crust over tens of thousands of km² and the rhyolite glass produced from these events are consequently similar in elemental composition even though the five major sources are isolated over a 100 linear km radius, and cross a number of cultural territorial boundaries in the late prehistoric period. The obsidian sources are also archaeologically significant in that they were used throughout the chronology from Paleoindian through Historic times (ca. 13,000 ka to ≈A.D. 1600), and transported throughout the North American Southwest. The need to discriminate between these sources is crucial to archaeological interpretation. The elemental composition using mainly laboratory x-ray fluorescence spectrometry (XRF) is so similar between these sources, and the number of cultural territories throughout prehistory is so extensive that extreme care in source assignment is required. An isotopic and 40Ar/39Ar dating program was employed to provide discriminating clarity with good results. The isotopic and 40Ar/39Ar data do indicate that these sources are distinct, and using these results, a strategy for discriminating sources was devised using laboratory XRF.

Shafer, Harry J. [292] see Hester, Thomas

Shaffer Foster, Jennifer (University at Buffalo) and T.L. Thurston (University at Buffalo)

The Trip of a Lifetime: Archaeology, Tourism, and Irish-American Identity

In America, millions of people claim Irish ancestry and celebrate their heritage in myriad ways. Many actively embrace the identity of Irish-American generations after their family members became U.S. citizens in the aftermath of the famine and socio-political turmoil of the mid-19th to early 20th century. Over the past two decades, the tourism industry in Ireland has flourished with Americans among the most numerous visitors each year. Several of the top destinations are those connected to the famine and ensuing Irish diaspora, events which continue to play crucial roles in the creation of Irish-American identity. Within Ireland, the era of the famine has seen relatively little archaeological excavation and analysis in part due to 20th century distaste for colonial topics. Irish national identity, in contrast, draws heavily from the Early Medieval period and the Iron Age, which have seen tremendous archaeological work and historical study. Thus, in archaeology and in the perceptions of identity, the time of the famine is somewhat disconnected from the rest of Irish history and prehistory. This paper examines the role of archaeology, nationalism, and tourism in the construction of Irish and Irish-American identity.

Chair
Shahbazkhani, Desiree [358] see Sakai, Sachiko

**Shakour, Katherine (Cultural Landscapes of the Irish Coast)**

Sharing the Teapot and the Science: Challenges and Contributions in Shaping 21st Century Island Heritage in Ireland

Crucial to heritage management in the 21st century is developing and maintaining cooperative relationships among archaeologists, the local community and decent communities. Different stakeholders have varied views of how to define the past, the cultural and historical relevance of people, places and objects and the extent to which this should be shared when creating multivocal histories. Focusing on the islands of Inishark and Inishbofin, Co. Galway, Ireland, located five miles into the Atlantic Ocean, the Cultural Landscape of the Irish Coast (CLIC) project provides an example of the active involvement of local descendant communities, and how this results in complex and sometimes contrasting bodies of knowledge. This project illustrates the collaborative yet challenging relationship between professional archaeologists, community members, local governmental agencies and the National Museum, all the while trying to understand daily life in post-18th century fishing villages. The combination of archaeological research with local histories produces a complex weaving of different knowledge universes, and results in a richer and more complex understanding of the past. This project also illustrates some of the challenges in managing heritage resources, including contested views of authority at different scales, long term research goals, and who has authority to speak about the past.

[315] Chair

Shakour, Katie [315] see Morrow, Sara

**Shanks, Michael (Stanford University)**

Ruth Tringham

This talk reflects upon the work and career of Ruth Tringham in relation to the human experience of practicing archaeology.

**Sharma Ogle, Mini (SWCA Environmental), Jamie Young (SWCA) and Amanda Childs (SWCA)**

Effective Public-Centered Approach to Compliance work- Case study of the Angoon Airport Project, Alaska

The Angoon Airport project located in rural southeast Alaska is proposing construction of a land-based airport and airport access road for the community of Angoon. Currently, the only methods of transportation to and from the community are floatplanes and ferry. Under the direction of the Federal Aviation Administration (FAA), SWCA is developing an environmental impact statement (EIS) with an emphasis on ensuring project information is truly accessible to this rural community. In addition to conducting traditional scoping meetings in Anchorage, Juneau, and Angoon, we have sought out opportunities to actively involve all stakeholders in the project, including providing traditional newsletters, an easy-to-navigate website, regular informal community visits and senior center luncheons, quarterly updates to the community, social media including Facebook postings, and calls to nongovernmental organizations (NGOs) to keep them updated on the status of the project. In conjunction with informal community visits, SWCA has also conducted in-person updates with the village corporation and city office. Although these are not required by the National Environmental Policy Act (NEPA) process, they encourage meaningful involvement by community leaders. One of the significant features of our public outreach approach was developing a plain-language format for the EIS and all materials that are intended for the public. This multifaceted approach has gone a long way in garnering community support for an otherwise challenging project.

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

Integrated Archaeometric and Spatial Analysis: A Preliminary Report on Spatial Data Mining in the Prehispanic Central Andes of Peru
The Gallinazo and Mochica of northern coastal Peru lived side-by-side for centuries. However, the nature of their social interrelationships (one or two ethnic or social groups) is a continuing topic of debate as such complexity is one of the hallmarks of prehispanic central Andean civilization. How can meaningful dimensions of social differentiation and complex social interrelationships be elucidated through archaeological investigation? To answer this question, we present our integrated archaeometric and spatial analytical approach for studying Gallinazo-Mochica coexistence and social differentiation. Mixed-type data from various sources (GPS, pXRF, low-resolution microscopic, and unaided visual inspection, etc.) recorded during two short laboratory sessions in 2013 and 2014, and initial site surveys in 2010, were used in conjunction with various data mining techniques to identify meaningful patterns and establish association rules that will guide upcoming dissertation fieldwork. As this preliminary work shows, we have moved one step closer toward resolving critical debates by integrating high-powered tools used in geospatial and archaeometric analyses. As a means for eliciting broader nuances of social differentiation, the analytical power of such a combined approach is useful for researchers working in and out of the Andes.

Sharp, Kayeleigh [11] see Litschi, Melissa

Sharp, Emily (Arizona State University)

Quantifying Defensibility of Landscapes and Sites in Highland Ancash, Peru

Warfare, as a social practice, can have profound consequences ranging from reorganization of sociopolitical boundaries to forced migration of communities and large-scale settlement pattern changes. This study quantitatively examines the increased concern for defense in the Early Intermediate Period (EIP) (200 B.C.–A.D. 600) by comparing defensibility of archaeological sites to the surrounding landscape in highland Ancash, Peru. Sites located on opposite sides of the Cordillera Blanca, specifically in the Callejón de Huaylas and the Callejón de Conchucos, are compared. In both regions, settlement locations on hilltops are common, particularly during the emergence of the Recuay culture (A.D. 1-700). Recuay-era sites were frequently built on top of supposedly defensible locations. In this analysis, a spatial defensibility index, developed by Bocinsky (2014), is used to assess if the sites built on ridgetops maximize defensibility by this index. This approach considers visibility and elevation indices. Additionally, the sites are ranked by defensibility in order to show the spatial distribution of the most defensible sites. Results are examined to see if they support the assertion that the Recuay purposefully constructed sites in highly defensible locations. All analyses are performed on a 30m digital elevation model in the statistical program R.

Sharpe, Ashley (University of Florida)

Critter Caching: Animals in Household Rituals at the Maya Site of Ceibal, Guatemala

With an occupational history spanning nearly two millennia, the Maya site of Ceibal provides a rare opportunity to study the remains of ritual practices and domestic activities at household groups over a long scale of time. This study quantitatively examines the zooarchaeological remains, both bones and shells, recovered from household caches, burials, and middens from several peripheral locations around the Ceibal site epicenter. The diversity of household types and extended time frame provides an opportunity to explore how the composition of middens and ritual deposits changed over time, how certain animal species and parts may have been appropriated toward different ritual performances (for example, human burials versus dedicatory caches), and how animals that were used in ritual activities at the peripheral household level compare to Ceibal's epicenter cache deposits. Finally, changes in domestic and ritual practices involving animals are compared over time in relation to what is already known of Ceibal's turbulent site history, in an effort to understand the manner and degree to which these societal developments affected the livelihoods of household occupants.

Sharratt, Nicola (Georgia State University)

From Dispersal to "Disappearance": A.D. 1000-1250 in the Upper Moquegua Valley, Peru

In the Moquegua Valley, Peru, the decline of the greater Tiwanaku system circa A.D. 1000 was accompanied by a shift to a more dispersed settlement pattern, as populations moved out of the large towns of the middle valley and established smaller sites on the coast and in the upper valley. In
this paper I focus on the upper valley, where the longevity of occupation at post-expansive sites and the presence of secondary occupations offer an opportunity to examine the centuries’ long trajectory of cultural transformation. I discuss the considerable recent excavation data from one site, Tumilaca la Chimba, to highlight temporal patterns of continuity and change in the upper valley, and consider how that data sheds light on the ultimate disappearance of Tiwanaku derived traditions from the archaeological record, some 250 years after regional political collapse. Further, in comparing community organization, burials, residential contexts, public space and material culture from Tumilaca la Chimba with neighboring settlements, I also critique a tendency to understand post-expansive upper valley sites as essentially monolithic and suggest that the considerable differences between Tumilaca la Chimba and contemporaneous communities invite us to reassess the nature of the local socio-political landscape post A.D. 1000.

Shaw, Jennie [168] see Sterling, Sarah

Shaw, Justine (College of the Redwoods) and Jennifer Mathews (Trinity University)

[295] A Tale of Two Projects: Comparative Findings of the CRAS and Yalahau Projects

The CRAS and Yalahau Projects of Quintana Roo have shared a similar trajectory for many years: although both projects have focused several seasons on individual sites with detailed mapping, excavations, and artifact analysis, the broader goal has been to address large areas of coverage, with relatively few excavations conducted into buildings. Both projects have focused on site location, with the use of local peoples as consultants and guides. Both projects are in regions that are generally unknown to outsiders, and are frequently left as blanks spots on maps representing the ancient and historic Maya world. Despite this relative obscurity, these areas are facing major development pressures from tourism and a disappearing knowledge base about the environment and archaeological features found there. This paper will examine the similarities that the research of these two projects have revealed about these geographically adjacent areas, including shared ritual patterns, environmental challenges, and issues of mobility and visibility of the ancient population. Additionally, we will point out the clear distinctions between the occupational histories of the Cochuah and Yalahau regions, including geographic differences, trade routes, and different trajectories during the Prehispanic, colonial and historic periods.

Shea, Molly [202] see Tung, Tiffiny

Sheets, Payson (University of Colorado)

[75] A Variety of “Cerendipitous” Discoveries

Research at the Ceren village archaeological site in 2013 and 2014 has made a variety of discoveries. The plant casts, made by pouring dental plaster into the voids, reveal much about agriculture in the middle of the rainy season some 1400 years ago. The maize plants were doubled over to dry the mature ears, but the Loma Caldera eruption occurred just before planting squash and beans. So what was that single mature squash plant doing in the milpa? What are the limits of preservation of weeds, and have we overestimated the degree of weeding? Why was there less care in micropopographic field management just outside the village, in contrast to within the village and farther south in the manioc fields? A sacbe runs through the fields, and we discovered the compaction of its central zone was extraordinary. But why were the sides so soft and the center so hard? And why were most of the footprints from people headed south? Our efforts in experimental archaeology to duplicate its hardness are presented, and we can only speculate as to what technology was employed to achieve it. Its surprising durability over a full year with no maintenance is described.

Sheets, Payson [75] see Egan, Rachel

Shelley, Steven (Quaternary Resource Investigations, LLC) and Nathan Montalvo (Quaternary Resource Investigations, LLC)
Experimental Replication of Stone Tools used For Agave and Similar Plant Harvesting and Processing

There are numerous burned rock middens in the region around Fort Bliss. These sites are usually assumed to be agave processing locations, although it is possible that other types of plants, such as yucca, were being processed. Some of these sites have small quantities of artifacts, while others have fairly large numbers of artifacts, particularly modified flakes. We believe that this difference may relate to processing the plants for fiber, rather than food. We intend to replicate stone tools from these sites and use these tools to harvest and process agave and yucca for use as food and for fiber. We will then compare the wear patterns on the tools to determine if there are patterns associated with each type of processing. As part of the experiment we will also conduct efficiency studies that can be used to compare to other experimental work of a similar nature.

Shelley, William [140] see Muros, Vanessa

Shelton, Christopher [356] Rebound Hardness Results for the Raw Material In and Around Pinnacle Point, South Africa and the Implications Thereof

The Middle Stone Age lithic assemblage at the Pinnacle Point site (Western Cape, South Africa) fluctuates between local, coarse-grained material and exotic, fine-grained, heat treated material throughout the human occupation layers. By understanding raw material choice, the first step in the chaîne opératoire, we can better understand these shifts in raw material representation. Quantifying the mechanical characteristics associated with knappability and comparing these ranked benefits to the costs of acquisition allows us to describe and compare utilized lithologies in and between sites in a reproducible and subjective manner. The Schmidt Rebound Hammer has been used in previous studies to quantify rebound hardness as a proxy for knappability of various raw materials within the gathering range of a site. The purpose of this study was to rank the relevant lithologies according to their desirability, and identify acquisition choice patterns. The research focuses on the two most prevalent raw materials from Pinnacle Point, quartzite and silcrete. This presentation reports the rebound hardness results and the implications thereof, and discusses the role of the Schmidt Rebound Hammer.

Shelton, Christopher [356] see Cleghorn, Naomi

Shen, Chen [179] see Chen, Hong

Shen, Chen (Royal Ontario Museum) [179] Discussant

Shennan, Stephen [191] Population, Monuments, and Violence in Neolithic Europe

The EUROEVOL project has recently created reconstructions of changing regional population densities based on summed radiocarbon probability distributions for a large area of western and central Europe for the period 8000-4000 BP, covering the later Mesolithic and Neolithic periods. These have revealed a pattern of population booms and busts in many regions following the arrival of farming. The project has also gathered data on the construction dates of enclosures surrounded by ditches, banks and palisades, and on the dates of significant violence events during this period. These data will be used to try and distinguish between two hypotheses: that the enclosures are an indicator of economic prosperity and the ability to invest in production beyond subsistence or that they are associated with instability as local population densities peak and stress available resources, as suggested by Turchin.

Shennan, Stephen [191] see Timpson, Adrian
Shensky, Andrew [172] see Henry, Edward

Shepard, Emily (Portland State University), Kisha Supernant (University of Alberta), Kenneth M. Ames (Portland State University) and Andrew Martindale (University of British Columbia) [82]  
*Changing House Forms on the Northwest Coast of North America*

Traditionally, Northwest Coast houses were rectangular, post and beam dwellings. Architectural details varied regionally, ethnically and even locally. It is presently impossible to trace this variation archaeologically beyond a few coarse-grained statements. The earliest structures date to at least ca. 5000 cal BP; they are rectilinear and some at least are semisubterranean. The longest continuous sequence of houses is presently documented in the Prince Rupert Harbor region of northern British Columbia where, by 2500 cal BP, variation in house size becomes marked. The Salish Sea area also has a long sequence with several rectangular houses early, then a gap until ca 2500. After that date houses are the ethnographic shed roof style. On the Lower Fraser River, villages had a mix of rectangular surface houses and pit houses. What these changes trace, at minimum, are increasing demands on labor and resources.

Sheppard, Peter (University of Auckland) [77]  
*The Use of a Bench-top SEM in Ceramic Characterization in Oceania*

Thanks to the efforts of Bill Dickinson, petrographic analysis of ceramic thin sections has been able to make an almost unparalleled contribution to sourcing studies in Oceania. In this paper, I will report on the use of one of the new generation desktop SEMs which will help us to continue and to build upon Bill’s work. Examples will be drawn from studies of Lapita period ceramic assemblages in the Solomon Islands.

Sheridan, Alison [201] see Hurcombe, Linda

Sherman, Jason (University of Wisconsin-Milwaukee) and Leah Minc (Oregon State University) [25]  
*Assessing Ceramic Production and Exchange in the Early Monte Albán State (Oaxaca, Mexico)*

In this paper we present the results of an ongoing study of ceramic production and exchange in the Valley of Oaxaca, Mexico, during the Late to Terminal Formative (500 B.C.–A.D. 200)—the period when the Monte Albán state formed and consolidated control over its hinterland and surrounding regions. We have found that adopting a multifaceted approach that combines chemical (INAA) data with detailed qualitative and quantitative mineralogical (petrographic) data enables us to differentiate cultural from natural factors affecting paste composition, and is more effective than a single analytic technique for establishing ceramic provenance in the geologically complex Oaxaca Valley. Detailed analyses of natural clays collected throughout the valley, as well as sherds from Monte Albán and other key archaeological sites in the Valle Grande subregion, have allowed us to identify 12 distinct ceramic production loci and to track the movement of different pottery wares within the heartland of this early state.

Sherwood, Sarah (Sewanee: The University of the South) [190]  

Traditionally the study of prehistoric earthen monuments has focused on their staged surfaces and the buildings and artifacts recovered there. Mound construction was simplified to volume, and the type of labor and oversight necessary to move basket loads of dirt. With rigorous attention to stratigraphy, there is a new interest and awareness of these earthen monuments as complex constructions. Selection, preparation, placement and maintenance of earthen materials allowed the establishment of mounds that were able to support substantial architecture, convey important cultural information as well as withstand natural forces that would have demolished simple piles of dirt. Researchers are now using interdisciplinary approaches, centered in the local geology and soils, to explore the links between cultural and natural landscapes to consider complex construction
techniques made possible by the selection and manipulation of earthen materials. Using examples from archaeological sites ranging in age from 3,000 to 800 years old, including Poverty Point, Monks Mound, Graveline Mound, and Shiloh, we demonstrate recent advancements in our methodological and conceptual approaches to shed new light on these significant monumental earthworks.

Shibata, Masaki (Doshisha University Graduate school of Letters)

History of Research into the Jomon-Yayoi Transition

This paper reviews the history of research and archaeological investigations into the transition from the Jomon to Yayoi Periods. This transition signifies a transition from a hunting-gathering economy to food-producing economy. Traditionally, Japanese archaeology has been characterized by building up relative chronologies of various regions based on pottery. From the 1930’s to 1970’s, the Yayoi Period was defined as a time period when the Yayoi pottery was used. However, rice paddies were discovered in stratum where Jomon pottery was discovered, which necessitated a re-consideration of this traditional definition. As a result, the Yayoi Period came to be re-defined as a time period when wet rice cultivation was practiced. In recent years, AMS dating has been applied to the date of the beginning of the Yayoi Period, and replica methods are applied to pressured imprint of seeds on pottery surface in order to identify crops raised at that time. These all contribute to our understanding previously-unknowns aspects of the Yayoi society.

Shields, Carl [144] see Cuevas, Mauricio

Shier, Melonie (University of Central Lancashire)

In Defense of the Fence in the American West

The fence is integral to the mythology of the American West, particularly the barb wire fence, such as in the battle between cattle and sheep raisers, and between pastoralists and agriculturalists. The years of the open range were short lived in comparison to the decades of fence construction and maintenance. Serving as boundaries and divisions of landscape, fence lines can give valuable insight into how peoples shaped their landscapes in the past and continue to shape it in the present. Although they were often set in line with the Cartesian grid of land division, many lines also follow the landscape, limiting access of people and animals to particular resources of importance. These divisions can allow for archaeologists to discover which landscape features peoples in the past protected and which they did not. Often constructed of mass produced materials, fence lines can give insight into technological changes, consumerism patterns, landscape based identity, and stylistic preferences. This paper will discuss the significance of fence lines as linear features, as well as discuss possible dating strategies for fence lines, particularly barb wire fence lines.

Shillito, Lisa-Marie (University of Edinburgh)

Technological Choice or Environmental Constraints? Fuel Use at Boncuklu and Çatalhöyük

By combining sediment micromorphology with microbotanical and geochemical analysis, we can gain insights into the archaeological record that are otherwise invisible. By characterizing fuel deposits as a package of remains rather than focusing on a single class of material (including charcoal, ash, burnt sediments and associated artifacts) we are better able to reconstruct their formation processes, and thus the activities that produced them. Using examples from the early Neolithic settlements of Boncuklu and Çatalhöyük, this paper will discuss the contribution of microarchaeological approaches to the investigation of fuel use in prehistory, and how it can help disentangle technological choices versus environmental constraints on the selection and use of fuel resources.

Shimada, Izumi [371] see Szumilewicz, Amy

Shimada, Izumi (Southern Illinois University) and John Merkel (Institute of Archaeology, University College London)
[371]  The Organization and Technology of Sicán Metalworks: pXRF Analysis of Floors and Associated Residues

The technical sophistication and versatility of 1000-year old Middle Sicán gold and other metalworks on the Peruvian north coast have long been appreciated. How were the artisans, raw materials and diverse manufacturing activities organized and managed? This paper aims to answer this and other technical, behavioral and organizational questions based on the 2014 excavation of a large and well-preserved workshop at the base of the monumental temple mound of Huaca Loro at the Middle Sicán capital of Sicán. Systematic application of portable X-ray fluorescence analysis to copper, gold, silver, arsenic and lead concentrations in floors and floor-context production debris such as ash and charcoal, together with abandoned furnaces, tools, scrap and slag, allow tentative reconstruction of the spatial organization, manufacturing sequence, scale and intensity of copper and gold alloy metalworks. As with other manufacturing activities studied thus far, this craft production was also characterized by a multiplicity of small production groups working close to each other. It appears that each of the six major temple mounds at the Sicán capital hypothesized to have represented six governing elite lineages had its own attached and closely supervised metal workshop.

Shing, Richard [77] see Bedford, Stuart

Shipman, Pat (Pennsylvania State University)
[28]  The Paleolithic Domestic Dog Hypothesis

Using morphological and statistical techniques, Germonpré and colleagues have identified over 40 Paleolithic dogs, ranging from ~36,000 to 13,900 cal yrs BP. These unusual canids have a different dietary signature from wolves at the same sites according to isotopic analyses. MtDNA analyses by Thalmann and others show that at least Paleolithic dog had a unique mtDNA sequence. I propose that these canids represent early domesticated dogs which significantly improved human hunting success. Eight predictions based on ethnographic, archaeological, and biological information can be used to test the Paleolithic Domestic Dog Hypothesis. 1) Additional early dogs will be identified at human but not at Neanderthal sites. 2) Sites with early dogs will yield higher densities of faunal remains and retouched stone tools than Mousterian sites. 3) Early dogs will be discovered at additional sites yielding many individual mammoths. 4) Sites with early dogs will include many wolf remains. 5) Sites yielding early dogs will suggest longer occupation or larger population size. 6) Isotopic studies at additional sites will reveal dietary differences between early dogs and contemporary wolves. 7) Early dogs will be large-bodied, sturdy animals. 8) Both early dogs and early humans will show adaptations to enhanced communication.

Shipton, Ceri (University of Cambridge), Antoine Muller (University of Queensland), Chris Clarkson (University of Queensland), Richard Jennings (University of Oxford) and Mike Petraglia (University of Oxford)
[33]  Hominin Cognition across the Acheulean to Middle Paleolithic Transition

In 2013 I suggested that changes in behavior at a transitional Acheulean to Middle Paleolithic site in India were characterized by increases in generativity, hierarchical organization and recursion, and that the transition was perhaps underpinned by improved working memory. Here I present the results of a knapping experiment that compares the recursive and hierarchical complexity of Acheulean and Middle Paleolithic knapping sequences in order to test this claim. I then look at how differences in Acheulean and Middle Paleolithic cognition are manifested at the landscape level by comparing two remarkable preserved Paleolithic landscapes in the Arabian Desert: Dawadmi and Jubbah. The tools transported, the areas on the landscape used, and the degree of reduction intensity are contrasted between the two periods. I conclude that there are demonstrable differences between Acheulean and Middle Paleolithic hominins in behaviors that may relate to working memory, and speculate that this transition in human evolution might reflect the origins of narrative communication.

Shiratori, Yuko (The Graduate Center, CUNY)
[219]  Where is Temple? Construction and Use of Ceremonial Group at Tayasal

Since the 1970s, a ceremonial group dating to the Late Postclassic period at the archaeological site
of Tayasal has been excavated by several archaeological projects. These efforts have greatly contributed to the understanding of the Late Postclassic period and the Itza Maya communities in the Petén lakes region. The ceremonial group includes a Postclassic "basic ceremonial group" on the west and a probable Late Preclassic E-group on the east. Excavations revealed architectural arrangements and use of the ceremonial group by the Itza during the Postclassic period. The basic ceremonial group and a modified arrangement called “temple assemblage” were first identified in Mayapán, Yucatán. The presence of a Mayapán-style temple assemblage supports a connection between Yucatán and Petén. This paper examines construction and use of the ceremonial group by the Itza and explores the probable location of a temple in the ceremonial group at Tayasal, compared to other Postclassic sites with temple assemblages.

Shirley, Meagan (College of Wooster) and P. Nick Kardulias (College of Wooster)

[205] Anglo-Saxon and Viking Ship Burials as Indicators of Rank and Wealth

This study compares the funerary practice of ship burials in Anglo-Saxon and Viking societies. The custom of ship burial is an expression of rank and wealth held by an individual during their lifespan. In addition to common outward appearance of rank shown through such funerary treatment, similar artistic traditions are evident from grave goods and hoards. Items such as jewelry, furniture and boats are crafted in related styles that also express their owner’s rank through the materials and motifs. Several aspects of Anglo-Saxon and Viking culture are examined to provide a foundation for the analysis of rank in these societies. Ship burials provide unique insight into the elite culture of northern Europe in the latter half of the first millennium A.D. These types of burials include the presence of female occupants, which presents a new aspect of Viking society to study. The inclusion of males and females in a similar funerary setting and the luxury goods included in their burials suggests that both genders could hold significant roles in Anglo-Saxon and Viking society.

Shock, Myrtle [157] see Bueno, Lucas

Shock, Myrtle (UFOPA) and Filippo Stampalone Bassi (MAE-USP)

[326] Borderlands in the Amazon Forest: Can We Draw Boundaries?

Amazonian occupations from 2500 BP to contact have been characterized into expansive traditions based on ceramic vessels. Meanwhile, ethnographic records point to diverse ethnic groups residing across the basin. Seeking variables that may be associated with precolombian cultural diversity, we explore a possible intersection between groups, an area located at the headwaters of five tributaries to the Negro and Amazon Rivers. Archaeological data deriving from analyses of settlement structure, lithic technology, subsistence, and ceramics provide the context for reflecting on whether culturally meaningful boundaries can be defined between this and other regions or if the mixture of characteristics is indicative of other cultural interactions.

Sholt, Sabrina [207] see Tichinin, Alina

Shott, Michael (University of Akron)

[280] Pros and Cons of Consulting Collectors: A Case Study from the River Raisin in Michigan

In survey, we collect what lies on the surface. But so have others, for decades or more. Ignoring private collections risks neglecting a selective but informative part of the accumulated record. One way to gauge collector effects is to compare what archaeologists found in survey to private collections from the same places. In 1975-77 the University of Michigan surveyed the River Raisin watershed in southeastern Michigan. I compare Michigan’s results to what collectors had found already and, because the survey was probabilistic, estimate the number of period components first ignoring and then including data from private collections.

[223] Moderator

Shoup, Daniel and Luca Zan (University of Bologna)
[201] The Shipwrecks of Pisa: Management, Professional Optimism, and Bureaucratic Myopia

Between 1998 and 2000 archaeologists discovered nine well-preserved Roman shipwrecks at San Rossore, Pisa, 500 m from the leaning tower. Shortly afterward a grand vision for a “museum with three vertices” was articulated: a public excavation area plus a conservation laboratory and museum of Mediterranean navigation, to be constructed in an underused 16th century barracks nearby. But despite urgent conservation needs, neither the public excavation nor the laboratory opened until 2005, while the museum is still unfinished. Irregular and unpredictable budgets caused organizational chaos, while the inclusion of the project in the City of Pisa’s urban redevelopment efforts added complexity and delays. Moreover, the grand vision of three interconnected institutions became an obstacle in itself: in the absence of an administrative culture that was able to bring projects “down to earth”, the universalist and utopian tendencies of professional discourse fostered a tendency to choose the “best” project over the most feasible one, adding cost, risk, and uncertainty to an already challenging project. Based on extensive archival research, our paper reconstructs the 15-year history of the project and explores the emergent management issues at this unique site, including the role of professional optimism, bureaucratic myopia, urban planning, and uncertainty.

Shurik, Katherine (Louisiana State University)

[133] Role of Handstones in Mesoamerican Ballgame

Handstones are one of the artifacts that associated with the Mesoamerican ballgame. However, barely any research has been published about them, since 1961, when Stephan Borhegyi first analyzed them. He identified that handstones vary in size and shape. In the past, it has been suggested that they could be used to serve the ball when initiating the ballgame. Recent analysis of their size, abrasion, and context in imagery identifies the improbability of using them as a serving tool. Not a single image in the sample displays a player holding a handstone while playing the game. All images that contain handstones display a ritual and/or mythological context, most frequently directly connected with sacrifices. These include purely mythological images of various gods interacting and sacrificing another deity and images with historical figures that are being sacrificed and crossing into mythological realm, as a result of it.

Sianto, Luciana [415] see Dos Santos, Isabel

Siegler, Jennifer (Emory University)

[411] Chimú-Inka Ceramics: Quantifying Differences between Colonial Forms and Their Influences

Between 1428 and 1534 the Inka conquered the world’s largest territory controlled by a single state including 1300 km of coastline from the 1460 conquest of their main rivals, the Chimú. Studies on Inka provincial administrative policies are increasingly important in understanding the pre-conquest Andes; however, there has been no study of the effects of Inka subjugation on the art of their most powerful former enemy. Ceramics from the Chimú-Inka period offer a striking example of how characteristics from provincial and Inka artistic traditions were combined. This presentation examines three Chimú-Inka vessel forms to assess the level of artistic control imposed by the Inka state: stirrup spout vessels, urpu, and portrait head vessels. The first two forms origins are clear, with stirrup spout vessels continuing an ancient, persistent North Coast vessel type, while urpus are an Inka invention. The final form is a hybrid product originating from the colonized north coast, containing elements of both Chimú and Inka artistic traditions. Proportional analyses comparing vessels of the original culture to the Chimú-Inka version indicate quantifiable distinctions in the two samples, suggesting that Inka administrators allowed a certain degree of flexibility while imposing the acceptance of their own tradition’s forms.

Siemens, Alfred (University of British Columbia)

[350] Discussant

Sieron, Katrin [189] see Morales, Jorge
Sierra, Roger (Undergraduate Student, Dept. of Anthropology, University of Miami), Traci Ardren (Dept. of Anthropology, University of Miami) and William Pestle (Dept. of Anthropology, University of Miami)

[152] Preliminary Analysis of Marine Shell Artifacts in the Southern Florida Keys

The Stock Island site (8MO2), located in the southernmost Florida Keys, was a black dirt midden affiliated with the Glades tradition. Construction of the Monroe County Detention Center in the 1980s destroyed the site, necessitating the uncontrolled and uncontextualized recovery of a large quantity of ceramics and faunal (osteological and malacological) remains. Unprovenienced collections from this salvage work reside in numerous repositories across the state of Florida. In this work, we present the results of a preliminary analysis (taxonomic identification and tool-type categorization) of the marine shell artifacts and ecofacts held by the University of Miami’s Department of Anthropology. The assemblage is dominated by two taxa of marine gastropods (Strombus gigas and Busycon contrarium), which together account for nearly 60% of the collection (NISP), the majority of which were secondarily used as tools (picks, chisels/gougues, and hammers). This analysis provides insights into subsistence practices and material adaptation in the prehistoric southern Florida Keys.

Sierra Sosa, Thelma Noemi (THELMA N. SIERRA SOSA)

[413] El comercio en el norte de la península de Yucatán visto a través del sitio clásico de Xcambó, Yucatán

El sitio de Xcambó ha sido definido como el puerto comercial y administrativo de los períodos Clásico Temprano y Clásico Tardío, a la fecha, el principal o quizá el único a lo largo de la costa de la península de Yucatán. Debido a su carácter, es lógico encontrar en él un amplio cúmulo de información con respecto de la llegada a la península, de materiales foráneos, además en él está la respuesta a otras interrogantes como, el manejo de la sal y su distribución, el control de otros productos costeros que viajaron hasta el sur de la península o hacia el peten de Guatemala y Belice y por otro lado, la llegada de objetos y materiales del área de Campeche, Tabasco, Veracruz y Chiapas, entre otros.

Sieverding, Heidi [230] see Boen, Renee

Sievert, April [3] see Thomas, Jayne-Leigh

Sikora, Martin [116] see Fregel, Rosa

Silliman, Stephen (University of Massachusetts Boston) and Katherine Sebastian Dring (Eastern Pequot Tribal Nation)

[34] Taking and Giving: Finding the Balance in Community Archaeology

One of archaeology’s seemingly inescapable practices is the act of taking, and it remains one of the hardest aspects to manage for communities that work with archaeologists because of its appropriative nature and colonial legacies. A way to balance this “taking” is to emphasize at least as much “giving” in the process, which requires a level of sharing and dialogue that are only now becoming part of archaeologists’ conceptual and methodological toolkits. This paper considers these issues in the context of the Eastern Pequot Archaeological Field School, a project underway since 2003 between the Eastern Pequot Tribal Nation in southeastern Connecticut and the Department of Anthropology at the University of Massachusetts Boston. More than ten years of ongoing dialogue, pedagogical enhancements, flexibility, and mutual respect – plus the tribe’s continuing battle with the federal acknowledgement process – have generated community and scholarly products and opportunities that try to embody that tenuous and ever-shifting balance between giving and taking.

Sills, E. Cory [243] see Feathers, Valerie

Sills, E. Cory (University of Texas at Tyler), Linda Howie (HD Analytical Solutions | The University of Wester) and Heather McKillop (Louisiana State University)
Ancient Maya Trade and Communication as Evidence by Petrographic and Iconographic Analysis of Unit-Stamped Pottery

The Paynes Creek salt works of southern Belize were a massive industry for the production of salt for trade with inland Maya consumers during the Classic period (A.D. 300-900). The salt workers lived elsewhere, perhaps at the nearby trading port of Wild Cane Cay, which was a large contemporary settlement. The infrastructure of production includes wooden buildings preserved below the sea floor. The majority of artifacts recovered from survey and excavations consist of briquetage—locally-made pottery used to evaporate brine in pots over fires to make salt. A minor component of the ceramic assemblage consists of unit-stamped pottery which has a distribution from the south coast and inland sites of southern Belize, to sites in adjacent Guatemala, including Seibal, Altar de Sacrificios, and sites in the Petexbatun. We discuss the iconographic, spatial, and petrographic evidence of unit-stamped pottery from the Paynes Creek salt works. The compositional characteristics of the pottery are compared with various potential geological sources to help identify where pots were made. In the absence of salt, we use unit-stamped pottery as a proxy for helping to reconstruct the Paynes Creek salt production and identify the inland consumers of this basic biological necessity.

Silva, A. [9] see Wagner, Ursel

Geoarchaeological Issues in Lago Rico Archaeological Site, Central Plateau of Brazil

The first results of the archaeological research being developed at the interfluve of the Peixe and Araguaia rivers, indicate the possibility to applying geoarchaeological issues to address a number of issues related to the Lago Rico site, on the left bank of the Peixe river. This site features cultural remains in a section of a low slope as well as two other areas. The first in the alluvial terrace by a lagoon and the second in the floodplain, upstream of the first section, evidencing the erosive-depositional behavior of the river in the archaeological site area. The depositional segment, presents evidence of a different environmental context from the current one (an ancient erosive margin), allowing the hypothesis that part of the site may have been eroded transporting cultural remains downstream. To investigate these hypotheses, geoarchaeological analyses are fundamental to identify the cultural remains in the lagoon area and the depositional margin and obtaining information to aid in characterizing the behavior of the river channel and description of stratigraphic profiles.

Silva, Fabiola and Jane H. Kelley (University of Calgary)

The Current State of Looting, Preservation, and Education in the Casas Grandes Region

The looting of archaeological artifacts is a worldwide phenomenon prompting the destruction of our world heritage. Looting and the antiquities market across the U.S/Mexico border is a complex bi-national issue that has highly impacted the archaeological record. A previous examination of the history of looting in Casas Grandes, Chihuahua, Mexico demonstrates three periods of looting: the Museum Period (1900-1939), the Private Collector Period (1940-1979), and the Present Period (1980-present). This paper will examine the Present Period and the contributing factors that have led to the further destruction of sites in the Casas Grandes region; as well as what strategies local government officials, INAH, and other archaeologist are implementing to counter such destruction.

Silva, Rolando (Anthropology Graduate, University of Texas Rio Grande Valley)

Remote Sensing as a Method of Promoting Group Identity: Rediscovering Edinburg’s African-American Cemetery

Edinburg, Texas, was founded in 1909 some 15 miles north of the Rio Grande in the then newly irrigated “Magic Valley.” A decade later Hillcrest Memorial Park Cemetery was established, with a remote corner of the burial ground allocated for African-Americans. Many of the earliest people interred hailed from rural households, and so due to a lower socio-economic status, some graves had no markers. Concerned citizens and the descendants of the deceased have since taken to
assisting grounds keeping at the cemetery, placing historic markers and new burials. Unfortunately, there are still men and women identified only by memorial homage. To offer service towards this issue, in the Spring of 2013 a remote sensing survey using ground-penetrating radar (GPR) was conducted to attempt categorization of the burials and their condition in the environment, as part of a larger methodological study considering the utility of remote sensing equipment for archaeogeological research in the Rio Grande Valley. This fieldwork benefits from the support of the community and will shed light on a largely forgotten founding minority population.

Silva De La Mora, Flavio and Rodrigo Liendo (UNAM)

Understanding the Local Communities through the Study of Lithics and Communication Routes in the Northwestern Maya Lowlands during the Classic Maya: Recent Studies in the Region

The region known as the Northwestern Maya Lowlands encloses a large geographic and cultural area that included, and was part of, a large system of exchange of goods, people and ideas. Archaeological evidence recovered in the region serve as evidence of the complex system of communication routes and local settlements that were part of local communities and practices. The communication routes and archaeological sites localized between the Usumacinta River and Tulija River serve as a case study of the different dynamics and practices that affected and united the local communities through the use of obsidian tools during the Classic. The study of lithics and communication-exchange routes can help us understand the local technologies, practices and communities of the ancient inhabitants.

Silverstein, Jay (JPAC/Univ of Hawaii), Ishiba Ranoli Oñasojo (CIESAS, Centro de Investigación y Estudios Superio), Sarah Chapman (University of Birmingham ) and Robert Littman (University of Hawaii)

Modeling Space at Tell Timai: Composite Imaging at Greco-Roman Thmuis, Egypt

Ancient Thmuis represents one of the best preserved examples of a Greco-Romano-Egyptian metropolis in the Nile Delta. However, preservation of the tell is variable, with sections on the periphery having been stripped by systematic looting of mud and red brick to buildings while in the center of the tell walls three stories tall and well-defined streets are common. Archaeological work and subsequent preservation have depended on a variety of imaging methods to reconstruct segments of the city. Recently, a quadcopter has been incorporated into the methods employed providing some outstanding initial results.

Simek, Jan and Alan Cressler

A Regional Perspective on Mud Glyph Cave Art in Southeastern North America.

We provide an overview of a signature prehistoric cave art form in the Southeast of North America: “Mud Glyph” images traced and/or carved into plastic sediments inside the dark zones of caves. Today, we know of 21 such mud glyph caves in Tennessee, Alabama, Kentucky and Virginia. Sometimes, mud glyphs form elaborate cave art compositions. While this art form has roots in the Archaic Period more than 3000 years ago, its greatest frequency occurs during the Mississippian Period after A.D. 1000. The subject matter of the art varies, but prehistoric religious iconography associated with the Mississippian Period is very common.

Simek, Jan [353] see Pritchard, Erin

Simmons, Scott (University of North Carolina Wilmington) and Elizabeth Graham (University College London)

The Island and the Mainland: Connections between Maya Communities on Ambergris Caye and North-Central Belize

Ancient Maya occupation on Ambergris Caye has been documented from Preclassic through Postclassic times. Work at the site of Marco Gonzalez has concentrated on several structures in which we have found solid evidence for connections to Maya polities in northern Belize and beyond. Nonetheless, relationships with mainland communities changed substantially over time. Although the
northern location of the caye makes it seem logical that its closest connections were with north-central Belize communities, there is evidence that connections with northern Belize in particular intensify in Terminal Classic times and continue through the Postclassic. Here we discuss the material evidence for these connections through time.

Simmons, Alan (University of Nevada Las Vegas, Department of Anthropology) and Rolfe Mandel (University of Kansas)

[190] Site Formation Processes and Stratigraphy of Akrotiri Aetokremnos, Cyprus: The Devil is in the Details

Akrotiri Aetokremnos is a small collapsed rockshelter that has provided evidence of the earliest well-documented human presence on the Mediterranean island of Cyprus. It is, in fact, amongst the earliest numerically dated site on any of the Mediterranean islands. A large suite of radiocarbon ages indicates that Akrotiri Aetokremnos was occupied around 12,000 cal. B.P., during the Late Epipaleolithic. More controversial than the ages is the association of extinct endemic pygmy hippopotami with cultural materials, as this relates to the continuing discussion of human-related Pleistocene extinctions. Our claim of a direct association has been challenged, despite well-published archaeological and geoarchaeological data to the contrary. This paper addresses the site’s stratigraphic sequence and formation processes, both of which indicate that the remains of pygmy hippos are in direct association with cultural features and artifacts.

Simmons, Lindsey [361] see Burtt, Amanda

Simms, Steven R. [10] see Lugo Mendez, Anastasia

Simms, Stephanie (UCLA)

[130] Neglected Root Crops of the Prehispanic Maya

Root crops represent a major lacuna in the archaeological record of the Maya area and discussions of prehispanic Maya foodways in general. Only a handful of exceptional cases furnish direct evidence for the exploitation of root crops. Most notably at Ceren, the recent discovery of entire fields dedicated to manioc cultivation suggests that maize was not the only agricultural staple in this village community. Researchers working throughout the humid tropics have employed microbotanical analyses—phytoliths and starch—to overcome issues of preservation and reveal more detailed information about domestic plant economies, especially regarding root crops. Here I report the results of a systematic study of microbotanical remains from the Puuc Maya residential hilltop site of Escalera al Cielo (EAC). The remains include starch from at least three root crops—arrowroot, manioc, and Zamia sp.—that were processed with handheld grinding stones, in addition to abundant arrowroot phytoliths recovered from various domestic contexts. These new data from EAC demonstrate the tremendous potential of microbotanical studies, which can reveal the role of root crops in prehispanic Maya foodways, as well as larger-scale issues of local land management strategies.

Simms, Steven (Utah State University) and Andrew Ugan (Far Western Anthropological Research Group)

[296] The Faces of Intensification: An Application of Selection Thinking

The application of HBE and selection thinking can shed light on the study of intensification. This vantage treats intensification as a process, not a threshold, and treats behavior not as normative cultural forms (e.g., “intensive farmers”), but as fluctuating frequencies among alternative adaptive strategies comprising a behavioral mix that may be culturally encoded. There are many ways to work hard. Here we employ case studies from Mendoza, Argentina, and the Great Basin, Southwest, and Midwest of North America to explore the “faces” of intensification.

Simon, Katie [7] see Klehm, Carla
Simon, Katie, Adam Wiewel (University of Arkansas), Eileen Ernenwein (Eastern Tennessee State University), Kristin Safi (Washington State University) and Carla Klehm (Washington University in St. Louis)

[8] The Near and Far: How Aerial Thermography Can Elucidate Findings in Ground-Based Geophysical Datasets

From dense ground cover to subtle geophysical signatures, researchers utilizing ground-based geophysical methods often encounter a variety of challenges limiting their potential for successful interpretation. With two case studies, we demonstrate the utility of augmenting near-surface geophysics with thermal and color photogrammetric models generated from aerial imagery. These studies include two projects supported through the SPARC program: the late Pueblo II great house at Largo Gap in New Mexico where ground-penetrating radar (GPR) survey was made difficult by dense rubble across steep slopes, and Iron-Age sites along the eastern edge of the Kalahari Desert in the Bosutswe region of Botswana, where constrained survey areas make the interpretation of magnetic susceptibility, electrical conductivity, magnetic gradiometry and GPR anomalies challenging. Both geophysical surveys were augmented by aerial platform surveys using thermal and color sensors. These two imagery types were processed using structure-from-motion photogrammetry software to produce orthophotographs and 3D terrain models. These aerial data sets were successful in elucidating new features in the near-surface geophysical data sets.

Simon, Rebecca, Dani Hoefer (Project Archaeology Leadership Team) and Sarah Baer (SWCA Environmental Consultants, Inc.)

[98] Colorful Collaboration in Colorado: Recent Work by the Project Archaeology Colorado Chapter

Colorado archaeologists have a long history in promoting Project Archaeology by providing data for curricula, field work opportunities, and training workshops. Nonetheless, for several years the participation was minimal. A revival of Project Archaeology in Colorado began in 2012 with a teacher training workshop in Broomfield, hosted by SWCA Consultants. Since then, the program steadily increased its presence across the state. Through the devoted efforts of its members, the Colorado Chapter provided facilitator/teacher workshops, developed partnerships with local organizations including the Colorado Council of Professional Archaeologists, Bureau of Land Management, and State Historic Preservation Office, and helped in the evaluation of new materials. This poster presents the standing legacy of Project Archaeology in Colorado while highlighting the success of recent programs and efforts.

Simon, Elizabeth (Department of Archaeology - Simon Fraser University) and Hugo F.V. Cardoso (Department of Archaeology - Simon Fraser University)

[204] Preliminary Testing of Facial Approximation Methods for Finding the Pronasale in Children

Facial approximation has been increasingly used in archaeological human remains but its accuracy in children is often uncertain due to the lack of research in this area. There are currently several methods in use to predict the nose pronasale position, but they have all been developed for use in adults. Considering that the face, including the nose, undergoes significant size and shape changes during growth, the validity of these methods in children is largely unknown. Preliminary testing of Gerasimov’s (1951,1977) method was performed on lateral cephalograms of 22 12 year-old subjects consisting of 10 males and 12 females. The x-rays were imported into Photoshop where the soft tissue outline was removed and the method was blindly tested. Testing showed that in females the estimated pronasale tends to be systematically more anteriorly located, and in males it tends to be systematically more inferiorly located. This may be related to sex-specific changes in facial growth. Additional testing of this method and quantification of differences between the estimated and real pronasale can help to determine whether or not they work on facial approximations of children.

Simon, Arleyn

[277] Past, Present, and Future of Archaeological Legacies: Reassessing the Chavez Pass Burial Collections for NAGPRA Repatriation

A recently completed NAGPRA documentation project for the Chavez Pass Burial Collections at Arizona State University facilitated a multi-faceted reassessment of the expansive collections of the
site, originally recovered from 1976 through 1982 by ASU archaeologists. In the reassessment, teams of physical anthropologists and archaeologist used original site records, maps, specimen logs, museum catalogs, photographs and reports to reexamine contextual identification of burials and associated funerary objects. The USDA Forest Service Southwest Regional Office and Coconino National Forest provided funding for the NAGPRA documentation over a four year period. Results of this recent documentation effort, utilizing current state-of-the-art methodologies, allowed careful reassessment and more realistic estimations of both numbers of individual and associated funerary objects for the repatriation. Thorough documentation of the burial collections has provided extensive data for use by the Forest Service, the Hopi and Zuni Tribes who received the collection, and for future researchers.

Chair

Simonetti, Antonio [121] see Schurr, Mark

Simons, Dwight, Tom Wake (University of California Los Angeles, Cotsen Institute) and Alex DeGeorgey (Alta Archaeological Consulting)

Fins, Feathers, and Furs: Fish, Bird, and Mammal Remains from a Stege Mound Complex Site, CA-CCO-297

During approximately the last thousand years, people at CA-CCO-297 focused upon taking small schools of fishes, aquatic and marine ducks, and sea otters. These were obtained from estuarine habitats immediately adjacent to the site. Seasonality profiles for fish, bird, and mammal species indicate procurement occurred throughout the year. Harvesting of these taxa was facilitated by the use of watercraft, nets, and hunting tactics including mass collection, prey switching and coharvesting. Preparation techniques indicate processing emphasized production of animal products focused on both on-site needs and as commodities.

Simons, Dwight [293] see DeGeorgey, Alex

Simova, Borislava (Tulane University) and David Mixter (Washington University in St. Louis)

Resignification: Public Ritual and Changing Cultural Landscapes at Actuncan, Belize

Across the Maya Lowlands, dedication ritual served a vital role in endowing public and household spaces with meaning and function. Through ritual, structures acquired the soul-force, or k’ulel, necessary to sustain activity within their walls. However, many structures lived (at least) two ritual lives: one associated with their original intended function, and a second following the abandonment of their initial use. We argue that through ritual resignification the original meanings of public spaces were harnessed and reshaped to match new uses and the changing needs of the local populace. In this presentation, we specifically discuss three locations originally vested with value through royal, elite, and exclusive forms of ritual. Each is later resignified to establish powerful locations for community-oriented inclusive ritual to meet the needs of shifting social and political institutions. The loci of interest are an elite residential structure, a palace compound, and the plaza of a triadic temple group at the site of Actuncan, Belize. Parallels and deviations in the structure of ritual deposits within these loci speak to shifting access, and their examination clarifies how the architectural vestiges of Preclassic royal power were differentially incorporated into the Terminal Classic, post-royal landscape of Actuncan.

Simpson, Ian (University of Stirling), Konrad Smiarowski (City University New York), Christian Madsen (National Museum of Denmark) and Michael Nielsen (National Museum of Denmark)

Soil Nutrient Management in Norse Greenland

In this paper we set out to establish the role of soil nutrient management in the sustainability and resilience of livestock agricultural systems in Norse Greenland (ca. late 9th – 14th centuries A.D.). Using a landscape sampling framework that includes large, medium, and small sized farms we use thin section micromorphology and associated SEM-EDX analyses of cultural soils and sediments in home field areas. We identify materials used in the endeavor to sustain soil nutrients together with nutrient levels achieved. Radiocarbon dating of charcoal from the anthrosols provides a robust
chronological framework for our stratigraphies. Our findings allow us to identify selection of materials and the intensity of endeavor to sustain nutrient status across different types of farm and with different environmental conditions over time. The paper concludes by assessing the viability of the contrasting management strategies that emerge from the study.

Simpson, Kay (Cultural Resource Analysts, Inc.) and Brian Glusing (Fort AP Hill) [363]  *The Capture of John Wilkes Booth*

After the assassination of President Abraham Lincoln, the ill-fated escape effort of John Wilkes Booth ended in Virginia on the doorstep of Richard Garrett, where Booth was shot by pursuing federal forces and died on April 26, 1865. Garrett’s Farm, frequently the subject of Booth-related intrigue, was purchased in 1940 by the U.S. Army and is part of Fort A.P. Hill, an Army training installation. Although Garrett's house and other structures are long gone, the former Garrett house site is now situated in the median of a divided highway and is the subject of many unauthorized roadside visits each year. As stewards of the land and the highway respectively, Fort A.P. Hill and the Virginia Department of Transportation are undertaking archaeological studies to document the Garrett Farm site. These studies seek to evaluate the integrity and determine the cultural significance of the Garrett Farm site, particularly as it represents the last of the many sites that make up Booth’s escape route. The studies also aim to explore the potential to use the site, in cooperation with Historic Port Royal and Caroline County, for public exhibition in April 2015 on the 150th anniversary of the capture of John Wilkes Booth

Sims, Marsha (Nat Resources Conserv Svc) [150]  *The Southern Hummingbird, Give Me Five*

This research is on the use of the outrepasse or overshot technique of flintknapping of the Clovis culture and the "sacred" use of this technique by the Aztecs in order to connect paleoindian archaeology to culture heroes. In the record of the Aztec, Huitzilopochtli, a culture hero, fought the Four Hundred Southerners and he sacrificed these gygantomachy on the field. A reenactment of this sacred drama is a game called tlachtli and it is played on the ball court called tlacho in the New World. A weapon used in the Aztec iconography is a serpent-headed boomerang or incomparable dart.

Sinclair, Anthony (University of Liverpool) [93]  *Mapping Archaeological Research 2004-2013: A Network of Sources, Authors and Concepts*

Citations data provide an important but underutilized resource through which to appreciate the structure and relationships of archaeology as a discipline. This data can be visually mapped to present the key structures of scientific disciplines. This poster will present three network maps of archaeological research based on an analysis of citations index data from more than 20,000 archaeological research outputs published between 2004 and 2013 inclusive. Each map contains information on more than 1000 elements, positioned and clustered by association to surrounding elements and ranked by importance. These maps include: (i) the network of cited archaeological sources, (ii) the network of archaeological authors, and (iii) the network of terms or concepts used in current archaeological research. These maps provide a unique visual through which to understand the multidisciplinary nature of archaeological research, the nature of its specialties, and the essential knowledge concepts that are required for an understanding of archaeological research. The network of cited authors can be viewed as the disciplinary research core supporting contemporary research.

Sinclair, Alan [225] see Hoffman, John

Sinensky, R. [364] see Mack, Stephanie

Sinensky, Robert (Reuven) (University of California Los Angeles) [364]  *All Potted Up: Exploring Seasonality at Small Late Pueblo II and Early Pueblo III Sites at Petrified Forest National Park*
Researchers have conducted archaeological investigations within the vicinity of what is now Petrified Forest National Park (PEFO) for over 100 years. Although the majority of archaeological sites identified at Petrified Forest National Park consist of small habitation sites that date to the late Pueblo II (1030-1125 A.D.) and early Pueblo III (1125-1225 A.D.) periods, archaeologists have gathered little information regarding the habitation practices of people during this transitional time period. Late PII and early PIII archaeological sites often only contain single room structures, ranging from coursed masonry dwellings, to pithouses and jacal structures. Archaeologists often refer to single room masonry structures as fieldhouses, but have conducted little research to substantiate this claim. Archaeologists conducting ongoing survey of nearly 100,000 acres of recently acquired lands surrounding PEFO have identified numerous small late PII and early PIII habitation sites. Since the introduction of modern excavation methods, which include flotation analysis, no small late PII/early PIII sites have been excavated at the park. Analysis of paleobotanical samples from a complete vessel found eroding out of a single room structure at a late PII/early PIII site provides insight into the habitation practices of people during a significant period of change.

Singels, Elzanne (University of Cape Town), Karen Esler (Stellenbosch University), Richard Cowling (Nelson Mandela Metropolitan University), Alastair Potts (Nelson Mandela Metropolitan University) and Jan de Vynck (Nelson Mandela Metropolitan University)

[294] Foraging for Bulbs in the Cape Floristic Region
Underground storage organs (USOs) serve as a staple source of carbohydrates for many hunter-gatherer societies. While the way of life of hunter-gatherers in South Africa’s Cape is no longer in existence, there is extensive historical and archaeological evidence of hunter-gatherers’ use of such plants as foodstuffs. This is to be expected, given that the Cape supports the largest concentration of plants with USOs globally. To meet the goals of the Paleoscape project, the importance of evaluating the USO resources of the area is a crucial part of modelling the resources that would have been available to hunter-gatherers during glacial times. In the past, optimal foraging models were built on data collected from observing hunter-gatherer foraging, this is impossible in the Cape due to the lack of hunter-gatherers. To this end we evaluate the foraging potential of USOs by identifying how abundant edible biomass is in a coastal setting of the southern Cape, how easily it is gathered, and how nutritious it is based on experimental methods. From preliminary experiments we demonstrate that USOs are a readily available food resource in the southern Cape landscape and that they more than likely played a critical role in providing food for early humans.

Singer, Zachary (University of Connecticut) and Brian Jones (Connecticut State Museum of Natural History)

[150] Documenting Variability Among a Geographic Cluster of Paleoindian Sites on the Mashantucket Pequot Reservation in Southeastern Connecticut
Over the past thirty years, many Paleoindian sites have been identified near the Great Cedar Swamp on the Mashantucket Pequot Reservation in Southeastern Connecticut. Examination of isolated Paleoindian lithics and three excavated sites, Hidden Creek, Ohomowauke, and Raspberry Trail highlights Paleoindian site variability on the local landscape. The comparison of the lithic technological organization, intra-site patterning, and age of occupations among the sites provides insight into the diversity of Paleoindian land-use around Mashantucket.

Singleton, Hayley (University of Florida)

[163] Recent Investigations of Subsistence at the Garden Patch Site (8DI4): A Study of Faunal Remains from a Platform Mound and Adjacent Midden
In summer 2013, a platform mound and newly identified midden deposit were tested at the Garden Patch site, a Woodland multimound center located on the northern gulf coast of Florida. The subjects of this research study are the faunal remains from the dense midden of Area X and adjacent Mound II, a platform mound constructed of shell midden. Results indicate a highly marine based diet focused on the nearby marsh and shallow Gulf waters. A series of dates suggest the Area X village midden accumulated over a 200-year period during and after the rapid construction of Mound II. Given the contemporaneity and proximity of the two assemblages, the potential significance of faunal remains is considered in terms of feasting and ceremony.
Sinopoli, Carla (University of Michigan)

Sitek, Matthew (UC San Diego), Sarah Baitzel (UC San Diego), Kathleen Huggins (UC San Diego) and Paul Goldstein (UC San Diego)

Second-Hand Spaces: Abandonment and Reoccupation during the Final Stages of a Tiwanaku Provincial Temple (Omo M10A)

The Tiwanaku colonies in Moquegua, Peru represent some of the best preserved archaeological remains left by this south central Andean polity. This has led to a detailed understanding of daily life and ceremonial practices of these Tiwanaku colonists. However, our understanding of how these lifestyles and practices were transformed during and after the disintegration the highland core is still relatively limited. This paper will take a site-specific approach to explore this enigmatic period of Tiwanaku history. Omo M10 boasts the only Tiwanaku monumental structure built outside the highland homeland, several cemeteries, and a domestic sector. This site shows clear signs of socio-political collapse - the domestic sector was razed, walls in the temple structure were toppled, and cemeteries appear to have been looted. M10 also shows signs of continuity in the form of well-established, but limited reoccupation - not just in the domestic sector but in the temple as well. This reoccupation of the temple will be our primary focus. The changes in practice and use of space in the monumental complex also correspond with stylistic shifts in ceramic iconography that point to the emergence of a locally-based identity, in which memory and tradition continued to play a pivotal role.

Sitek, Matthew [250] see Huggins, Kathleen

Skaggs, Sheldon (Bronx Community College CUNY), Duncan Balinger (Kennesaw State University) and Terry Powis (Kennesaw State University)

Defining a Late Classic Maya Granite Workshop at the Tzib Group, Pacbitun, Belize

The ancient Maya site of Pacbitun is centrally located between the major ecoregions of the Belize River Valley and the Mountain Pine Ridge of West-Central Belize. Investigations in 2012 and 2013 began on a group of mounds, known as the Tzib Group, located outside of the core zone of Pacbitun in order to investigate what is now believed to be a ground stone tool workshop. The workshop produced grinding implements made from granite. Excavations in 2014 into the main mound of the group uncovered more than 500 kilograms of granite debitage as well as large quantities of mano and metate perform fragments varying in size and stage of production. Based on ceramic and radiocarbon dating, the granite workshop is dated to the Late Classic (A.D. 700-900) period. Workshops of this nature are rarely found, and most of what we know has previously only been gleaned from ethnographic data. Magnetic gradiometry was also performed in 2014 to determine the capabilities and limitations of this technique in identifying stone tool production locations. Guided by the geophysical results and the research previously conducted by Ward (2013), we sought to further document the context, scale, and intensity of production of this workshop.

Skeates, Robin

Causalities, Time-Scales, and Processes of Environmental and Cultural Change in Italy between the Final Upper Paleolithic and Early Neolithic

This paper reconsiders the significance of a generally warmer and wetter climate, expanded plant ranges and sea level rise to human groups in mainland and island Italy between the Final Upper Paleolithic and Early Neolithic. Fundamental cultural changes in demography, subsistence strategies and social organization certainly coincided broadly with these environmental changes, and do suggest a degree of human adaptation, although the cultural resilience of hunter-gatherer lifestyles should not be under-estimated. But do the available data allow us to be more precise about possible causalities, time-scales and processes in Italy? And, more specifically, do they enable us to identify the impact on human groups of Berger and Guilaine’s (2009) claimed abrupt climatic deterioration event around 8200 years ago?
Skibo, James (The University of Utah Press)

[280] Discussant

Skinner, Jessica

[301] Entheses and Activities: A Metric and Non-metric Analysis of Entheal Change of the Shoulder Complex within the Milwaukee County Institution Grounds Population

The analysis of the features that mark tendon and muscle insertion sites on bone has been used in an attempt to reconstruct past life activity patterns of individuals and populations represented by skeletal remains. Many of these analyses have focused on comparing evidence from these individuals with known musculoskeletal and biomechanical data. Recent experimental tests have illustrated that defining these correlations is more complex than expected (Mariotti et al., 2007). Modern clinical data has expanded our understanding of the development of these markers as a result of enthesopathy and enthesal change, enabling further examination of the underlying forces affecting these changes, such as age and concurrent pathology. To further this study, an analysis of individuals from the Milwaukee County Institution Grounds Cemetery collection is conducted, using the enthesis-type-selection technique (Villotte 2010) and an enthesal change scoring method proposed by Henderson et al (2010). 3D morphometric analysis is also utilized. The shoulder complex of adult individuals exhibiting a range of skeletal health conditions is analyzed. This study examines the implications of age, concurrent pathology, and activity for skeletal and enthesal health, as well as the utility of enthesal change analysis for the purpose of determining past life activities.

Skoglund, Peter (University of Gothenburg)

[137] Approaches to Scandinavian Rock-Art

The aim of this paper is to discuss and evaluate some general trends in Scandinavian rock-art research. For a larger part of the 20th century scholars from the history of religion had a strong impact on the interpretation of south Scandinavian rock-art. Images were contextualized by a comparative approach where scenes and details from rock-art were compared to similar phenomenon in other media. Today, this perspective is complemented by a variety of approaches; but a dominating perspective focuses on landscape archaeology and the maritime character of many rock-art sites. The landscape perspective is often combined with an interest in chronology and the notion that the same panel could have been used by different people for a very long time. Based on a case study of rock-art in southernmost Sweden, I will evaluate the different approaches and argue that they both may contribute to an understanding of the south Scandinavian rock-art tradition. However, their relevance may vary through time as the rock-art tradition underwent rather significant changes during the course of the Bronze Age.

Skousen, Benjamin (University of Illinois)

[142] Pilgrimage Centers, Infrastructure, and Cahokian Politics

Archaeological and historical evidence suggests that pilgrimage centers were vital to the infrastructure, politics, and religions of cities and civilizations throughout the ancient world. The precolumbian city of Cahokia was no different. In this paper, I argue that the Emerald site, a major pilgrimage center east of Cahokia, was integral to the formation of a new political-religious order circa A.D. 1050. Ceramic, architectural, and botanical data show that large groups periodically gathered there to feast, participate in large-scale construction projects, witness rare lunar events, and renew ties with kin and other-worldly beings and powers. I contend that intermittent public gatherings at Emerald allowed continual negotiations between people of diverse ethnicities and backgrounds, which in turn created a communal identity that made this new orthodoxy possible. Emerald, like other pilgrimage centers throughout the world, was an important place where Cahokian politics and religion were simultaneously constructed, enacted, and experienced. Furthermore, this case underscores the problem of examining infrastructural projects, politics, and religion separately.
Skowronek, Russell and Ronald Bishop (Smithsonian Institution- Museum of Natural History)  
[C416]  
Ceramic Production, Supply, and Exchange in the San Francisco Presidio Jurisdiction 
In the late eighteenth century Spain occupied the San Francisco Bay Area and rapidly transformed the region through the introduction of agriculture, animal husbandry, Roman Catholicism, the Spanish language and the use of pottery. This presentation focuses on the latter, and considers the questions surrounding local manufacture, importation, and exchange of ceramics among the missions, presidio and pueblos of the San Francisco Presidio Jurisdiction. Through the application of instrumental neutron activation analysis of ceramic materials, local production of unglazed and glazed earthenwares is shown in addition to glazed ceramics originating from nonlocal sources. These patterns provide insights into the manufacture, supply, and exchange of ceramics in the San Francisco Bay Area, and through them a window on the material expression of the colonial experience.

Slachmuylders, Jean-louis [309] see Vrydaghs, Luc

Slater, Philip (University of Illinois Urbana-Champaign) and Stanley H. Ambrose (University of Illinois Urbana-Champaign)  
[C174]  
Technological Organization Strategies during the East African Late Stone Age: Blade Production and the Evolution of Standardized Technology 
Ol Tepesi rockshelter (GsJi53) is located in Kenya’s central Rift Valley on the southern slope of Mt. Eburu, northwest of Lake Naivasha. Its 30-meter high rear wall and 45-meter wide floor would have provided prehistoric inhabitants with a vast habitable area. Excavated deposits span the most recent 17,000 years, from the Iron Age back to the late Pleistocene LSA. Almost 200,000 artifacts, including pottery, lithics, fauna, ostrich eggshell and ochre, were recovered during two seasons of excavation. A series of hearths with associated cut and burned bones were also exposed. A sample (n=3039) of flaked obsidian artifacts of a new Late Pleistocene LSA lithic industry was analyzed by typological classification and quantitative morpho-metrics. Backed microliths, burins, scrapers and expedient tools dominate the blade-based assemblage. Results of this analysis provide insight into techniques of systematic blade production and the development of standardized technology at the end of the last glacial maximum. This analysis contributes to our ultimate goal of investigating the evolution of modern human behavior by analysis of technological organization strategies during the Middle and Late Stone Ages in East Africa.

Slater, Donald (Phillips Academy, Robert S. Peabody Museum, & Brandeis University)  
[C355]  
Hallowed (under)Ground – Ancient Maya Dark Zone Use Patterns in the Subterranean Realm of Yaxcaba, Central Yucatan, Mexico 
Cave explorers and scholars classify the different light zones of underground spaces into three categories – light, twilight, and dark. Despite the practical challenges ancient people faced while traveling into and through dark zones (those entirely devoid of light), it is common across the Maya region to find rich evidence that demonstrates that these spaces were heavily utilized during Preclassic times. Results of this analysis provide insight into techniques of systematic blade production and the development of standardized technology at the end of the last glacial maximum. This analysis contributes to our ultimate goal of investigating the evolution of modern human behavior by analysis of technological organization strategies during the Middle and Late Stone Ages in East Africa.

Slaughter, Mark (Bureau of Reclamation) and Jon Czaplicki (Bureau of Reclamation)  
[C90]  
Black Mesa Cultural Resources: An Update 
The Black Mesa Archaeological Project (1967-1987) was undertaken to clear archaeological sites to mine coal for the Navajo Generating Station to provide power for the Bureau of Reclamation’s Central Arizona Project. The original permit for this work expires in 2019. The Bureau of Reclamation is in the process of re-permitting (from 2019-2044) all of the connected features of the project that
include the Kayenta Mine on Black Mesa, a railroad, and two large powerlines. This paper will present on-going cultural resource activities connected with the re-permitting process.

Sliva, Jane (Desert Archaeology, Inc.)

[55] Who Goes There? Tracing San Pedro Phase Migration and Social Dynamics in the Borderlands with a Revised Projectile Point Typology

The projectile point assemblage from Las Capas (AZ AA:12:111 [ASM]) provides a case study for using a social dynamics model to explain shifts in point design during the San Pedro phase (1200-800 B.C.) in the Tucson Basin. Available evidence indicates that the population of Las Capas and the residents of a possibly related settlement directly across the Santa Cruz River maintained a separate projectile point design orientation from other settlements in the northern Tucson Basin during the early San Pedro phase, but produced points conforming to the local design canon during the late San Pedro phase. This poster presents an updated projectile point typology for the borderlands, and combines chronological point data with additional lines of material culture and biological evidence to argue that the earlier occupation of Las Capas represents a migrant population from northern Sonora, Mexico, who failed to achieve social equity with or assimilate into the existing social fabric of the Santa Cruz River floodplain; the later reflects a re-occupation of the site by an endemic group exhibiting typical San Pedro phase Tucson Basin technology.

Sload, Rebecca

[355] Primacy of the Cave at the Sun Pyramid, Teotihuacan

Multiple lines of evidence indicate that the cave determined the definition of the Sun Pyramid. As the earliest monumental construction at Teotihuacan, it is hypothesized that the Pyramid/cave was built within a pan-Mesoamerican worldview that valued the mountain cave, including acknowledging artificial caves as caves, pyramids as mountains, and sacred space as created via engineered spatial relationships. Ceramics and radiocarbon dates indicate contemporaneous construction of and modification to cave and Pyramid. Contemporaneity at the outset reinforces that they were a unit, a mountain cave. It is in modification, however, that the clearest evidence is found. The decision to close the cave appears to have prompted changes to the Pyramid, whose spatial relationships to the cave suggest purposes significant to it. Pyramid modifications are hypothesized as also redefining the Pyramid sans cave. Interpretation of the meanings of changes to the cave and Pyramid is reinforced by finds from recent re-excavation of a 1933 tunnel on the east-west centerline of the Pyramid at its base. In all cases, events appear driven by the cave.

Slotten, Venicia (University of Cincinnati) and David Lentz (University of Cincinnati)

[75] Paleoethnobotanical Remains Associated with the Sacbe at the Ancient Maya Village of Cerén

Paleoethnobotanical research conducted during the 2013 field season at Joya de Cerén in El Salvador focused on the analysis of plant remains found on the surface and associated features of an ancient Maya sacbe (causeway) that were well protected beneath tephra deposited by the volcanic eruption of Loma Caldera around A.D. 660. Plant remains were retrieved from the sacbe surface, adjacent drainage canals, and agricultural fields on either side of the sacbe. Because the plant remains found in association with this sacbe were well preserved, a rare occurrence in Mesoamerica, the data recovered from Cerén are quite significant and unique to the study of Maya plant use activities as well as Maya causeways. The project collected over 60 macrobotanical samples and 160 flotation samples processed in a water flotation tank. Prominently represented in these samples are Spilanthes cf. acmella achenes, Zea mays cob fragments, Phaseolus sp. cotyledons, Amaranthaceae seeds, Fimbristylis dichotoma achenes, Mollugo verticillata seeds, Portulaca oleracea seeds, Crotalaria cf. sagittalis seeds, and abundant charcoal remains. Recovered plant remains reveal trends associated with each context as well as distance from the site center, and offer a perspective an essentially economic perspective of Maya sacbeob.
Sluka, Victoria (University of Notre Dame), Chase M. Anderson (University of Notre Dame), Donna M. Glowacki (University of Notre Dame) and Edward J. Stech (University of Notre Dame)

Reducing Human Error and Identifying Unknowns: X-ray Fluorescence as a Tool for Identifying Paint Composition of Mesa Black-on-White Pottery

Although Mesa Verde Black-on-white pottery paste and temper have been well-studied, the composition of the decorative black paints and white background slips to identify available resources and the varying recipes used across time and space has received much less attention. Paints are typically categorized as either coal-based (organic) or iron-based (mineral), and archaeologists have long used visual differences to identify these two paint bases. While it has been shown that even novices can usually achieve better-than-random accuracy in visually identifying the two paint types, there is still a margin of human error as well as a void of information related to linking specific organic or mineral sources with compositions. Using X-ray fluorescence, we began by characterizing modern test tiles with possible paint recipes produced using local resources (southwest Colorado) to better understand how elemental composition varies with different, known paint recipes. Analyzing known samples created an interpretable baseline that not only permits discerning how the use of slightly different recipes influences composition, but also can be a comparator for archaeological unknowns. We tested the latter utility by comparing the paint composition of samples from Goodman Point Pueblo with the baseline, enabling stronger linkage to the use of specific mineral-based recipes.

Small, David (Lehigh University)

Discussant

Smallwood, Ashley (University of West Georgia), Thomas Jennings (University of West Georgia), David Anderson (University of Tennessee) and Jerald Ledbetter

Testing for Evidence of Paleoindian Responses to the Younger Dryas in Georgia

For the Southeast, Meeks and Anderson (2012) propose Younger Dryas (YD) climate changes triggered a human population crash and/or substantial reorganization. We use the Georgia point record in the Paleoindian Database of the Americas to test for evidence of changes in landscape use through the Paleoindian period and consider these changes in the context of the Georgia paleoenvironmental record spanning the YD. Based on differences in point frequencies, distributions, stone types, and transport distances and directions, we conclude the Coastal Plain was a focus of early settlement, but by the end of the YD, Paleoindian settlement shifted into the Piedmont.

Smiarowski, Konrad (CUNY Graduate Center)

Climate Change and Resource Management in Eastern Settlement Norse Greenland: Zooarchaeological Perspective

Changes in climate regimes have played a significant role in the cultural settlement patterns of Greenland for several millennia. This presentation focuses on the Norse Settlement ca. 985-1450 CE and how the terrestrial and marine animal resources were utilized, managed and modified in the face of climatic and environmental changes at all levels of the Norse social strata. Datasets from small tenant farms, middle size independent farms and magnate farms are utilized to understand the site specific, local, and regional management strategies and the level of their long-term sustainability. The Eastern Settlement strategies are compared with parallel data from the Western Settlements. Their comparison aids in understanding the collapse of the whole Norse colony, a century after the abandonment of one of its two core components, the Western Settlement.

Chair
Smith, Beth P. [6] see Creger, Cliff

Smith, Adam (Cornell University) [14] Discussant

Smith, Chelsea (University of California, Davis) [28]

Investigating Genetic Structure and Dietary Ecology through Ancient DNA and Stable Isotopic Analysis of Prehistoric Dogs from San Nicolas Island, California

The study of prehistoric dogs has become a global trend. Not only did they fulfill a variety of roles and were an important part of past human societies, but they can be used to understand human-modified environments and human movement. On the California Channel Islands the domestic dog has been shown to be a significant component of the archaeological record. Dogs are uncovered in a variety of cultural contexts and their presence on the islands dates to the middle Holocene. Despite their cultural significance, little is known about prehistoric dogs on the Channel Islands. In this study ancient DNA and stable isotope analysis was performed on dog remains recovered from San Nicolas Island, California, from both known archaeological contexts and those collected by Loye Miller during the early 20th century. Preliminary aDNA results identified a mtDNA clade novel to the Americas and isotopic data suggest that these animals primarily subsisted on marine resources. The purpose of this research is to develop data that can be used to elicit information on the genetic lineage and diversity of Channel Island dogs, along with their dietary ecology. In addition this research underscores the importance of revisiting legacy archaeological and natural history collections.

Smith, Geoffrey (University of Nevada, Reno), Madeleine Van der Woort (University of Nevada, Reno) and Aaron Ollivier (University of Nevada, Reno) [35]

The Pre-Mazama Occupation of the LSP-1 Rockshelter, Warner Valley, Oregon

For the past five years, a crew from the Great Basin Paleoindian Research Unit, University of Nevada, Reno, has excavated in the LSP-1 Rockshelter in Warner Valley, Oregon. Our work has identified a modest record of pre-Mazama (~7,700 cal BP) occupation comprised of lithic tools and debitage, a well-preserved faunal assemblage, shell beads, and hearth features. In this paper, we highlight major trends in the LSP-1 assemblage and place it within the broader context of northern Great Basin prehistory. In doing so, we highlight the critical role that caves and rockshelters play in interpretations of human behavior in a region dominated by open-air lithic scatters.

Smith, Mark [70] Discussant

Smith, Susan, Karen Adams (Crow Canyon Archaeological Center, Cortez, Colorado) and Kristin Kuckelman [85]

Five Hundred Years of Plant Use in the Sand Canyon Locality, Southwestern Colorado

For more than 20 years, the Crow Canyon Archaeological Center has systematically acquired flotation, macrobotanical, and pollen samples from structure floors, thermal features, middens, and other contexts during the testing or excavation of many ancestral Pueblo sites dating from a wide range of time periods. In this study, we synthesize uses of plant materials through nearly 500 years of the Pueblo occupation of the Sand Canyon locality in the northern San Juan region. In order to control for differences in plant use attributable to local environmental variation, we focus on the archaeobotanical data for 16 settlements that were located within a 2 km radius on the landscape. Samples from thermal features and middens provide evidence of short-term activities and long-term plant use spanning the Pueblo I, Pueblo II, and Pueblo III periods; late Pueblo III villages are particularly well represented. We examine subsistence practices through time, including reliance on maize agriculture, wild plant use, seasons of occupation, differences in domestic vs. nondomestic use of kivas and public architecture, and possible long-term anthropogenic effects on plant communities. We also scrutinize the data for evidence of subsistence stress or other impetus for the
early A.D. 1280’s regional depopulation.

Smith, Geoff (MONREPOS Archaeological Research Center, RGZM)

Re-evaluating the Evidence for Systematic Exploitation of Mammoth during the European Middle Paleolithic

The recurrent presence of mammoth, elephant and rhinoceros at Middle Paleolithic sites, together with Neanderthal isotopes signaling meat as a prominent protein source, have been used to argue for a central role of these species in Neanderthal subsistence. Key to this model are the bone heap horizons from La Cotte de St Brelade (CSB, Jersey), previously interpreted as game drive debris resulting from systematic Neanderthal hunting. However, this hypothesis has never been rigorously tested. Therefore, this paper presents new CSB faunal analyses, contextualizing behavior at the site and in the wider landscape. Furthermore, a broader European perspective assesses the overall role and importance of megafauna in Neanderthal diet.

Initial Neanderthal occupation at CSB was intensive, though, through time visits became more infrequent. Mammoths, alongside other large mammals, were clearly butchered, but increasing carnivore presence suggests a more complex site formation scenario. In general, similar mammoth-dominated sites are rare in Western Europe, indicating a main focus of Neanderthals on large herbivores, with only a minor, opportunistic, role for megafauna. Therefore, currently, the isotope signal and zooarchaeological evidence cannot sustain a one to one equivalency. Whilst Neanderthal diet was meat-orientated, the archaeological data does not indicate systematic contributions from megafauna.

Smith, Gerad (University of Alaska Fairbanks)

The Caribou Didn’t Come Back: Modelling Human Migration Variations through Local Ecological Changes

The objective of this paper is to model the effect that the presence/absence of specific ecological variables, such as certain prey species, has on the passive movement of raw materials from their point of origin to their point of deposition in the archaeological record. This study takes place in the Talkeetna Mountains of Southcentral Alaska. The model was built using ArcGIS, informed through ethnographic, historic, and modern ecological and archaeological data, and structured using a theoretical framework from Human Behavioral Ecology. The results suggest significant differences occur in human migration patterns based on the presence/absence of specific prey items, and these inform further hypotheses of site structure and placement on the landscape.

Smith, Kevin (University of California, Davis)

Examining the Function of Lithic Crescents as Transverse Projectile Points: An Experimental Approach

Flaked-stone crescents are an artifact type unique to the western portion of North America, and based on direct obsidian hydration and associated radiocarbon dates this artifact was used between the terminal Pleistocene and early Holocene. Previous studies have attempted to uncover the function of this artifact, associated with the earliest inhabitants of western North America, hypothesizing the use of crescents as sickles, ulus or hide scraping tools, among other uses. Recent studies have demonstrated a high correlation between crescent distributions and seasonal waterfowl migration routes. Following on this research, I test the hypothesis that stone crescents functioned as transverse projectile points by analyzing crescent collections within California. Results produced from analysis of lithic-reduction sequences, material-selection strategies, wear and breakage patterns, as well as data derived from replicative and experimental studies (e.g., testing impact fractures, hafting strategies, material performance) appear to support the hypothesis that these artifacts were effective weapons for the acquisition of waterfowl.

Smith, Heather (Center for the Study of the First Americans)

The Late Pleistocene Transmission of Fluted-Point Technology across a Continent: A Morphological Investigation
The Northern Fluted-Point Complex represents a Paleoindian occupation in northern Alaska and the Canadian Yukon and appears to form part of an adaptive strategy similar to that of late Paleoindians in the North American plains. This paper presents the results of a shape analysis that uses geometric morphometrics as a tool to identify major factors of variability in fluted projectile-point morphology across a continent by comparing artifacts from Alaska and more temperate regions in North America. Geographic patterns in such variability demonstrate whether fluted-point technologies were “grafted” onto more autochthonous northern complexes or represent movement of discrete Paleoindian groups northward at the end of the Pleistocene. Discussion addresses the role of fluted technology in the context of human dispersal across America and their adaptive context in late-glacial Arctic and Subarctic ecosystems.

Smith, Madeleine (The Ohio State University) and Abigail Buffington (The Ohio State University)

Feeding the Troops? Patterns of Agricultural Production in the Macrobotanical Remains of Nabatean-Late Roman Sites in the Wadi ath-Thamad, Jordan

The macrobotanical record from Khirbat ez-Zona, a Late Roman period castellum, reveals a pattern of crop refuse that does not fit the grand narrative of Roman agricultural practice or previous studies of contemporaneous military structures in the region. The Eastern Mediterranean witnessed a considerable boom in both population and agricultural productivity during the Late Roman period. This productivity can reflect the practices of an empire from religious ritual and pilgrimage, to preparation for important visits and festivals and lastly, feeding armies. In a recent macrobotanical study on a similar landscape in the Wadi Araba within the hinterlands of Petra, Ramsay and Smith argue for a largely local origin for agricultural production. Khirbat az-Zona is also in the hinterlands of an important urban center for the empire, Madaba. This study, which ultimately used 40 samples, attempted to address if this trend toward local production is also found in places such as Wadi ath-Thamad, where ecological conditions provided the basis for earlier periods of high agricultural productivity, in contrast to the Wadi Araba. In an effort to isolate the effect of Roman presence on agricultural productivity, samples from Nabataean domestic sites in the region were also sampled.

Smith, Michele (Haffenreffer Museum of Anthropology), Juana Lazo (Independent Researcher), Alan Coogan (Portland State University) and Maria Cecilia Lozada (University of Chicago)

Ramada Textiles from Southern Peru: Death’s Social Skins

Textiles from the Ramada culture of southern Peru are currently understudied and poorly understood. Recent research in the Vitor Valley suggests that the Ramada culture was a regional Early Intermediate-to-Middle Horizon cultural manifestation, contemporary with both Nazca, to the northwest, and the Wari traditions, but with its own distinct expressions of cultural identity. This paper presents preliminary analyses, using archaeological textiles from a cemetery dated to 550 A.D., which suggest that the Ramada culture exhibits its own grammar and patterns of textile production, decoration, and use. The use of textiles in Ramada mortuary contexts displays different strategies and internal expressions of identity that were used to reflect regional identity, gender and age as well as group affiliation. While preliminary, these analyses have opened the way for more holistic approaches to defining dress and identity within the Ramada cultural complex in southern Peru.

Smith, Michael (Arizona State University)

The Economics of Aztec Inequality or, the Inequality of the Aztec Economy

In discussions of Aztec society, economy and inequality are typically treated as separate realms. The former is discussed in terms of production, exchange, and consumption, while the latter is framed around nobles versus commoners and various hierarchies. Although no one would claim that these two topics are unrelated, the full extent of their interconnection is rarely acknowledged. We cannot understand Aztec economic processes and institutions without reference to patterns of inequality, nor does Aztec inequality make sense apart from consideration of the economy. Frances Berdan has made contributions to both topics, and to their joint analysis. I explore the connections among the
economy and patterns of inequality, putting Frannie Berdan’s research into a broader context.

[194]  Chair

Smith, Erin (Department of Anthropology, University of Miami), William Pestle (Department of Anthropology, University of Miami), Francisco Gallardo (Centro Interdisciplinario de Estudios Intercultura) and Christina Torres-Rouff (Department of Anthropology, University of California)

[203]  Isotopic Analysis of Dietary Variation in Formative Period Chile

Northern Chile’s Atacama Desert is one of the driest environments on Earth. In fact, it has been suggested that the region serves as a good model for living conditions on Mars. By employing a number of resource management strategies including complex systems of trade, humans have lived in the inhospitable region for millennia. Here we present the results of stable isotope analysis of seven Formative Period (1500 B.C.-A.D. 500) humans from the Ancachi site near the modern town of Quillagua. Analysis of carbon and nitrogen isotopes from human bone collagen and hydroxyapatite, as well as floral and faunal remains, allows us to study the variability in protein and carbohydrate components of these individuals' diets. These data, as well as the comparison of burial methods between Ancachi and several coastal cemeteries, allow us to examine patterns of exchange and social mobility on an individual level. By comparing these data to those of hundreds of other individuals in a broader ongoing study, we can examine patterns of dietary variation in the region which indicate systematic regional exchange of food and other goods.

Smith, Kevin (Haffenreffer Museum, Brown University)


As our abilities to source stone tools increase, our questions become ever more sophisticated as our methodologies reach deeper into the elemental and isotopic levels and an ever-broadening range of statistical analyses. Yet we also recognize that lithic raw materials were selected by their past users for entirely different reasons. A wide range of approaches have been used to explore the roles of proximity, accessibility, mechanical qualities, and exchange relationships, among others, in determining how and why the stone tools and debitage we recover were initially acquired and accumulated in the sites we excavate.

However, relatively few analyses take the actual color of lithic raw materials seriously into account. Color is often regarded as a secondary accident of a raw material’s chemical composition or physical structure rather than as the primary reason for its original acquisition and use. This paper will explore case studies from domestic and sacral contexts in Viking Age and Medieval Iceland to argue that selection for color may sometimes have been the primary reason for acquiring and accumulating lithic raw materials for utilitarian use, for specific roles in ritual settings, and even in manuscript preparation. Color was therefore also a key determinant of quarry/source selection.

[255]  Moderator

Smith, Bruce (Smithsonian Institution)

[226]  Current and Future Directions in Archaeobotany

Recent advances in archaeobotany are discussed, and emerging research domains and future challenges are outlined. Particular emphasis is paid to the challenges of replication of results, and the curation of archaeobotanical collections for future researchers.

[414]  Discussant
[414]  Chair

Smith, Cecilia (University of Illinois at Chicago)


Historical documents provide most of what is currently known regarding Spain’s subjugation of the
Philippine archipelago. However, in this paper I discuss how archaeological evidence of indigenous prestige economies enriches our understanding of the interaction between the encroaching Spanish colonizers with indigenous polities. My study of imported ceramics found in the Malangwa watershed, Negros Oriental indicate that, contrary to Spanish records, indigenous access to foreign prestige goods did not diminish in this region during the early phases of colonization. Instead, the spatial distribution of imported ceramics reveals an intensification of the indigenous prestige economy through the 18th century. This means that in response to the Spanish installed encomenderos, who demanded tribute from the polities of Negros, local leaders increased their use of imported wares to solidify regional alliances and loyalties. Thus, while European writings claim that exotic trade was significantly restricted to Europeans after the mid-16th century and that the encomienda came to “define” the economy of Negros, the archaeological evidence demonstrates: 1. Indigenous access to foreign goods increased after the mid-16th century and 2. The added demands of encomienda tribute did not come to define the economy Negros, but rather, encouraged the intensification of the traditional prestige economy.

Smith, Morgan (Texas A&M University)

The first field school on an underwater prehistoric site in the United States was conducted on the Guest Mammoth site in the Silver River, near Ocala, Florida in the 1970s. This site was touted as a Columbian mammoth kill site, the first found east of the Mississippi River. The excavators presented evidence of this in the form of a single fluted point, six direct percussion flakes, and several pressure flakes found associated with the remains of an adult and a juvenile mammoth. In addition, three of the mammoth bones exhibited potential butchering evidence. However, the sole publication on this site is a five page article published in the Florida Anthropologist in 1983. Poor reporting and contextual issues caused the Guest Mammoth site to fall into archaeological purgatory. Following the trend of re-investigating sites of this nature, the Guest Mammoth site was re-evaluated in the summer of 2014 by archaeologists from Texas A&M University and the University of Wisconsin, La Crosse. This paper will evaluate the known contextual, geologic, and artifactual evidence concerning the site while integrating the information gathered from recent field assessments of the site to determine the Guest Mammoth's place in the North American archaeological record.

Smith, J. Gregory (Northwest College) and Charles L. F. Knight (University of Vermont)

[259] Variation and Similarity in Obsidian Tool Styles and Technologies at the Zaragoza-Oyameles Source Area, Puebla, Mexico
The nature and degree of interaction between the Classic period centers of Teotihuacan and Cantona is investigated through two types of obsidian artifacts that characterize Early to Late Classic period obsidian use in the central-east highlands of Mexico: prismatic blades and bifacial dart points. At the Zaragoza-Oyameles source area in eastern Puebla, Mexico the recovery of dart point preforms next to obsidian quarries, combined with chemical analysis indicates that these points were crafted at the source using local obsidian. Surface data indicates that they were part of a linked-reduction sequence that also produced sub-prismatic cores. We investigate the context of the dart points, as well as in the methods of obsidian extraction and its manufacture into sub-prismatic cores at the Zaragoza-Oyameles source area. We then compare information on known caches of dart points at Teotihuacan, and the nature of Teotihuacan-era obsidian extraction and core-blade reduction at the Pachuca obsidian source. In doing so we hope to illuminate variation and similarity in the obsidian reduction sequences and the commodities produced that are associated with these two, large and densely populated regional centers.

Smith, Eugene (University of Nevada Las Vegas), Amber Ciravolo (University of Nevada Las Vegas), Minghua Ren (University of Nevada Las Vegas), Panagiotis Karkanas (The Malcolm H. Wiener Laboratory for Archaeological) and Curtis Marean (Arizona State University)

[294] Cryptotephra Discovered at Pinnacle Point Site 5-6 May Correlate with the 74 ka Eruption of Toba in Indonesia: Implications for Resolving the Dating Controversy for Middle Stone Age Sites in Southern Africa.
Cryptotephra was identified in a sediment stack at Pinnacle Point Site 5-6, South Africa, and occur as small glass shards (less than 100 µm in size). Shards are found in sediment from the Shelly Ashy Dark Brown Sand (SA.D.BS) and the Ashy Light Brown Sand (ALBS) layers with weighted mean OSL dates of 70.6 ± 2.3 and 71.1 ± 2.3 ka respectively. The shards are intimately mixed with sediment and are rare. A preliminary shard distribution profile shows that shards are distributed continuously through the section in two broad peaks separated by a zone of zero shards within the lowermost SA.D.BS. Major element analyses performed on several shards using electron probe microanalysis indicate that they are rhyolite with SiO₂ varying from 72.15 to 77.56 wt. %. Major element chemistry is similar to distal tephra of the ~74 ka eruption of Toba volcano in Indonesia providing for the first time, evidence that Toba ash may have reached southern Africa. The discovery of cryptotephra at PP5-6 provides a powerful new method to create a precise chronological tie-point between archaeological sites and to help identify when a suite of uniquely human features first appeared in our evolutionary history.

Smith, Lisa (University of Montana), Patricia Stavish (National Park Service), Iraida Rodriguez (National Park Service) and Brandon Mauk (Colorado Mesa University)

[300] Embedded Activities: Preliminary Analysis of Landscape Use and Mobility Patterns in Colorado National Monument

Ongoing archaeological survey of Colorado National Monument, located on the eastern edge of the Colorado Plateau, reveals that much of the area is a continuous landscape of non-discrete lithic scatters with light to dense concentrations of artifacts. The ephemeral nature of many of the sites, coupled with their lack of distinct boundaries, poses a challenge for understanding landscape use and mobility patterns of the hunting and gathering people who utilized the area. To circumvent this issue we draw from regional ethnographic and archaeological data, along with archaeological, hydrological, plant, and wildlife data, recently gathered from the monument, to form testable hypotheses of landscape use and mobility patterns of the locality. Our preliminary analysis of these data suggest that intensive lithic raw material procurement and early-stage reduction activities were likely embedded with other seasonal activities such as hunting and Piñon nut harvesting. Moreover, we establish that results of this study that can be used to guide the next stage of this research, which includes subsurface testing for identification of intact deposits.

Smith, David (Anthropology, University of Toronto, Mississauga)

[313] The Contribution of Canímar Abajo, Cuba to an Understanding of Early Populations in the Greater Antilles

Excavation at the site of Canímar Abajo, situated in northern Cuba, has yielded new data that contribute to our understanding of early populations in the Greater Antilles. AMS radiocarbon dates on human bone collagen provide a secure chronology for a mortuary context dating to the 2nd millennium B.C. Analysis of starch grains recovered from human dental calculus demonstrates that common bean (Phaseolus vulgaris) was cultivated by at least 1200 B.C. Stable isotope analysis of human bone collagen provides evidence of dietary preferences and indicates that a C4 plant, possibly maize (Zea mays) was consumed.

Smith, Beverley (University of Michigan -Flint)

[331] Loon, Fish, and Beaver: Inland Lake Subsistence and Settlement from the Northern Lower Peninsula of Michigan

Small Late Woodland period occupation sites around Hubbard Lake, MI provide a rare opportunity to examine the empirical evidence of seasonality and subsistence from faunal assemblages in the Upper Great Lakes region in light of long-standing models. While much work has been done regarding the Inland Shore fishery of the Upper Great Lakes, there have been few opportunities to consider Inland Lake localities and their importance in Juntunen phase strategies of settlement and subsistence.

Smith, Stuart (UC Santa Barbara)

[334] Gift of the Nile? Climate Change and the Origins and Interconnections of Egyptian Civilization within Northeast Africa
The Greek historian Herodotus, cribbing from Hecataeus of Miletus, famously wrote, “Any sensible person sees at once… that the Egypt to which the Greeks sail is land acquired by the Egyptians and a gift of the river….” Scholars today see the same basic landscape as Herodotus did before them in Egypt and northern Sudan, a narrow strip of green fed by the Niles and surrounded by an absolute desert. This distinctive ecology thus continues to play a central role in models for the origins of the ancient Egyptian state that downplay ancient Egypt’s broader African interconnections. From the 1930’s through the present day, however, a group of deep desert explorers and archaeologists have documented that during the Neolithic period much of the Sahara was a vast grassland with seasonal and perhaps permanent lakes. This paper discusses evidence from recent research, including data from the UCSB Dongola Reach Expedition, that points to interlinkages between the cultures of the Upper Egyptian Nile, the Sahara and Sudanese Nubia, demonstrating how interaction combined with climate change in the form of a punctuated but gradual desiccation of the Sahara contributed to the rapid emergence of the Egyptian state while maintaining robust connections across northeast Africa.

Smith, Scott (Franklin & Marshall College)  
[411] The Politics of Connectivity at Khonkho Wankane, Bolivia
Located in the southern Lake Titicaca basin of Bolivia, the Late Formative period (200 B.C. – A.D. 500) center of Khonkho Wankane was a dynamic place where groups of mobile agropastoralists and caravan drovers engaged with resident ritual specialists. In a social context characterized by diversity, population fluctuation, and mobility, what form did political practice take? I review evidence from Khonkho Wankane for interaction with areas throughout the south central Andes and I explore some of the ways that earlier traditions, both local and distant, were cited and modified at Khonkho Wankane. I argue that ritual specialists at Khonkho Wankane creatively deployed and reconfigured a diversity of objects, ideas, and traditions to negotiate the politics of periodic ritual encounters and events.

Smitheram, Craig [241] see Howland, Matthew

Snead, James (California State University Northridge)  
[27] Discussant

Snijders, Ludo and Tim Zaman (TU Delft)  
[58] Colorful Pictures: Understanding the Material of the Mesoamerican Precolonial Codices
In this session the most recent advances are presented of an ongoing interdisciplinary project aimed at better understanding the materials of which, and with which, the Mesoamerican Precolonial codices were made. These materials are as varied as ranging from turquoise from the southern United States to cochineal from Oaxaca, jaguar skins from the tropical areas and Maya Blue from the Yucatan peninsula. As such, this understanding allows for a reconstruction of the whole complex practice of their creation, as well as a reconstruction of the large trade network that underlies this. Furthermore one of these codices is of special interest to this project: the Codex Añute (Selden). As it is a palimpsest, this document has two distinct phases of creation and use. As a result of a collaboration of technical specialists and archaeologists within the project a new technique is being developed. This fully non-invasive technique will allow for the color reconstruction of subsurface features independently of the material composition of the paint. This advantage should allow for a reconstruction of the covered images in this largely organic document.

Snitker, Grant (Arizona State University)  
[167] Humans, Fire, and Food Production: Examining the spatial and temporal patterns of changing burning practices during the transition to agriculture in the Western Mediterranean
One of the principle objectives of current archaeological research is to improve our understanding of the recursive relationship between humans and their environments through time. Following this objective, archaeological and paleoecological analyses have demonstrated that fire and humans have a coupled relationship in almost every biome on earth. The processes through which humans
modify landscapes with fire reflect the complexities of human-environmental relationships, especially in the context of early food production. This poster focuses on the transition to agriculture in the Western Mediterranean (5,600-5,400 cal. B.C.). Paleoecological studies characterize this period by a substantial increase, or “spike,” in fire frequency, which has been interpreted as a change in human burning practices (i.e. Bal et al. 2011; Gil-Romera et al. 2009). In an effort to expand these interpretations, this project utilizes geospatial (GIS) and temporal comparisons between radiocarbon dates for early agricultural sites and “spikes” in charcoal frequency from regional pollen cores to examine the relationship between food production and burning in the Western Mediterranean. This work seeks to enrich our understanding of the timing and geographic extent of early agricultural burning practices, while also contributing to the overall efforts to characterize the dynamics of food production in social-ecological systems.

Snow, Dean (Pennsylvania State University)

[82] The Neolithic Transition in Northern Iroquoia

While details remain debated, the general outline of the emergence of semi-permanent sedentary domestic architecture in Northern Iroquoia is well understood. Communities comprised of bark longhouses came to be associated with subsistence maize horticulture over the course of the last millennium prior to European contact. Various factors triggered periodic community relocations throughout Northern Iroquoia, migratory events that were usually short-distance but occasionally involved long-distance moves. Migration is known to promote and reinforce matrilocality and matrilineality in communities, but there appear to be examples in other regions of these institutions thriving in the absence of migration. This raises the general question of how securely archaeologists can infer such social institutions from settlement patterns and other evidence used for inferring paleodemography. The potentials (and their limits) of contributions from Northern Iroquoian archaeology to more general research into paleodemography and the Neolithic Transition are discussed.

Snow, Meradeth (University of Montana), Kathleen Hauther (University of Tennessee) and Ashley McKeown (Texas State University)

[264] Ancient DNA and Cranial Morphometric Analysis into Ancestry of Five Burials from Colonial Delaware

Five burials were excavated from a small Colonial cemetery at the Elkins site in New Castle County, Delaware by Hunter Research, Inc. for Delaware DOT. The remains were analyzed for mitochondrial DNA haplogroups in conjunction with a standard skeletal biological assessment. Analysis of the mtDNA demonstrated European maternal lineages for all of the individuals. Additionally, an infant and an elderly male shared a derived haplogroup T haplotype, suggesting a matrilineal relationship between them. The infant was also established as male by amelogenin genetic testing. The craniofacial morphology of three of the adults is consistent with that seen in other early Colonial Europeans in the Chesapeake and Middle Atlantic, although it could be misinterpreted as indicating African ancestry. These individuals serve as an excellent example of this early Colonial pattern in Europeans and the mtDNA analysis confirms the European ancestry for all individuals from this cemetery.

[264] Chair

Sobotkova, Adela [40] see Connor, Simon

Soderberg, John (Ohio State University)

[30] The Intersection of the Sacred and the Everyday in Medieval Ireland

A common vision of the medieval Irish monk involves the aesthetic alone at the edge of the world occasionally appearing to bring flashes of the sacred to the rest of us. Here, the sacred is carefully delimit from the profane. Archaeology has done much in recent decades to elaborate this portrait of the monk into a fuller vision of life at monasteries with all of its mundane entanglements. But, archaeology has largely deferred the task of considering the impact of all that information on how we think of these monasteries as sacred sites. One promising way forward is reconceptualizing ideas of
the sacred so that they do not depend on dichotomies between sacred and profane. As the term ‘everyday religion’ suggests, the relevant pairing can shift to sacred and everyday: the goal being to understanding religious practices as entwined with the general practices of being human. The goal of this paper is to frame recent zooarchaeological work on monasteries in medieval Ireland in terms of everyday religion. Though the animal bones are not remains of sacrifice in the classical sense, considering them from the perspective of everyday religion can make them more than just evidence of foodways and identity politics.

**Soderland, Hilary (University of Washington School of Law)**

**[218] Chair**

**Soler , Ana María [399]** see Straulino, Luisa

**Solibiéda, Axelle [350]** see McKey, Doyle

**Solinis-Casparius, Rodrigo (University of Washington), Anna S. Cohen (University of Washington), Florencia Pezzutti (Colorado State University) and Christopher T. Fisher (Colorado State University)**

**[21] Working with the Ejido: Negotiating Archaeology and Local Politics in Michoacán, Mexico**

Ejido communities became common after the Mexican Revolution (1910-1920) as a way of dividing land and leadership among an equal number of individuals. The Ejido of Fontezuelas in the eastern Lake Pátzcuaro Basin, Michoacán, controls the rugged landform known as the Classic through Postclassic period (A.D. 200-1521) site of Angamuco. Since 2009, the Legacies of Resilience Project has negotiated and worked with Fontezuelas community members. Here we discuss some of the obstacles that we encountered including intra-Ejido politics and inter-community land use relations. Our discussion is situated within the volatile political situation in western Mexico in recent years.

**Solis, Reyna (POSGRA.D.O II-A-UNAM)**

**[346] Spheres of Production of the Lapidary Objects at the Sacred Precinct of Tenochtitlan: The Legitimacy and Extent of the Power of the Aztec Empire**

In the Great Temple and the surrounding structures at the Sacred Precinct of Mexico Tenochtitlan, the archaeologists recovered thousands of lapidary objects devoted to the religious cult of the Mexica society. Great quantities of them were considered foreign productions or relics related with certain Mesoamerican styles and traditions. In this research we will show that the technological analysis, using Experimental Archaeology and the characterization of the manufacturing traces with SEM, allowed us to identify three spheres of production inside the Sacred Precinct. Based on these results, we discuss the existence of a local style and its differences with the other lapidary traditions detected. The former was employed for reinforce the status and legitimacy of the Tenochcan elites, while the latter the extent of the power of the Aztec Empire.

**Solís Ciriaico, Reyna Beatriz [217]** see Valtierra Vega, Daniel

**Solleiro, Elizabeth [141]** see Ibarra, Georgina

**Solometo, Julie (James Madison University)**

**[303] Painting as Process: The Context of Mural Production in the Pueblan Southwest**

Murals have played a role in Pueblo religious practice since the A.D. 900s. Mural painting seems to have reached its zenith in the late 1300s to 1600s when richly detailed scenes of anthropomorphs, animals, and objects were produced at multiple sites in the American Southwest, providing glimpses of a complex ritual system. While scholars have traditionally approached these wall paintings from a motif-centered perspective, ethnographic observations of 19th and early 20th century mural painting permit a contextual analysis. In this paper, I reconstruct the ritual role and significance of Pueblo
mural painting in the historic era and suggest parallels in form and function with the precolumbian works. In particular, I examine the significance of sequences of multiple paintings and their relevance to understanding ceremonial organization in the 15th and 16th centuries.

Somerville, Andrew [32] see Fauvelle, Mikael

Somerville, Andrew (University of California, San Diego) and Margaret Schoeninger (University of California, San Diego) [110] Leporids and Landscapes: Stable Isotope Ratios of Rabbit and Hare Bones Reflect Local Environmental Conditions at Modern and Archaeological Sites

This study investigates the utility of stable isotope analysis (δ13C apatite, δ18O apatite, δ13C collagen and δ15N collagen) of leporid (rabbit and hare) bones to monitor the environmental conditions in which the animals lived. Since leporids were one of the most commonly consumed vertebrates in the prehispanic New World, their skeletal remains are frequently found at archaeological sites. The relatively small home ranges and short lifespans of leporids, moreover, make them an ideal species to monitor temporal changes in local environmental conditions. Here we present the preliminary results of stable isotope analysis of 145 modern specimens representing multiple environmental zones from across the United States and Mexico. Strong correlations between local environmental characteristics (i.e., mean annual precipitation, grass coverage, and ecosystem type) and bone isotope values indicate the utility of using leporid bones in environmental research. These baseline data are compared with archaeological leporid isotope values (N=320) from four archaeological sites (Teotihuacan, La Quemada, La Ferreria, and Pueblo Grande) in different ecological regions, demonstrating the applicability of such analyses.

Sonderman, Elanor (Texas A&M University) [27] Addressing the Curation Crisis through Research in University Legacy Collections

Despite their critical importance, the care and management of archaeological collections has not always been at the forefront of the discipline’s overall methodology or federal and state regulations that are intended to mitigate harm to those resources. A seminal paper by Marquardt et al. (1982) argued for the existence of a crisis in the curation of archaeological collections. Marquardt, et al. (1982) as well as Childs (1995, 2003) and Sonderman (1996) highlight the ethical responsibility to both the public and the archaeological profession to properly curate collections so their future research potential can be realized. My previous experience working with collections at the University of Delaware and more recently at Texas A&M University and the University of Texas has demonstrated that many universities are behind state and federal collections repositories on the collections management curve. Universities frequently house the largest collections in their respective states, but few urge their graduate and undergraduate students to pursue research with these collections. In pursuit of research opportunities in legacy collections, particularly within the Texas River Basin surveys, I have encountered a set of challenges that underscore the importance of proper documentation and collections access.

Sonnemann, Till (Leiden University), Menno Hoogland (Leiden University), Corinne L. Hofman (Leiden University), Eduardo Herrera Malatesta (Leiden University) and Jorge Ulloa Hung (Instituto Tecnológico de Santo Domingo) [199] Amerindian Archaeological Site DEM Construction and Analysis from UAV Flights

The archaeological footprint of Caribbean precolumbian settlements is often subtle; limited to surface scatter of shell, lithic and ceramic material. In the northern Dominican Republic, slight differences in topography have been identified as additional evidence for Amerindian habitation sites. Circular platforms from 7 to 10 meters in diameter were dug into the hill slope and levelled to form the base of round houses, as shown in recent excavations by the Nexus1492 project. The terraced settlements on the flanks of hills provided inter-visibility between villages, and the opportunity to observe the sea, but were located away from the main food source, fish and molluscs, and even fresh water. In combination with terrestrial surveys, aerial mapping of the site complements our understanding of configuration and extent of this settlement type in its environment. Improved usability and price drop
of unmanned aerial vehicles and easy use of photogrammetric software provides the opportunity to record archaeological features. Produced from vertical and oblique aerial photos, the created DEMs highlight the small topographic changes even beneath low canopy. The result provides the possibility to extract contours, shading, small topography changes, and its implementation in a GIS environment and coarser DEMs for regional aspect analysis.

Sonnenburg, Elizabeth [192] see O'Shea, John

Sonnenburg, Elizabeth (University of Michigan Museum of Anthropological Archaeology), John O'Shea (University of Michigan Museum of Anthropological Archaeology) and Ashley Lemke (University of Michigan Museum of Anthropological Archaeology)


Understanding of early Holocene hunter-gatherer archaeological sites relies heavily on paleoenvironmental data, as many of these sites are ephemeral and have little archaeological visibility on the landscape. In rare cases, such as on the Alpena-Amberley Ridge in Lake Huron, highly visible hunting structures are preserved which offer a unique insight into early hunter-gatherer lifeways, while targeted sediment sample collection provides high-resolution paleoenvironmental information. Since 2011, over 200 sediment samples have been collected by divers and ponar sampler on the Alpena-Amberley Ridge from areas with and without cultural features. These samples have undergone particle size analysis, loss on ignition, microdebitage and testate amoebae analysis. Testate amoebae analysis shows that the area was a patchwork of small microenvironments of boggy ponds, larger inland lakes and forested swamp. Both testate amoebae and sedimentary also point to localized flooding in some areas of the Ridge. The study of this unique archaeological landscape provides a picture of the paleoenvironment while contributing to the understanding of how prehistoric peoples may have utilized the landscape for the hunting of large game.

Sorensen, Kathryn

[38] Chair

Sorensen, Kathy [38] see Mathews, Jennifer

Soressi, Marie [190] see Dibble, Harold

Sorotou, Aphrodite (University of Glasgow)

[14] Current Approaches to Landscape Characterization as Tools for the Understanding of Highlands-Lowlands Interactions

In the European Landscape Convention ‘landscape’ means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. This view approaches landscape as an integrated and integrating concept, requiring a holistic approach to the investigation, protection, management, and planning of space, consistent with the objective of sustainable development. Landscapes are dynamic socio-ecological systems emerging from long-term historical development of human societies in dialogue with constraints and opportunities presented by their surrounding topography and environment as they change through time. Following this approach, the proposed paper will outline potential strategies and tools for the understanding of diachronic lowlands-highlands interactions in an inter-disciplinary manner through the prism of a landscape perspective. It will draw on examples from a variety of European contexts and will try to respond to major challenges of landscape change as examples of the diachronic interaction of the societies in lowlands with the ones living in mountainous areas.

[14] Chair

Sorrell, Danny [48] see Purcell, David
Sosa, Danny [32] see Des Lauriers, Matthew

Sosna, Daniel (University of West Bohemia, Czech Republic), Lenka Brunclikova (University of West Bohemia, Czech Republic) and Tomas Urban (University of West Bohemia, Czech Republic)

[321] **Too Loud a Solitude: Landfills in the Landscape**
In this paper, we examine the role of landfills in the construction of landscape. Landfills represent ambiguous spaces where material remains of human action are disposed and forgotten. They tend to be hidden from the view of persons passing by and only those who go astray might encounter these blind spots on the map. Yet, landfills are well known to the professionals who plan and manage large amounts of waste to transform it into a new kind of assemblage that shapes landscape. In contrast to other parts of landscape, landfills show unprecedentedly stable growth. If we accept the view that landscape is materialized time, than landfills represent intriguing type of temporality converted to material form. In this paper, we use the combination of the phenomenological and garbological approaches to understand the spatiotemporal aspects of landfills, which are situated in different parts of West Bohemia (Czech Republic).

Soto, Martha

[298] **Feather Headdresses among the Offerings at Tenochtitlan’s Great Temple**
The excavations conducted during the seventh field season of the Templo Mayor Project have uncovered a large quantity of organic matter, thus the conservation team has dedicated a large part of their efforts to the treatment of these rare materials. During the cleaning of these materials, feathers associated with heron bones were identified. In a level below them were found more remains of feathers belonging to the headdresses of Tlaloc masks. The degree of their deterioration required us to clean and examine them under a stereoscopic microscope, which revealed two different types of feathers: white and iridescent green. This coincides with some iconographic representations where the headdresses of rain gods are decorated with heron and quetzal feathers. This kind of discovery allows us to answer some of the questions about the meaning of Mexico offerings.

Soto, Martha [298] see Matadamas Gómora, Diego

South, Katherine (Southern Illinois University Carbondale)

[219] **Conceptualizing Early Pottery Value in the Petén Lakes of Guatemala**
Research projects focused on the Middle Preclassic period (1000-350 B.C.) in the Maya lowlands continue to enhance our understanding of the social, economic, and political lives of early Maya people. The emergence of status differentiation during this time is recognized through different components of the archaeological record, including the presence of prestige goods. While exotic goods such as jade, marine shell, and pyrite mirrors are typically recognized as indicators of social status, the role of pottery within this framework is more nebulous than it is during later periods. How pottery was used and valued during this time drives the current study. Incorporating both production attributes and contextual deposition of Middle Preclassic pottery provides several inroads for a better understanding of how pottery began its trajectory as a prestige good in Maya culture. Using pottery excavated at Nixtun-Ch’ich’ in addition to other sites around the Petén Lakes, the concept of pottery value and the process of valuation are considered through multiple lines of data related to production and use. Results from this research advance our understanding of pottery economics and provide a baseline for discussing how pottery developed as a prestige good in Maya culture.

Sparks, Shane [7] see Elder, James

Sparks, Shane (ICF International), Elder James Tait (ICF International), Daniel Stratten (ICF International), Grant Novak (ICF International) and Crilly Ritz (Snohomish County,
ABSTRACTS OF THE SAA 80TH ANNUAL MEETING

Washington - Public Works Department)

[358] Using LiDAR and Relative Elevation Modeling (REM) to Identify and Analyze Archaeologically Sensitive Alluvial Landforms

Alluvial landforms are highly sensitive areas with the potential to contain both surface exposed and buried archaeological deposits, but systematic analysis and identification of these landforms has proved problematic in the past. Although large alluvial terraces can be identified visually on topographic maps, with high resolution LiDAR, and with Digital Elevation Models, smaller, subtler terraces, and other complex alluvial landforms can be problematic due to stream gradient issues and resulting elevation differences along a stream alignment. On a recent project on the Lower Stillaguamish River in western Washington, we employed a new restoration and habitat modeling tool, relative elevation modeling (REM), to eliminate the gradient issue and enhance terrace rises through LiDAR slope analysis. The results have provided pronounced and enhanced visibility of subtle features and show promise for providing adequate data to assign relative dating for sites associated with different terrace elevations on the same watercourse.

Spaulding, Britta (University at Buffalo)

[63] The Redneck vs. The Humble Farmer: How Popular Imagination Influences Studies on Rural Identity

Rural forms of life and their material remains are rich sources of information for archaeologists on what was the largest economic demographic in the Western world until around 1900. Distressingly, influences from popular imagination and culture, with their many simplistic notions about the rural individual as either an idiotic bumpkin or a noble, humble tiller of the soil, continue to plague interest in, and conclusions about, rural remains and identity. Historical archaeologists have to contend with the problematic opinions of wealthier landlords or “city folk” in contemporaneous documentation, but they also must continue to confront how modern culture has influenced views on seeing rural people and communities. As development continues in these areas, we will lose the variety of rural material remains, whether they are those of a single farmstead or home, or of a larger village or community. There has been some improvement in preservation and restoration, but more is needed for education and heritage. Accepting the real variety of identities in rural areas—and the need therein to acknowledge race, class, and gender as attendant issues—is the first step towards more nuanced analyses, as well as representing the material there as valuable for continued archaeological research.

Speakman, Robert [9] see Hunt, Alice

Speer, Charles (Texas State University)

[185] A Comparison of the Effectiveness of Instrumental Techniques at Differentiating Outcrops of Edwards Plateau Chert at the Hyper-Local Scale

Portable X-ray Fluorescence (pXRF) has become a common tool in compositional studies of archaeological materials due to its quick analytical time and ever-increasing capability with new models and technology. Additionally, pXRF is also beginning to see widespread use for sourcing archaeological materials. This study compares pXRF with two other widely accepted analytical techniques, Laser Ablation – Inductively Coupled Plasma – Mass Spectrometry (LA-ICP-MS) and Instrument Neutron Activation Analysis (INAA). These techniques are compared and contrasted in order to determine the accuracy and precision of using pXRF to determine the composition of Edwards Plateau chert. As a case study, three unique chert outcrops only several hundred meters apart (hyper-local) at the Gault site (41BL323) in central Texas are tested with each of the techniques. The qualitative/quantitative differences of each instrumental technique on Edwards Plateau chert is assessed using the geochemical data retrieved. The geochemical data is evaluated with multivariate statistics in order to determine which instrumental technique is most effective at distinguishing between these three unique Edwards Plateau chert outcrops. This study also seeks to determine if any of the instrumental techniques can effectively separate out geochemical differences of Edwards Plateau chert outcrops at the hyper-local scale.

[185] Chair
Architectural Ambivalence: An Interpretation of the Nohoch Tunich Bedrock Outcrop Complex, Pacbitun, Belize

Archaeological investigations of the Nohoch Tunich Bedrock Outcrop Complex (NTC) located near the prehispanic Maya site of Pacbitun, Belize, revealed a karst landscape that was heavily, yet subtly modified during the Terminal Classic period (A.D. 700-900). Analysis of construction techniques reveal that the modifications were made to conform to a purposefully crude aesthetic aimed at maintaining and enhancing the wilderness essence of the outcrop, while transforming it into a cultural space. Maya perceptions of the wilderness inform this discussion. Rather than being evil, morally corrupt, and dangerous as is commonly asserted, recent studies indicate that the wilderness was also considered the source of beauty, pleasure, and paradise. Comparisons to similar landscape modifications and use by the Aztec suggest that the changes made to the NTC may be the result of transforming that outcrop into a pleasure park-like place, although on a less grandiose scale. Rather than conflicting with the position of the current cave archaeology paradigm, application of this Aztec pleasure park model allows for maintaining that karst features were used for ritual purposes, but that also those spaces could have been parts of larger conceptual places, particularly when clustered close together like those of the NTC.

Scaling the Huaca: Constructing Late Moche Identity through Architectonic Re-presentation of Place at Huaca Colorada, Jequetepeque Valley, Peru

Following Descola’s “modes of identification”, Andean ontology has recently been suggested to represent a combination of animism and analogism that establishes strong intersubjective relationships wherein humans, objects and places are intrinsically linked while simultaneously creating a highly hierarchical scale based on the properties of each autonomous entity. In order to operationalize this animistic-analogical ontology, mimetic processes of imitation and transformation serve to link and effectively collapse these asymmetric relationships. Through a consideration of how ontologies of spatial scale and the mimetic properties of miniaturization have been manifested among the ancient Moche of the Jequetepeque Valley, Peru this paper will present a set of material symbols that served to construct individual and community identities. Specifically, the role of portable maquetas or miniature architectural models of ceremonial edifices as they relate to full-scale architecture found at Huaca Colorada will serve as the focus of my discussion. This examination will analyze these particular examples of scalar transformation not merely as acts of representation but as the mimetic distillation of temporal, spatial and material aspects of modes of being in the world, and how renovation sequences of sacred architecture were simultaneous acts of place-making and identity construction.

Columns and Ideology-Building in the Northern Maya Lowlands

Ancient Maya builders working in the Northern Lowlands often introduced and distributed columns throughout the architectural volumes they created in a way that distinguished them from their southern neighbors. While northern column usage served pragmatic needs by being load-bearing and facilitating entrance and egress, we explore the possibility that selection and placement of structural supports also seems to have functioned in a highly ideological fashion. We will use case studies from sites such as El Meco, San Gervasio, Santa Rosa Xtampak, Sayil and others to examine similarities and differences in the ways architects used this building form across and within sub-regions. In doing so, we will particularly focus on identifying column types based on shape, size, proportionality, and surface treatment. We will also analyze the ways in which columns are
distributed vertically in building facades and aligned horizontally when found in single story structures. As we will demonstrate, such usage is often idiosyncratic, seeming to implicate specific viewing and activity patterns that vary from center to center, a pattern we hope to further codify through analysis.

Spencer, Susan [265] see Okray, Jillian

Speth, John D. [396] see Morin, Eugene

Spiellmann, Katherine (Arizona State University)
[69] Moderator
[69] Discussant

Spiros, Micayla [124] see Card, Jeb

Spivak, Deborah [31] see Whalen, Verity

Sportman, Sarah (Archaeological and Historical Services, Inc.)
[61] “Unsavory the Qualities of that Soup”: Diet and Foodways at Old New-Gate Prison and Copper Mine, East Granby, Connecticut, 1790-1819

The Connecticut State Historic Preservation Office contracted AHS, Inc. to conduct a multi-phase archaeological survey at the National Historic Landmark Old New-Gate Prison and Copper Mine in East Granby, Connecticut, prior to planned repairs to the ca. 1790 prison guardhouse. Beginning in 1773, the Old New-Gate copper mine was used as a prison and criminals, Tories, and POWs were incarcerated there during the Revolutionary War. In 1790 Old New-Gate became the first state prison in the U.S. and operated in that capacity until 1827. Prisoners initially worked the mines, although a nailery and other industries were later established. Healthy prisoners were lodged underground in the tunnels and older and infirm inmates slept on the ground floor of the guardhouse. Excavations, conducted around the guardhouse in 2013, revealed stratified, state prison-era deposits dated to 1790-1819 and containing nail-manufacturing debris, architectural items, domestic artifacts, and over 1300 well-preserved animal bones. This work includes an analysis of the faunal remains, which represent the vestiges of meals prepared and consumed by inmates and guards. The faunal evidence, contextualized through primary accounts of prisoners and overseers’ reports, provides insight into the dietary conditions and foodways at one of the nation’s oldest prisons.

Spriggs, Matthew [77] see Bedford, Stuart

Springate, Megan (University of Maryland)
[269] Criterion Q: Archaeology, Context, and the National Park Service’s LGBTQ Heritage Initiative

The National Park Service (NPS) is undertaking a Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Heritage Initiative. Purposes include increasing the number of LGBTQ historic and heritage properties listed on the National Register of Historic Places (NRHP) and as National Historic Landmarks (NHL), as well as encouraging interpretation of LGBTQ history at sites managed by the NPS. The creation of an archaeological context facilitates the evaluation of properties under NRHP Criterion D and NHL Criterion 6 (properties that have yielded or may be likely to yield, information important in prehistory or history) — criteria that consider a properties’ archaeological potential. The archaeological context presented here was prepared as part of the LGBTQ Heritage Initiative, and speaks directly to evaluating archaeological properties for the NRHP and NHL.

[269] Chair

Springer, Alana [143] see Wienhold, Michelle
Sprovieri, Marina [412] see Lazzari, Marisa

Spurr, Kimberly [277] see Pilles, Peter

Spurr, Kimberly (Museum of Northern Arizona / Past Peoples Consulting) and Peter J. Pilles (Coconino National Forest)
[277] The Sinagua and the Western Pueblo Tradition: Perspectives from Bioarchaeology
Genetic and cultural relationships among ancient and historic populations in the American Southwest have long been of interest to archaeologists, and more recently to descendant communities. Documentation of more than 1500 human remains and 4000 associated funerary objects from US Forest Service land in anticipation of repatriation under NAGPRA provides abundant new information to address this topic. This poster discusses research using metric and nonmetric skeletal data and discrete skeletal traits to explore the origin and dispersal of Sinagua populations in central Arizona. Tracing the movement of populations through sites such as Nuvakwetaqa offers insight on the relationship of the Sinagua to later Western Pueblo populations, particularly in the Hopi region.

Stack, Adam (Harvard University), Sarah Martini (Harvard University) and Matt Liebmann (Harvard University)
[239] Using Surface Archaeology to Estimate Ancestral Jemez Population Dynamics, A.D. 1300-1700
Determining the population of ancestral Pueblo villages has beguiled inquisitive observers from the 16th century down to the present day. Spanish explorers and colonial settlers floated wildly variable population estimates upon their initial visits to Pueblo villages. Today archaeologists are no different, offering demographic estimates that often differ by orders of magnitude. This “population problem” plagues the Jemez region of northern New Mexico in particular. In this paper, we present the results of our recent attempts to estimate the populations of large ancestral Jemez villages using surface maps generated from UAV (drone) data, LiDAR, and intensive ceramic sampling. We begin from historically documented examples (Pueblo villages dating to the post-1680 period), deriving a formula to estimate total floor area based on extant surface remains. We then apply those estimates to the large Jemez pueblos of the Classic Period (A.D. 1300-1600) and the early historic (A.D. 1600-1700) era to derive maximum population estimates.

Stacy, Merisa [204] see New, Briana

Stafford, Thomas [250] see Gutierrez, Maria

Stahl, Ann (University of Victoria)
The Banda area of west central Ghana is a quintessential example of what Igor Kopytoff (1987) long-ago dubbed the Internal African Frontier—an ‘interstitial’ region between ‘established societies’ that is home to a dynamic composition of people, languages and practice forged by newcomers and autochthones alike. In presumed contrast with their ‘established’ neighbors, frontier societies are ones in which processes of improvisation and the negotiation of social boundaries seem more apparent. While the concept of frontier societies has proved influential in African archaeology, it is one for which archaeology’s taxonomic arsenal of bounded cultures and phases is ill-equipped to deal. Drawing on long-term archaeological investigations of frontier processes in the Banda area, I explore the salience of analytical approaches aimed at discerning the fluidity of social boundaries for both archaeological taxonomy and how the past is mobilized in the present.

Stahl, Peter (University of Victoria), Florencio Delgado (Universidad San Francisco de Quito) and Fernando Astudillo (Simon Fraser University)
[119] Historical Ecology and Archaeology on the Galápagos Islands
The poster introduces an interdisciplinary project recently initiated on San Cristóbal Island, the easternmost island of the Galápagos archipelago. Initially focusing on the 19th century plantation of Manuel J. Cobos, the project explores the nature and temporal depths of human involvement in ecological transformation, as novel or ‘emerging’ ecosystems, defined by their novelty, cultural origin, and subsequent endurance in the absence of humans, were developed within the context of what was to become an internationally renowned biological preserve. Through a partnership established between the University of Victoria, Universidad San Francisco de Quito, and Simon Fraser University, the project addresses a “Galápagos Paradox,” the central conservation dilemma facing the park today.

Stahlschmidt, Mareike (University of Tübingen) and David M Carballo (Department of Archaeology, Boston University)

[249] Employing Micromorphology at the Tlajinga District in Teotihuacan to Investigate Site Formation Processes and Household Activities

Recent excavations of the PATT (Proyecto Arqueológico Tlajinga, Teotihuacan) have explored two residential zones and the southern extension of the Street of the Dead in the Tlajinga district, located in the southern periphery of Teotihuacan. Excavations at the residential zones are directed at investigating neighborhood dynamics including social organization, craft specialization and domestic ritual. Excavation at the Street of the Dead are directed at evaluating the processes of urbanization at the periphery of the urban epicenter. As a complement to architectural and artifactual studies, micromorphological analyses and Fourier-Transform Infrared spectrometry have been employed on excavated sediments, which present powerful tools for the investigation of archaeological deposits. This geoarchaeological approach is aimed at answering the following questions: Is occupational specialization visible in the sediments? Is obsidian microdebitage present in the sediments, which would indicate in situ obsidian working? What kind of fire use is represented? What differences can be observed in the archaeological deposits of the residential compounds 17:S3E1 and 18:S3E1? What microscopic traces of activities and construction material and technology are preserved within the sediments? Was the Street of the Dead excavated into the bedrock-like, undurated substrate, known as tepetate? What is the infill history of the SOTD?

Stammers, Rhiannon (The Australian Archaeomagnetism Laboratory, La Trobe University, Australia), Andy Herries (The Australian Archaeomagnetism Laboratory, La Tro) and Nicola Stern (Dept. Archaeology, Environment and Community Plann)

[139] Testing the Greasy Luster: A Mass Gloss Analysis of Coarse Grained Silcrete from the Willandra Lakes World Heritage Area, South-Eastern Australia

The heat treatment of silcrete for lithic production has been identified as far back as 72,000 years ago, using a variety of scientific techniques. However, in most contexts simple visual assessment, notably the appearance of a lustrous red surface, is used to identify the use of heat treatment. Mass Gloss Analysis (MGA) is a quantitative, non-destructive method designed for measuring the increase in luster noted on heat-treated lithics. Initially developed to investigate microcrystalline silcretes in South Africa, these studies illustrated an increase in gloss on the interior surfaces of blanks heat-treated prior to lithic production. This study explores whether MGA is applicable to coarse-grained silcrete by analyzing lithics from the Chibnalwood Lake Beach Quarry, in the Willandra Lakes World Heritage area, south-eastern Australia. Actualistic and laboratory studies of silcrete from the Willandra Lakes region provide a comparison to the archaeological assemblage. The experimental material displayed an increase in gloss unit when heat treated compared to the control samples. This suggests that MGA is applicable to coarse-grained silcrete, although the increase was not as well defined as studies on microcrystalline material. Comparison between experimental samples and the Chibnalwood archaeological assemblage indicate that the assemblage was produced on non-heat treated blanks.

Stampanoni Bassi, Filippo [326] see Shock, Myrtle

Stanish, Charles [169] see Bongers, Jacob
Stanish, Charles (Cotsen Institute, UCLA)

[169]  *Conditional Cooperation and the Ritualized Economy of Paracas*

The Pampa de Carmen above the Chincha valley contains a series of Paracas period archaeological features including geoglyphs, ceremonial mounds, settlements and small stone structures. I discuss how these features integrate the pampa into a monumental ritual landscape focused on five major settlements. I interpret these features to be a means to attract people from outside the region to periodic market fairs held in the neutral chaupiyungas areas between highlands and coast. These fairs promoted sustained economic cooperation between these rich areas and were, in turn, the economic mainstay of the Paracas economy in Chincha.

Stansell, Ann (CSUN)

[27]  *Excavating the Collections: Redefining Archaeological Practice in the 21st Century through Utilizing Existing Assemblages*

The Northridge Archaeological Research Center (NARC), which began as a student club on the campus of San Fernando Valley State College in 1969, was involved in more than 800 cultural resource management projects throughout Southern California before falling inactive in 1996. Accessibility of the collections has been variable over the years. In recent years however, these legacy collections which are now housed at and administered by the Anthropological Research Institute at California State University Northridge (CSUN) in the Department of Anthropology, are becoming more accessible to students as graduate projects. This paper highlights the legacy collections in the holdings of CSUN’s Anthropological Research Institute and their future research potential.

[27]  *Chair*

Stanton, Travis [244] see Pagliaro, Jonathan

Stanton, Travis (University of California Riverside)

[344]  *Regional Maya Politics in the Late and Terminal Classic Northern Lowlands*

Linda Schele and David Freidel devoted a chapter of *Forest of Kings* to understanding the political relationships among Chichen Itza, Coba, and the Puuc cities during the Late and Terminal Classic periods. Much of their discussion was based on the iconography of Chichen Itza, although some was focused on the preliminary research that Freidel had initiated at Yaxuna by the time the book was published. In this paper I discuss more recent archaeological data from all three sites with a focus on Yaxuna. Current analyses indicate that there were several waves of outside influence after A.D. 600, but that the city of Yaxuna did not play an important role in the demise of Coba at the hands of the Itza.

[344]  *Chair*

Stapleton, Charles [66] see Stapleton, Maria

Stapleton, Maria (Northern Illinois University) and Charles Stapleton

[66]  *Persistence of Aztec Religious Belief Materialized in the Early Colonial Religious Architecture of the Central Mexican Highlands*

Late Classic conceptualizations of sacred space, cosmologies, calendrical systems, and religious symbols combined to form a powerful and enduring core of indigenous religious beliefs that persisted well into the Early Colonial period in the central highlands of Mexico. Indigenous builders and artisans reconstructed their temples, now Christian, within pre-existing Aztec sacred space, often following indigenous alignments of cosmological significance. The elaborate facades of these churches were sites for the public display of potent indigenous religious symbols and clear references to the Aztec ritual calendar and belief system. The materialization of prehispanic religious belief in the form of Early Colonial religious architecture was a widespread phenomenon that took hold in smaller rural religious spaces as well as those of larger urban centers. The authors' findings from in-situ research of such architecture in rural communities in the central Mexican highlands
provide persuasive evidence of the persistence of the materialization of Aztec religious belief in the Early Colonial religious architecture of the highlands of central Mexico.

Stark, Barbara (Arizona State Univ)
[194] Ceramic Emulation: Empires and Eminent Polities Seen from Afar
A systematic evaluation of emulation of powerful capitals using ceramic comparisons requires consideration of (1) degrees of similarity, (2) legacy traditions, and (3) depositional contexts and sample sizes. This analysis uses ceramics from the Mesoamerican Gulf lowlands on the west side of the Lower Papaloapan River in a comparison to ceramics from Teotihuacan during the Early Classic Period and from the Aztec Triple Alliance during the Late Postclassic Period. Replication, imitation, and adaptation of ceramic traits are assessed for different levels of analysis and according to categories of vessel function. The Late Postclassic case provides a better-known imperial context, while Teotihuacan expansion has more diverse and debated characteristics. Both ceramics linked to wealth and status and those in use by the general population are important for a systematic analysis.

Stark, Sören (Institute for the Study of the Ancient World/NYU)
[234] Territorial Barriers in Central Asia: Investigating the "Long Wall" of Bukhara (Uzbekistan)
Territorial barriers are a widespread phenomenon in many micro-regions of Western Central Asia where they specifically take the shape of large-scale oasis walls, surrounding the entirety or large parts of the agricultural hinterland of important urban centers vis-à-vis stretches of desert or desert-steppe in the region. Nonetheless, starting with their dating, our understanding of these sizable monuments is still very insufficient. The most monumental and best preserved one of these territorial barriers, the "long wall" of Bukhara--at least 250 miles long and complete with an impressive array of adjoining fortresses and watchtowers--is since 2011 subject to comprehensive investigations carried out in the framework of an American-Uzbek field project. The results of four seasons of extensive field surveys and excavations (the latter including substantial works at a border fortress and the citadel of a border town) allow, for the first time, substantiated conclusions regarding the chronology of the barrier and provide important new insights into questions related to the purpose(s) of Bukhara's "long wall" system in the context of political and economic dynamics in Sogdiana during the first millennium CE.

Stark, Miriam [349] see Carter, Alison

Stark, Chelsea [30] see Hoffman, Brian

Starkovich, Britt [135] see Conard, Nicholas

Starkovich, Britt (University of Tübingen)
[396] Systematic Butchery of Small Game at Kephalarlari Cave (Peloponnese, Greece)
An ongoing faunal analysis at Kephalarlari Cave documents a remarkable standardization in the butchery of small game animals during the Upper Paleolithic. The site spans several phases of occupation, including small Middle Paleolithic, early Upper Paleolithic, and Aurignacian components, but the majority of the materials are from the post-Aurignacian Upper Paleolithic, Epigravettian, and late Upper Paleolithic (possibly Mesolithic) periods. Diverse ungulate taxa are found at the site, but the faunal remains are heavily dominated by small game, particularly hares, partridges, and fish. This abundance of small game is similar to later Upper Paleolithic layers at nearby Klissoura Cave 1. The representation of partridge and hare body parts is biased toward meat-rich elements, suggesting that these taxa were skinned outside of the cave, possibly at a spring directly adjacent to the site. A particularly striking feature in the assemblage is cut marks on the distal tibiotarsus of at least 40 individual partridges, which indicates standardized skinning of these birds across multiple late Upper Paleolithic layers. This might reflect the practicalities of removing the skin and feathers from the body before consumption, as well as the use of feathers for decoration.
Starr, Isabel (Wellesley College), James McGrath (University of Iowa) and Will Russell (Arizona State University)

**[324] Depictions of Human Facial Decoration on Mimbres Pottery as an Indication of Social Affiliation**

The Mimbres tradition is known for its intricate geometric and figurative pottery designs. Analysis of ceramic iconography found on Mimbres pottery allows archaeologists to hypothesize about Mimbres life and social structure. Using data from provenienced, figurative vessels documented in the Mimbres Pottery Images Digital Database (MimPIDD), we investigate the possible relationships between human facial decoration and social identity. Our analysis considers facial decoration in relation to depictions of anatomical sex, inferred gender, physical activities, interpersonal interactions, and depositional contexts.

Stauffer, Grant [8] see Nowak, Jesse

Stauffer, John and Kent Reilly (Texas State University)

**[182] In the Fields of the Thunder Lord, Playing the Apalachee Ball Game: Archaeological and Ideological Evidence for Its Antiquity**

This presentation examines the archaeology, folklore, and iconography attesting to the antiquity of the Apalachee Ball Game. We will examine the “Apalachee Ball Game Myth” as recorded by Friar Juan Paina in 1670 as well as several Mississippian carved shell objects (ca. A.D. 1350, Craig Mound, Spiro, Okla.) that thematically express episodes in this myth. From the evidence gleaned from these several sources we can demonstrate that the ideology underlying the Apalachees’ Ball Game dates from at least the Middle Mississippian Period (1150—1350 A.D.).

Stavish, Patricia [300] see Smith, Lisa

Stech, Edward J. [274] see Sluka, Victoria

Steele, Teresa [165] see Brandl, Kathleen

Steele, Laura (Eastern New Mexico University)

**[212] Interpretations of the Use of Avian and Mammalian Fauna at Sapa’owingeh (LA 306)**

Ethnographic reports of ancestral Puebloan peoples from the twentieth century suggested a food taboo for turkeys, except in rare cases. In contrast, some archaeological interpretations involving sites that predate A.D. 1300 have concluded that turkeys were an integral part of the Puebloan diet. From a modern, secular perspective, archaeologists often assume that there is a distinct separation between the use of animals for ritual and dietary purposes. This paper argues that it is impossible to separate the prehistoric uses of animals for ritual or ceremonial practices from their use for dietary consumption. By taking a random stratified sample from midden, room, and kiva contexts from the ancestral Tewa site Sapa’owingeh excavated by Florence Hawley Ellis from 1963-1969, the significance of turkey use trends through time is determined with comparative indices. A careful examination of relationships among avian and mammalian fauna and humans during the Classic period contributes to our understanding of the integral, complex roles animals played in northern Rio Grande puebloan life.

Steele, Teresa E. [53] see Martisius, Naomi L.

Steelman, Karen (University of Central Arkansas), Victoria Muñoz, Jeremy Freeman and Carolyn Boyd


Exploring new applications of portable X-ray fluorescence spectroscopy to the study of rock art, we report the determination of paint layer stratigraphy based upon measured elemental levels. In Lower
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Pecos rock art, we were able to discern when red and yellow paints superimpose black paints based on elevated levels of manganese. This ability to see underneath paint layers with “X-ray vision” shows great promise in answering stratigraphic ambiguities, complimenting Dino-Lite digital microscopy. In addition, we collected Munsell color designations for each pXRF analysis spot so that we could compare major elemental levels with pigment color and value. We were also able to confirm suspected gunshot damage at a rock art site. These results highlight the advantages of this non-destructive technique.

Steere, Benjamin (University of West Georgia)
[26] The View from One Thousand Houses: A Macro-Regional Approach to Household Archaeology in the Southeastern United States

In this paper I reflect on Steve Kowalewski’s influence on my research on houses and households in the native Southeast. In the early days of my graduate training, Steve encouraged me to move away from a single-site focus and instead think about household archaeology as a broadly comparative anthropological enterprise undertaken at a macro-regional scale. It was a good idea. To meet Steve’s challenge, I constructed a database that catalogs the architectural features of 1258 structures from 65 sites in the Southern Appalachian region and surrounding areas. From this large sample of houses I identified and analyzed broad spatial and temporal patterns of variation in domestic architecture, including changes in the size and spacing of houses, changes in architectural investment, and a secular trend toward the increasing segmentation of houses. Using a theoretical framework developed from household archaeology and anthropology, I argue that certain aspects of this architectural variation can be explained by changes in household economics and household composition, symbolic behavior, status differentiation, and settlement patterning. More generally, I propose that large-scale patterns of diachronic and synchronic variation in domestic architecture are best explained by changes in social organization.

Steffen, Anastasia [128] see Renteria, Rebecca

Steffen, Anastasia (Valles Caldera National Preserve)
[239] ArcBurn: Measuring Fire Vulnerability in Southwestern Landscapes

How can the archaeological record be used as a chronicle of prehistoric forest fires? How do cultural resource managers today evaluate the potential impacts of wildland fires? The “ArcBurn” project, funded by the Joint Fire Science Program, is a collaboration among archaeologists, fire scientists, forest ecologists, and fire managers. This project was created to develop hard data on fire effects to ensure that the best science is effectively and appropriately used to guide management plans, and that these plans are defensible and reasonable under dynamic environmental conditions. We are using laboratory and field experimentation to quantify the fire dose that causes unwanted damage to three kinds of artifacts: pottery, obsidian, and architectural stones. We also measure indirect fire effects by assessing post-fire erosion. The context for this work is the Jemez Mountains of northern New Mexico, a fire-prone landscape where wildfires in the last three decades have dramatically increased in size and severity, resulting in profound impacts to this rich and previously stable archaeological record. We review the goals for this project, provide our preliminary results, and discuss the increasing relevance of archaeological perspectives in comprehending and responding to climate change.

[159] Discussant

Steidl, Catherine [385] see Gosner, Linda

Stein, Martin (Bureau of Land Management, Carlsbad Field Office)

The research program described in this paper is providing much needed new information for a portion of southeastern New Mexico that was previously understudied. The program is funded by an innovative approach to Section 106 compliance which trades redundant survey information for
monetary contributions to a dedicated research account. The Permian Basin Programmatic Agreement (PA) has been in effect for six years. The purpose of the PA (formerly the Permian Basin Memorandum of Agreement or MOA) is “...to implement a creative, directed program to resolve adverse effects and, in particular, the cumulative and indirect effects of full-field oil and gas development and other industrial-related development undertakings in southeastern New Mexico and result in better decisions affecting the management of historic properties in the Permian Basin.” This paper briefly outlines the state of our knowledge of the prehistory and history of southeastern NM before implementation of the PA, describes the “nuts and bolts” of the operation of the PA, and details the contributions made to date by projects funded through the program.

Steinbrenner, Larry (Red Deer College)

[246] The Mystery of Managua Polychrome Part II

This presentation continues the discussion of Managua Polychrome I began in a paper presented at the 2014 SAA general meeting. Part I of this study focused on early attempts to describe and define Managua Polychrome, a distinctive Late Postclassic ceramic type characteristically found in the Managua-Masaya region of Pacific Nicaragua that has been largely neglected by archaeologists working in Greater Nicoya, and discussed the connections between the type and Nimbalari Trichrome, a ceramic type associated with Chiapa de Corzo. Part II will focus on the relationships between these types and near-identical ceramic types found in supposed Mesoamerican enclaves in countries lying between Nicaragua and Chiapas (including Honduras and El Salvador). This paper will discuss whether these types can be used to delineate some of the trade routes that connected Lower Central America to Mesoamerica—a topic pertinent to ongoing efforts to understand the arrival of Mesoamerican peoples in Greater Nicoya during the Postclassic Period.

[246] Chair

Steinbruchel, Amber Joliz (University of Hawaii at Manoa), Aaron Chang (University of Hawaii at Manoa), John Kribaum (University of Florida) and Adam Lauer (University of Hawaii at Manoa)

[205] A Bioarchaeological Investigation of an Explosive Impacted Skeleton from Ifugao, Philippines Cordillera

The Ifugao Archaeology Project (IAP) investigates the sparse prehistoric and colonial archaeological record of the Philippine Cordillera. The biological anthropology of the area is almost completely unknown. A single adult human skeleton has been recovered from primary archaeological context in the Ifugao area. The paucity of skeletal remains is largely due to cultural practices that include the processing and collection of juvenile and adult skeletons for ritual storage. One adult human skeleton was found by farmers after the explosive removal of a boulder. Despite the fragmentation and missing elements caused by the explosion, as the only skeleton recovered from primary context in the area, this individual provides information on health and diet in Ifugao. The skeleton represents a male in relatively good health. There are low levels of osteoarthritis in the joints and vertebra, and a possible infection in the tibia. The skeleton has robust muscle attachments, especially in the legs. Dental and oral health information suggests that the diet was low in cariogenic foods, but periodontal disease may have been present. Isotope analysis gives information on the diet and geographic history of the individual and, together with dating information, can help to contextualize the individual in time and space.

Steinhart, Zara [407] see De Boer, Deanna

Stelle, Lenville (Illinois State Archaeological Survey)

[353] Chair

Stelson, Laura (German Archaeological institute/ University of Bonn)

The term “altar” is a western concept which has been used in the study of the ancient Maya to describe a plethora of carved stone artifacts, ranging from small pedestals, to carved boulders, to three-dimensional, multi-component, carved sculptures. In many cases, it seems unlikely that the only purpose of these altars was to serve as a place to deposit sacrifices. After spending two field seasons cataloguing the carved stone altars at Copán, Honduras, the chronological trends in shape and style became readily apparent amongst the 78+ examples at the site, especially amongst the pieces dating to the Late Classic period. My research goal is to answer questions such as whether the changes in the form and style of these altars across time and space might reflect a change in their function, or if these differences in style correlate to the positioning of certain altar types in certain locations such as in front of a stela or inside of a structure. The MayaArch3D geo-spatial analysis tool, which allows complexly structured data to be queried based on both geographical and chronological parameters, allows me to apply these new questions, and a new methodological approach to a long-existing set of data.

Stemp, James [376] see Sullivan, Kelsey

Stenton, Douglas [185] see ten Bruggencate, Rachel

Stephens, Jay (School of Anthropology, University of Arizona) and Pam Vandiver (Department of Materials Science and Engineering, U)

Technical Analysis and Replication of Corinthian Polychrome Slips, 8th - 6th Centuries B.C.E.

Polychrome slipped and decorated pottery from Corinth, Greece, developed over two centuries from monochrome, dark brown slips and washes on a calcareous yellow clay body to a wide range of decorative techniques. Once significant experimentation with color variability began, five colors were produced. Some slip colors involve multiple-step processing to control glass content and degree of sintering; the control of particle size to produce variable roughness and a matte or semi-matt or glossy appearance. Others involve reprocessing of materials from another craft specialty. Considerable evidence supports nearly continuous development and engineering of the ceramic slips, although no data support the improvement in composition or processing of the ceramic bodies. We present the results of study of 29 sherds with 57 examples of Corinthian polychrome slips, measuring 10 to 35 microns in thickness, that were collected by Marie Farnsworth in the late 1950s and 1960s from Greek archaeological sites. Black, red, white, wine red (or purple) and overlying, matte banded slips were studied by optical microscopy, petrographic and scanning-electron microscopy with semi-quantative energy dispersive x-ray analysis, as well as wavelength-dispersive electron microprobe (EPMA) elemental mapping and analysis. Results from compositional analysis were then used to replicate the five slip colors.

Stephens Reed, Lori [324] see Trowbridge, Meaghan

Stephenson, Keith (USC Institute of Archaeology and Anthropology) and Karen Smith (South Carolina Institute of Archaeology and Anthropology)

A Chronology of Complicated Stamping in the Lower Savannah River Valley

The presence of Middle Woodland period complicated stamped pottery in the lower Savannah River valley would represent the earliest examples of this type of surface treatment in the South Appalachian region, if the dating were certain. Here, we attempt to construct a chronology of complicated stamping for the lower Savannah River valley by reference to sites and assemblages for which age can be inferred by independent means. We simultaneously attempt an attribute-based analysis of complicated stamped pottery in the region to more fully understand its developmental history from the Middle Woodland onward.

Steponaitis, Vincas (UNC-Chapel Hill), Megan Kassabaum (University of Pennsylvania) and John O’Hear (University of Mississippi)

The Uses of Platform-Mound Summits at a Coles Creek Site in Southwest Mississippi
Excavations at Feltus (Jefferson County, Mississippi) have yielded considerable evidence on how the summits of platform mounds constructed during the middle Coles Creek period (A.D. 900-1100) were used. These summits showed multiple veneers of black and yellow sediments, portions of which were heavily burned. Also present were small pits that may have been votive deposits, as well as large, bathtub-shaped cooking pits. The summits were kept clean, but dense middens accumulated on their flanks. Charred posts may or may not indicate the presence of roofed buildings. All in all, these summits reveal very complex histories of ritual use.

Sterling, Sarah, Ian Hutchinson (Simon Fraser University (retired)) and Jennie Shaw (Salix Archaeological Services)

[168] Geochronology of the Tse-whit-zen Project
The use of high precision dates provides a chronological framework for reconstructing environmental conditions at the Tse-whit-zen site (45CA523) in Washington state. The geochronology of the site is derived from high-precision radiocarbon dates taken from finely excavated deposits, with ages spanning the time period from ca. 2000 BP to contact. We have added 36 high precision AMS dates from short lived organic material, recovered from intact contexts, to the 52 original dates reported in 2006. Combined, these data allow development of the temporal sequence of beach building events in the sand deposits underlying the site, as well as the sequence of cultural deposits of long and short duration over the course of the site’s occupation. Higher and lower frequencies of C14 ages over time serve as proxy means for estimating relative changes in population during the site’s occupation; these changes in population are partially driven by environmental conditions. Bayesian analysis of vertical sequences of dates reveal periods of diminished site activity that correspond to known regional seismic events. The sequence of beach building also reveals a period of lowered seas relative to land level after ca 2000 BP, typical of generally drier climatic conditions.

Sterling, Sarah [168] see Dick, Kristina

Sterling, Kathleen (Binghamton University)

[395] The Concept of “Domesticity” in Magdalenian Life
A number of recent publications about Magdalenian life have used terms such as “domestic” or “household” and their derivations to differentiate between different types of sites or tools, and perhaps also to underscore the fact that archaeology is about people, not just materials. This language also reflects the influence household archaeology has had in expanding studies of sedentary societies. It is not clear, however, that a distinction between domestic and non-domestic activities is appropriate for mobile societies. “Domestic” is typically opposed to “hunting,” reinforcing old dichotomies that imply others such as “public–private” and “man–woman.” Does “domesticity” add to interpretations of Magdalenian archaeology, or is it a modern conception that over-simplifies aspects of the Magdalenian record?

Stern, Nicola [139] see Stammers, Rhiannon

Stern, Richard (NORTHERN LAND USE RESEARCH ALASKA)

[302] Recent NLURA Research in Northern Alaska
Northern Land Use Research Alaska, LLC (NLURA) investigated 20 locations in northern Alaska during the last 5 years. Research included survey and excavation for oil and gas development projects, pipelines, roads, community infrastructure, mining, and transportation. This paper provides an overview of the work accomplished, highlighting significant discoveries made and contributions of CRM to our understanding of northern Alaska prehistory and history.

Sterner-Miller, Katherine (University of Wisconsin-Milwaukee), Robert Jeske (University of Wisconsin-Milwaukee) and Robert Ahlrichs (University of Wisconsin-Milwaukee)

[139] Understanding Oneota Stone Tool Functions: A Case Study of Precision and Accuracy in Use-Wear Analysis
A combination of assemblage analysis, microwear analysis and blood residue analysis allows us to build a new understanding of the role of lithic material in the technological economy of Oneota groups in eastern Wisconsin. One foundation of this approach is accurate and replicable recognition of use-wear patterns. Blind tests have been an essential component of use-wear research since the 1970s. In this paper, we describe a study of 100 experimentally made and used chipped stone tools. Made from two types of chert that were commonly used by occupants of Oneota sites near Lake Koshkonong, Wisconsin, the tools are used in a wide range of activities. Three analysts assess each tool using low and high power microscopy, and the degree of agreement on use identifications is ascertained. This study provides a large sample to measure the analysts’ accuracy and precision in recognizing use-wear on stone tools from a specific archaeological context.

Stevanovic, Mirjana

[297] Ruth's Archaeology

My contribution to this session will be a personal account of a long-term professional relationship with Ruth as a student and colleague. Ruth and I began the collaboration in the Former Yugoslavia, a country that ceased to exist, and continued with projects in Israel, Bulgaria, and Turkey. Together we were learning the local archaeological practices and were developing our own. Each of us brought something to this process of learning: she - her anthropological interpretation of the material culture, and I - the experience and method of excavating it. Also, we shared many research interests, such as household archaeology, house-fire and burning, and mudbrick architecture. Ruth's work on the archaeology of the Balkans was important for several reasons. One is that her focus on the prehistory of this region renewed attention and deepened the interest in its archaeology. Further, her work made an impact on young archaeologists in the region, and especially on those with whom she collaborated. Ruth included all the team members in active thinking and interpretation process contrary to the local, well-established old-school archaeologists who ignored local input. Paradoxically she brought in more equality to the archaeological practice than existed in the nominally socialist/communist country.

Stevens, Stanley [166] see Wolverton, Steve

Stevens, Nathan (Far Western Anthropological Research Group, Inc.) and Jeffrey Rosenthal (Far Western Anthropological Research Group, Inc.)

[383] Geology, Historical Contingency, and Ecological Inheritance in California's Southern Sierra Nevada

The Late prehistoric archaeological record of the Southern Sierra Nevada can be distilled down to two very visible elements: bedrock mortars and obsidian. Both were imported from outside the area, with obsidian coming from the east and the idea of the bedrock mortar coming from the west. We argue that the presence of transported obsidian, much of it deposited prior to 1000 cal BP, and the later establishment of bedrock mortars encouraged more persistent use of this landscape. We see this as an example of the downstream effects of niche construction.

Stevens, Chris (Institute of Archaeology, University College London.)

[414] Exploring the Multiple Pathways towards Agriculture within China: The Case for Rice and Millets

Studies of evolutionary change within selected traits for rice indicate a period of interaction from the cultivation of morphologically wild plants (Oryza rufipogon) to the eventual farming of domesticated rice (Oryza sativa ssp. japonica) that lasted around 3000 years. The shift from the collecting of wild foods to dependence on cultivation was equally protracted. While rice was likely taken into cultivation in a number of areas across China it is only in the Lower Yangtze between 6000 to 3000 cal. B.C. that the full transition from early cultigens to fully domesticated plants is so far evidenced. The pathways towards the domestication of millets (Panicum miliaceum and Setaria italica) are far less clear. Their probable cultivation is attested from a number of sites, possibly as early as 7000 cal. B.C., within northern China, based upon finds of charred grains, isotope evidence and agricultural tools. Unlike rice however the start of cultivation and the end of domestication period are as yet
unknown. This paper presents comparative models for rice and millet, which explore the morphological changes seen within these plants resulting from human selection and how such changes in themselves modified human behavior.

Stevenson, Christopher M. [412] see Mulrooney, Mara

Stewart, Sarah T [47] see Banning, Edward

Stewart, Brian (University of Michigan) and Peter Mitchell (University of Oxford) [135] Beyond the Shadow of a Desert: Illuminating Southern Africa’s Foraging Spectra
There is arguably nowhere more susceptible to the tyranny of the ethnographic record than southern Africa. From Man the Hunter’s quintessential foragers to the revisionists’ marginalized proletariat, Kalahari hunter-gatherers cast shadows far longer than those created by the desert sun. There is no denying that this extraordinary record – central to both economic and social approaches to southern African prehistory – has greatly enriched our picture of the past. Unsurprisingly, however, the subcontinent continues to confront archaeologists with behavioral signatures outside the range of variation documented in the Kalahari. Two decades after Kelly’s landmark publication, and fifteen years into the paradigm shift towards an African origin for behavioral modernity, the time is ripe for a re-evaluation of southern Africa’s foraging spectra. In this paper we provide this, and advocate for a cross-cultural approach that integrates evolutionary theory with ethnography and ethnoarchaeology drawn from within and beyond the Kalahari. If this is critical for studies of prehistoric foragers across the globe, it is particularly pressing in southern Africa with such a diversified ecology and deep antiquity of humanity.

Stewart, Haeden (University of Chicago) [258] Crossing the Line (Part II): Taphonomies of Toxicity in Contemporary Archaeology
This paper is the second part of a two-part dialogue on the use of taphonomy as an archaeological technique in both prehistoric archaeology and the archaeology of the contemporary. Part II explores how using the concept of taphonomy to study the accumulation of harmful toxins in the environment and in the human body opens up new avenues of study for an archaeology of human-environment interactions in the contemporary nuclear and industrial age. Intimately tied to the waste of human activity, and dangerous to both human and non-human bodies, toxins bind bodies into communities of shared danger and toxic harm. Toxins index historical processes of production and consumption, as well as the taphonomic processes of dispersal, disintegration and accumulation connecting them to the bodies they harm. Bodies congeal toxic traces that individuate as well as gesture towards global dynamics. These traces can be ‘excavated’ to reconstruct individual and collective histories, long-term processes of environmental degradation, and to understand collectivities constituted by emerging toxic dangers. In thinking fishing as archaeological practice, I argue that locating toxicity as a central archaeological concern facilitates useful exchange across different archaeologies, as well as broadening what we consider to be archaeological method.

[258] Chair

Stewart, Carlyn (University of Arizona) and Gregory Luna Golya (Penn State University) [364] Documenting Lithic Landscapes of Petrified Forest National Park, Arizona
Archaeological lithic landscapes can encompass a broad range of geographic settings – local to regional – where lithic procurement activities by people have left indelible evidence of lithic resource use. The Petrified Forest National Park (PEFO), Arizona on the Colorado Plateau is best known for its massive exposure of late Triassic period petrified logs in the park. Petrified wood lithic debitage and tools dominate the lithic assemblages of prehistoric sites at the park. However, the park also includes large lithic pavements of chert cobbles and petrified wood chunks and gravels. Both petrified log concentrations and lithic pavements have not been documented during past archaeological surveys despite the ubiquity of debitage from lithic testing, reduction, and production activities, in part, because of the widespread spatial extent of the areas. Archaeological survey
conducted at PEFO during the summers of 2013 and 2014 has incorporated lithic pavements, procurement areas, and scatters into the archaeological landscape of the park. Additionally, archaeologists have begun adding lithic procurement areas to previous surveyed areas. This poster presents an analysis of selected lithic pavement procurement areas at PEFO, their spatial extent, geological origins, water drainage associations, and attraction for human settlement especially among archaic and early farming populations.

Stimson, Micah, Nathan Goodale, David G. Bailey and Alissa Nauman

Elemental and Microscopic Characterization of Quartzite Stone Discs and Knives from the Slocan Narrows Pithouse Village, Upper Columbia River Region

Chipped stone tools made from fine-grained quartzite with thin mica-rich (phyllitic) lamellae are commonly recovered from archaeological contexts along the Upper Columbia River in the interior Pacific Northwest. In this study we present the results of a comprehensive analysis of a collection of quartzite discs and knives recovered from the Slocan Narrows Pithouse Village. Our analysis includes examination of microscopic use-wear traces to attempt tool function interpretation, as well as elemental characterization through energy dispersive x-ray fluorescence spectroscopy to identify the number of potential geological sources of the raw material. Because these quartzite tools commonly occur across a wide geographic range, this study provides a foundation for additional studies of quartzite tools that may eventually lead to a better understanding of human land use practices in the Upper Columbia River region.

Stine, Linda (University of North Carolina Greensboro)

Bringing Visitors to State Historic Sites: Remote Sensing and Hands-on Research

North Carolina's Department of Cultural Resources is pressed by state legislators to justify keeping historic site properties open and its Office of State Archaeology (OSA) staff gainfully employed. The state university system has also seen its share of cuts. By pooling research interests and resources, OSA and University of North Carolina Greensboro archaeologists and geography professors and students could highlight potential below-ground features and could excavate at two sites. The project included the Historic Sites Division leadership and was open to an interested public. Regional multi-media emphasized the importance of historic sites for research, education, public enjoyment, and tourism.

Stiner, Mary [40] see Munro, Natalie

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

OFT and EVO-DEVO: Antithetical or Mutually Beneficial?

Short-term constraints that motivate people are an important part of the process social and economic change. Proximate decision (optimality or satisficing) models are particularly useful in archaeology because they play upon basic resource needs and costs in situations where behavior cannot be observed directly. These models are not enough, however, to account for the larger processes by which repeated interactions change the nature of the co-evolving species and the conditions of selection across generations. Thus at least two levels of mechanics and their respective temporal domains must be recognized in co-evolutionary studies such as in Niche Construction Theory (NCT). The fact that many of the empirical patterns that attract NCT thinkers come from research based on simpler models such as behavioral ecology testifies to the potentially complementary relations between these distinct levels of theory.

Discussant

Stirn, Matthew (Jackson Hole Historical Society and Museum), Rebecca Sgouros (Jackson Hole Historical Society and Museum), Robert Curran (University of Wyoming), Megan Jones (University of Wyoming) and Connor Johnen (University of Wyoming)

Teton Archaeological Project: Preliminary Report of the 2014 Field Season

Following nearly a decade of high-elevation research in the Wind River Range of Wyoming, the
Teton Archaeological Project seeks to record and interpret prehistoric alpine occupations of the Teton Range. The 2014 field season was multi-focused with three primary goals of exploring previously unsurveyed areas for archaeological sites, investigating ice-patches for thawing artifacts, and testing the survivability of lipid biomarkers on high-elevation surface artifacts. The work performed in this inaugural season will set the stage for future alpine surveys, excavations, and paleoenvironmental studies in the Teton Range.

Stiver-Walsh, Laura [26] see Martínez Tuñón, Antonio

Stöckli, Matthias (Dep. de Antropología y Sociología, Universidad del Valle de Guatemala) [242]  
Dance and Music in Maya Rituals: The Case of Tecum

According to the 16th-century Título K’oyoi, the K’iche’ captain Tecum participated in two elaborate ceremonies before leading his army into war against the Spanish conquerors. Both included dance and music and even though he later was killed in battle, Tecum somehow continued to dance until the present day, now taking part in the preparation and performance of the so-called Dance of the Conquest. This “fact” alone tells important things about the concepts and functions of dance and music in Maya society. The paper attempts to reconstruct the ritual elements, their “assembly plan,” and some goals and meanings of the two pre-conquest ceremonies by means of both contemporary data and insights gained from the ethnomusicological study of the Conquest Dance as performed today in the Guatemalan highlands. The latter are particularly helpful as reminders of the processual character of rituals which is often based precisely on the performance of music and dance. In the case of Tecum one of the goals of such dynamism was and is the transformation of the dancer from one kind of being into another, -- the main thesis of this paper.

Stoll, Marijke (University of Arizona) [20]  
The Practice of Play in the Sport of Life and Death: Exploring Regional Variation in Ballgame Material Culture and Ideology

There is little argument that the Mesoamerican ballgame was a ritualized and politicized communal sport with great geographical breadth and incredible time-depth. It is also commonly accepted that the ballgame, as a cultural institution, was intimately linked to a political, elite-centered ideology based on cosmology, sacrifice, and agriculture, related to sociocultural themes of conflict, competition, and the resolution or negotiation of both. This interpretation of the ballgame as ritual practice, however, has remained stagnant over the past several decades. Moreover, it disregards local and regional variation across time in both ballgame symbolism and ideology, leaving unexplored the significance that these differences and similarities entailed for Mesoamerican intra- and intercommunity social networks. In this paper, I address these issues by applying a practice-oriented approach to a regional investigation of ballgame material culture, including those objects and symbols associated with game performance and related activities. Importantly for the study of ritual and religion in the past, practice theory enables the exploration of the recursive relationship between materiality and ideology. Using this perspective, I will demonstrate how the specific ballgame practices that produced these regionalized material remains trace back to complementary, competing, and even overlapping ballgame ideologies.

Stoll, Marijke [182] see Anderson, David S.

Stone, Abigail (Washington University in St. Louis) [23]  
Economies and Identities in Flux: Consequences of the Arrival of Specialized Fulani Pastoralists in Mali’s Inland Niger Delta

In the Sahel, the Fulani are considered the archetypal cattle herders. Although their spread across West Africa is poorly understood, their arrival had profound effects on local populations. In Mali’s Inland Niger Delta, historical sources and isotopic analysis of archaeological cattle, sheep, and goat teeth from the site of Jenné-jeno and the modern town of Djenné suggest that specialized Fulani pastoralists arrived in the Delta between the 13th and 15th centuries A.D. This coincided with dramatic upheaval in local subsistence practices, with a shift from a largely generalized, agro-
pastoral system to one where ethnic identity became tightly linked to subsistence specialization. This paper draws on archaeological, ethnographic, and historical data to explore how socio-political changes, including the arrival of pastoralists whose identity was strongly tied to mobility and cattle, impacted the identities and subsistence regimes of local populations. I argue that despite archaeological evidence for cultural and ethnic continuity, the boundaries and meanings of group identity in this area underwent dramatic transformations. I caution that even in situations where modern subsistence and ethnic configurations are a seemingly good fit for the archaeological record, group identities are a fluid construct and can change radically in the face of historical forces.

Chair
Stone, Tammy (University of Colorado Denver)

The Integration of Archaeology and its Principles into the Core Curriculum
Introduction to Archaeology is often included in the college/university wide core curriculum (social/behavioral science module), as well as being a required class for undergraduate majors. This inclusion allows us to introduce the SAA curricular goals to a larger community. At the University of Colorado Denver, multiple laboratory sections of 15 students each are attached to very large lecture sections. The laboratories provide hands on exercises tailored to the historic and prehistoric archaeology of the area. By concentrating on local concerns, students develop fundamental analytic skills, participate in data analysis, and have issues of local diversity and social relevance brought home. In Fall 2014, one laboratory section was linked to a freshman seminar class (topic local history), a freshman composition class and co-curricular activities centered on Denver and Colorado history to form a Living Learning Community (LLC) for first time freshman. The linked classes and content emphasis on local history and prehistory in this LLC reinforces ideas about the relationship of the past to the present, diversity of experience in local areas and the importance of preservation and stewardship. Examples of laboratory exercises and co-curricular activities will be discussed.

Discussant
Stone, Elizabeth

Stone, Jessica [238] see Fitzpatrick, Scott

Chair
Stone, Jessica (University of Oregon)

Prehistoric Population Mobility in the Caribbean: Genetic and Isotopic Investigations at Grand Bay, Carriacou, West Indies
Archaeological research at Grand Bay, a large Late Ceramic Age (ca. A.D. 400-1300) Amerindian village site on Carriacou in the southern Caribbean, has revealed evidence that sheds light on Precolumbian adaptations to small island environments. More than a decade of research here and at other locations on Carriacou have yielded dozens of human burials, including many found in mortuary contexts rarely seen in this part of the Lesser Antilles. Ongoing bioarchaeological research on past lifeways of prehistoric settlers has moved from osteological and paleodietary analysis to the extraction of ancient DNA and heavy isotope ratios of Pb and Sr to examine genetic affinities and mobility among islands and adjacent mainland areas. While the data are preliminary, interdisciplinary research on Carriacou is providing new data on the inter-island movement of people, artifacts, animals, and cultural behaviors.

Chair
Stoner, Wesley (University of Arkansas)

The Analytical Nexus: Multi-Technique Approaches to Ceramic Composition
Archaeologists have employed many different approaches to characterize the composition of ceramic pastes, but until recently only a minority of studies have used multiple analytical techniques to examine the same sample. An "analytical technique" is used here to mean a single perspective that characterizes an aspect of a ceramic paste. Since humans created pottery using different processes and recipes, it follows that each perspective teaches us about a unique aspect of the
potter’s behavior and social context. We have moved beyond the argument of "which technique is better?" into a phase of research that asks "which social or technological behavior does this technique reflect?" It is unrealistic to expect that all perspectives will be represented in any case study, but we must situate the different techniques within a framework that permits interpretations bringing us from technical observation to social deductions. The analytical nexus of these different techniques allows archaeologists to create a rich description of the social decisions and geoarchaeological processes that affect ceramic systems. I exemplify one version of the analytical nexus with my own research in Mexico using petrography, NAA, and LA-ICP-MS.

[79] Chair

Storey, Rebecca [206] see Walters, Michael

Storm, Rebecca [299] see Wilson, Andrew

Stothert, Karen (Center for Archaeological Research--UTSA) [186] Contributions of Dolores Piperno to the History and Folklore of Coastal Ecuador

Personal and professional reminiscences from 1979 to the present of the life and works of Dolores Piperno - great person, smart graduate student, and distinguished scientist whose contribution to the early history of Ecuador (culture Las Vegas) has been transformational.

Stott, Jamie [322] Archaeological Education and Public Outreach through Social Media

With advances in technology and greater access to public lands, archaeological sites are more vulnerable now than ever before. With photos and site locations being shared across the internet, it is pertinent for us as archaeologists to pierce the veil between academics, professionals, and the general public. Visitation to archaeological sites often results in adverse effects including visitor footpaths, touching or climbing on cultural resources, presence of modern trash, and vandalism to the site through looting or intentional destruction. By using common social media outlets such as Facebook, Instagram, Twitter, and personal blogs, we can begin to educate the public on proper site etiquette. By using the internet as a tool for public outreach, we can begin to distribute the sense of cultural resource ownership from land managers, academics, and professionals to the general public.

Stout, Dietrich (Emory University) [33] Stone Tool-Making and the Right Cerebral Hemisphere

Neuroscience research has linked both language and tool-use to neural circuits in the left hemisphere, leading to hypotheses of co-evolutionary interaction between these behaviors. However, it is known that the right hemisphere also contributes to language, particularly with respect to large scale (e.g. prosody, context) processing. Studies of actual tool-making, as opposed to simple use, are sparse, but similarly suggest right hemisphere involvement in the more complex and temporally extended processes involved in the goal-directed transformation of durable objects. In support of this, neuroimaging studies of experimental stone tool-making in our lab have consistently implicated right parietofrontal circuits. This includes evidence of brain activation observed using FDG-PET and fMRI, as well as experience-dependent white-matter structural changes observed using DTI. Comparative (chimpanzee, human, macaque) anatomical studies further indicate a derived rightward asymmetry of this parietofrontal tract in humans. We propose the hypothesis that human frontoparietal circuits in both hemispheres underwent adaptations for Paleolithic tool-making that were behaviorally co-opted ("exapted") to support proto-linguistic communication and subsequently altered by secondary adaptations specific to language, especially in the left hemisphere.

Straight, Kirk
[338] In this Chapel of Ritual: The Life and Death of Temple XIX at Palenque, Chiapas
The excavation of Temple XIX at Palenque, Mexico from 1998-2002 garnered considerable attention primarily for the recovery of monuments with preserved inscriptions and iconography carved in stone and modeled in stucco. The fragmented state of several monuments, evidently victims of systematic mayhem in antiquity, preoccupied the excavators constantly as monument fragments were recovered from inside and outside the approximately 9 by 34 meter building. These monuments have now been consolidated and are on display in the site museum near the ruins in Chiapas. Although the epigraphy of these monuments has been discussed extensively in press, the context of their recovery has not received the same attention. As primary supervisor of the Temple XIX excavations I have a unique perspective on the construction, dedication, use, and termination of the building. In this paper I review the recovery program and contextualize how Temple XIX was used by the ruling court of Palenque in the mid-8th century A.D. I then address the termination of the structure and the apparent dereliction of the entire South Group (or South Acropolis) in the second half of the 8th century A.D. prior to total abandonment of the site in the early 9th century A.D.

Strange, David (University of Wisconsin-Milwaukee)

[301] Evidence for Antemortem or Perimortem Trauma among Individuals Recovered from the 2013 Milwaukee County Institution Poor Farm Cemetery Excavations
2013 excavations at the Milwaukee County Institutional Grounds (MCIG) cemetery resulted in the recovery of approximately 685 burials containing over 700 individuals, adding to the existing collection of 1649 individuals excavated in 1991 and 1992. The individuals from the 2013 excavations were inventoried and examined macroscopically for evidence of pathology and trauma. Sean P. Dougherty (2011) observed that the pattern of traumatic fractures among the 1991 and 1992 collection reflect not only a tendency for interpersonal violence, but also non-agonistic events inherent through the hazards of life among the impoverished of Milwaukee during the burgeoning Industrial Age. Dougherty classifies evidence of post-mortem medical intervention such as the craniotomy and other signs of autopsy as trauma. It is the case that that many types of impetuses exist for postmortem intervention procedures. In the analysis of the 2013 collection, only antemortem or perimortem signs of trauma will be the accepted parameters. It is expected that this study will reveal similar trends of interpersonal violence and occupational hazard, but a tighter classification of how we define “trauma” should lead to a finer-grained understanding of the lives of the poor in turn of the century Milwaukee, Wisconsin.

Stratten, Daniel [358] see Sparks, Shane

Straulino, Luisa, Ana María Soler (Instituto de Geofísica, UNAM), Sergey Sedov (Instituto de Geología, UNAM), Sandra Balanzario (Instituto Nacional de Antropología e Historia) and Teresa Pi (Instituto de Geología, UNAM)

[399] Dzibanché Stuccos: Archaeomagnetism Dating and Manufacture Techniques
The archaeological site of Dzibanché, Quintana Roo, has polychromed stucco remains that seem to date to the Middle Classic when the Kaan dynasty ruled at Dzibanché. The aim of this investigation was to determine the composition of the stucco and the painting (petrography, SEM-EDS, XRD) and date them. The antiferromagnetic hematite in paintings contains remanent magnetization (PIRM). The magnetic record could date them if changes in direction and intensity of the geomagnetic field have been well characterized. The employed curve for dating is improved from Wolfman (1 to 1200 d.C.) with new archaeomagnetic data supported by radiocarbon dates. Stucco contains mainly calcite, dolomite, chert, clays, soil and some organic features; the pictorial layer has at least two layers of red pigments mostly constituted by hematite. Four murals were sampled, eight to ten oriented specimens were taken with double-sided tape. The samples were demagnetized by alternating fields (10 to 40 mT) in order to get their characteristic magnetization. The mean directions were obtained using Fisher statistics and dating was performed with Bayesian statistics (RENDATE). Obtained dates: A.D. 626-647, Structure 2; Pequeña Acrópolis palaces, A.D. 394-429 & A.D. 500-529, southern, A.D. 417-528, eastern, and A.D. 445-497, northern palace.
Strauss, Stephanie (The University of Texas at Austin)

Izapa's Place in the Discourse on Early Hieroglyphic Writing

Izapa occupies a curious place in the study of Mesoamerican writing and semiotic practice. Although the linguistic affiliation of ancient Izapa is unknown, glottochronological estimates suggest that Izapa stood at a multilingual crossroads between proto-Mixe-Soquean and proto-Mayan speaking populations. The blended visual vocabulary of Izapa-style monuments, coupled with the site’s location and chronology, further prompted early scholars to place Izapa on a transitional, regional continuum between the better-studied artistic traditions to its east and west. Epigraphically, this slippery view of Izapa often results in its uncritical inclusion in the greater “Isthmian” writing tradition; and yet the lengthy inscriptions found on La Mojarra Stela 1 and the Tuxtla Statuette are not seen at Izapa. As it is very likely that the people of Izapa had at least some degree of exposure to the early, linguistically transparent writing systems that surrounded them, their use of a text-independent communicative strategy was intentional and significant. How, then, are we to read Izapa-style monuments? What are we to make of the distinctly glyph-like elements so often embedded into their complex pictorial narratives? This paper thus explores these uniquely Izapan “iconoglyphic” elements, reinserting them into the discourse on early Mesoamerican writing and linguistically unbounded signaling practices.

Strawhacker, Colleen (National Snow and Ice Data Center, University of Colorado), Peter Pulsifer (National Snow and Ice Data Center, University of C) and Shari Gearheard (National Snow and Ice Data Center, University of C)

Data Management and Cyberinfrastructure for Traditional and Local Knowledge and Archaeology in the Arctic

Scientists are realizing the importance of social science research to fully understand how the rapid environmental change in the Arctic will affect human populations living in the Artic and beyond. Millions of dollars are invested in scientific research, including in the social sciences, on the changing Arctic every year, and with that investment, scientists have begun stressing the importance of preserving these collected data for future analysis. With the increased recognition of the importance of social science data, however, numerous challenges and obstacles exist to effectively managing data from the social sciences. Data from the social sciences, for example, frequently take a different form from data from the physical sciences and can be highly dependent on context. This paper will present the various ongoing efforts in cyberinfrastructure for traditional and local knowledge and social sciences (with a focus on archaeology) in the Arctic, including The Exchange for Local Observations and Knowledge of the Arctic (ELOKA, http://eloka-arctic.org). We will also address the challenges of managing data from the social sciences, including maintaining privacy of subjects, preserving context of the data, and ensuring the data are preserved for the future.

Strickland, Amanda [113] see Parker, Evan

Stride, Sebastian [73] see Angourakis, Andreas

Striker, Sarah (Arizona State University)

Categorical Identity and Decorative Style in an Ancestral Wendat Sequence

This study takes a new approach to Iroquoian ceramics, considering decorative style as evidence for categorical identification. Categorical identity is a shared association with a category such as an ethnic or religious group. Along with relational identification – direct interpersonal relationships – categorical identification is a key element of collective identity. Historical sociologists study these elements of collective identity to understand how individual and collective social relationships facilitate collective action – sustained cooperation toward a common goal. I use this framework to
understand how individual and collective social relationships change over time and contribute to socially cohesive communities. I examine four successively occupied Ancestral Wendat (Iroquoian) communities (1400-1550 C.E.). Previous work traces village aggregation and coalescence through changes in village plans from smaller, dispersed communities to the exceptionally large Mantle site. A spatially-integrated village plan and shared public space demonstrate collective action and a socially cohesive community at Mantle. I evaluate categorical identification by assessing the consistency of ceramic decorative styles within each village using consensus analysis. Intra-site spatial patterns of similarity as well as developments throughout the site sequence indicate whether categorical relations changed over time, and how these developments contributed to social cohesiveness at the Mantle site.

Striker, Sarah [277] see Ruiz Y Costello, Donna

Stringer, Chris [415] see Buck, Laura

Stromberg, Caroline (University of Washington, Seattle)

[186] 3D Morphology of Grass Short Cell Phytoliths: Unlocking the Evolution of Grasses and Grassland Ecosystems

Grass-dominated ecosystems occupy > 40% of today's earth's land surface. Documenting when this prominent biome emerged was traditionally hampered by the rarity of identifiable grass fossils. Recently, phytoliths have emerged as a vital tool for tracking the evolutionary history of grasslands. Key to understanding ancient grassland composition is studying the 3D morphology of silica grass short cell (GSSC) phytoliths. GSSCs have long been known as broadly diagnostic within grasses, but a landmark paper (Piperno and Pearsall 1998) demonstrated the full taxonomic potential of GSSC shape. For example, 3D shape distinguishes between forms that look similar in one view, such as saddle-types in bamboos and chloridoids. Incorporating study of 3D morphology in phytolith analysis of Cretaceous-Cenozoic (66-2 million years ago (Ma)) samples from the Americas, Europe, and Asia has radically changed our understanding of grassland evolution. This work shows that open-habitat grasses (e.g., pooids, panicoids) diversified 10-20 million years before becoming ecologically dominant in North and South America, suggesting that different environmental factors promoted diversification vs. dominance. GSSC analysis also reveals that (C3) stipoid pooids dominated early savanna/grassland vegetation rather than tropical (C4) grasses as previously thought. Ongoing investigation of GSSC 3-D shape promises to further revolutionize our view of grassland evolution.

[186] Discussant

Stuart, David (The University of Texas at Austin)

[196] Early Maya Script and Visual Culture: A Chronological and Geographical Reassessment

This paper presents evidence for a lowland origin of Maya hieroglyphic writing and iconography during the Late Pre-Classic period. It calls into question long-standing models of highland-lowland interaction that have assigned temporal priority of Maya monumental art and visual culture to the southern highlands and Piedmont region. In addition to the several known sculpted and inscribed monuments from the Peten region, archaeological evidence from the site of San Bartolo has revealed integrated programs of script and iconography in place in the lowlands by 300 B.C.E., well before their first known appearance on datable monuments in the southern region, at Takalik Abaj and Kaminaljuyu. In integrating archaeological, epigraphic and art historical perspectives, this paper considers a model wherein examples of Maya visual culture at such highland and piedmont centers can be viewed as lowland-inspired, indicating an intrusive political and cultural (though not necessarily ethnic) presence that was also relatively short-lived, diminishing by the beginnings of the Early Classic era.

[344] Discussant

Stuck, Jennifer (CSU Dominguez Hills), Claudio Carini (CSU Dominguez Hills), Beatrice Villagomez (CSU Dominguez Hills) and Jerry Moore (CSU Dominguez Hills)
[327] Penetrating the Old Woman’s Gun: A GPR and Artifact Analysis of a Mexican American War Battlefield Site

This paper will address the validity of the claim that the Battle of Rancho Dominguez (Battle of Old Woman’s Gun) took place on the lower terrace of the Rancho Dominguez. In the summer of 1846, the US military took control of Los Angeles. Soon after, the Mexican Army was able to regain the city. Captain Mervine, of the US military, landed his troops in San Pedro hoping to regain Los Angeles. Folk history tells of Captain Mervine’s troops being besieged in the early hours by Californios, wielding a four-pound cannon (“the old woman’s gun”) and diversionary tactics. An archaeological investigation involving a GPR survey was followed by excavation and artifact analysis. A two cm in diameter iron ball was uncovered, which is consistent with iron shot used by the Mexican Army in 1846. Findings led to the investigation into the whereabouts of “the old woman’s gun”. Results offer support for the existence of the Battle of Old Woman’s Gun and its approximate location, in Los Angeles. The present findings augment the literature on the Mexican American war, particularly the role of the Californios, the fate of the “old woman’s gun” and the Rancho Dominguez area.

Stuckey, Sarah [185] see Morrow, Juliet

Stueber, Daniel [64] see Nowell, April

Stueber, Dan [386] see Binning, Jeanne

Stull, Scott [124] see Rogers, Michael

Sturdevant, Jay, Brenda Todd (National Park Service, Denver Service Center), Wendy Ross (National Park Service, Knife River Indian Villages) and Craig Hansen (National Park Service, Knife River Indian Villages)

[29] Preservation Practice at Knife River Indian Villages National Historic Site: Using New Planning Frameworks to Identify and Address Impacts to an Archaeological Landscape

Knife River Indian Villages National Historic Site was set aside to preserve, research, and interpret the archaeological and cultural landscapes of the Hidatsa-Mandan villages at the confluence of the Knife and Missouri Rivers. Both park enabling legislation and NPS policy direct park staff to preserve archaeological resources unimpaired for future generations. However, defining what preservation means and how it is put into practice presents a challenge for park managers as they attempt to preserve archaeological resources in balance with natural processes. In 2013, the park began a comprehensive Archaeological Resources Management Plan as part of the new NPS planning framework. These efforts focus on increasing tribal and public involvement in a long term resource management strategy incorporating both NPS and traditional tribal values. This paper will explore these issues and discuss the ways that this planning strategy may guide resource preservation and maintain relevancy into the future.

Sturm, Jennie O. [273] see OBrien, Lauren

Sturm, Jennie (TAG Research)

[358] Using Geospatial Strategies and Ground-Penetrating Radar to Study Sites in the American Southwest

In American archaeology, ground-penetrating radar (GPR) has enjoyed its longest use in the Southwest. While this method has long been used to locate features of archaeological interest, much of the focus has now shifted from using this technique as a prospection tool to one that can be used directly in the study of archaeological sites. This reflects an increasing sophistication in the ways practitioners process, interpret, and visualize GPR data, which capitalizes on this method’s high-resolution, three-dimensional mapping capabilities. Furthermore, combining these data with other geospatial techniques such as aerial photography and high resolution GPS survey means it is possible to associate buried features to surface phenomena, thereby opening up the types of
questions that can be addressed while also preserving sensitive archaeological sites. This presentation draws upon examples from the American Southwest to show how this approach is being used to study sites in relation to the larger archaeological landscape. Far from being a simple prospection tool, the use of GPR in archaeology is enjoying a revitalization as advancements in the way geospatial methods are combined generate data that can be used directly in the interpretation of the archaeological record.

Sturt, Fraser [3] see Bedford, Clare

Stutts, Stephanie [98] see Howell, Ryan

Stutts, Stephanie (University of Oklahoma)
[357]  *Paleoindian Use of the Western Ouachita Mountains, Oklahoma*

At present, the archaeological record of eastern Oklahoma reflects abundant evidence of prehistoric occupation in the region’s river valleys, from the Paleoindian period onward. Conversely, little archaeological work has been done in the upland environments of the Western Ouachita Mountains. Yet these uplands are notably rich in resources, ranging from high quality lithic sources, lush plant-life, diverse animal species, and many streams and rivers providing water throughout the year. I therefore hypothesize that the western Ouachitas would have been used by prehistoric people throughout prehistory, starting in Paleoindian time. This paper preliminarily evaluates this hypothesis by synthesizing first, what few archaeological findings have been reported for the Ouachita high country; and second, what archaeologists have learned about Paleoindian use of the nearby Eastern Ouachita Mountains and Southern Ozarks of Arkansas. I conclude that there is a high probability that Paleoindian groups did indeed use the Western Ouachita Mountains, and probably in highly diverse ways. I end by suggesting potentially fruitful next steps for evaluating this literature-derived conclusion through fieldwork.

Styles, Bonnie
[69]  *Discussant*

Suarez, Rafael (Depto. Archaeology. Universidad de la República (Uruguay))
[150]  *Living on the river shore: Late Pleistocene and Early Holocene Human Adaptations in the Uruguay River Basin*

This presentation provides new data on investigations on the middle basin of Uruguay River. The most recent research on Northern Uruguay in the K87 Tigre type site has yielded radiocarbon dates with similar ages to Clovis (ca. 13,000 cal yr BP). At a regional level, a settlement pattern emerges where the Paleoamerican residential sites are located on the banks of Uruguay River near the mouth of arroyos, near “rápidos”, natural passages (pasos), and small cascades (cachoeiras). This pattern suggests that the sites are located in strategic places, where there are significant concentrations of resources related to hunting, fishing and raw material procurement and others resources necessary for human life as fresh water, firewood, wood and plant fibers among others. Recent definition of two Paleoamerican cultural complexes: Tigre (12,300-11,200 cal yr B.P.) and Pay Paso (11,081 to 10,655 cal yr B.P.), allows understanding the cultural diversity for post-Fishtail times. This data is important because it allows recognizing and understanding of the technological reorganization occurred during the Pleistocene-Holocene transition in the Uruguay River basin.

Subiaul, Francys [122] see Ranhorn, Kathryn

Sugimoto, Kassie [203] see Gadison, Davette

Sugimoto, Kassie (North Carolina State University), Ann Ross (North Carolina State University ) and Danielle Kurin (University of California, Santa Barbara )
Facial Asymmetry: Bio-indicators of Stress in Post-Wari Populations

The role of climatic conditions on sociopolitical systems has been a highly discussed theme in archaeology. Over the past decade, archaeology has had great advancement in the realms of method and theory which have facilitated interpretations of environmental influences on social development. This paper presents research that investigates the biological responses to either environmental or social stresses to help elucidate how ancient Andean populations coped during periods of climatic instability and social and political unrest. Specifically, this paper will discuss the results of a Fluctuating Asymmetry (FA) analysis collected from a Late Intermediate Period (ca. A.D. 1000—1400) skeletal population from the Peruvian south-central highlands. This study analyzed 72 crania using a Microscribe digitizer to record three-dimensional coordinates of standard bi-lateral facial landmarks. Since bilateral structures tend to develop symmetrically under ideal conditions and asymmetrically under stressed conditions, FA is a suitable proxy to measure the developmental instability in human populations. FA was used to compare Chanka populations to illuminate the social conditions after the collapse of the Wari Empire. This research rejects environmental deterministic frameworks and will present alternative explanations to clarify how non-climatic stress can influence skeletal development.

Sugiura, Yoko (Instituto De Investigaciones Antropológicas, UNAM), Gustavo Jaimes (Doctorado en Estudios Mesoamericanos FFyL-UNAM) and Diana Martínez (IIA-UNAM)

New 3D Map of the Templo Mayor Architecture, a Symbol of Mexica Cosmology and Political Power with Teotihuacan Tradition

The 3D map of the Great Temple complex has been elaborated in 2007-2014 with detailed features of thirteen overlapping architectural stages. We first analyze and describe visually each stage calculating dimensions and orientation of the main pyramid complex. Enlarging process gradually changing the spatial distribution and orientations of the temple complex will be discussed in terms of native perspective of cosmology and expanding political power. The E-W orientation and symbolic architecture have been interpreted in relation to astronomical movements and cosmology; however, these hypothetical interpretations need to be reanalyzed with more precise, detailed, and comprehensive map we are creating three-dimensionally for the first time. Our paper also focuses on a new aspect, possible measurement unit or units used by Mexica at the Templo Mayor precinct. Historical references and propositions made by previous studies of Mesoamerican measurement units including those of Teotihuacan will be applied to the new site map to define Mexica standard units. Finally symbolic significance, particularly dichotomy of the Sun/Moon, Dry/Wet, Warfare/Fertility, Male/Female, etc. relating to South/North directionality, integrated in the twin temple of the Templo Mayor will be explored as Teotihuacan tradition representing expanding political force of the Mexica Empire.

Sugiyama, Nawa (Smithsonian Institution) and William L. Fash (Harvard University)
Human/Animal Interactions in the Copan Valley from the Beginning to the End of the Copan Dynasty: Stable Isotope Analysis of the Felids from Altar Q and the Motmot Dedicatory Offerings

In fifth century Copan, Honduras, beneath the city’s first dynastic monument a complete puma was offered beside a female human burial. Over three centuries later, under the watchful eye of sixteenth and final ruler of the dynasty Yax Pasaj, a series of sixteen felids (many of them jaguars) were placed in the dedicatory cache of Altar Q, the “stone of the founder.” Here we investigate the remains of some of the largest carnivores on the landscape, the jaguar and puma, to analyze human-felid encounters. These large predators were instrumental icons of power and rulership, but as two of the endangered species that are no longer found in the Copan Valley we must question how humans interacted with these animals, and what they symbolized. Zooarchaeological and isotopic data from these two momentous dedicatory offerings are utilized to reconstruct the entire ritualization process: where and when were these animals acquired, and is there evidence that they were kept in captivity? Why did the ancient Copanecos conduct this sacrifice, and what was the underlying cosmology behind these violent acts? From the beginning of the ceremonial precinct to the demise of the Copan dynasty, human-animal encounters helped re-order and reify the sociopolitical landscape.

Sugrañes, Nuria and Fernando Franchetti

Distributional Studies in North Patagonia, Argentina. An Archaeological Ceramic Approach

During the last ca. 3000 years BP, there was a change in the socioeconomic organization of hunter-gatherers in Southern Mendoza, north Patagonia, Argentina. New technologies, like pottery and bows and arrows, were incorporated and allowed the exploitation and occupation of marginal areas, such as highlands and arid environments. Technological strategies, mobility and use of space are linked in this research by a distributional analysis of archaeological ceramics from southern Mendoza archaeological sites. The objective is to evaluate the use of pottery in different locations with differential access to water and resources. By considering the patterns of presence, absence and quantities of pottery sherds, different mobility and subsistence strategies can be understood in the study area.

Sullivan, Lynne (University of Tennessee) and Michaelyn Harle (Tennessee Valley Authority)

Phased Out: The Distinctive Identities of Late Mississippian Communities in Eastern Tennessee

An often-made presumption is that an archaeological phase (defined mainly by pottery or projectile point types) represents a social group with shared identity. This perspective can conceal other types of cultural variation and practices that may be more significant for presenting and representing group identity. The broadly-defined Dallas Phase in the Upper Tennessee Valley provides a late Mississippian-period example of this type of presumption. While there are broad similarities in pottery styles throughout this large region, there also are distinct differences among architectural styles, mortuary practices, and community plans, as well as in biological variation, which went unrecognized by previous scholars because collections from large, New Deal-era excavations were not studied for decades. This variation at the community level also is situated in differing histories of Mississippian development between geographic localities within the region. An exploration of variation among late Mississippian communities in eastern Tennessee exposes unique characteristics and facets of group identities that archaeological terminology has concealed. The new, comparative view presented in this paper also reveals a dynamic landscape of distinctive communities rather than a monolithic, normative “culture.”

Sullivan, Lauren [248] see Sweeney, Angelina

Sullivan, Elaine (UC Santa Cruz)

3D Saqqara: Using 3D GIS to Reconstruct Visibility and Communal Memory at an Egyptian Necropolis

The integration of GIS and 3D modeling now allows for the recreation and visualization of entire ancient landscapes. 3D Saqqara uses these capabilities to create a truly four-dimensional
exploration of the cemetery of Saqqara, Egypt. The project offers a workflow for how 2D archaeological and architectural data can be transformed into 3D representations of the ancient built and natural environment, while maintaining the geo-spatial coordinate system of GIS and allowing for both quantitative and qualitative visual analysis (specifically 3D aware line-of-sight analysis). By simulating the changing architectural landscape of an entire archaeological site over time, the project demonstrates how the nexus between landscape and memory at ancient sites can be examined in innovative ways. These temporal visualizations allow us to question how the transformation of architectural spaces over time affected peoples’ interpretation and memories of past and contemporary communities.

Sullivan, Kelsey (University of Oregon), James Stemp (Keene State College) and Jaime Awe (Northern Arizona University)

[376] Two Newly Discovered Maya Chert Tool Workshops in the Belize Valley: Results of the 2014 Surface Reconnaissance

Few lithic workshops have been found in the Belize Valley of Western Belize. This paper presents the results of surface reconnaissance and debitage collection at two newly discovered chert tool workshops near the villages of Esperanza and Teakettle in the Cayo District of Western Belize. Each of these workshops consists of a single large mound of debitage and includes tools aborted or broken at various stages of manufacture. At both locations, the main tool types produced were oval bifaces and long, narrow bifaces. Based on comparisons to tool types and reduction techniques at other Maya production locations, such as Colha in Northern Belize and El Pilar in Western Belize, both the Esperanza and Teakettle mounds likely date to the Late Classic period (c. A.D. 600-800). The main sources of chert observed at these two workshops appear to be cobbles locally obtained from the nearby Belize River. Preliminary results indicate that the focus of these workshops was the manufacture of utilitarian tools for consumption by farming households distributed throughout the Belize Valley.

Sun, Yan (Gettysburg College, PA)

[234] Local Communities in the Northeastern Frontier of the Central Plain during the Late Second and Early First Millennium B.C.

This paper will discuss how local communities in the northeastern frontier of China used metal artifacts and mortuary practice to articulate identity and delineate their cultural and political affiliations among themselves in the region and with polities in the Central Plain during the late second and early first millennium B.C., which was a period that witnessed the rise and expansion of state powers in the Central Plain, namely, the Shang and Zhou. Previous studies examined material culture from the perspective of state expansion and emphasized the dominance of Shang and Zhou culture in this frontier region. This paper instead views the “frontier” as a “center” in which people and communities interacted and negotiated their identities. It introduces the concept of local agency and emphasizes the indigenization of imported artifacts and ideas, as well as discusses the complex socio-political landscape to explain the varied choices made for material cultures by in the frontier communities.

Sunell, Scott (UCLA) and Jeanne Arnold (UCLA)

[310] The Antecedents to the Specialized Microdrill Industry on Santa Cruz Island, CA

I analyze more than 400 lithic artifacts associated with the development of intensive Chumash shell-drilling activities from four sites on Santa Cruz Island (SCRI), CA. By the second millennium CE, the Chumash of the northern Channel Islands had developed a specialized bead-making industry and a parallel industry of formal microdrills to perforate those beads (as documented by Arnold [1987]). During the latter part of the Middle Period (A.D. 900-1150), trapezoidal microdrills dominated; in the mid-Middle Period (A.D. 500-900), by contrast, ad-hoc drills with non-standardized methods of manufacture prevailed. These artifacts are flake-drills, identified in small numbers at sites on both the islands and the mainland. I track the origins of microlithic technology on the islands with the region’s largest known collection of flakes-drills and identify a period of production experimentation at SCRI-474. Type A flake-drills were produced expeditiously from small flakes and shatter. Type B drills were made on flake forms characterized by bit placement on the long axis. These assemblages chronicle local knappers’ experimentation with techniques that would revolutionize the small drill production
process in the region, presaging methods that would become common practice and documenting the earliest steps toward the standardized microdrill industry.

Sunseri, Charlotte (San Jose State Univ)
[34] Archaeologies by Community Mandate: Who Makes the Call?
Historically, precious little academic archaeology has occurred under the watchful eye of descendant communities who have witnessed generations of researchers come and go, sometimes with no direct contact regarding the results of archaeological investigations in their ancestral places. Despite more recent overtures to mend these practices, we (as a discipline) are still woefully lacking in this regard. Nevertheless, significant changes in the role of cultural patrimony to that of lynchpin in the mobilization of “community” within the last few years has not only challenged the privileges of the academy, but has also brought researchers closer and more deeply engaged in the contemporary struggles of their hosts and collaborative partners. This reification of community power has meant new kinds of risks and rewards for both sides, and directly impacts the types of research questions addressed in a collaborative project. This paper draws upon examples of nascent research agendas in California, New Mexico, and South Africa to explore why and how what might be seen as taking a chance with research is perhaps the most powerful commitment of all.

[34] Chair

Sunseri, Jun [34] see Sunseri, Charlotte

Sunseri, Jun
[406] A Saint Jude’s Box for Zooarchaeologists In the Making
Taking on graduate students and shepherding them through the harrowing process of becoming PhD’s is something few faculty take lightly. Within the rigorous methodological sub-discipline of Zooarchaeology, even fewer would commit to the requisite long and close apprenticeship with students whose backgrounds lay “outside of the box” of faunal-focused research. Yet, Diane populated her research cluster with a dynamic mixture of scholars from disparate backgrounds, just as she kept the famous “Saint Jude’s Box” in her lab for those pieces defying some element of analysis. Though some of these scholars seemed bent on tackling impossible projects, the mentorship and support network sustained among those bone-filled cabinets has resulted in scholarship based around the world and sometimes in the most unlikely of research directions, drawn from the spirit of adventure and resilience modeled by the lab director herself.

[34] Chair

Supernant, Kisha [82] see Shepard, Emily

Supernent, Kisha [80] see Ames, Kenneth

Surface-Evans, Sarah (Central Michigan University) and S.K. Haase (Central Michigan University)
[72] Promoting Responsible Heritage Tourism through Public Archaeology at Two Great Lakes Lighthouses
Central Michigan University recently undertook a series of public archaeology projects in cooperation with local historical societies and county governments in to investigate two northern Michigan lighthouses that are public parks. The McGulpin Point Lighthouse operated from 1869 to 1906 and was purchased by Emmett County in 2009. The 40 Mile Point Lighthouse was built in 1897, was deeded to Presque Isle County in 1998. The modern political and socioeconomic conditions of the two counties are extremely different, but in both cases archaeological investigations were sought to attract public to the parks. Emmet County, located at the Straits of Mackinaw, already relies heavily on tourism (particularly heritage tourism) for its economy. Presque Isle County, located in the northeast side of the Michigan’s Lower Peninsula has extremely high unemployment and few tourist destinations. We compare and contrast the public archaeology projects at these two sites and
explore the ways in which archaeology produced more meaningful experiences with history for tourists and community members. In both cases, our work also included educating society members and public officials of their ethical obligations for responsible heritage tourism.

Surmely, Frédéric [333] see Franklin, Jay

Surovell, Todd (University of Wyoming) and Matthew O’Brien (California State University, Chico)
[148] Ethnoarchaeological Perspectives on Folsom Households
Over the few decades, households have been identified in a handful of Folsom sites. Although it should surprise no one that the Pleistocene inhabitants of North America built, lived in, and used domestic structures, it may be surprising we know relatively little about how those household spaces were organized. This problem is hardly unique to Folsom. It could be argued that this is true of hunter-gatherer household archaeology as a whole. Part of the difficulty we encounter in interpreting intra-household spatial patterning is that relatively little research has focused on the factors that govern the spatial organization of human behavior within households in nomadic contexts. Inspired by Folsom household archaeology, the Dukha Ethnoarchaeological Project was designed to examine the general factors affecting where people choose to do things in a modern setting, and how decisions people make regarding spatial positioning should be reflected by material residues in the archaeological record. In this paper, we examine some of the factors affecting the spatial organization of human behavior in the households of nomadic Dukha reindeer herders in northern Mongolia, and how understanding this phenomenon can provide insight into the household archaeology of prehistoric hunter-gatherers.

Susak Pitzer, Angela (University of California, Los Angeles)
This multi-disciplinary study comprising archaeological, scientific, and morphological analyses as well as ethnoarchaeology and textual analysis, interrogates how value was assessed in the ancient world by examining Roman glass from Karanis, Egypt. Onsite portable X-ray fluorescence spectrometry (pXRF) analysis of recently excavated glass was conducted since the Egyptian government prohibits the export of artifacts for further analysis. This research, combined with pXRF and electron microprobe analysis of museum specimens from Karanis, helps distinguish glass compositional groups. A database including several variables--chemical composition, morphology, style, use, reuse, discard, and date--enables the exploration of relationships among variables using statistical analysis to compose a new typology of Karanis glass. An ethnoarchaeological study of modern glass workers in Cairo and in Hampshire, UK allows a reconstruction of the production sequences (chaîne opératoire) involved in producing glass objects and relationships between value and technology. The decisions artisans made during the production of glass objects forms the foundation of this typology because they reflect shared conceptions of value in Roman Egypt. This study examines how changes in glass types used at Karanis relate to fluctuations in the economy and to changes in the social, ideological, and political landscape during the Roman Period.

Sutton, Amanda (University of Georgia)
[153] Toward a Theory of Dispersal as an Adaptive Strategy: Adoption, Migration, and Cultural Survival in the Archaeological Record
Dispersal of human populations is often perceived as synonymous with abandonment and collapse. Alternatively, cross-cultural studies of historic and contemporary dispersal suggest it should instead be considered a strategic adaptation to external pressures. I argue that strategic dispersal represents a conscious, purposeful transformation of social and cultural structures in the face of bifurcation, resulting in cultural continuity and the selective adoption of external cultural traits and materials. This phenomenon is visible through the archaeological record; however, the most productive way in which to examine strategic dispersal and cultural entanglements is through a synthesis of the archaeological and ethnohistoric records. Utilizing ethnohistorical, ethnographic, and archaeological data from the Americas, West Africa, and Madagascar, this paper examines several
case studies, exploring strategies of dispersal as mechanisms of cultural self-preservation in the face of colonial violence and cultural entanglement. Insights derived from this review are then used to contextualize the 17th-century dispersal of the Huron-Wendat from their homeland in Ontario, Canada. The results of this study offer a new way to conceptualize strategies of migration and cultural integration, and the ways in which people negotiate social, ideological, and economic spheres in the face of colonial entanglements.

**Sutton, Wendy (USDA Forest Service, Gila NF)**

Blast Caps and Other Stories of the CCC on the Gila National Forest: Imaging and Reimagining the North Star Road

The CCC and other New Deal agencies were active across the Gila National Forest during the 1930s. The North Star Road (which experienced earlier use as a Military Road) runs alongside the Gila Wilderness, the nation’s first wilderness area, established in 1924. The road is now sandwiched between the Gila Wilderness and the Aldo Leopold Wilderness (part of the first Wilderness established in 1964, under the Wilderness Act). Significant work was conducted along the North Star Road by the CCC. How does the work conducted within this corridor reflect community priorities and values associated with the early wilderness movement? How do we manage this unique landscape and its cultural, recreational, and natural values into the future?

**Suvrathan, Uthara (Cornell University)**

Spaces and Places: Examining Historic Maps from South Asia

This poster presents a preliminary attempt to systematically interpret and analyze historical cartographic data from South Asia. Information from historic maps of South Asia is combined with archaeological settlement data to reconstruct the nature and distribution of regional administrative and religious centers in south central India. Preliminary research in the area suggests that regional administrative centers often occupied a place in local pilgrimage and trade networks. However, this position was not static and seems to have been closely linked to multiple factors such as the political strategies of elites, imperial expansion, regional trade systems, and the establishment of religious institutions. By examining a wide corpus of medieval and colonial maps of South Asia, dating from the 16th century to the early 19th century, and comparing this data to published archaeological settlement data, it is possible to trace some of the spatial and temporal configurations of the loci of political and religious authority. In addition, the poster comments on western and indigenous ideas of the organization (and control) of space.

Suyuc, Edgar O. [408] see Hansen, Richard

**Swaim, Abby**

Documentation of Missouri White-tailed Deer Chronoclines: Implications for Archaeology, Paleoeecology, and Conservation Biology

Multiple ecological factors (e.g., Bergmann’s rule, competition, reproductive rate, home range size, food quality and quantity) may cause changes in animal body size over time. White-tailed deer (Odocoileus virginianus) are ideal for studying these variables due to their importance today (to hunters and to wildlife enthusiasts), their known phenotypic plasticity in response to ecological factors, and their high frequency in zooarchaeological collections. Using post-cranial, weight-bearing bone measurements, I determine if stunting of modern Missouri white-tailed deer has occurred relative to prehistoric deer. Possible causes including forage availability, predation and intraspecific competition are evaluated. Missouri samples are compared to modern and prehistoric deer samples from central Texas as a means to gauge current and paleoecological similarities and differences between the two states. The advantages of incorporating paleozoological data with modern conservation biology are highlighted.

**Swain, Todd (National Park Service)**

Legal Issues Concerning Cultural Heritage Resources Damage Assessments
The Archaeological Resources Protection Act (ARPA) was passed in 1979. ARPA requires archaeologists to calculate three different types of value to quantify the amount of loss in federal looting incidents: archaeological value, commercial value and cost of restoration and repair. In 2002, a section was added to the U. S. Federal Sentencing Guidelines to cover the damage, theft and trafficking of Cultural Heritage Resources. These guidelines also require archaeologists to calculate the amount of loss for sentencing purposes. Despite hundreds of training courses and numerous court rulings concerning archaeological damage assessments, many archaeologists are still ill-prepared to complete a document that will withstand scrutiny within the federal legal system.

Swanson, Steve [137] see Vorsanger, Andrew

Swanson, Steve (Arizona State University)
[182] Mimbres Games, Gambling and Gods
This paper reviews the archaeological evidence for the presence of games played by the prehistoric inhabitants of the Mimbres region in the US Southwest/Northwest Mexico, emphasizing perishable materials recovered from cave/rock shelter deposits and iconic imagery present on Mimbres ceramic vessels. The archaeological evidence is compared with ethnographic information for gaming and gaming-related activities among Western Puebloan groups. Gaming and gambling among the ethnohistoric Hopi, Zuni and Acoma were important ritual as well as secular activities, and serve as an interpretive framework for understanding the relationship of prehistoric games and gambling with Mimbres ritual.

Swantek, Laura (Arizona State University)
[51] Understanding Changes in Social Complexity during the Prehistoric Bronze Age on Cyprus: A Bottom-Up Approach
For at least the last 5,000 years, competition for social and economic control led to the acquisition of social power and wealth by some individuals or groups and the emergence of complex social systems. This paper will present the preliminary results of a larger study intended to identify the changing network structures that underlie society at the household, village and regional scales and led to the emergence of social complexity as a system-level phenomenon during the Prehistoric Bronze Age on Cyprus (2400-1700 Cal B.C.E.). Using data from excavated settlements and cemeteries as proxies for facets of social and economic inequality-- including differential access to resources, labor, and exchange networks-- this research quantifies wealth based on Gini Coefficients and identifies changes in social networks and the emergence of social complexity through time and across space. It incorporates theories and methodologies developed in the interdisciplinary field of complex systems science and network theory in conjunction with anthropological thinking. The results of this work will give us an understanding of how social complexity emerges and changes in middle-range society and offers a more in-depth understanding of the Prehistoric Bronze Age on Cyprus.

Swavely, Ty [316] see Marinkovich, Erik

Sweeney, Angelina (The University of Texas at Austin), Robyn Dodge (The University of Texas at Austin), Fred Valdez, Jr. (The University of Texas at Austin) and Lauren Sullivan (The University of Massachusetts Boston)
[248] Sourcing the Clay: LA-ICP-MS Analysis of Ceramics from the Programme for Belize Archaeological Project, Northwestern Belize
This poster presents results of recent provenance research of Lemonal Cream ceramics from the Programme for Belize Archaeological Project (PIBAP) region located within the Rio Bravo Conservation Management Area in Northwestern Belize. We used laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) on Lemonal Cream wares from four different sites within the PIBAP region to determine the elemental signatures and compared them to the elemental signature of clay deposits uncovered in a chultun. The resulting elemental data bear on the nature of possible specialization of ceramics from Hun Tun, a small community located within the hinterlands.
of La Milpa.

Swenson, Edward [142] see Berquist, Stephen

**Swenson, Edward (University of Toronto)**

**Rethinking the Urban Microcosm in the Ancient Andes: The Extended Neighborhoods of the North Coast of Peru**

Anthropologists have argued that early urban neighborhoods were equivalent to small villages that maintained kinship relations and economic dependencies characteristic of the rural sphere. Other scholars have noted that different urban centers (including in Mesoamerica, Angkor, and New Kingdom Egypt) were similarly configured as “sociograms” of larger territorial and ethnic boundaries. The political landscape of the North Coast of Peru offers important comparative data by which to assess the social, spatial, and symbolic divisions of pre-industrial cities. An analysis of the residential sectors of a number of Moche settlements in the Jequetepeque Valley reveals that distinct neighborhoods can be tied to rural and likely kin-based affiliations. However, the diversity between these centers and the non-fixed and extended nature of Jequetepeque neighborhoods reveal that North Coast urbanism defies reduction to an Asiatic mode of urbanism (Marx’s “ruralization of the urban”) or related village-state models. Instead, the distinctive neighborhood configurations are best explained in terms of historically specific religious and political ideologies.

**Discussant**

Swetnam, Thomas [110] see Guiterman, Christopher

**Swetnam, Thomas (Laboratory of Tree-Ring Research, University of Arizona) and Joshua Farella (Laboratory of Tree-Ring Research, University of Ar)**

**Fire, Forests, Climate and People in the Jemez Mountains: A 500-Year, Landscape-Scale Perspective**

Forests and human communities are now extremely vulnerable to large, severe wildfires during droughts as a consequence of fire exclusion and other land use practices. The extent to which this vulnerability is influenced by extreme climate events and past land-uses remains unclear. Combined studies of climate, fire and human histories from the same landscape can help reveal the relative roles of people and climate variations in driving spatial patterns and temporal trends of wildfires. The Jemez Mountains of north-central New Mexico are an exemplary case of the influences of long-time human occupation of fire-prone, forested landscapes. The southern Jemez Plateau is unique as a case study landscape because it contains many ancient Puebloan village and “field house” ruins located within ponderosa pine forests and pinyon-juniper woodlands. This landscape also contains the densest network of tree-ring reconstructions of fire and climate histories combined in the world, which we have assembled over the past 30 years. In this presentation, I will explore the trends and patterns of fire, climate and human history over the Jemez Plateau during the past 500 years, utilizing these tree-ring reconstructions and the chronology of human occupation of these landscapes from archaeological investigations.

**Swidler, Nina (Annulare Consulting, LLC), Johna Hutira (Northland Research, Inc.) and Joyce Francis (Arizona Game and Fish Department)**

**Amity Pueblo: A Different Sort of Horror**

In 2011, a portion of Amity Pueblo, located in northeastern Arizona on State land, was extensively damaged by a federally-funded development project. After heavy equipment disturbed features and burials, exposing over 40,000 cultural items, it was no surprise that Arizona permanently cancelled the project. While archaeologists previously evaluated the Pueblo as eligible for listing on the National Register under Criterion D for its scientific research potential, four tribes countered that Amity is a TCP, eligible under Criteria A, B, C, and D. State and federal agencies, tribes, and interested parties are currently trying to develop a research design/treatment plan that satisfies everyone’s concerns. These discussions underscore two seemingly divergent worldviews and interpretations of NHPA’s intent, creating a quandary all too familiar to indigenous communities and...
one that is endlessly debated by Academy members. Namely, considering Amity’s eligibility under Criterion D, most archaeologists advocate for a standard archaeological data recovery approach, despite the State’s commitment to preserving Amity in perpetuity. In contrast, the tribes and a few others favor a less physically invasive approach, including site burial and conducting ethnographic assessments with the culturally affiliated tribes. Here we examine the debate to ascertain the most reasonable, ethical, and prudent treatment strategy.

[197]  

Chair

Swift, Jillian (UC Berkeley) and Patrick Kirch (UC Berkeley)

[339] The Rat’s-Eye View: Tracing the Impacts of the Human-Introduced Pacific Rat (Rattus exulans) on Mangareva through Stable Isotope Analysis and Zooarchaeology

Early Polynesian voyagers transported a suite of plant and animal species to each new island they colonized, forming the foundation of the Polynesian subsistence economy and leading to long-lasting transformations of island landscapes. The Pacific rat (Rattus exulans) was nearly ubiquitous on these journeys, perhaps as a potential food source or simply an inadvertent stowaway. With few natural predators, rat populations multiplied quickly after arrival and spread across island landscapes. Their introduction was potentially devastating to native forests and their consumption of small birds and eggs may have led to or exacerbated avifaunal extinctions and extirpations. The limited home range of Pacific rats offers potential to investigate changing environmental conditions on a localized scale. Recent excavations on Mangareva (Gambier Islands) uncovered three sites with continuous well-stratified deposits dating from colonization to European contact (~A.D. 950-1650). Dietary reconstruction of Pacific rat remains from these sites via bone collagen stable isotope analysis reveal an archipelago-wide pattern of rat dietary change postdating the disappearance of most avifaunal species from the zooarchaeological record. Inter-site analysis indicates variation in the nature of these dietary changes, suggesting rat dietary reconstruction provides a new outlook on localized environmental change and adaptive response in island systems.

Swoger, Christopher

[91] Obsessively Opacifying Obsidian: Adapting Three Dimensional Laser Scanning Techniques

Three dimensional (3D) imaging technologies are being increasingly utilized by archaeologists to improve the accuracy of material analysis. To facilitate the development of these technologies, it is crucial to determine the limits of different devices and materials. This project focused on the challenge of scanning obsidian blades with the Next Engine HD 3D Laser Scanner, a popular and inexpensive choice among researchers. The Next Engine device was used to scan six small obsidian blades from several Late Holocene sites in northern Kenya. In order to probe the limits of the technology when confronted with dark and reflective surfaces, several simple non-permanent surface treatments and scan techniques were tested on the obsidian blades including the application of an opacifying powder, a coating of cornstarch, and the use of the multidrive object stand. Results are compared with images created using standard lithic illustration methods, photography, and 3D photogrammetry to determine their usefulness in analysis.

Swords, Molly (University of Idaho)

[45] Unearthing Sandpoint’s Chinatown: the Archaeology of Sandpoint, Idaho’s Overseas Chinese

Established in the early 1880s, Sandpoint, Idaho became a bustling railroad and lumber town with commercial businesses sprouting along the Northern Pacific railroad tracks. Overseas Chinese came through the town when building the railroad, but quickly moved on along with the construction. Who then, were the Overseas Chinese that came and settled, making Sandpoint their home? Archaeological investigations of the original town site uncovered a structure referred to as Sandpoint’s “Chinatown” within the city’s historical records. While this “Chinatown” area may be small, excavations yielded a plethora of artifacts that give a glimpse into the lives of these Sandpoint residents. This paper will discuss the artifacts recovered from this “Chinatown,” and shed more light on the lives of Overseas Chinese in northern Idaho.
Sykes, Naomi (University of Nottingham) and Holly Miller (University of Nottingham)

[339] Animal Diaspora and Culture Change

Animal introductions are frequently equated with the introduction of new dietary ingredients; however, this paper will argue that access to 'meat' is seldom the motivation for the importation of exotic species. By examining a number of case-studies pertaining to Britain it will be proposed that many faunal introductions were both inspired by, and resulted in, social, economic and ideological change. Many species were associated with specific deities and because they were imported from beyond the 'known realms' of Britain, were viewed as cosmologically powerful. In this way, the arrival of new species brought real changes for human behavior, impacting upon the way in which identities and relationships were negotiated.

Szpak, Paul (University of British Columbia), Christyann Darwent (University of California, Davis) and John Darwent (University of California, Davis)

[166] Historical Marine Ecology in Northwestern Greenland: Insight from Stable Isotope Analysis

This study presents stable carbon and nitrogen isotopic compositions for zooarchaeological specimens from three sites in Inglefield Land (northwestern Greenland) representing approximately the last 1,000 years. Isotopic compositions for planktivorous seabirds (little auk, Alle alle) reveal general stability in biogeochemical cycling at the base of the food web since the end of the Medieval Warm Period. On the other hand, marine mammals (ringed seal, bearded seal, walrus) exhibit variable foraging habits across time, with surprisingly high amounts of niche overlap relative to other regions in the Arctic. The results are discussed in light of prehistoric human settlement and subsistence in the region and the potential effects of anthropogenic perturbations on the marine ecosystem.

Szremski, Kasia (Vanderbilt University)

[227] Entangled Encounters between the Chancay and Chaupiyunginos in the Huanangue Valley, Peru

This paper builds off of recent calls to re-evaluate Murra’s model of verticality and explores the utility of entanglement theory as an alternative way to understand the different relationships that developed between groups living on the western slopes of the Peruvian Andes during the Late Intermediate Period (1100-1470 CE). Entanglement theory is increasingly being used in Old World archaeology to examine the complex types of interdependencies that develop between groups when exotic goods are inserted into local systems of value (Dietler 2010). Recent data from the Huanangue Valley suggests that similar processes may have occurred between the Chancay and chaupiyunginos during the Late Intermediate Period; however the mechanisms through which entanglement occurred in the valley are still being defined. This paper will examine botanic and faunal data from excavation at the sites of Campo Libre and Salitre in conjunction with least cost path analysis in order to reconstruct the dynamics of interaction between the Chancay and Huanangue valleys and to show that the Chancay settlers living in the Huanangue Valley were doubly entangled as they were dependent upon local chaupiyunginos for access to irrigation water as well as on their coastal counterparts for access to peanuts and marine resources.

Szumilewicz, Amy (Southern Illinois University, Carbondale), Izumi Shimada (Southern Illinois University, Carbondale), Carlos Elea Alvarado (National Sicán Museum, Ferreñafe, Peru) and César Samillán Torres (National Sicán Museum, Ferreñafe, Peru)

[371] Biography and Symbolism of Sicán Painted Textiles: First Approximation

Simple cotton cloths primed as canvases and painted with complex imagery are the rarest group of fiber arts found in the Andes. Long-term excavations of Middle Sicán (900-1100 CE) elite cemeteries at the site of Sicán on the North Coast of Peru, however, have shown that high quantities of these paintings, often in polychrome and over 10m in length, decorated the interior surfaces of elite tombs. In this paper we present evidence for their manufacture and use, as well as approaches to preserving and reconstructing their rich iconographic content. The use of cane or wooden frames and supports, as well as the portability and varied imagery, size and shape of cloths suggest that
they were used as situationally adaptable means of creating appropriate ritual spaces in the world of both the living and the dead. Additionally, using the documented examples from attached cemeteries of two major temple mounds at Sicán, we compare painted textiles from two distinct contexts as a new line of evidence for understanding how deceased individuals in tombs associated with each temple may have differentiated their socio-political station, economic roles, or familial ties through visual culture in death.

Szymanski, Ryan (Washington State University)

[176] Nested Proxies: Multi-scalar Approaches to Interpreting Human-Landscape Interactions

Interpretive challenges involving issues of equifinality and causation can chronically hamper environmental reconstruction efforts, as numerous physical, environmental, or anthropogenic processes may potentially be responsible for creating observed raw data patterns. Nested multi-proxy and multi-scalar analyses offer potential means of approaching these difficult conceptual issues which can plague interpretations reliant on single lines of proxy evidence. A dataset comprised of multiple paleoecological proxies, including pollen, phytoliths, and fungal spores, derived from a five meter sediment core from Mtwapa Creek, Kenya, is presented in order to illustrate these issues and means of resolution. Using the different origin points, production, distribution, deposition modes, and associations of these proxies, I argue that discord in data between these sources can aid in isolating some of the possible environmental scenarios which may have produced particular data patterns, and may enable researchers to more effectively separate anthropogenic versus climatic impacts on past environments. It is proposed that more intensive study of the microbotanical content of sediments is critical to improving paleoecological, and by extension, archaeological knowledge of ancient landscapes and their inhabitants.

Tackney, Justin [238] see Fitzpatrick, Scott

Takamiya, Hiroto (Sapporo university) and Hitoshi Yonenobu (Naruto University of Education)

[115] Transition from Hunting and Gathering to Food Production on the Ryukyu Archipelago, Japan

It has been suggested that in order for Homo sapiens to colonize islands, food production is necessary. Indeed most islands were successfully colonized by farmers. However, some islands were colonized by hunter-gatherers. These islands are characterized by 1) large areas 2) close proximity to a continent or large island 3) consistent availability of sea mammals 4) Dispersal of edible plant and/or animal resources from the mainland or 5) a combination of these features. Recent archaeological studies have revealed that the islands of the Ryukyu archipelago, especially Amami and Okinawa archipelagos, do not possess any of the above mentioned features but were successfully colonized by hunter-gatherers. In this region, like other regions of the world, archaeologists have been interested in the transition from hunting and gathering to food production. Accordingly, several hypotheses have been proposed. This paper will present intensive paleoethnobotanical studies together with latest radiocarbon C14 dates to discuss the timing and development of this transition.

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[52] Nukubalavu 1: A Preliminary Examination of Mid-Sequence Ceramics and Culture Change on Vanua Levu, Fiji

We present new data from the ceramic assemblage from the site of Nukubalavu 1 in Natewa Bay on Vanua Levu, Fiji. The site was excavated in the summers of 2013 and 2014; it is one of the only excavated sites on the island of Vanua Levu. Over 29,400 sherds were analyzed, many of which are diagnostic, typical of stylistic phases in the Fijian ceramic sequence. The assemblage includes Late Lapita (ca. 2500 BP), Fijian Plainware (ca. 2500-2100 BP), and Navatu (ca. 2100-900 BP) phases of the Fijian mid-sequence, representing what are considered distinct culture historical periods in Fijian prehistory. In the summer of 2014, we discovered an increased amount of grog, white sand, and coarse black sand used as tempers. Arc dentate decoration is visible on some fragments, and a previously unrecorded style of surface decoration, a fish-hook shaped design, was discovered on