Byrne-Bowles, Rhiannon [310] see Burton, Margie

Byrnes, Allison (Mercyhurst University, Erie, PA), Allen Quinn (Mercyhurst University, Erie, PA) and David Pedler (Mercyhurst University, Erie, PA) [331] The Ripley Site Midden: Iroquoian Refuse Disposal in Chautauqua County, Western New York

The Ripley Site is a Late Woodland through Historic period Iroquoian site overlooking Lake Erie, in the Eastern Lake section of the Central Lowlands physiographic province in western New York. In its continuing investigations of the bluff-top site, Mercyhurst University (Erie, PA) is focusing attention on a presumed refuse midden, where the village’s inhabitants cast refuse downslope toward Young’s Run, which lies to the east of the village, proper. Here, we define the boundaries of the midden, characterize the materials found therein, and, when possible, compare and contrast the assemblages from the midden and adjacent village.

Cabadas, Héctor [231] see Andrade, Israel

Caballero, Margarita (Lab. Paleolimnología, Instituto de Geofísica, UNAM), Socorro Lozano-Garía (Instituto de Geología, Universidad Nacional Autónoma) and Beatríz Ortega (Instituto de Geofísica, Universidad Nacional Autónoma) [129] Trends in Late Holocene Climate Change in Central Mexico

Lakes in central Mexico are ideal sites for the study of late Holocene climatic trends. These lakes have high sedimentation rates and their sediments are rich in pollen, diatoms and other biological remains that allow reconstructions of past environmental, ecological and climatic changes. In these lakes, precipitation, concentrated during the summer months, is frequently more important than temperature as a long-term environmental control; however, both variables are connected by climatic mechanisms. We present a review of late Holocene lake records from central Mexico that show climatic variability, its impact on tropical ecosystems and document human impact in this culturally rich region. In these records the main climatic trends that can be identified are: 1) a trend to dry conditions during the Classic, particularly the late Classic (A.D. 600 to 900), 2) Relatively moist conditions during the late Post-Classic (Ad 1200-1400) and 3) colder Little Ice Age, with two dry phases that follow the Spörer and Mounder solar minima (1400 - 1560 and 1650 - 1750).

Cabana, Graciela [204] see Pack, Frankie

Cabanes, Dan [53] see Wroth, Kristen

Cabello, Erika [134] see Serrudo, Eberth

Cadeddu, Francesca [417] Settlement Strategies and Environmental Features in the Sardinian Bronze Age: a Remote Sensing Approach

In this paper, we provide a remote sensing approach for the analysis of the settlement patterns of the Nuragic civilization, using data from Landsat 7 ETM+ in a sample area of Sardinia (Gallura). By evaluating archaeological and geological data through remote sensing imagery, we outline a territorial characterization to identify patterns in the settlement choices of the Bronze Age communities, through the use of Geographic Information Systems and Spatial Statistical Analysis. This method reveals new aspects in the settlement strategies and shows how, and to what extent, an integrated approach can shed new light on different facets of the Nuragic civilization, a long-lasting culture that existed in Sardinia (Italy) from the Middle Bronze Age (ca. 1600 B.C) to the early Iron age (ca. 800 B.C.). With the use of the Earth Observation (EO) methodologies and the GIS platform, we reconstruct, with a high level of precision, the geomorphology of the examined area and analyze the spatial statistical relationship between Nuragic settlements and environmental features. As a result we identify a different settlement strategy for the Nuragic civilization in Gallura, in spite of the
Cadena, Bibiana and Meggan Bullock (Escuela Nacional de Antropología e Historia)  
[393] *Indigenous Testimony to the Conquest of Mexico: An Osteological Analysis of Violence in Contact-period San Gregorio Atlapulco, Xochimilco*

While ethnohistoric documents offer insights into the physical and structural violence that accompanied the Spanish conquest of Mexico, these accounts are typically written from the perspective of the conquerors. Few native testimonies exist that provide an indigenous perspective of this period of social, economic, and political upheaval; however, human skeletal remains offer a means of directly evaluating the violence of the Conquest and its impact on the native population. The archaeological site of El Japón in San Gregorio Atlapulco, Xochimilco was the subject of an archaeological salvage project in the 1990s in which 389 burials were excavated. Archaeological data clearly date these skeletons to the decades following the Conquest. An osteological study of violence in the skeletal sample, which incorporated archaeological, paleodemographic, and paleopathological data, as well as detailed analyses of perimortem trauma, indicates that a large number of individuals of both sexes and all ages died in a massacre of the population. Cranial trauma and defensive wounds are frequent in the sample as is evidence of decapitation, dismemberment, and defleshing. The appearance and patterning of these traumatic lesions suggest that both Europeans and indigenous individuals participated in the violence against the inhabitants of San Gregorio Atlapulco.

Cagnato, Clarissa (Washington University in St. Louis), Olivia Navarro-Farr (The College of Wooster), Griselda Pérez (Proyecto Arqueologico El Perú-Waka') and Damaris Menéndez (Proyecto Arqueologico El Perú-Waka')  
[338] *Feeding the Gods, Calling the Rains: Archaeobotanical Remains from a Monumental Fire Shrine at El Perú-Waka’, Guatemala*

The discovery of a fire shrine atop the adosada of Structure M13-1 at El Perú-Waka’ supports the archaeological and epigraphic records which have at various places in the Maya region (including Waka’) made reference to the arrival in A.D. 378 of Siyaj K’ak’. This event resulted in the introduction of the fire shrine cult, glossed as Wite Naah in Mayan, from Teotihuacan to the Maya Lowlands. M13-1’s cal A.D. 7th century fire shrine is the final phase of the main temple’s fronting platform. Careful collection of soil samples and the subsequent archaeobotanical analysis makes this context unique as no other such fire shrines have been fully sampled for plant remains. These new data provide additional avenues for exploring rituals carried out at these fire shrines. The plant remains, understood as offerings to the gods, include wood, diverse types of seeds, flowers, and incense, and reflect a special concern with themes of fertility, water, and agricultural abundance. This unique deposit provides new insights into the ritual use of plants among the ancient Maya; activities that continue today.

Cai, Yan (University of Pittsburgh)  
[52] *Socioeconomic Change in Tikopia Household under the Perspective of Ecological Change*

My analysis provides a picture how socioeconomic organization change in terms of changing ecology. Differences in aggregated artifact assemblages between households and sites in the KS phase have been taken to indicate participation in mutually exclusive economic activities (eg. Wood working, fishing, and animal processing), the products of which were then exchanged for those of other units. In contrast, a weak difference in the proportional composition of economic artifact assemblages between sites indicates that sites were not emphasizing different economic activities. Instead, the significant difference reflected on the social artifact assemblages (eg. Ceramic, ornaments and religious ornaments). This pattern indicates the economic exchange did not appear across the sites, but a growing social differentiation appeared on the island. The pattern of socioeconomic organization is related to the abundance and diversity of resources in the landscape. A declining aggregated artifacts between households and sites in the Tuakamali phase indicates that individual households were considered the central economic decision making, showing a high degree of autonomy among households and sites. The pattern of economic organization resulted in
a decreasing social differentiation. This process was associated with the ecology shift, from diversity of wild resources to concentration of domestic resources.

Cai, Linhai [345] see Wang, Shuzhi

Cail, Hannah [312] see Tifental, Emilia

Cain, Tiffany and Richard Leventhal (University of Pennsylvania)

[218] Heritage Preservation, Community Development and Sustainability: Tihosuco, Mexico and the Caste War of the Yucatan

International tourism is a powerful economic force in Mexico today, but usually provides little help to indigenous communities except through a long process of economic trickle-down. In addition, many ancient sites which are the focus of this tourism, are controlled by the nation-state with indigenous peoples often having little say about development or use of the economic benefits. Our recent project in Tihosuco, Quintana Roo is a collaboration between the town of Tihosuco, the Tihosuco Ejido, the local Museo de la Guerra de Castas, and the Penn Cultural Heritage Center. This project focuses upon the local heritage of the rebellion of the mid-19th century called the Caste War of the Yucatan – one of the most successful indigenous rebellions in the Americas. This project is focused upon the following: 1) the local identification of a Maya heritage and identity – tied to the Caste War; 2) the documentation and preservation of this heritage both in the jungle surrounding Tihosuco and in the town itself; 3) the identification and preservation of a series of additional important features including language, historical photographs, oral histories, and other things; 4) the gradual development of a sustainable tourism program, run by the local community.

Caine, Alyson (Durham University)

[380] The Skeletal Findings from Excavations in the Batinah, Oman

Background. The presence of limited settlements has limited the understanding of prehistoric occupation in the Arabian Peninsula (Potts 1990). Interest and research of Arabia during the Bronze (3200-1200 B.C.) and Iron Age (1200-400 B.C.) has increased producing a greater understanding of the people from the region and their culture.

Methods. A total of sixty-four tombs were excavated with twenty-seven yielding human remains. These twenty-seven tombs originated from various periods of the Bronze and Iron Age. Each tomb was analyzed independently for demographic information (age and sex) as well as pathological prevalence.

Results. Eight individuals were assessed for age, two non-adults and six adults. Twelve individuals were assessed for sex; six females, four males, and two ambiguous sex. Pathological conditions were identified in fourteen individuals with varying prevalence; dental diseases 9%, new bone formation 14%, osteophyte formation 21%, and metabolic disease 7%.

Discussion. Research on the health and demography of prehistoric Arabian populations can further illuminate the past stories of these regions that are not well understood. Any additional information on the peoples of the past will help with the understanding of health today as well as further elucidate our health history.

Cajigas, Rachel (University of Arizona) and James Watson (Arizona State Museum and the University of Arizona)


El Cementerio [SON P:10:8] is a late Ceramic period (cal. A.D. 943-1481) burial mound in Central Sonora, Mexico. The mound was constructed within the floodplain about 300 meters from the eastern bank of the Rio Yaqui. We conducted micromorphology analysis (the microscopic analysis of undisturbed soils and sediments) in order to characterize the nature of the soils and sediments used
to construct the mound. Samples were collected in situ from excavation units across the mound, with their orientation preserved. Thin sections were made and then analyzed with a petrographic microscope. Twenty-one samples were collected from various soil horizons and contacts to determine the construction practices and whether natural soil forming processes have been occurring in the mound. Preliminary assessments suggest that the visible mound stratigraphy is a result of a combination of naturally occurring soil forming processes following the construction of the mound, and an artifact from the soils used to construct the mound. This is significant because certain soils and sediments may have been intentionally selected for construction of the mound.

Calaon, Diego (Marie Curie Fellow, Stanford, US - Ca' Forscari Venezia, I)

Between 2010 and 2013 an archaeological excavation was carried out in the warehouse where the Beekrumising Ramallah Interpretation Center on Indenture Labour (BRIC) has been set up. In the 19th century, the warehouse was located in the proximity of the “Hospital Block” and nearby the “Immigrants’ sheds” of the Immigration Depot. The excavation represented an exceptional opportunity to investigate the topography and the industrial development of a key area of Port Louis. The ceramic, glass and metal assemblages offer a fascinating picture of the material culture of the tropical colonial city between 18th and 20th century. The site was connected with the landing place of the indenture immigrants (as shown in the maps dated 1857) and with the Aapravasi Ghat as a former Immigration Depot. The excavation investigated one of the key area in the Indian Ocean World. The depot’s role in social history was also recognized by UNESCO in 2006. The archaeological reconstruction proved that Trou Fanfaron, the area where the building complex is located, was also the landing point for the French East India Company: in the same area slaves were imported and traded from Africa and India.

Calás, Elisa [318] see Ballester, Benjamín

Calhoun, Sis [66] see Gaskell, Sandra

Calla, Sergio [247] see Warren, Matthew

Callaghan, Michael (Southern Methodist University) and Brigitte Kovacevich (Southern Methodist University)

In this paper we will discuss how ritual activities in both emergent elite and commoner Maya households contributed to the development of social complexity and hierarchy during the Preclassic period at the site of Holtun, Guatemala. Our working hypothesis at the site is that while certain households successfully manipulated traditional ritual practices and symbols related to political and religious authority, all households would have contributed to the cultural milieu in which the dominant households were able to develop in the Middle and Late Preclassic periods. Through time, non-dominant households may have been excluded from using primary symbols of power, or may have actively sought out new symbols to counteract emergent power. We identify this process through comparison of contexts of ritual activity, and artifacts found within them, in households identified by sub-surface and tunneling excavations. We hope to show that ritual contexts indicate household innovation, support, and active engagement with emergent symbols of power during the Middle Preclassic period. However, ritual activity may diverge during the Late Preclassic, indicating avoidance/independence or possibly even resistance in a movement from solidarity to autonomy among households at the site.

Callow, Christopher (University of Birmingham)

This paper briefly sets out and analyses recent terminological discussions among archaeologists and
other scholars working on regions influenced and settled by 'vikings' in the Viking Age, c.800-c.1050 CE. 'Diaspora' has, perhaps belatedly, been a term applied to the pattern of social and economic relationships linking some communities across Europe and the North Atlantic. The applicability of the term 'diaspora' or of seeing a series of diasporic communities will be considered alongside the more detailed papers in this session.

[18] Chair

Cambra, Rosemary [293] see Leventhal, Alan

**Cameron, Catherine (University of Colorado) and Lindsay Johansson (University of Colorado)**

[182] The Biggest Losers: Gambling and Enslavement in Native North America

This paper explores an apparently common outcome of gambling among the indigenous inhabitants of North America – the enslavement of individuals who wagered themselves (or their family members) and lost. Archaeologists are becoming increasingly aware that slavery was not a post-contact phenomenon, but existed prehistorically in societies operating at a variety of socio-political scales from bands to states (Cameron 2008, 2011, in prep., Kohler and Turner 2006, Koziol 2012). Most captives were taken during raids or warfare, but the ethnographic, ethnohistoric, and historic data we present suggests that gambling could also be a source of slaves. We present accounts of men gambling away children, wives, and eventually themselves, sometimes limb by limb. In some cases these unfortunate people became slaves for life. In others, they could be redeemed by their relatives who paid their debt or through their own efforts at repayment. Sometimes the winning gambler sold his newly acquired slave to another, often distant, group so he would not have to suffer disapproval for enslaving a fellow group member. We argue that these accounts provide evidence that enslavement through gambling also occurred prehistorically and then use oral histories to support our argument.

Cameron, Catherine [354] see Lekson, Stephen

**Cameron, Asa (Cornell University)**

[403] Herding Strategies during the Xiongnu Period of Mongolia: A Comparison in the Diet of Domestic Fauna from the Egiin Gol Valley and Baga Gazaryn Chuluu

During the Xiongnu Period (300 B.C.-A.D. 100), mobile agro-pastoralism constituted the primary form of subsistence. While this is supported by domesticated animal remains uncovered in mortuary and domestic contexts and historical and micro-botanical evidence for the use of agricultural products, a dearth of research exists concerning the variation of mobile agro-pastoralism among the Xiongnu. As such, this paper centers on regional differences in herding patterns and specifically does so through the use of δ13C/δ15N bulk sampling of mandibular and maxillary teeth of domestic herd animals. The samples tested in this study were recovered from mortuary sites in two distinct ecotones of Mongolia: the Egiin Gol Valley in the north (EG) and Baga Gazaryn Chuluu (BGC), an area located within the desert steppe of the north Gobi. By comparing the δ13C and δ15N values of samples from EG and BGC, this study reveals intra-species and inter-regional trends in C3/C4 plant and water consumption during the Xiongnu Period. In addition, the δ13C/δ15N data generated in this study is compared against existing δ13C/δ15N data from Bronze Age and Xiongnu Period human remains recovered from EG as well as modern δ13C/δ15N data generated from Ovis sp. and Capra sp. remains collected in BGC.

**Camp, Anna (University of Nevada, Reno)**

[87] A Twist on Taphonomy: Catlow Twine Basketry in Archaeological Contexts

This presentation is a first attempt to trace the taphonomic trajectory of specimens of Catlow Twine, an important kind of basketry technology. Catlow Twine basketry spans over ~9,000 cal B.P. years in the archaeological record of the Great Basin. The longevity of this artifact class and its appearance throughout the Northern and Western Great Basin allows for a thorough investigation of how it has been used. Catlow Twine is simple close twine technology; one of the oldest techniques in the Great
Basin. It was used to make mats, large trays, small bowls, hats, and burden baskets. The manufacturing techniques and materials of this type are extremely strong and flexible, allowing for the creation of versatile and long lasting objects in the archaeological record. Compiling data about this technology has revealed how the original form and use of some Catlow Twine baskets changed through time, indicating completely new final purpose and destination.

Camp, Stacey (University of Idaho)

[305] The Archaeology of First Generation Japanese American Men at an Idaho WWII Internment Camp

Amidst wartime xenophobia, the United States government unjustly imprisoned over 120,100 individuals of Japanese heritage during World War II. Despite being housed in dreary, tar-papered military barracks at sites that ranged from former racetracks to prisons, Japanese internees transformed their inhospitable living conditions into places that embodied some semblance of home and Japanese culture. These transformations were material in nature; internees creatively modified and consumed American-made goods, designed, built, and grew elaborate and ornate gardens, and composed expressive art work utilizing local materials gathered from the desolate camp landscapes and trash middens. As scholars are now recognizing, such activities expressed not only internee resistance to unjust imprisonment, but also communicated differences and transformations taking place within the Japanese American community itself. This paper examines how one group of first generation Japanese (also known as “Issei”) men incarcerated in the remote wilderness of North Idaho coped with incarceration based upon two archaeological field seasons at the camp in which they were imprisoned.

Campan, Patricia [251] see Belardi, Juan

Campbell, Wade

[103] A Predictive Model of Archaeological Site Location in the Hodh ech Chargui Region, Mauritania

This paper presents a model to determine potential archaeological site locations in far southeastern Mauritania (known as the Hodh ech Chargui). Although sustained archaeological research has been carried out throughout West Africa since the 1940s, the 81,000 km2 Hodh ech Chargui region has been poorly examined, with two regional surveys constituting the majority of the archaeological record for the area. It has been proposed that the Hodh ech Chargui served as a place of passage between the two Early to Late Iron Age population centers in the Hodh Depression and the Middle Niger Delta, rather than a place of settlement itself (MacDonald 2009: 45). The preliminary results of this model provide a foundation for testing this hypothesis, and more broadly illustrate the potential for GIS and remote-sensing based approaches to plan research in areas of interest throughout the ancient world.

Campbell, John (Memorial University of Newfoundland)


The Transitional Archaic (4,100 -2,700 BP) is an often overlooked and underrepresented period in the Northeast; especially in the Maritime Provinces. To explain the origins of these “broadpoint using” cultures, archaeologists over the past few decades have embraced either a cultural diffusion or migration model. In this paper, I reopen the debate by examining existing collections from Maine and the Maritime Provinces, including the newly discovered Transitional Archaic component at the Boswell Site (BfDf-08) in Nova Scotia. In particular, this research aims to re-evaluate the migration theory through the study of lithic usage and subsistence strategies over this broad area.

Campbell, Timothy [124] see Selden, Robert

Campbell, Sarah (Western Washington University), William Damitio (Western Washington University) and Ryan Desrosiers (Western Washington University)
In faunal analysis, rare taxa can potentially provide valuable biogeographic or socioeconomic information, but are inherently difficult to interpret and to integrate with quantitative measures. Working with extremely large assemblages highlights these issues. Among the half million specimens of shell identified from the Tse-Whitzen village site are more than 20 taxa represented by less than 30 specimens. There is no single explanation for the presence of taxa in very low numbers, and the interpretive significance of their presence varies as well. In this assemblage, some taxa are present only as modified artifacts, i.e., ornaments (jingle shell, abalone, scallop), and others are non-food taxa which are likely to have been brought in by non-cultural processes (small chitons, gastropods). On the other hand, two taxa that have potentially large economic significance may be rare because of preservation and processing factors (Coronula diadema, an obligate whale barnacle, and geoduck). To what extent can these taxa be brought into discussions of past behavior otherwise dominated by measures of relative abundance?

Campbell, Rachel (Missouri Department of Transportation) and Michael Meyer (Missouri Department of Transportation)

The history of the city of St Louis, Missouri begins with the arrival of the French and spans over 250 years of development into the large urban center of today. The original settlement was thought to have been destroyed by the expansion of the city; however, recent excavations by the Missouri Department of Transportation at the Madame Haycraft Site (23SL2334) have discovered intact French colonial occupations in the heart of downtown. Work here has uncovered a large poteaux-en-terre French style structure built by Louis Dumot in 1795. Found within this structure was a relatively dense scatter of colonial-period French and English ceramics and an associated cellar feature containing significant quantity of food bone, a fragmented wine bottle, musket balls, and faience sherds. Continuing research plans to uncover more information about early settlement in St Louis as well as change the outlook of historic archaeology in large urban centers.

Campeau, Kathryn (MAX Lab, McMaster University), Tristan Carter (Department of Anthropology/ MAX Lab, McMaster Univ), Yosef Garfinkel (Institute of Archaeology, The Hebrew University of), Danny Rosenberg (The Zinman Institute of Archaeology, Haifa Univers) and Katharina Streit (Institute of Archaeology, The Hebrew University of)

This poster details the elemental characterization of obsidian artifacts from three prehistoric sites in Israel: Beisamoun, Nahal Lavan 109 and Tel Tsaf. Raw material sourcing was achieved using the non-destructive technique of EDXRF spectroscopy, matching the chemical fingerprint of the artifacts’ materials with those from known obsidian sources. With the assemblages spanning the Pre-Pottery Neolithic B to Chalcolithic (9th – 6th millennia B.C.), our aim was to generate a long durée view of supra regional connectivity. When integrated with techno-typological data, our results provide us with a deep-time perspective on not only raw material choice, but also cultural-technical traditions. Preliminary results suggest an initial conservative focus on Cappadocian (Göllü Dağ) obsidian, a habit that is radically reconfigured by the 6th millennium B.C. with evidence for the use of a wide array of raw materials from sources in Central, Eastern and North-Eastern Anatolia. These results are then located within a broader discussion of socio-economic changes in the southern Levant during these periods.

Campetti, Casey (Indiana University of Pennsylvania)

A perennial critique of cultural resources management (CRM) has been its perceived overemphasis on field methods and its dissociation from advancements in archaeological theory, particularly the integration of gendered archaeologies and feminist perspectives. Over the past two decades CRM has made considerable gains toward inclusivity of theory - however, the climate for queer practitioners in CRM working as field technicians, managers, and principal investigators does not
readily reflect these gains. In addition to very real issues in seeking employment and receiving fair promotions, the work environments (particularly the field) for CRM archaeologists can be willfully ignorant of LGBTQ issues or outwardly hostile. These considerations make the queer CRM community relatively invisible in comparison to queer academic archaeologists. What does a queer-safe CRM work environment look like, and why should this matter? This paper discusses the challenges, opportunities, and benefits involved in the creation of safe workspaces for queer CRM archaeologists through an examination of the invisibility of queer field practitioners, issues surrounding legislative and corporate discrimination, and the connections between queer archaeologists and the larger conversation of queer archaeology.

Campiani, Arianna [86] see Maestri, Nicoletta

**Canaday, Timothy (Salmon-Challis National Forest), Bryan Hanks (University of Pittsburgh) and John Rose (Salmon-Challis National Forest)**

**Preliminary Results of Geophysical Surveys Along the Middle Fork Salmon River, Idaho**
The Frank Church – River of No Return Wilderness is the largest designated wilderness in the lower 48 states encompassing over two million acres and two wild and scenic rivers (Salmon River and Middle Fork Salmon River) in central Idaho. Cultural resources were identified as one of the main tenets of the establishing legislation, and the Central Idaho Wilderness Act of 1980 mandates “the protection of archaeological sites and interpretation of such sites for the public benefit and knowledge.” Over 10,000 visitors float the Middle Fork Salmon River every year and many of their recreation campsites coincide with prehistoric pithouse villages occupied over the last 3,000-4,000 years. At least 16 sites have been identified as being at-risk from recreational activity. This poster presents preliminary magnetometer results at four of the sites during the 2014 field season. Non-ground disturbing geophysical surveys were conducted to explore the potential for intact near-surface and subsurface cultural deposits. The magnetometer results suggest that subsurface deposits still exist and this information will help us focus our future fieldwork with the ultimate goal of protecting the resource while allowing the recreation to continue.

Canan, Adelso (Universidad de San Carlos de Guatemala (USAC)), Alexandre Tokovinine (Harvard University) and Barbara Fash (Harvard University)

**Aplicación de la topometría digital en conservación e investigación de los monumentos mayas**
La documentación de los monumentos prehispánicos, ha sido uno de los objetivos principales de los investigadores de la cultura maya por la información que sus imágenes e inscripciones proveen sobre la historia, organización social y cosmovisión de los habitantes de las antiguas ciudades de Guatemala, México, Belice y Honduras. La documentación topométrica digital de alta resolución también conocida como escaneo en tres dimensiones (3D) representa una nueva fase en la investigación y conservación del patrimonio cultural. Esta ponencia se enfocará en el programa de escaneo en tres dimensiones de “Corpus de Inscripciones Jeroglíficas Mayas” y el componente de entrenamiento local del “Programa Santander” durante los últimos seis años. Presentaremos algunos resultados del programa, especialmente con respecto a los monumentos y edificios en el sitio arqueológico de Copán. También hablaremos de la experiencia del uso de los datos 3D en la conservación, reproducción, e investigación epigráfica y visual de los textos e imágenes mayas mencionando los logros y las dificultades en la aplicación de la tecnología.

Cannon, Kenneth [6] see Jones, Hillary

**Cannon, Mike (SWCA Environmental Consultants) and David Meltzer (Southern Methodist University)**

**Forager Mobility, Landscape Learning, and the Colonization of the Americas**
Among the many important contributions that Robert Kelly has made to the archaeological and anthropological literature are 1) an elegant theoretical model of forager residential movement, presented in his book The Foraging Spectrum, 2) a very influential argument about the Paleoindian
colonization of the Americas, which he developed along with Lawrence Todd, and 3) insightful discussions of landscape learning by hunter-gatherers. Here, we explore these issues further by expanding Kelly’s residential movement model to incorporate aspects of landscape learning. This provides a framework for addressing the question of when it is more economical for foragers in a new landscape to learn how to acquire novel resources rather than move in pursuit of resources with which they are already familiar, a question that is central to many discussions of the colonization of new regions. Implications of the model for the North American archaeological record are also considered.

Cannon, Kenneth (USU Archeological Services, Utah State University), William Eckerle (Western GeoArch Research), Molly CANNON (Utah State University), Jonathan Peart (USU Archeological Services) and Paul Santarone (USU Archeological Services)

[361] Developing A Minimally Invasive Protocol For Assessing Site Eligibility on the North Training Area, Camp Guernsey, Wyoming

The North Training Area of Camp Guernsey is located within the Hartville Uplift of eastern Wyoming, an area rich in archaeological resources particularly extensive formations of toolstone quality raw materials. Because of the potential for live training exercises to impact cultural resources, the Wyoming National Guard proposed the development of an experimental testing protocol of selected sites using minimally invasive methodologies that included geophysics and small diameter auger probes. Minimally invasive testing was proposed for sample areas within a range of site types from a variety of landforms to assess the National Register of Historic Places significance of these areas within a landscape framework. Results of the project assess the utility of nested geophysical survey methodologies and flighted, hollow stem and hand-bucket auger techniques to test linkages between geomorphic setting and archaeologically preserved materials in order to answer questions about past human behavior in this dynamic landscape.

Canter, Ronald (Maya Rivers)
[86] The Upper Usumacinta Travel Corridor, A Game of Chutes and Ladders

Like other major rivers the Usumacinta had parallel land routes. Unlike most rivers the Usumacinta lies bound within whitewater canyons below Yaxchilan, cut off from its flanking trails except at gaps dictated by the geography. In the Classic Period, the river and its trails formed a ladder-like grid offering great mobility, but requiring tradeoffs between speed and safety. For both the ancient Maya and modern boatmen the Usu’ was a fast, efficient, and dangerous route to the lowlands. Two rapids, Chicozapote and El Porvenir were especially challenging. A long portage below El Porvenir avoided even worse downriver. Travel upriver was tedious but still efficient for bulk cargoes. The lightly loaded or faint-of-heart would have favored the trails. Documented use, geography, and ancient remains confirm river use and major trails. Rope grooves identify past harbors. On land, Yaxchilan fortified gaps in a cross ridge, restricting travel to only a few gated passes. Piedras Negras sat astride both river and trail where rugged hills pinched them together in a narrow pass. The cities fought over control of the Usumacinta corridor.

Cantley, Garry
[225] Discussant

Canuto, Marcello (M.A.R.I./Tulane University)
[306] From “Star Wars” to Attack of the Kaan

Over the past 25 years, epigraphic research on the Classic Maya has demonstrated that political alliances and warfare were not only widespread but also structured in such a manner to suggest a greater degree of political centralization than originally contemplated. Texts carved on ancient monuments suggest that lowland Maya society of the Classic period (A.D. 250-850) was characterized by a rivalry between two major capital cities, Calakmul and Tikal, who sought to dominate the Maya lowlands. This paper will focus on recent research at lowland Maya sites like La Corona, Uxul, and El Perú-Waka’. These projects are beginning to show how warfare, alliances, and marriages were some of the tools used by the kings of Calakmul in the 7th century to undermine
Tikal. In that process they developed a large regional kingdom extending as far south as Cancuen. Consequently, the "star wars" of the 7th century are better understood as a concerted multi-generational strategy - "the attack of Kaan" - to dominate the southern Maya lowlands.

[244] Discussant

Cap, Bernadette (University of Wisconsin-Madison), Rachel Horowitz (Tulane), Jason Yaeger (University of Texas-San Antonio) and Mark Eli (University of Texas-San Antonio)

[399] From Quarry to Household: The Economics of Limestone Bifaces among the Classic Maya of Buenavista del Cayo, Belize

Limestone is one of the most abundant stone resources over much of the Maya lowlands and scholarly research has been focused on its use as a construction material. Limestone was also used to create a variety of portable items, such as manos, metates, bark beaters, and bifaces. In this paper we examine the evidence for production, exchange, and consumption of limestone general utility bifaces in the Buenavista del Cayo zone, Belize during the Classic period. Although chert bifaces are more abundant within the Buenavista zone, based on limestone biface breakage patterns we propose that limestone was chosen as a knappable material because of its durability and suggest these tools would have been well suited for agricultural activities. Based on the natural distribution of limestone in the Buenavista zone, the consumption rates of limestone bifaces in households within a 1 km radius of the site core, and evidence for limestone biface production in the Buenavista East Plaza we suggest that these items were distributed through a marketplace exchange network.

Capriata, Camila [46] see Zambrano, Raul

Capriata Estrada, Camila (Proyecto Qhapaq Ñan - Ministerio de Cultura del Perú)

[232] The Inca occupation at Pampa de Flores: Continuity, changes and abandonment of public architecture in the Lurin Valley during the Late Horizon

The Inca conquest of the Peruvian central coast brought a series of changes to the political and social landscape of the Lurin valley. At Pachacamac, the main religious center of this area, radical changes included, not only the resurgence of this sanctuary and expansion of its cult, but also a series of transformations in its architectural setting. In other settlements of the valley associated to the Ychsma polity, changes were less obvious, probably due to the different strategies followed by the conquerors. The continuity, change and abandonment of certain public architectural structures in sites such as Pampa de Flores, Panquilma and Huaycán de Cienenguilla, seem to be a reflection of these different control strategies. They would also imply variations in the socio-political landscape, where some populations gain importance and prestige, while others were partially abandoned. This presentation discusses the nature of the Inca occupation at the prehispanic site of Pampa de Flores, one of the main administrative centers of the valley, and what would have been the impact of this new occupation.

Capriles, Jose [414] see Marshall, Fiona

Carabias, Diego [243] see Cartajena, Isabel

Caramanica, Ari

[404] Irrigation Systems as a Chronological Proxy? Continuous Occupation at the Valley Edge, Chicama Valley, Peru.

The extension of irrigation systems from valley centers into the desert margins has been used by archaeologists in the Virú, Moche and Chicama valleys both as a form of relative dating and as a measure of societal complexity. Chronological periods in these valleys have become tied into uniform evolutionary sequences: the expansion of irrigation systems is correlated with population growth, technological advancement, and social hierarchy in the form of increased levels of bureaucracy and the emergence of a managerial elite. However, recent research in the agricultural landscape of the Pampa de Mocán in the Chicama Valley suggests that marginal landscapes were irrigated and occupied continuously from Preceramic periods through the Late Horizon. In order to
understand the nature of the occupation of landscapes at the distal ends of irrigation systems, this project carried out a full coverage survey of the area. In view of the results, I argue that the distance of irrigation systems from the river is not a reliable proxy for time or complexity. Instead, I suggest that its occupation was not due to any one prime-mover pushing populations into open areas at the valley edges, but rather the result of the long-term formation of landscape capital.

Carbajal, Laura [363] see Mt. Joy, Kristen

Carballo, Flavia [185] see Barrientos, Gustavo

Carballo Marina, Flavia [251] see Nuevo Delaunay, Amalia

Card, Jeb (Miami University) and Micayla Spiros (Miami University)

Three-Dimensional Scanning and Printing in Undergraduate Archaeology Education

Three-dimensional imaging is a quickly growing part of archaeological documentation, investigation, education, and public outreach. Cost and expertise barriers to using 3D software and equipment continue to drop. Nonetheless, many efforts in 3D archaeology are driven by graduate students or focused undergraduates who become part of dedicated 3D laboratories or projects. Since 2013, we have been working with a different approach of incorporating three-dimensional imaging and printing at the general undergraduate level. Students in an Introduction to Archaeology course are utilizing 3D scanning and printing as a routine part of term papers, while students in a course on archaeology and art cooperated to document artifacts for planned online exhibits. Unsurprisingly, these efforts have generated interest in archaeology, though not uniformly. Faculty time to guide novice students through the use of the equipment and software is a drawback at this scale, though in many cases this leads to greater student engagement with their project and the course. The growing use of 3D technology in archaeology suggests that it must eventually become a part of undergraduate education, with the nature of that education becoming an important question.

Card, Jeb [393] see Fowler, William

Cárdenas, Macarena L. (Dep of Geography & Environmental Science, University of Reading, UK), Frank Mayle (Department of Geography & Environmental Science, U), José Iriarte (Department of Archaeology, University of Exeter, U) and Silvia Moehlecke Cope (Departamento de Historia, Universidade Federal do )

The Environmental Context of Prôto-Je culture at Pinhal da Serra, RS, Brazil – Insights from Paleoecology

Understanding the purposes and associations of burial monuments and sacred built landscapes in the Formative period of the Americas is an important research goal among archaeologists. A key step that can help us to better understand the social and spatial organization of these cultures is determining the ecological and environmental characteristics of the landscapes within which these cultures lived and developed.

Created by the Je group in south-eastern Brazil, and with more than 30 pit houses and mortuary/ceremonial architectural structures discovered so far, Pinhal da Serra (PDS) has been key in helping to understand Formative cultures and the rise and dynamics of complex societies. Nevertheless, little is known about the relationship of this culture with its surrounding landscape.

We present paleoecological data from a peat bog core close to archaeological excavations at Pinhal da Serra. We use fossil pollen and charcoal data to reconstruct vegetation history, land use and past agricultural practices. The results of our analyses will improve understanding of the relationship between prôto-Je cultures and the surrounding vegetation over at least the last c. 2,000 years, and in turn provide new insights into the social patterns and organization of prôto-Je culture within the highly structured landscape of PDS.
Cardinal, J. Scott (New York State Museum) and Jennifer Loughmiller-Cardinal (University at Albany, SUNY)


A recent study illuminated the bias toward publishing significantly positive results by researchers in the social sciences, raising substantive questions regarding the treatment and dissemination of null or statistically non-significant data. In archaeology, we also tend towards emphasizing the latest discovery, the big site, or the conclusive analysis. While it is satisfying to be able to present the latest and greatest in one’s field, what then becomes of the rest of the data? Typically, these are relegated to summary tables, supplementary technical reports, or cursory discussions of miscellany that note how the rest of the data support or relate to the “big find”. The preferential bias towards positive significance, however, generates both analytical and interpretive self-selection biases in our archaeological understandings. Null data sets play an absolutely critical role in the inferential methods of spatial, quantitative, and archaeometric analyses. In addition, null or negative results can provide epistemic boundaries on the evaluation of interpretation and theory.

Cardona, Augusto (Proyecto Arqueologico Misti), Maria Cecilia Lozada and Hans Barnard

[184] Tiwanaku in Arequipa

Although Tiwanaku expansion outside the Titicaca Basin has been documented extensively in southern Peru, specifically in Moquegua, the influence and/or presence of this highland state in the Arequipa region is not well known. In this paper, we evaluate work in Arequipa over the past 15 years regarding Tiwanaku in light of our work in the Vitor valley about 40 km from the city of Arequipa as part of the Vitor Archaeological Project. In Arequipa, we have identified relatively small Tiwanaku settlements characterized by a local ceramic tradition, which contrasts to the more direct and extensive contact seen in Moquegua. Furthermore, in the Vitor valley we have detected Tiwanaku fragments in Millo, an extensive administrative Wari node dated to 850 A.D. Although it would be tempting to suggest the co-existence of both Wari and Tiwanaku affiliated groups in Vitor, we propose that imported Tiwanaku ceramics reflect an horizontal axis linking the Millo complex to Moquegua, and not necessarily to Tiwanaku groups that inhabited in Arequipa after the collapse of Tiwanaku in the Titicaca basin.

Cardoso, Hugo F.V. [204] see Simon, Elizabeth

Carey, Chris [47] see Davis, Stephen

Carini, Claudio (CSU Dominguez Hills), Jerry Moore (CSU Dominguez Hills), Martha Ramos (CSU Dominguez Hills), Michelle Garcia (CSU Dominguez Hills) and Brandon Gay (CSU Dominguez Hills)


In this poster, we interpret data collected through nondestructive geophysical methods at the prehistoric sites of Santa Rosa and El Porvenir in the northern region of Tumbes, Peru. In late May and early June 2014, a program of integrated geophysical survey incorporating magnetometer and ground penetrating radar sought to identify subsurface archaeological features at the two sites. Previous excavations at these sites provided material data dating from 4750 B.C. and revealed architectural shifts and changes in settlement patterns in the Archaic and Formative periods. Geophysical mapping at Santa Rosa displays subsurface geological features and possibly, previously unknown anthropogenic features such as a circular structure similar to one found during excavations in 2007. El Porvenir, excavated in 2006, revealed an elliptical structure with a clay floor and hearth. Integrated survey at this site attempts to define features such as shell deposits, hearths, and floors. This integrated geophysical survey will aid future excavations at these prehistoric sites, furthering understanding of regional cultural variations during the Archaic and Formative periods in far northern Peru.
Carini, Claudio [327] see Stuck, Jennifer

Carleton, Chris [48] see Cheong, Kong

**Carleton, William (Simon Fraser University), Mark Collard (Simon Fraser University) and Dave Campbell (Simon Fraser University)**

[131] *Rainfall and Conflict among the Lowland Classic Maya*

Determining the causes of conflict in the Maya region during the Classic Period is an important undertaking. Conflict was a prominent feature of relationships among Classic Maya polities and has been implicated in the collapse of Classic Maya society. Recently, Kennett et al. (2012) have argued that reduced rainfall led to increased conflict in the Lowland Maya region between ca. 300 and 900 CE. They arrived at this conclusion after comparing epigraphic records of conflict and variation in δ18O, which they use as a proxy of past rainfall. While Kennett and colleagues’ hypothesis is interesting, their study suffers from several shortcomings. Most importantly, they employed a subjective approach to finding correlations, namely visual comparison of curves. Here we report an attempt to rigorously evaluate Kennett et al.’s hypothesis. We collated epigraphic data on warfare intensity and then compared them to Kennett et al.’s rainfall proxy data with the aid of formal methods for assessing the strength of the association between time series. The results we obtained are not consistent with the predictions of Kennett et al.’s hypothesis. Thus, if rainfall impacted conflict intensity among the Classic Maya, it did not do so in the manner suggested by Kennett and colleagues.

**Carlson, Justin (University of Kentucky) and George Crothers (University of Kentucky)**

[35] *Anthropogenic Fire Management and Changing Land-Use Strategies in the Mammoth Cave Plateau and Sinkhole Plain, Central Kentucky, USA*

In the Mammoth Cave Plateau and the Sinkhole Plain of Central Kentucky, caves and rockshelters are the primary site type. The Plateau contains little arable bottom land, but cliff overhangs, caves, and perennial streams and springs are abundant. The Sinkhole Plain has abundant arable land, but surface water is quickly diverted to underground streams and permanent water sources are limited to caves and karst windows. We compare the archaeology of two important cave sites—Salts Cave in the Plateau and Crumps Cave in the Sinkhole Plain—with regard to their chronology of occupation, range of prehistoric activities, and evidence of anthropogenic forest impacts, especially by fire. In Central Kentucky, the Late Archaic-Early Woodland transition (ca. 3500-2500 BP) is a critical period for changes in land use, adoption of new subsistence technologies, and socio-economic reorganization. We hypothesize that human groups occupying the forested uplands and Sinkhole Plain asserted new forms of property relations that required greater socio-economic control and incentivized investment in landesque capital. Throughout this transition, caves and rockshelters remained the primary site type.

Carlson, Justin N. [144] see Crothers, George

**Carlson, Kristen (University of Oklahoma)**

[148] *Folsom Adaptations to Bison Hunting: A Comparison of Northern and Southern Plains Arroyo Trap Kills*

The purpose of this research is to compare and contrast Paleoindian arroyo trap bison kills on the Southern plains to analogous sites on the Northern plains to investigate the transition from opportunistic hunting to organized hunting under different environmental regimes. Analyses to address this problem include: Stable isotopes of bison bone to aid in environmental reconstruction; radiocarbon dates to determine the antiquity of the sites being compared; and the seasonality of the kill event to relate hunting organization to bison behavior and trace element analysis to reconstruct bison mobility patterns. This research provides new perspective on the transition from passive, opportunistic hunting of large game to active, organized hunting of bison herds that developed during the early Paleoindian period in North America.
Carlson, Jenna (College of William and Mary)  
[165] Oxen at Oxon Hill Manor: Identifying Draught Cattle from the Archaeological Record of Colonial Maryland

The methodologies for identifying and analyzing draught cattle from the archaeological record have been developed and refined over the past twenty years. However, little research has been done which applies these methodologies to faunal assemblages from the New World. This research identifies possible draught cattle from an eighteenth-century well and a possible smokehouse at Oxon Hill Manor in Prince George’s County, Maryland, using pathological and osteometric analyses. Analysis of pathologies on metapodials and phalanges identifies which specimens most likely came from individuals used for draught labor. Osteometrics delineate the sex ratios of cattle in the archaeological record, thus providing a means for assessing the husbandry strategies in regions where draught cattle were used. As Oxon Hill Manor was home to an elite upper class planting family, the site provides a unique opportunity to explore the changing roles of draught oxen with the shift from tobacco to diversified agriculture in the last half of the eighteenth century. Additionally, the documentary record from Oxon Hill Manor provides a means to test the reliability of these methods for identifying draught cattle from British North American faunal assemblages.

Carlson, Eric (Historical Research Associates)  
[312] Continuity and Change between Late Prehistoric and Early Historic Periods: Visually Reconstructing Two Successive Occupations of Housepit 54 at the Bridge River Village Site, Mid-Fraser Region, British Columbia, Canada

The use of reconstruction illustrations, or artist’s renderings of the past, offers a unique and informed method of communicating continuity and change between two successive occupations of Housepit 54 at the Bridge River Village site, located in the Mid-Fraser Region of British Columbia, Canada. Based on archaeological data and analysis from recent excavations of the large, multifamily housepit, visual representations can effectively integrate a variety of information and interpretation simultaneously. Spatial analysis, social dynamics, and other aspects of household archaeology can be expressed visually in the illustrations. Most importantly, the illustrative process fosters dialogue between the various archaeologists and members of the Xwisten Band of the St’at’imc Nation who, together, have a vested interest in the accurate portrayal and preservation of the past.

Carlson, Risa (University of Cambridge/US Forest Service) and James Baichtal (US Forest Service)  
[320] Updates and New Discoveries of Early Holocene Predictive Model Sites in the Southern Alexander Archipelago of Southeast Alaska

New Early Holocene sites were discovered during the 2014 field season using a predictive model based on the age and elevation of Saxidomus giganteus shells in relic raised marine deposits in the Alexander Archipelago of Southeast Alaska. Additionally, three new higher elevation sites were found inadvertently during road construction activities which fit the criteria of the predictive model. This paper presents the preliminary findings of latest discoveries and updates on the first Early Holocene predictive model sites under study, which were found beginning in 2009.

Carlson, David (University of Washington)  
[381] The Intersection of Identity, Labor, and Racism in Washington State Company Towns

This paper will propose research to address the intersection of identity, racism/racialization, and labor as manifested in the material and documentary remains of workers and administrators in Washington State company towns. From the mid-1800s to the Great Depression, logging and mining towns formed a critical part of state and regional economies. The archaeology of labor-related sites in this state and period has been historically under-researched, and the relationship between labor, racism, class consciousness, and the material culture of workers in industrial settings is a topic of interest to historical archaeology. Furthermore, as settlements whose existence is owed largely to market needs, they serve as an avenue for understanding how workers and other local inhabitants responded to the expansion of capitalism. Thus, investigating late 19th to early 20th century labor in Washington’s peripheral settlements will improve our understanding of local history, the social
context of work, and the formation and maintenance of identity in the context of capitalism. Here I will review prior work on labor in Washington State, and then propose future avenues of research that will draw on multiple lines of data (geographic, remote sensing, archaeological, documentary) to address its social context and materiality in the region.

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Carlucci, Eric (Indiana University-Bloomington) and Ling-yu Hung (Indiana University-Bloomington)

Neolithic Northern China in the Context of Early Eurasian Interactions

With a focus on painted pottery assemblages known as Yangshao, Majiayao, Banshan, and Machang from Neolithic Northern China, the present study explores early Eurasian interactions and exchanges indicated by ceramic assemblages and other kinds of archaeological records dated before 4000 years ago. Since the 1920s, scholars have noticed parallels between China’s painted pottery and other collections in Central Asia and further west, prompting the “western origins” theory on painted pottery found in China. However, findings of the last several decades demonstrate that painted pottery followed a general east-to-west expansion from central China to modern-day Xinjiang from approximately 8000 to 2000 years ago. This trend leads to the emphasis on the local origins and independent development of China’s painted pottery. While both hypotheses have their merits, many recent studies suggest intensified cross-regional connections between East Asia and other regions of the Eurasian Continent by 4000 years ago. Whether any external influence can be determined in the development of Neolithic Northern China’s painted pottery remains an open question and demands further studies.

Carneiro, Gabriela see Zimpel, Carlos

Caro, Jorge see Miguel Quesada, Francisco J.

Caro, Jorge (BSC-CNS (Barcelona Supercomputing Center)), Maria Pereda (University of Burgos), Ivan Briz (CA.D.IC-CONICET), Myrian Álvarez (CA.D.IC-CONICET) and Debora Zurro (CaSEs, IMF-CSIC)

Cooperative Practices in Hunter-Fisher-Gatherers from Tierra Del Fuego: A Study on Resource Visibility and Social Sharing

Cooperation studies have become an essential area of knowledge across different disciplines. Within the humanities and the social sciences, it has been used to explain human behavior as well as the maintenance of the social tissue itself. It has also given clues to explain the variability and the plasticity of human social organization at different levels.

In this presentation we focus on Yamana society a nomadic hunter-fisher-gatherer group that inhabited the southernmost region of South America and who maintained this socio-economic organization approximately till the 30s of the last century. This society developed a range of cooperative practices (through production, distribution and consumption activities) that took place mostly during aggregation events caused by a great accumulation of resources. Through Agent Based Modelling we pretend to explore the role played by different variables that may influence the development of these cooperation practices.

The aim of this paper is to present some theoretical and methodological results of this study.

Caron-Laviolette, Elisa (Université de Paris 1/UMR 7041 ArScan)

From Palethnography to Paleohistory: Following a Magdalenian group through Three Successive Occupations at Etiolles

Since the 1980s, spatially oriented techno-economical lithic studies of a few key open-air sites in the Paris basin have been essential to our comprehension of Upper Palaeolithic behavioral patterns. While these analyses have largely been synchronic in focus, and many others evaluate diachrony on the long-term, we hope to now bridge these two approaches through a study of the mid-term.
One of the only Palaeolithic contexts that allow for such an approach is the three-level sequence that constitutes the D71 domestic units at the Magdalenian site of Etiolles. Not only are these levels spatially well preserved, but they document three consecutive installations, within a few decades at most, in the exact same location. Through lithic refits and their spatial analysis we are able to reason on three different time-scales: each single short-term occupation, the greater long-term changes during the terminal Magdalenian (14 000 cal B.P.), and the rarely accessible historical time-scale, what we deem the intermediate, or mid-term. Here we present preliminary results of our comparative and palethnological analysis of these three successive installations, which will allow us to evaluate the stability or mutability of technical traditions from a “paleohistorical” perspective, and thus nuance our understanding of long-term cultural evolution.

Carpenter, John Philip [189] see Sanchez Miranda, Guadalupe

Carpenter, John (Centro INAH Sonora) [257]  
The Proyecto Arqueologico Río Sahuaripa: Interaction, Integration, and Cultural Dynamics in the Sonoran Serranía

The characterization and descriptions of the Rio Sonora and Serrana (formerly known as the southern or Alamos branch of Rio Sonora) archaeological traditions exemplify Richard Pailes’ contributions to the archaeology of Sonora (and northeastern Sinaloa as well) and our current understanding of the serranía region. The Proyecto Arqueológico Río Sahuaripa (PARS) represents the first systematic archaeological investigation of the Sahuaripa River basin, located in eastern Sonora. The primary objectives of this research are to 1) reconstruct the cultural-historical occupation of this region; 2) identify and define the cultural transitions manifest between the Rio Sonora and Serrana archaeological traditions; 3) define the southwestern limits of the Casas Grandes interaction sphere; 4) examine the role this region played in regional and long distance exchange systems; 5) investigate the timing and nature of Opata-Pima interaction and/or intrusions; 6) document late prehispanic socio-politico organization; and 7) confirm the possible routes of the earliest Spaniards to traverse northwestern Mexico. Many of these themes were pioneered by Richard Pailes, and to whom this research is indebted.

Carr, Erin (University of Nebraska - Lincoln) [8]  
Prospects for Detection of Ephemeral Historic Sod Structures Using Geophysical Techniques

Sod houses represent one form of ephemeral historic structure that became common to portions of the Great Plains as a result of the Homestead Act of 1862. Since their construction in the late 1800s and early 1900s, sod house and out buildings have either been preserved, allowed to “melt,” deliberately removed and put under cultivation. This poster examines the documentation of these structures under various post-occupation conditions through the use of surface level, non-destructive, geophysical techniques. I will report on the 2014 geophysical survey of these structure locations from Custer County, Nebraska.

Carr, Thomas (History Colorado) [369]  
Discussant

Carrasco, Michael [259] see Englehardt, Joshua

Carrier, Sam (Oberlin College), Hillary Conley (National Park Service) and Susan Kane (Oberlin College) [3]  
Portable X-Ray Fluorescence Studies of Black-Gloss Pottery from Monte Pallano (Italy)

This is an examination of a collection of 200 sherds of black-gloss pottery (a type of fineware that was used for dining and wine consumption from the 5th century B.C.E.-1st century B.C.E.) excavated from the Monte Pallano ridge in the Abruzzo region of eastern Italy. Customarily, pXRF has been used to identify and characterize clay sources for ancient pottery production. In this paper,
the elemental composition of the ceramics—measured with a Bruker Tracer III SD pXRF—is analyzed: 1) to characterize the composition of the sherds, 2) to describe the homogeneity/heterogeneity of individual sherds, 3) to compare sherds excavated from two nearby areas on Monte Pallano (a settlement and a sanctuary precinct), 4) to contrast local pottery to that made elsewhere, and 5) to relate these data to fabric groupings made using traditional ceramological techniques.

Carrion, Yolanda [155] see Aura Tortosa, J. Emili

Carrizosa, Fernando [298] see De Anda Rogel, Michel le Marlene

Carroll, Jon (Oakland University) [4]  *Computational Simulation Methods for Exploring Small Artifact Assemblages*

Archaeologists often decline to work with artifact assemblages considered too small to analyze in favor of working with larger assemblages that ostensibly allow for more confident statements about the past. This paper discusses the role of Agent Based Modeling (ABM) and the potential it holds as an important new analytic tool through which to explore small artifact assemblages in a meaningful way.

Carroll, Mary [83]  *25 Years of NAGPRA in the National Park Service*

The Native American Graves Protection and Repatriation Act (NAGPRA) became law on November 16, 1990, requiring Federal agencies and museums to repatriate Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony to lineal descendants and culturally affiliated Indian tribes or Native Hawaiian organizations. During the 25 years since its enactment, the National Park Service (NPS) has been responsible for both implementation of the Act and compliance with the Act. This paper will focus on NPS’s servicewide compliance with NAGPRA over the last 25 years, discussing the evolution of how we respond to NAGPRA issues, and looking at where we go from here. Opportunities arising from, and challenges to, NAGPRA compliance will be addressed and specific projects, activities, and accomplishments will be highlighted.

Carroll, William (MTSU) [128]  *Shadows of Sand Creek: A Case Study of the Colorado War and Its Historical Legacy*

In 2013, a History Colorado Center presented an exhibit entitled “Collision: The Sand Creek Massacre 1860s to Today.” It was soon closed due to a multitude of concerns from the Northern Cheyenne tribe including that fact was offensive to many tribal members, who believed the event was being portrayed as an inevitable clash of cultures rather than an isolated event. I intend to portray this event as the most recent case study in an ongoing clash over the portrayal of the event to the public and the place of Sand Creek in the American historical memory.

Carson, Mike (Micronesian Area Research Center (MARC)) [199]  *De-coding Landscape Heritage through Cross-Disciplinary Studies in Pacific Oceania*

Landscapes can be appreciated as heritage resources with complex natural and cultural histories, potentially studied through diverse data-sets and intellectual approaches. Toward illustrating some of these prospects, examples are presented from research across the Pacific Oceanic region, drawing on digital elevation models, coding of land cover and other geographic attributes, site-specific geoarchaeological testing, georeferencing of historical maps and images, and traditional ethnohistories as contributing parts of landscape studies in the broadest sense.

Carson, John [226] see Iriarte, Jose

Cartajena, Isabel (Departamento de Antropologia, Universidad de Chile), Valentina Flores
Geoarchaeological Approaches: Assessing the Formation and Preservation of a Late Pleistocene Drowned Terrestrial Site on the Pacific Coast of South America (Chile)

GNL Quintero 1 (GNLQ1) is a Late Pleistocene paleontological submerged site located in Quintero Bay (~50 km north of Valparaíso, on the Pacific coast of Central Chile). We describe the geoarchaeological approach applied by combining geomorphological, bathymetrical, sedimentological and paleontological data with a digital simulation model. The resulting evidence indicates that the unit containing the extinct bone assemblage (Unit 2) was deposited in a low-energy fluvial sedimentary environment, possibly a shallow floodplain where wetlands were formed in a semi-arid climate. This Unit is interbedded between two coastal units related to a marine regression-transgression cycle. The underlying marine layer is much older than GNLQ1 site, while the overlaying layer corresponds to a postglacial transgressive unit. Digital simulation modelling considering regional uplift rates information suggests that a significant part of Quintero Bay was exposed and GNLQ1 site would have been located a few kilometers inland from the paleo-shoreline. The characteristics of the depositional environment and the geomorphological context favored the formation and survival of an extremely well preserved faunal assemblage. GNLQ1 provides the first unambiguous evidence for the Pacific coast of South America that this record can survive in situ and be located through underwater investigation.

Carter, Tristan [91] see Grant, Sarah

Archaeological Ceramics for Beginners: A Hands-On Activity for Introductory Classes

This activity is designed for students who have little or no experience with archaeology and, in many ways, is a classic; archaeological ceramics activities or labs are offered at many institutions. So, why offer it up? For two reasons: first, as a well-proven option that new instructors can use in their classrooms that is explicitly connected to the Principles for Curricular Reform and, second, as a starter for conversations with experienced instructors. The activity engages students with a hands-on, experiential understanding of the properties of clay and temper, the identification and categorization of archaeological ceramics and the interpretation of geospatial ceramic data. Data analysis includes both how materials and artifacts were employed in the past, as well as, the effect of modern peoples on ancient sites. Because it is for beginners, this activity focuses upon Fundamental Archaeological Skills principle of the Principles for Curricular Reform, but also addresses Stewardship, Ethics and Values, and Real-World Problem Solving as well as touching upon the other principles.

Neanderthals on Naxos? New Work at the Early Prehistoric Chert Source of Stélida

A two-year geo-archaeological survey of the Stélida chert source on the island of Naxos (Cyclades) has documented Middle Palaeolithic activity across the site, both near the best quality chert outcrops and in front of two small rockshelters. The material is dominated by products from a discoidal core technology, followed by Levallois flake and blade industries. The assemblage part-relates to the Denticulate Mousterian, which in Greece – along with Levallois technologies – are exclusively related with Neanderthal populations. Stélida arguably provides the first evidence for Neanderthals in the Cyclades. A key research question is whether this material was the product of intense moments of exploitation or quarrying and knapping activity over the long-term, but precisely dating the material is difficult, with comparanda spanning 250–40 ka. Thus we currently do not know if early hominin visits to the source involved crossing glacial lowstands, or ‘modest seagoing’ from the mainland to the

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‘Cycladean’ island mass. With recent Pleistocene sea-level reconstructions suggesting that a landbridge existed between Anatolia and the southern Greek mainland, the Stélida data is also helping us to reconfigure our view of Greece from being a Pleistocene cul-de-sac, or refugium, to potentially a major route in early hominin dispersal.

Carter, Alison (University of Wisconsin-Madison)

Angkorian Residential Patterns: A View from the Trenches

One of the defining features of the great temples of Angkor is the pattern of enclosed space that surrounds many major monuments. The outer limits of these enclosures are frequently bounded by masonry walls and moats. Although more than a century of research has been devoted to understanding the temples that lie at the center of these enclosures, the structure and function of the vast rectilinear spaces that surround them remains very poorly understood. This paper draws on recent fieldwork by the Greater Angkor Project (GAP) at the walled temple enclosure sites of Angkor Wat and Ta Prohm in order to understand residential patterning within these enclosures. GAP excavations (2010-2014) suggest that the areas for habitation were constructed at the same time as planning and construction of the temples within the enclosures. However, a comparison of material evidence from Angkor Wat and Ta Prohm suggest that the nature and length of habitation within both these enclosures differed. Although preliminary, data from these excavations provide valuable insight into the nature and variability of Angkorian habitation, elucidate the transition into the post-Angkor period, and highlight the continuity and discontinuity in the use of space within these large enclosures.

Carvalho, Milena (University of Louisville) and Jonathan Haws (University of Louisville)

The Taphonomic Study of Small Fauna Gruta da Nova Columbeira (Portugal)

This poster presents the results of a taphonomic study of Gruta Nova da Columbeira, a cave site containing at least six separate Middle Paleolithic occupation levels in Vale do Roto, Portugal. The valley contains at least five other caves that have been occupied at different times. Gruta da Nova Columbeira, excavated in 1963, has well-preserved faunal remains rendering it a good site for studying Neanderthal subsistence behaviors. The excavation yielded larger fauna such as red deer, ibex, auroch, horse, rhinoceros and roe deer. Carnivores such as hyena, lynx, wild cat, bear and wolf compromise a significant portion of these remains. The site also yielded a large amount of smaller fauna that were not analyzed making it a good subject for this taphonomic analysis. This poster presents the taphonomic study of the small animal assemblage. Analyses include calculation of NISP and MNE for each taxon, as well as the recording of surface modifications, such as tooth scoring, tooth punctures, fractures patterns, cut marks, fracture patterns and skeletal element patterns. The results are then compared to published data from actualistic studies to help determine the agents responsible for the formation of the assemblage.

Casana, Jesse (University of Arkansas), Adam Wiewel (University of Arkansas) and Autumn Cool (University of Arkansas)

Archaeological Aerial Thermography in Theory and Practice

Archaeologists have recognized since the 1970s that thermal images captured at an optimal time in the diurnal cycle have the potential to reveal surface artifacts, subtle topography, and even subsurface architectural remains. However, it is only with the recent development of reliable and stable unmanned aerial vehicles, small, uncooled, high-resolution thermal cameras, and powerful photogrammetric image processing software that archaeological aerial thermography has become practical. This paper discusses our recent efforts to deploy this emerging technology on a range of archaeological sites, with examples including an ancestral Puebloan community in New Mexico, a Mississippian mound center in Arkansas, a Late Bronze Age city in Cyprus, and an Iron Age metal production center in Dubai. Results provide a methodological blueprint for drone-based collection
and processing of thermal imagery, and illustrate some of the factors that affect the visibility of archaeological features under different environmental conditions. We also discuss a number of experimental approaches to processing thermal data that help highlight archaeological features even further, pointing to some of the many still unexplored possibilities for drone-based aerial thermography to aid in archaeological research.

Casanova Vasquez, Erick (Universidad Nacional Mayor de San Marcos), Rebecca E. Bria (Vanderbilt University ) and Elizabeth K. Cruzado C. (University of Memphis)

A Study of Domestic Ceramics from Hualcayán, Ancash, Peru

In the Peruvian Andes, archaeological analysis of prehistoric ceramics disproportionately focuses on materials recovered from ritual spaces compared to domestic areas. This bias limits our understanding of the role of ceramics in domestic contexts. To address the imbalance, this poster focuses on characteristics of ceramics in recovered from survey and excavations at a residential sector of the Hualcayán site. This sector, called Panchocuchu, contains most of the site’s domestic architecture that includes residential structures, open spaces, terraces and perimeter walls occupied between C.E. 200 to 950. The ceramics included in this analysis from excavation were recovered from the exterior and interior of a living space, and an adjacent patio speculated to function in cooking and as a cuyero (cuy or guinea pig pen based on coprolite and faunal remains). The ceramic analysis from this sector provides substantive information about the function and morphology of the ceramics based on their recovery context. The results of the study presented in this poster provide the basis for comparing the manufacture and use of ceramics between ritual and domestic contexts.

Cascalheira, Joao (Universidade do Algarve - Portugal) and Nuno Bicho (Universidade do Algarve - Portugal)

Lithic Technological Organization and Social Networks during the LGM in Southwestern Iberia

Clusters of sites in particular regions of Southwestern Europe seem to reveal that the Last Glacial Maximum (LGM) settlement patterns form a scenario of relatively isolated refugia that may have contracted and expanded their cultural influence as climate fluctuated. Similarities between each of these niches have been long argued, based on the distribution of specific types of lithic weaponry. This paper will focus on a study of lithic technological organization during the LGM in Southwestern Iberia, using statistical procedures to demonstrate that similarity between regions is mainly visible in the size and type of the lithic blanks produced and, very rarely, in the specific technological attributes of their production. From a paleoanthropological standpoint, the results indicate that the human adaptive system to the LGM in this area worked at two different, but complementary, scales. One that is essentially local, formed by several eco-cultural niches where communities have shared techno-economic schemes that are best adapted to the particularities of each ecological context. The other, supraregional, related mainly with broad geographical social ties, maintained, most probably, as an extra factor of the adaptive response to the impact of climate and landscape modifications, functioning through sharing behaviors of stylistic concepts and typological elements.

Casebolt, Dave (1416) see Schlagheck, John

Caseldine, Christopher (Arizona State University)

Plain and Interesting: An Evaluation and Redefining of Non-Decorated Pottery from Nuvakwetlaqta, Chavez Pass, Central Arizona

Long ago, Southwestern archaeologists realized the value of non-decorated pottery as a source of cultural information. The fundamental work of Colton and others (e.g., Pilles and Wood) have established the examination of non-decorated pottery as a key aspect for understanding the Sinagua culture of central Arizona. This poster represents a continuation of the work began by Henderson
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(1978, 1990) and later refined by Henss (1990) on the non-decorated pottery excavated from Chavez Pass Ruin (13th to 15th century A.D.). My work differs from these previous studies in that my goal is not to refine the chronology of Chavez Pass Ruin, but rather, to refine current typological definitions of non-decorated pottery from the site based on temper composition. I show that although some non-decorated pottery from Chavez Pass Ruin fall into the types Colton established for the Sinagua, many of the non-decorated pieces fail to securely fall within this typology. Using temper groups, instead of typology, intriguing patterns became apparent within Chavez Pass Ruin.

Casias, Kellii (University of Montana) and Kelly Dixon (University of Montana)

Informal Economic Strategies during Alcohol Prohibition In Anaconda, Montana Alcohol Prohibition

One of the many unintended consequences of the Prohibition Era was an unorganized but collective social resistance movement across the nation. Research in the town of Anaconda, Montana, focused on the years of 1923 through 1926, granted a unique opportunity to capture a snapshot of collective social resistance in a company town, and allowed a new, feminine narrative to emerge. The Prohibition years in Anaconda were put into historical, and sociocultural context by compiling lists of male and female liquor law offenders’ experiences through the use of primary sources such as newspaper accounts, court records, and oral histories. Comparison of fines, jail terms, and property seizures of male and female home brewers and business owners indicated a systematic leniency towards women offenders when all crimes were equal. Socioeconomic status’s revealed that overwhelmingly widowed women used the sale and production of illegal alcohol as an economic strategy to support their families. Unequal applications of the law on the part of city officials indicates a tolerance of illegal activity for the pragmatic financial exploitation of residents. The findings although general in nature can be used as a starting point for a more realistic discourse on how people collectively circumvented Federal Prohibition laws.

Castaneda, Francisco [306] see Navarro-Farr, Olivia

Castaneda, Amanda (Texas State University- San Marcos)

Methods for Examining and Creating a Typology of Bedrock Features in the Lower Pecos Canyonlands

Bedrock features are a common archaeological occurrence in the Lower Pecos Canyonlands of southwest Texas. These occur in a wide range of forms, from polished “slicks”, cupules, and small grinding facets to large, deep, well-developed mortar holes. Even though relatively common, bedrock features, and ground stone in general, have received very little directed research in the region. This paper discusses ongoing research which uses a multi-faceted approach to examine bedrock feature attributes at several sites across the region. Structure from Motion photogrammetry was employed to document and create accurate feature maps. On-site morphological attributes and macroscopic wear patterns targeting manufacture and use were recorded for each individual work station. These data create a large dataset that allows for statistical analyses to help identify the range of variation of Lower Pecos bedrock features. Results from on-site observations will be compared with residue samples from various features to determine if these varied lines of evidence provide complementary data. This project provides a baseline dataset for future studies, creates a preliminary bedrock feature typology, establishes viable methodological protocols, and contributes to our overall understanding of the roles that bedrock features played in Lower Pecos lifeways.

Castaneda, Amanda [342] see Crater Gershtein, Eli

Castex, Dominique [207] see Veleminsky, Petr

Castillejos González, Giovanni, Estela Martinez Mora and Daniel Valtierra Vega

Bioarchaeological Results of the Suchil River Valley Project, Zacatecas and Durango,
In this paper we present a synthesis of the osteological analysis of recovered individuals in this project, considering that social change can be studied on the basis of the biology of individuals in their social environment and lifestyle. Prehispanic social groups inhabited this region in northwest Mexico between 200 A.D. and 900 A.D. The analyzed sample originates from funerary contexts excavated in two sites of a second order and one first order site. The samples are dissimilar, but correspond with respect to the presence of common conditions as, for example, frequent infections.

Castillo, Nina [134] see Marcone, Giancarlo

Castillo, Cristina (Institute of Archaeology (UCL))

Archaeobotany in Southeast Asia: What Have We Learned So Far?
Archaeobotany as a specialisation in Southeast Asia began in the late 1960s. Archaeobotanical methods (e.g. flotation, phytolith and pollen sampling) are still not routinely used in archaeological fieldwork in SEA, although in the past ten years, archaeobotany has gained momentum. For example, several sites in Thailand (Ban Non Wat, Khao Sam Kaeo, Khao Sek, Non Ban Jak, Phu Khao Thong), Vietnam (Lo Gach, Loch Giang, Rach Nui) and Cambodia (Ta Phrom) have included archaeobotanical analyses as part of the excavation agenda. This paper will present some of the latest research derived from macroremains analysis from sites in mainland SEA, with an emphasis on how the inhabitants made use of their habitats in their subsistence regime. Settled peoples have exploited their surroundings and adopted suitable crops for cultivation, but have also found limiting factors that constrained agriculture and cultivation practices. Discussions revolve around the crops and weeds found in the archaeobotanical assemblages, which help define diets, farming systems and habitats.

Castillo Butters, Luis Jaime [60] see Saldaña, Julio

Castillo Butters, Luis (Pontificia Univ Catolica del Peru)

Preserving Archaeology with Drones in Peru
In an effort to protect our Cultural Patrimony UAVs or Drones are increasingly used to map and 3D Model archaeological sites. In Peru, the Ministerio de Cultura is leading efforts to systematically record sites using drones, produce orthophotography from the photos, and produce 3D models of the sites. Archaeologists and geographers hired by the MC are using more than 20 drones to cover the territory and register as many sites as possible. Orthophotos are used for registration and surveying, 3D models are produced with Photogrammetry software to develop detailed 3D models of the sites and all these products are processed with GIS software for analyses of volume, topo maps, etc.

Castro, Kevin, Nathan Goodale (Hamilton College), David Bailey (Hamilton College), Anna Prentiss (University of Montana) and Alissa Nauman (Hamilton College)

Linking Geochemistry and Geology in Interpreting Anthropogenic Sediments at Bridge River, British Columbia
Previous research utilizing energy dispersive x-ray fluorescence (EDXRF) spectroscopy and isotope ratio mass spectroscopy (IRMS) identified geochemical patterns in Housepit 54 sediments that might be attributable to human occupation. In this study we conduct additional geological analysis of Housepit 54 sediments in order to more fully understand the observed geochemical variation. In addition to grain size analysis, detailed mineralogical analysis of fourteen sediment samples from a single occupation level was conducted using polarized light microscopy, scanning electron microscopy with energy dispersive x-ray spectroscopy (SEM / EDS), and x-ray diffraction (XRD). Our data indicate that the observed geochemical variation in Housepit 54 sediments is the result of the complex interaction of both natural geological and human processes.

Catacora, Andrea and Jo McDonald (University of Western Australia)

Digital Data Collection, D-Stretch And Databases: New Approaches to Recording Rock Art

[138]
A BLM-funded rock art recordation project recently undertaken in Lincoln County, Southern Nevada has focused on three Areas of Environmental Concern: Mount Irish, Shooting Gallery and Pahroc. The overall Project was designed to be a comprehensive heritage inventory of all archaeological evidence in these Areas, and based on a systematic sample there are close to 700 recorded sites in these areas, of which around 200 contain rock art. Building on earlier work by the Nevada Rock Art Foundation and others, one of the BLM's project goals was to provide a comprehensive contemporary record of the Areas' heritage resources. Research goals included the characterization of rock art in its archaeological context and to better understand how the rock art in these three areas is related. Digital innovation has been achieved using hand held recording devices, detailed GPS, digital enhancement and photogrammetric software, and a GIS-based database to meet our goals. We are beginning a detailed stylistic analysis of the data recorded from over 1,200 panels and many thousands of recorded motifs to better understand the nature and extent of rock art production in this part of the Great Basin.

Catacora, Andrea [362] see Giambastiani, Dayna
Catella, Luciana [185] see Barrientos, Gustavo

Cattaneo, Roxana and Andres Dario Izeta (IDACOR-CONICET, Museo de Antropologia, FFyH, Unive)
[35] Rethinking Deodoro Roca Rockshelter (Ongamira, Córdoba, Argentina). Seventy Years of Archaeological Ideas
The hunter-gatherer archaeology of the Ongamira Valley has been a landmark in the archaeology of Argentina's Central Region. The cultural sequence built in the 1950s is still used by many archaeologists to interpret regional peopling, subsistence, land use and mobility. However we believe it is time to review the use of rockshelter-generated data under a new approach that embraces landscape archaeology. Stable isotope-based paleo-environmental reconstructions create a baseline and permit insights into the role of rockshelters through time. Surveys looking for new sites, outcrops and lithic quarries, in addition to the study of the intervisibility between them are integrated into rockshelter data to improve understanding of the social use of space, peopling and mobility. The interconnection of data constructed through the analysis of technology and the acquisition and use of faunal and botanical resources leads to new ideas about social strategies and networks. We discuss how these theoretical changes were made and relate them to Argentinian archaeology.

Cattin, Marie-Isabelle
[181] Nomadism in the Magdalenian Groups of Monruz and Champréveyres (Switzerland)
Located in a region where flint is of mediocre quality, the Magdalenian sites of Monruz and Champréveyres (Neuchâtel, Switzerland) show the introduction of a high proportion of good quality flint from sometimes very distant (up to 200 km) regions. For this reason we can argue that flint was not a constraining factor on the selection of camp location. It is certain that favorable hunting grounds, as well as the proximity to water sources and combustible materials, were more important. The Magdalenian groups of Monruz and Champréveyres likely anticipated their needs and collected raw materials from regions they visited, or obtained them through exchange, when travelling to regions poor in lithic raw materials. Distant materials arrived at the sites in different forms, from tested nodules, to tools, to unworked blanks. The analysis of discarded cores and the different stages of the chaîne opératoire represented permit us to define the first activities realized on the campsite, as well as the "passage" (arrival, working and use, and departure) of tools and cores through the site. Here we present some examples that will illustrate situations (arrivals and departures) in the campsite linked to nomadism and group territories.

Catto, Lisa (Portland State University) and Virginia Butler (Portland State University)
[168] Developing a “Good” Website for the Tse-whit-zen Project
Websites have become a relatively common way to share findings from archaeological research with the public. They are easily adaptable, can reach a wide audience (e.g. location, age, education levels), and can supplement other outreach programs. What makes a "good" one? Answering this requires that one has established goals; and that one has developed ways to assess whether the goals have been met. In our background research, explicit goal-setting and assessment of archaeological-based websites has scarcely been attempted. We are currently creating a website for the Tse-whit-zen project to address these concerns. Working with project investigators and local stakeholders, we are defining the core themes and content we want visitors to “take away” from a website visit. Working within budgetary, skill and time constraints, we are defining the website scale and selecting software (e.g., Wordpress, Dreamweaver, Weebly). Drawing on previous social media and education research, we are developing instruments to assess whether our goals are met (e.g., visitor tracking, focus groups, and online surveys).

Caulk, Grady (Corps of Engineers), Daniel Hughes (Corps of Engineers) and Wendy Weaver (Corps of Engineers) [243] Locating and Identifying Submerged Prehistoric Sites as Part of CRM Section 106 of the National Historic Preservation Act requires Federal agencies like the US Army Corps of Engineers to make a reasonable good faith effort to consider the effects of their undertakings on historic properties. The Jacksonville District of the Corps of Engineers has been conducting underwater cultural resource surveys since the 1970’s. While the potential for prehistoric sites has always been considered, technological advances have allowed us to improve our ability to evaluate the potential for underwater projects to impact prehistoric sites. This paper will discuss the methods that the Jacksonville District uses in searching for and identifying prehistoric sites. This will include discussions of the use of contractors, including contracting requirements and review. The interpretation of data, as well as using geotechnical cores to sample deeply buried surfaces.

Cavallaro, Marc [106] see Pentney, Sandra

Cavero, Yuri [292] see Nesbitt, Jason

Cawthra, Hayley (Council for Geoscience, South Africa), John Compton (University of Cape Town, South Africa), Erich Fisher (Institute of Human Origins, School of Human Evolut), Zenobia Jacobs (Cente for Archaeological Science, University of Wo) and Curtis Marean (Institute of Human Origins, School of Human Evolut) [294] Marine Geophysics Reveals the Character of the Now Submerged Paleo-Agulhas Plain This work was undertaken to understand the evolution of the terrestrial landscape now submerged by high sea levels offshore of Mossel Bay. Two marine geophysical surveys and scuba diving were used to examine evidence of past sea-level fluctuations and interpret seafloor geological deposits. Eight seismic sequences characterize the shelf, extending from the Mid-Cretaceous to the Holocene time. Geological mapping dating by Optically Stimulated Luminescence (OSL) revealed that the most prominent Quaternary units are associated with the MIS 6 glacial to MIS 5 interglacial periods and include incised lowstand river channels and regressive aeolianites. MIS 5 transgressive beachrock and regressive beach and dune deposits on the shelf are associated with the subsequent fall in sea level. MIS 4 lowstand incised river channels were infilled with sediment truncated during rapid landward shoreface migration at the MIS 4 termination. Back-barrier MIS 4/3 sediments are preserved as a result of overstepping associated with meltwater pulses of the MIS 2 termination. Accommodation space for coastal deposits on the South Coast continental shelf is controlled by antecedent drainage pathways and shelf gradient. The geological deposits on the emergent shelf indicate an expanded glacial coastal plain dominated by low-gradient meandering rivers and wetland lakes.

Cawthra, Hayley [294] see Copeland, Sandi
Cecil, Leslie (Stephen F. Austin State University)

Postclassic Peten Podophilia

In 1996, Fredy Baldizon (a CUDEP student) brought a box of 87 Postclassic tripod plate supports that he collected from a single location on the Tayasal peninsula to the Proyecto Maya Colonial's laboratory. It was not until 2014 that I discovered that another large set (n=66) of tripod supports was associated with a single structure (2034) at Ixlú. Statistical analyses (based on height, form, and paste characteristics) indicate statistically-significant differences between the supports at the two sites. These two collections of tripod supports may represent fragment enchainments or hoards. In either case, the sets reflect social practice and interactions of the cultures that made and transported the pottery fragments as they do not represent pottery smashed in place. As such, the Postclassic Maya from Tayasal and Ixlú may have focused on social and/or political interactions, perhaps feasting events, with the deliberate collection and deposition of these tripod supports.

Cerezo-Román, Jessica (Harvard University)

Deconstructing Multiple Intersecting Identities and Cremation Ritual among the Preclassic Hohokam of the Tucson Basin

Hohokam cremation funerary customs are unraveled to acquire a deeper understanding of intersecting identity differences among seven Preclassic Period archaeological sites (A.D. 475-1150) of the Tucson Basin. This is done by analyzing the mortuary treatment of 477 individual remains using two primary datasets: (1) biological profile of the skeletal remains; and, (2) posthumous treatment of the body inferred from the analysis of the remains and archaeological contexts. Results indicate the existence of social differences in funerary practices related to age at death and sex identity intersections. However, there were also differences between sites in how individuals were treated related to different community social networks of interaction. The results provide a glimpse of the potential social variation and multiple social groups within Tucson Basin Preclassic Period Hohokam sites.

Cervantes Perez, Jose (Centro INAH Oaxaca), Tito Mijangos (Centro INAH Oaxaca) and Agustin Andrade Cuautle (Centro INAH Oaxaca)

Representación Bioarqueológica de la colectividad funeraria en San Sebastián Etla, Oaxaca.

El estudio de los entierros colectivos es una de las vertientes que presentan las prácticas funerarias, y mediante el registro minucioso en campo y el análisis de los materiales arqueológicos en el laboratorio, es posible estudiar de manera integral y multidisciplinaria, un trabajo en conjunto entre la antropología física y la arqueología de dichas expresiones culturales. La investigación que será presentada se enfoca en la distribución y depósito de una serie de esqueletos humanos excavados en la comunidad de San Sebastián Etla, Oaxaca derivados de los rescates arqueológicos realizados por la sección de arqueología del Centro INAH Oaxaca. Este contexto funerario colectivo, por su forma, depósito y el número mínimo de individuos encontrados, muestra que se trata de un posible cementerio del periodo formativo temprano mesoamericano. Como resultado del análisis de los restos óseos en su contexto arqueológico, se presentará el número de eventos funerarios, a fin de contribuir al conocimiento de la práctica funeraria colectiva de las antiguas sociedades de mesoamericanas y en específico, los valles de Oaxaca durante el mencionado periodo.

Cesaretti, Rudolf (Arizona State University)

Hydraulic Empire Revisited: Exploring the Sociopolitical Vulnerabilities of the Riverine Socio-Ecological System of Pharaonic Egypt

Ever since the falsification of Wittfogel's thesis on the role of centralized irrigation construction and administration in ancient Near Eastern states, most scholars of Pharaonic Egypt have found it taboo to theorize a relationship between irrigation-based productive systems and the Pharaonic political economy. A wealth of geoarchaeological and paleoclimatological proxy data has enabled the reconstruction of long term trends in Nile flood levels, highlighting not only the considerable inter-annual variability of inundation, but also dramatic fluctuations at millennial scales. While it is now
rightly acknowledged that Egyptian artificial irrigation systems were normally constructed and administered at the household and local level – enabling a high level of robustness in a socio-ecological system dependent on the maximization of floodwater for arable land – the sociopolitical trade-offs of such a system remain undertheorized. Using a stylized demographic-structural model to study the impact of fluctuations in carrying capacity on the Pharaonic political economy, this poster explores how: (a) long-term flood trends were mechanisms for both state expansion and collapse, (b) regional geomorphological differences in the Nile River stimulated divergent socio-ecological systems, and (c) decentralized regional institutional (nomarch, temple) power over local irrigation networks produced a decentralized sociopolitical structure prone to devolutionary tipping points.

Chalhis, Iffath [396] see Blackwell, Bonnie A.B.

Challis, Sam (Rock Art Research Institute, South Africa) [149] Medicine Dog; Medicine Baboon: Images of Horses Perceived by Contact Cultures in Rock Art

Horses traveled when Europeans expanded across the globe and thereafter swiftly spread among indigenous groups on those continents colonized. The way they are portrayed in rock art can potentially tell us much about the nature of the entanglements of contact and the groups both bringing and adopting this hugely influential domestic animal. This paper draws on rock art evidence from South Africa, Australia, North and South America. Indigenous portrayals of the horse are sometimes conflated with other animals and, far from being the product of bewilderment or misunderstanding, it transpires that often the artists well understood the horse, but in terms that were familiar to them.

Chamblee, John (University of Georgia) [26] Long-Term Data versus Contemporary Crisis: Anthropological Archaeology in the U.S. / Mexico Borderlands

Steve Kowalewski’s work demonstrates the importance of long-term data and provides methods for synthesizing archaeological and other social science data to address problems of contemporary concern. This paper takes cues from that research and combines it with the social conscience for which Steve is known and respected. Instead of treating the deaths of undocumented border crossers in isolation, this phenomenon is contextualized by the long-term history of the U.S. Mexico Borderlands as a crossroads. In this light, current border control mechanisms fit into a cycle of intensifying effort to control the flow of goods and people through the region.

Chan, Benjamin (Faculty of Archaeology, Leiden University) [211] The Faces behind the Façade: Monuments and Their Associated Practices in Neolithic Britain

Over the last 40 years the analysis of monuments has lain at the center of our understanding of Neolithic societies. Interpretative approaches toward monuments range in scale from the overarching view of Renfrew’s emerging chiefdoms to embodied perspectives focusing on their materiality. Regardless of analytical scale, most accounts treat monuments as complete architectural forms and fail to grasp the significance of the wider activities that surrounded their construction and use. This paper will show how recent excavations at Durrington Walls, Wessex, and the Ness of Brodgar, Orkney, have revealed the milieu of activities that surrounded these sites. These involved both routine daily subsistence practices and also episodes of feasting and mass consumption. The manner in which eating, drinking, sleeping, stone working, wood working and other technical activities were interwoven in the use of ceremonial monuments questions the persistent notion of a dualism of ritual and domestic life. Moreover, it suggests that the wider practices surrounding the construction and use of monument complexes provided an arena for social reproduction, the transmission of skills and the negotiation of social identities and were one of the driving forces behind the spread of ideas and technological practices over large geographic areas.

[211] Chair
Chan, Evelyn [219] see Pugh, Timothy

**Chandler, Susan (Alpine Arch Consultants Inc)**

[43] *Public Outreach and Pipeline Archaeology in the Western United States*

Cultural resource companies are increasingly tasked with disseminating the results of their archaeological research to the public. Because the nature of the archaeological record differs for each compliance project and because there are many different “publics” who can be identified, archaeologists have taken several different approaches to public outreach. In the last decade, Alpine Archaeological Consultants, Inc. has created a variety of public outreach products that describe what was learned during the archaeological research for several interstate pipeline projects in the Intermountain West. Among the items created for public consumption were several types of publications, including books for school-age children, books for adults, brochures, and videos; the development of museum displays; the installation of interpretive signs in the field; and presentations to avocational archaeology groups. The challenges encountered in the process of creating and distributing the different types of public outreach products will be described. An attempt will be made to assess the effectiveness of these various approaches from the perspectives of historic preservation professionals, educators, and, insofar as is possible, members of the general public.

[236] *Discusant*

Chaney, Philip [103] see Ervin, Kelly

Chang, Aaron [205] see Steinbruchel, Amber Joliz

**Chang, Nigel (James Cook University)**

[407] *Archaeometallurgy, Environment, and Landscape in Upland Laos: Its Impact on 'World-Views' during the Transition from the Bronze Age to Early States in SE Asia*

Recent excavations have shown that mining for copper ore in upland Savannakhet Province, south-central Laos, began at least 2500 years ago. We suspect that it may have begun even earlier. This paper considers who might have been living in this area prior to the introduction of mining and smelting technology and how the relationship between these prior occupants and their environment might have changed with this new technology. The scale and nature of the impact would have differed, depending on whether already present populations borrowed and adapted the technology from other, larger and more structured, societies - or if the technology was brought into the area in a conscious exploration and colonisation process by those same larger societies. Finally, this paper considers if the introduction of metallurgy was a key factor in reorienting views of the landscape in the past; drawing the uplands into the consciousness of lowland floodplain-based agricultural societies? The archaeological work that this discussion is based on has been carried out over several years under an MOU between MMG-XML (transnational mining company), the Department of National Heritage of Laos and James Cook University, Australia.

**Chapman, Jessica (Humboldt State University)**

[121] *Faux for Fact: An Experimental Ceramic Restoration Process*

This poster focuses on research conducted on experimental restoration processes on ceramic materials. The focus of this research is in determining a potentially ideal adhesive for use on ceramic cultural remains within the restoration process. The restoration process can be very invasive and destructive. Thus, to perform experiments with various chemicals on faux artifacts will ultimately help the archaeologist further understand the proper techniques that need to be carried out in order to preserve the actual fragile and irreplaceable artifacts for later studies. My process involved breaking ceramic plates with an objective of restoring these faux ceramic artifacts with different adhesives so I can better understand what is the most practical and ethical methods within the art of ceramic restoration.

Chapman, Bruce [199] see Comer, Douglas
Chapoulie, Remy [411] see Muro, Luis Armando

Chappell, Duncan (University of Sydney, Australia) and Damien Huffer (Smithsonian Institution Museum Conservation Institute)

[279] Bones of Contention: Further Investigation into the Online Trade in Archaeological and Ethnographic Human Remains

Within the global antiquities trade, especially that (significant) portion of it conducted online, the size and scope of the trade in archaeological and ethnographic human remains continues to be poorly known. In 2014, the authors researched and published the first comprehensive update of what is known about the online component of this trade. In 2013, conducting common search engine queries over two months to creating a database to record recent or ongoing sales, and then explore questions of supply and demand, categories of artifacts being sold, and who is buying and selling. This paper will present new results that expand on Huffer and Chappell (2014), re-assessing previous conclusions in light of a larger database, discussion of additional case studies, and further discussion of the motivations, legal loopholes, and ethical considerations that keep this aspect of the antiquities trade alive.

Charleaux, Michel [77] see Weisler, Marshall

Charles, Frances [168] see Phillips, Laura

Charles, Brianne (University of Wisconsin-Milwaukee) and Emily Epstein (University of Wisconsin-Milwaukee)

[301] Expanding Juvenile Dental Age Assessments Using 2013 Recovered MCIG Subadult Dental Data

Outstanding preservation of the juvenile dentition of individuals recovered during the 2013 Milwaukee County Institution Grounds (MCIG) Poor Farm Cemetery project allowed for the application of four separate dental age assessments. We present the results of a pilot study that attempts to broaden the utility of the Moorrees et al. (1963a, b) tooth formation stages through their application to maxillary dentition and mandibular incisors from a sample of sub-adults from the MCIG cemetery. Tooth formation stages are correlated with other dental and osteometric assessments of age to provide a preliminary, population-specific expansion of methods.

Charles, Douglas (Wesleyan University)

[372] Burial Mound as Palimpsest

Time perspectivism has been defined as “the belief that differing timescales bring into focus different features of behavior” or “or different sorts of processes.” These different behaviors and processes require different concepts and explanatory principles. Criticism of time perspectivism has ranged from seeing it as advocating environmental determinism to it simply being a version of Annales history. Research under the umbrella of time perspectivism has generally focused on processes involving long timescales and on viewing archaeological assemblages as palimpsests. One notable exception is a study of the Hochdorf “princely” grave assemblage, usually considered a closed find, but treated as a palimpsest. Woodland period burial mounds in the American Midwest and Southeast can also be viewed as palimpsests. This paper will evaluate the utility of a time perspectivist approach, refining the manner in which it is applied to closed finds, or more accurately, the assemblage of closed finds which comprises a Woodland burial mound and mound group. The Elizabeth site from the lower Illinois River valley serves as a case study.

Charlton, Michael (University College London)

[89] Immanence, Configuration and the Bloomery Ironmaking Process: Identifying Behavioral Opportunities from Physical Constraints

All metallurgical systems conform to the scientific laws defined for chemical, physical and thermodynamic interactions. These laws place clear limitations on the range of technological
possibility, but, more importantly, create technological opportunity. Some metallurgical opportunities will be better suited to particular socioeconomic and natural environments than others. Models derived jointly from materials science and geology on one hand and evolutionary sciences on the other can offer insights for identifying the exploitation of metallurgical opportunities in the archaeological record, predicting the kinds of environments in which particular forms of exploitation are likely to occur and hypothesizing the trajectories of metallurgical traditions.

Ternary phase diagrams have a long history of use in archaeometallurgy for inferring parameters of smelting processes from the primary chemical components of slag—a residuum of non-reduced compounds from the furnace charge. The structure of ternary phase diagrams also serve as simple models of technological possibility that, when combined with insights from evolutionary theory, become fitness landscape models. Application of one such model to slag from an Iron Age and Medieval bloomeries in northwest Wales reveals how the histories of ironmaking processes are shaped through the interplay between scientific law, culture and the environment.

[89] Chair

Charno, Michael [235] see Wright, Holly

Chase, Zachary (The University of Chicago)
[81] The (Beginning and) End of the World As We Know It: The Multiple Makings and Unmakings of the Indigenous Past in Huarochirí, Peru

Much scholarly understanding of the ancient Andes has been greatly influenced by the unique ca. 1608 Quechua manuscript of Huarochirí, Peru. For many archaeologists and historians the manuscript reveals an indigenous Andean cosmos otherwise hidden or lost. And indeed the text’s manifest leitmotif is the superation of worlds past by worlds present—an historical etiology of its narrators’ place in space and time. Here I present results from the first systematic archaeology in the central area of the manuscript’s production, which clarify earlier historical reconstructions of Huarochirí’s past and provide deeper insight into the material and narrative construction of these Andean worlds, both in the prehispanic and Spanish colonial eras.

Chase, Arlen [108] see Johnson, Lisa

Chase, Adrian (Arizona State University), Arlen Chase (University of Central Florida) and Diane Chase (University of Central Florida)
[183] Residential Architecture at Caracol, Belize: Conjoined Buildings and Distributed Space

During the Classic Period (A.D. 550-900), the ancient Maya inhabitants of Caracol resided in formally constructed residential groups comprised of a series of buildings. These residential groups are believed to have been occupied by extended families. Some of the structures constituted formal residences, but other structures served a variety of functions, ranging from cooking to storage. Additionally, over two-thirds of Caracol’s residential groups had at least one eastern building that was utilized as a ritual locus associated with a cyclical deposition caches and burials. Residential groups were distributed over an anthropogenic landscape that had been modified for intensive terrace agriculture; each group appears to have had control of enough land to have been agriculturally self-sufficient. Most households at Caracol also produced one or more crafts that permitted the inhabitants of residential groups to obtain necessary items at the site’s markets. The level of social well-being in the site’s residential groups has been interpreted as a conscious management strategy called symbolic egalitarianism. Archaeological information exists for 134 residential groups at Caracol and three dozen of these groups have been intensively investigated. These data are useful for framing variable social practices that existed in the Classic Maya area.

Chase, Diane (University of Central Florida) and Arlen Chase (University of Central Florida)
[295] Iconographic Portraiture and Political Implications: Peter Harrison’s Contribution to Mayanists’ Understanding of Site Q

As a dirt archaeologist, Peter D. Harrison was both intrigued by and skeptical of hieroglyphic
interpretations about the ancient Maya, especially relating to Tikal, Guatemala and its political context. However, at the same time he was particularly interested in site emblem glyphs and their significance, centering first on Tikal and next on Tikal’s political enemies. One of his published contributions to the field was a well-documented paper in which he critiqued the way in which epigraphers had lumped a number of different animal heads together as representative of a single polity. Harrison argued that a variety of animal representations were conflated within what was then called the Site Q emblem glyph and that what was being attributed to a single entity was actually the products of several polities. This paper revisits Peter’s earlier contribution and, through doing this, also examines the role of what has been referred to as Site Q within broader Maya political history.

Chase, Arlen (University of Central Florida) and Diane Chase (University of Central Florida)

Seventh Century Star Wars: Reassessing the Role of Warfare in Shaping Classic Period Maya Society in the Southern Lowlands

At the time that Forest of Kings was written, Mayanists were unsure of how impactful Maya warfare actually was. Did it serve symbolic and ritual purposes like the Aztec flower-wars? Or, was Maya warfare actually waged for territorial gain? Forest of Kings was one of the first books to situate Maya conflict as warfare for territorial control. But, the depth and nature of this control as well as the way in which warfare articulated with and affected broader Maya society could not be answered in the hieroglyphic record. While hieroglyphs were used to frame the situational dynamics of Maya politics in Forest of Kings, at the time of the book’s publication only limited archaeological data existed that could be used to complement the epigraphy. Twenty-five years later, this situation has changed. This paper examines Maya warfare and political history from the perspective of Caracol, Belize, using archaeological and newer hieroglyphic data to supplement the history of the ancient Classic Period Maya so admirably documented by Schele and Freidel in 1990.

Chase-Dunn, Christopher see Inoue, Hiroko

Chaterji, Katia (CyArk) and Alexander Reinhold (CyArk)

Applications of Cultural Heritage and Digital Preservation in Science, Technology, Engineering, and Mathematics (STEM) Education

This paper discusses the application of innovative 3D heritage documentation methods to augment science, technology, engineering, and mathematics (STEM) education. A California-based nonprofit dedicated to the digital documentation and preservation of cultural heritage sites worldwide, CyArk is a leader in digital heritage preservation, archival, and technological advancement. CyArk practices a range of techniques, including 3D laser scanning, high definition photography, and photogrammetry, channeling the resulting data towards future site conservation, interpretation, and development of educational materials.

CyArk will present a case study analyzing the digital preservation of the 18th century Spanish missions along California’s coast, which represent historic El Camino Real. Studied by 450,000 California 4th graders each year, the Missions serve as model classrooms to teach the importance of our shared history. Through interactive lesson plans, students participate in active learning while visiting a mission site, while also engaging in technology and math subjects. In this discussion of El Camino Real digital preservation collection, CyArk strives to demonstrate the interconnectivity between history, heritage, and digital technology. CyArk believes emphasis on archaeology, cultural heritage preservation, and documentation in the classroom is a strong asset to STEM education, and will support the next generation of cultural heritage and technology advocates.

Chatters, James see Brown, James

Chatters, James (Applied Paleoscience)

An Overview of the Hoyo Negro Project and Its Findings

Hoyo Negro is an immense, underwater collapse chamber deep within the Sac Aktun Cave system, Quintana Roo, Mexico. On its floor lie data-rich calcite raft deposits, bat guano piles, scatters of
wood and charcoal, skeletons of large animals, and the remains of one teen-age human female. These sediments and fossils lie in total darkness, >40 meters below sea level, creating major technical challenges for their study and recovery. Investigations by a team of divers and scientists from Mexico, the US, and Canada, which began in 2011 using in situ study and minimal sampling, have begun to unlock this trove of potential information about the terminal Pleistocene paleoecology and human occupation of the Yucatan Peninsula. Thus far we have mapped the site in detail, identified as many as five extinct species of megafauna (two perhaps new to science), conducted geochemical studies of the calcite raft deposits to elucidate patterns of climatic change, determined the age range of the site, and begun studies of the human remains. Overall, the site dates from ca 8000 to >40,000 BP. Naia, as the girl has been named, is as much as 12,900 years old and her mitochondrial DNA places her origin firmly in Beringia.

Chair
Chavez, Roberto [370] see Nava, Alberto

Chávez Balderas, Ximena (Proyecto Templo Mayor/ Tulane University)
[158] Fire, Transformation, and Bone Relics: Elite Funerals at the Great Temple of Tenochtitlan
As described in historical sources, the Great Temple of Tenochtitlan was the final resting place for some elite individuals: their bodies were exposed to fire and cremated bones were deposited in funerary urns. However, archaeological findings suggest that funerary rituals were more complex, depending on the identity, social status and cause of death of the deceased, as well as body symbolism. Seven urns containing cremated bones from five individuals along with numerous burial goods were found in this building, proving the existence of an important diversity in funerary rituals. In this paper I will present the different types of cremation rituals, the symbolism of fire as a transforming element, as well as the symbolism of cremated remains and their possible use as bone relics for consecrating ritual spaces.

Chair
Chávez Balderas, Ximena [298] see Robles Cortés, Erika

Chávez V., José Juan [317] see Murakami, Tatsuya

Chazan, Michael (University of Toronto)
[190] The Earlier Stone Age Occupation of Wonderwerk Cave: Combining the Archaeology and Geology
The archaeology and geology of the Earlier Stone Age of Wonderwerk Cave (Northern Cape Province, South Africa) present a paradoxical picture. On the one hand there is a record of hominin occupation spanning a period of at least one million year that includes multiple proxies indicating the use of fire. However, the micromorphological study of the sediment shows almost no anthropogenic signal and the density of artifacts is extraordinarily low. This paper presents an overview of the current state of research including the new excavations at the site that began in 2013 in collaboration with Liora Kolska Horwitz and Francesco Berna. Although many questions remain about site formation processes in the early phases of hominin occupation at Wonderwerk the evidence suggests that the nature of occupation during this early period was different from the cave occupations familiar from the Middle Stone Age and Middle Paleolithic. The research at Wonderwerk provides an example of the critical role that micromorphology plays in the archaeology of early hominins.

Chazin, Hannah (University of Chicago)
This paper is the first part of a two-part exploration of the use of taphonomy as an archaeological technique across prehistoric archaeology and the archaeology of the contemporary. Parts I and II are a dialogue, through which both authors have re-approached their own work on taphonomy as an
archaeological method and analytic. Part I is an exploration of how approaching taphonomy as history opens up the possibility of exploring the political ramifications of pastoral practices. The zooarchaeological analysis of faunal remains from pastoralist societies in the Late Bronze Age South Caucasus serves as a case study. This work suggests how treating taphonomy as history and analyzing pastoralism as acts of assembling can productively address the simultaneously economic and political stakes of the organization of pastoralist life. The paper suggests that the political stakes of pastoralist assemblings are two-fold: 1) they produce the background of everyday, unremarkable practices of production, consumption and exchange and 2) assembling is also key to producing prescriptive material, semiotic narratives (discourses of power). In doing so, the paper will address how dialogue with the use of taphonomy in the archaeology of the contemporary has productively influenced this approach to taphonomy in a prehistoric context.

**Chair**

Chechushkov, Igor (University of Pittsburgh)

Is Fortification Always about Defense? The Case of Middle Bronze Age Fortified Settlements in Northern Eurasia

There are 22 fortified settlements of the Middle Bronze Age discovered in Russia through the methods of aerial photography analysis and field excavations over the last 40 years. Together they are known as Sintashta archaeological culture of the Southern Urals. The typical Sintashta settlement is usually an enclosure consists of 1-4 meters deep ditch and a wall built of dirt and clay. Surprisingly, all the fortified settlements were placed in the lowest spots of landscape and the tops of surrounding hills were not occupied. The current analysis of the settlement patterning using GIS suggests that people chose the place of living without consideration of defensive goals.

Chen, Fahu [37] see Ma, Minmin

Chen, Pochan (National Taiwan University)

Exploring the Social Structure of Kunming Yangfutou Cemetery, Yunnan, Southwestern China

Dian is the most important polity from Warring States to Western Han period in the Dian Lake area of Yunnan, southwestern China. Except for sparse records in Shiji, Hanshu and Huayangguozhi, our understanding of Dian all comes from archaeological discoveries, especially those large and complex cemeteries. Since 1950’s, archaeologists excavated many important Dian cemeteries including Jinning Shizhaishan, Jiangchuan Lijashan, Chenggong Tianzimiao, Qujing Batatai, Chengjiang Jinlianshan and Kunming Yangfutou. These cemeteries usually have several hundred burials with abundant burial goods; however, the complexities in burial goods also confuse researchers. Some scholars applied several statistic methods in the analyses of these Dian cemeteries for understanding their social structures, social hierarchies and gender relations but none of them pay attention on spatial relations among burials. This paper applies spatial autocorrelation techniques in GIS to explore the spatial distribution of burial goods and their relations with the social structure at Yangfutou cemetery. With Moran’s I and Local G* autocorrelation analyses, I argue that the Yangfutou cemetery can divided into six groups possibly according to descent relations. The southern group might be an elite group compared to others. The other groups might be equal in social status but different in terms of economic situation.

Chen, Peiyu

Dwellings and Corporate Groups in Montegrande, Jequetepeque Valley, Peru: A Household Study of Social Differentiation

This research takes two kinds of analytical unit, dwelling and hypothetical corporate group, to analyze and compare spatial relationship between the east and west sectors in Montegrande, a Early Formative site locates in Jequetepeque Valley, Peru.

The map-based analysis reveals different changing pattern during the two phases of occupation. The primary result shows that east sector went through a significant transition from phase 1 to phase 2 in
the configuration of corporate group and in the location of largest dwelling. On the other hand, the nature of west sector didn't change significantly, while the dispersed dwellings in phase 1 became better connected through patios in phase 2 occupation. The comparison of dwelling size shows that there was no significant difference between the two sectors in phase 1 and there is a tendency that east sector had larger dwelling area than west sector in the latter occupation.

The result of comparison not only depicts a possible social differentiation, but implies various social strategies taken by different households: the rich households tried to isolate themselves from others and regular households tended to incorporate themselves into a larger corporate group in the settlement.

Chen, Hong, Xiaoling Zhang (Key laboratory of Vertebrate Evolution and Human O) and Chen Shen (Royal Ontario Museum)

[179] An Experimental Study of Lithic Use-wear Multi-stage Formation

Use-wear analysis has become an essential method for the functional study of lithic artifacts from archaeological assemblages. However, research concerning multi-stage use-wear formation is poorly developed. In this paper, we report the results of an experimental study focusing on flake scar patterns, rounding and polish formation in multiple stages. For comparative data and interpretation, nine cases of single working tasks were undertaken on scraping bone with Onondaga chert from Ontario Lake. The resulting flake scars and abrasive wear were observed separately in each stage and photomicrograph were taken and compared to compare the changing trajectory of use-wear formation. This experiment clearly demonstrates that flake scar formation does not correspond to the rate of usage over time and we propose that the formation of scar patterns and rounding become diagnostic attributes for use-wear observation. Flake scar fractures occur most frequently in the early stages. During later stages, flake scars stopped developing while rounding and polish became more apparent. The study also examines the changing trajectory and rate of scar invasiveness and length of use. The results are informative as it is suggested that scar invasiveness grew as the use time increased at a given working angle.

Cheng, Zhijie [179] see Yang, Yuzhang

Chenoweth, John (University of Michigan-Dearborn)

[258] Power and Nature: A Contemporary Archaeology of Yosemite National Park

Parks are the creation of established power structures, and are themselves statements about power over nature. Visitors to these parks, however, negotiate these structures in their own ways. Often, historical archaeological analysis focuses on power struggles: domination and resistance between classes, races, and genders, for example. This paper analyzes how some of the tools of these more traditional archaeological analyses apply to the present. A contemporary archaeology of litter in Yosemite has explored the concepts of “nature” and “culture,” carefully critiqued by anthropologists over the last few decades, but still at the forefront of the public debate over the environment. Visitors’ actions make statements of power over nature but in ways that can defy our usual categories of domination and resistance.

Cheong, Kong (American University), Chris Carleton (Simon Fraser University), Dan Savage (Trent University), James Conolly (Trent University) and Gyles Iannone (Trent University)


In 2012, a settlement survey was conducted on the North Vaca Plateau in west-central Belize as part of the Social Archaeology Research Program (SARP). The survey was intended to test the predictions of a new archaeological potential assessment method called the Locally-Adaptive Model of Archaeological Potential (LAMAP). A LAMAP assessment was produced for Minanha, a Classic Maya civic-ceremonial center, which served as the first case study for the new method. When conducting the survey to test the LAMAP predictions, however, the survey team found that modern
forest cover made it impossible to complete a survey with sufficient coverage to adequately validate the model in a reasonable amount of time. Thus, a LiDAR survey was commissioned to supplement the field results. The LiDAR imagery proved useful for identifying cultural features beneath the canopy with much greater efficiency than could be accomplished using traditional methods. In this paper we report a comprehensive test of the LAMAP assessment using a combined LiDAR and traditional survey dataset. We find that our understandings of Maya settlement patterns, and our ability to assess locational models like LAMAP, are significantly improved with the use of the combined dataset.

Cherkinski, Alex [121] see Loftis, Kathy

Chesson, Meredith (University of Notre Dame) and Annmarie Lindzy (University of Notre Dame) [315] 
“Made to Grow Old”: Dressers, Delph, and Island Homes in Western Ireland
Archaeologists have described and discussed households for decades, yet only recently have they made the theoretical leap from residential structures and coresidential units to peoples’ homes. Homes are built, embodied and enlivened by peoples’ actions, thoughts, relationships, experiences and aspirations. This poster presents the results of an ethnoarchaeological analysis of homemaking on the islands of Inishbofin and Inishark (co. Galway) as well as Inishturk (co. Mayo) in western Ireland. Through the ethnographic lens of dressers and delph on Inishbofin and Inishturk, we investigate how people employed the material goods of everyday life to build and preserve a sense of home. In turn, we compare these ethnographic delph and dressers to the archaeological material remains of 19th century homes on Inishark. By holding delph and other objects, dressers protect and embrace memories of loved ones lost to death and emigration as well as mementoes of important life milestones like pilgrimages, births, deaths, and marriages. We argue that dressers and their contents transformed houses into home, working in tandem with the main hearth to anchor the home in a family, a community and island heritage.

Chevalier, Alexandre (Royal Belgian Institute of Natural Sciences), Danièle Lavallée (Archéologie des Amériques, UMR 8096, CNRS) and Michèle Julien (Archéologie et Sciences de l’Antiquité, UMR 7041, ) [309] 
From foragers to Producers: Desert Gardening at the Archaic Peruvian Site of Quebrada de Burros
Research at the Peruvian site of Quebrada de Burros (Dep. of Tacna, Peru) evidenced a very early settlement of fishermen and shell-gatherers on the desert Pacific littoral. The campsite has been occupied during the Early and Middle Holocene, between 10,000 and 6,000 B.P. The analysis of organic remains indicate that since the beginning, the different groups not only relied on ocean resources but also exploited the surrounding vegetation. In particular, phytolith analyses show that the settlers drastically changed their direct environment over the time. This is the first time that such a direct human impact on vegetation could be identified at a very local scale for the Central Andes. We could also put in evidence that these inhabitants already used some domesticated food plants whose respective presence are among the earliest for the Andes.

Chhay, Rachna [349] see Carter, Alison

Chi, Julio (Julio Chi), James C. Chatters (Applied Paleoscience and Direct AMS), Andrea Cucina (Laboratorio de Bioarqueologia, Facultad de Ciencia), Pilar Luna Erreguerena3 (Subdirección de Arqueología Subacuática, Instituto) and Vera Tiesler (Laboratorio de Bioarqueología, Facultad de Ciencia) [370] 
Histomorphology and Metabolic History of a Submerged Pleistocene Skeleton from the Cenote of Hoyo Negro, Tulum, Quintana Roo, Mexico
This paper explores the histological preservation, metabolic history and living conditions in rib sections of a submerged female youngster, macroscopically determined to have died during her mid teens. This partially preserved skeleton counts among the most ancient individuals securely dated in the Americas. For the purposes of the study, we studied an undecalcified mid-shaft section of the
Chi Kei, Lo (The Chinese University of Hong Kong)

Preliminary Study on Western Han Dynasty Settlements in the Lingnan Region

Recent archaeological excavations in eastern and northern Guangdong and eastern Guangxi discovered palaces and administrative offices in the period of Nanyue Kingdom. Also, the characteristics of the palaces and the offices were Han-style and other facilities were installed defensive function as a military post. Based on the excavations, this paper studies how the elements of Han culture were integrated into Yue culture as reflected their settlement structures, architectures, and other material expressions in the Lingnan region, covering Guangdong and Guangxi on Western Han dynasty settlements. Firstly the paper examines the development of politics and economics from the early Western Han to the later Western Han. Second, it studies how Zhao Tuo, King of Nanyue, maintained Han culture but also combined with Yue culture to re-construct the new “kingdom” that presented architectural forms. Third, it discusses how Yue people under the control of Han authorities adapted external impacts on their culture in Lingnan region.

Chiang, Chihhua (Department of Anthropology, National Taiwan University)

Use-wear Analysis of the Stone Tools at the Wansan Site, a Neolithic Site in Taiwan

This is a multi-stage project whose goals are to understand the possible uses of various stone tools excavated from the Neolithic Wansan site in Northern Taiwan. In this poster, I will demonstrate the preliminary results of this project that identify possible patterns of stone tool use-wear. There are abundant finely ground lithic tools recently excavated from the Wansan site. Previous research has categorized these tools based on their morphology, and classified these tools as projectile points, adzes, axes, hoes, knives. The terminology implies the functions of these tools based on ethnological analogy. However, no systematic analysis of the use-wear or residue has yet been conducted on this collection. I will employ both high and low power methods to observe the use-wear of these tools in order to examine possible patterns among different types of tools. Based on the results, I can further plan the next stage of research to conduct experimental archaeology and residue analysis on these tools.

Chiarulli, Beverly (Indiana University of Pennsylvania)

Patterns of Lithic Raw Material Exploitation and Use in Western Pennsylvania

During the Late Prehistoric period, at least four major lithic raw material types were used for the manufacture of a limited variety of tool types. The major tool forms were small triangular projectile points and flake tools. The major raw material types used in this region include Onondaga, Loyalhanna, and Shriver cherts and Vanport Siliceous Shale. Workshops and quarries have been identified have been identified and are found on the north, south, east and west sides of this region. An analysis of the lithic assemblages from several villages has found that all of these raw materials were used throughout the area. Analysis of the raw material types used in the villages suggests that although the percentage of a raw material type used in any particular village generally reflects the distance to sources, there are some materials that are present in much greater than expected quantities. In some cases, the most commonly used material is from quarries that are twice as far from a site as closer quarries. Analysis of the assemblages suggests that the use of raw materials reflects not only proximity to source areas, but also either perceived qualitative differences in the materials or access to different cultural networks.

Chicoine, David [237] see Whitten, Ashley

Childress, William [333] see Gingerich, Joseph
Childs, Amanda [95] see Sharma Ogle, Mini

Childs, Terry (Department of the Interior)  
[160]  Discussant

Chilton, Elizabeth [281] see Doucette, Dianna

Chilton, Elizabeth (UMass Amherst)  
[405]  The Role of Intangible Heritage Values in the Management of Places and Things
One of the stated goals of decolonizing archaeological theory and practice is to redistribute power and authority in the creation and communication of cultural heritage, a laudable goal. However, achieving such a goal is only possible if archaeologists and historians relinquish their role as historiographical experts—as the ultimate authority on historical truths and significance. While in recent years there has been a trend towards increasing public outreach and engagement, in some cases such collaborations have actually strengthened the colonial power relationships in which archaeologists have participated. One way forward is to turn to a definition of materiality that acknowledges that tangible and intangible heritage are inextricable, and that meanings and values are continuously created and recreated in the present by a variety of memory communities (see, for example, the 2003 UNESCO Convention on the Safeguarding of the Intangible Cultural Heritage). In this paper I examine several case studies—including the Northeast U.S. and the Bahamas—as a means to demonstrate that collaborative praxis must foreground the intangible.

Chinchilla, Oswaldo (Yale University)  
The Early Classic ascendancy of Teotihuacan was felt strongly on the Pacific Coast of Guatemala, particularly at Montana and related sites on the coastal plain of Escuintla. The Teotihuacan downfall roughly coincided with the demise of those sites, and the rise of a new dominant center Cotzumalhuapa, around A.D. 650. The process seems to parallel the emergence of Epiclassic centers in highland Mexico, and differs in many respects from the Maya Highlands and Lowlands, where there are fewer indications of major changes in the political landscape in the wake of Teotihuacan's collapse. This paper examines two questions: How did Pacific coastal peoples respond to the demise of the highland Mexican metropolis? And how did local developments in Escuintla relate with broader Mesoamerican patterns? The archaeological record and the sculptural corpus of Cotzumalhuapa suggest adjustments that combined the maintenance and reinvigoration of coastal traditions, the adoption of innovations stimulated by Teotihuacan influence, and reactions against the former ascendancy of Teotihuacan culture in the region.

[242]  Discussant

Chinique de Armas, Yadira [313] see Buhay, Bill

Chiotti, Laurent [181] see Nespoulet, Roland

Chiou, Katherine (University of California, Berkeley)  
[347]  To Screen or to Float?: Methodological Considerations for Archaeobotanists in Coastal Peru
In recent years, coastal Peru has seen an encouraging upwards trend in the number of archaeologists trained in the field of paleoethnobotany or archaeobotany. With growing numbers of practitioners in the field, it is crucial to remain vigilant of methodological concerns that are relevant not only to archaeobotanists as a whole, but particularly to those working in the unique environment of coastal Peru. In the interest of maximizing interpretative potential while maintaining the capability to run comparisons across multiple datasets, archaeobotanists need to be constantly mindful of ways
to improve the methods and techniques we utilize when conducting our research. Issues of concern include sampling protocols, processing techniques, identification and counting procedures, and quantification. Archaeobotanists working in the dry, coastal region of Peru, for example, employ a variety of techniques in the processing of sediment samples for botanical remains that fall under the general categories of screening/sieving and flotation. The choice of a certain processing method alone can have a profound effect on the quantity and quality of botanical remains as well as an effect on the actual taxa recovered. This paper will present recent research on these issues using data collected from the North and South Coast of Peru.

Chiou-Peng, TzeHuey (Univ. Illinois UC)

Toward a Reconstruction of Early Settlements in Metal Age Yunnan

Although research works on the Bronze Age burials in Yunnan in the past fifty years have expanded our knowledge on various aspects of ancient Yunnan societies, many questions pertaining to the earliest stages of human existence in Yunnan have remained to be answered for short of a well-defined chronological sequence from settlement archaeology. Recent findings of early habitation sites in the environs of the Lake Er are beginning to shed new lights on the exiting issues, including questions regarding the onset of metallurgy in Yunnan. Studied in conjunction with a newly established ceramic sequence, the typological, stratigraphic, metallographic, and phytolith analyses of materials taken from these sites can now be used to assist in characterizing the regional features of early Yunnan cultures, as well as in interpreting interactions occurring in and around western Yunnan during the 2nd millennium B.C.E. These studies appear to have dovetailed with the result from analyzing metal particles in sediment cores from Lake Er—a chronological table suggesting the transition between the Neolithic and Bronze Ages of Yunnan.

Chiriboga, Carlos [413] see Freidel, David

Chiu, Scarlett (Academia Sinica, Taiwan), David Killick (School of Anthropology, University of Arizona, USA), William Dickinson (Department of Geosciences, University of Arizona,) and Christophe Sand (The Institute of Archaeology of New Caledonia and )

Connection and Competition: Some Early Insights Gained from Petrographic Studies of New Caledonian Lapita Pottery

In this paper we will present the newest results gained from both petrographic and chemical compositional analyses of New Caledonian Lapita pottery samples in order to address issues concerning long-distance connections among several Lapita communities, as well as competition that might have happened between Northern and Southern Lapita communities. We have been able to develop an effective way of identifying pottery production areas within New Caledonia and our results suggest that there were possible social boundaries between two sides of the Grande Terre.

Chiykowski, Tanya (SUNY Binghamton)

Trade, Migration, and Movement at Cerro de Trincheras, Sonora, Mexico

Archaeologists study the movement of potters, materials and techniques to understand migration and exchange on both a local and regional scale. Modern international divisions, such as the Mexican - US border, interrupt these research questions in the Greater Southwest culture area. In Sonora, archaeologists have clear evidence of population upheaval after A.D. 1300; Southern Arizona Hohokam groups migrated into the Altar Valley, bringing with them new ceramic technologies and displacing a resident Trincheras population to the Middle Magdalena valley. Whereas the presence of large amounts of Hohokam Sells Plain ceramics at Cerro de Trincheras in the Middle Magdalena valley suggests that Trincheras and Hohokam populations interacted, neither how the process occurred, nor the impact of those linkages are understood. What processes resulted in such a large percentage of ‘foreign’ plainware ceramics at Cerro de Trincheras? My paper
will use ceramic petrography and GIS analysis to address the likelihood of trade, community migration, and the movement of women as part of a wider question of population interaction and innovation in the late prehistoric Greater Southwest.

Chmilar, Jennifer [38] see Leonard, Daniel

Choi, Seonho (Seoul National University), Jangsuk Kim (Seoul National University), Jaeyong Lee (Seoul National University), Chuntaek Seong (Kyunghee University) and Jaehoon Hwang (Seoul National University)

[80] On the Precision and Accuracy of Radiocarbon Dating

Radiocarbon dating in the modern age is a precise experiment requiring an understanding of nuclear physics using accelerators. It requires measurements on the order of parts per trillion of carbon 14 nuclei in samples. Although most of the procedures of radiocarbon dating are standardized these days, the final results of the measurements have limitations on precision and accuracy that require careful verification before final acceptance. Recently, our group has carried out radiocarbon dating on samples of which the actual dates are approximately known. These samples were sent out for radiocarbon dating several times for a consistency check to confirm consistency of results. These experiments were performed over different accelerators in order to check for consistency. Based on the reports for each radiocarbon date, we have worked to reconstruct the data collected during the measurements and applied standard nuclear physics analysis to the data. The preliminary results from this study will be presented with suggestions on how to refine the precision for radiocarbon dating.

Choi, Jeong-Heon [174] see Nightingale, Sheila

Christakos, Elena and Augusto Vásquez

[232] Panquilma: Socio-politics in Household Archaeology

An analysis and discussion contributing to previous research of the socio-political organization found at the Yschma site of Panquilma, located on the Lurin Valley, central Peruvian coast. Panquilma is a 13th–15th century site on the borders of one of the most important and influential religious centers in the Central Andean Coast – Pachacamac. The site of Panquilma is comprised of three sectors; Sector 1 is characterized as the public zone and includes monumental architecture in the form of pyramids with ramps, Sector 2 consists of multi-room domestic compounds, and Sector 3 encompasses a series of shallow, rounded tombs containing substantial amounts of human remains. This discourse will focus on the domestic confines of the site, highlighting any socio-political discrepancies found between the two existing groups of the domestic sector -- the peripheral and central household compounds. Ceramic analysis, as well as the complementary use of a pre-existing ceramic typology for Panquilma will be used to classify variation in ceramic types. In doing so, domestic activities that may have developed in the household compounds can be easily recognized. Subsequently, we will distinguish the differences in accessibility and identify the existence of any contrast in status between these two differing household compounds.

Christensen, Kim (University of California Berkeley)

[327] ‘Authenticity, Repurposed’: Mason Jars, Archaeology, and Contemporary Narratives

From the satirical website The Onion to the venerable New York Times newspaper, mason jars are receiving attention due to their current resurgence in popularity for food preparation, décor, and do-it-yourself projects. These contemporary examinations of the mason jar’s popularity tend to contrast the frivolity of today’s use with a singular utilitarian historical view. In this paper, I examine the varied discourses that they have been placed within historically and by archaeologists in order to complicate the static view promoted by contemporary discussions. I argue that while their use for food preservation may have indeed been a matter of survival in many cases, the promotion of mason jars by the late 19th/early 20th century domestic science movement and issues of gender, race, class, and rural/urban location add important texture to this seemingly bland and ubiquitous food container. In complicating their history by drawing attention to issues of inequality implicated in their
historical use, I critique the notions of authenticity and nostalgia attached to mason jars in the present moment as continuing to overlook the same, ongoing issues of inequality.

Christianson, Ashley [265] see Okray, Jillian

Christie, Jessica (East Carolina University) [46]  *Inka Border Negotiations in the North: The Canari Case in the Province of Azuay, Ecuador*

This paper will reassess relationships between the Inka and the Canari in the northern frontier zones of the Inka empire through local archaeological data. So far, scholarly knowledge about the Canari has been based upon ethnographic descriptions provided in various Spanish sources. The Canari have been characterized as a strong-willed independent people who offered fierce resistance to Inka domination. They were entrenched in the civil war between Waskhar and Atawallpa and eventually their resistance was broken by means of the mitmaq policy. Inka presence in Ecuador is commonly evaluated through archaeological information obtained from Tomebamba and Ingapirca. Tomebamba functioned as Wayna Qhapaq's capital and Ingapirca was a tambo outpost about 40 kilometers to the north.

I will discuss Canari material from Ingapirca and from the nearby sites of Coyotcor recently excavated by Ecuadorean archaeologists and Cojitambó. All three evidence original Canari settlements with Inka overlays. The paper analyzes Canari-Inka relations from the perspectives of origin narratives, stone ideology, and landscape construction. Coyotcor emerges as a complex case study of all three. The results show a new nuanced understanding of Canari-Inka dynamics which carry over into the present by reinterpretation of local toponyms and associated ritual practices.

[46]  *Chair*

Christie, Heather (University of Glasgow) [101]  *Got Swag? Investigating Beads and Bead Trade in Scotland during the First Millennium A.D.*

The most prevalent theory concerning intercultural interaction demands a dominant-subordinate relationship in which the subordinate group passively accepts the culture imposed on them by the dominant population. This argument is often applied to Scotland in the first millennium A.D., where the transferred cultures are the Irish, Anglo-Saxons, Romans, Norse, and others from continental Europe. Studies of beads in Scotland are particularly affected by these theories: very few beads are seen as uniquely Scottish objects, and very little agency is accorded to local, Scottish groups for this period. Yet, until now, there has been no systematic study of Scottish beads during the first millennium A.D. from which to draw such conclusions. This study records and analyses the distribution of beads found in Scottish contexts dating to the first millennium A.D., and argues instead that the distribution patterns of these beads demonstrate clear agency on the part of local populations. Thus, rather than blindly accepting imported cultural practices, local groups in Scotland are actively selecting the beads they wish to use/import and are re-appropriating the materials they have to fit their own needs.

Chu, Alejandro [134]  *Archaeological Data vs Historical Accounts. The Inca Occupation of Incahuasi, the New Cusco, Cañete, Peru*

This paper presents the results of recent research at the archaeological Inca site of Incahuasi located at the Cañete valley, Peru. Although Incahuasi is frequently mentioned in the archaeological literature and by Spanish chronicles (it is considered a New Cusco) little research has been done at the site. New data from archaeological excavations allows us to compare historical accounts about the nature of Inca's occupation of the site, showing significant differences and challenging the picture that the historical accounts present us about Incahuasi.

Chu, SeiMi [396] see Blackwell, Bonnie A.B.
Chuipka, Jason (PaleoWest Archaeology) [229] Absent or Overlooked: Addressing the Early Athapaskan Presence in the San Juan Basin of Northwest New Mexico

The San Juan Basin of New Mexico is one of the most archaeologically rich areas of the American Southwest. Three years in, the Navajo-Gallup Water Supply Project is the latest in a long history of infrastructure projects that provides the opportunity to conduct archaeological research and expand our understanding of the past. One question being addressed is when the Southern Athapaskans moved into the upper San Juan Basin and how long they occupied it before Navajo culture emerged. At the present time, archaeological evidence for the earliest emergence of Navajo culture (forked stick hogan, sweat lodges, characteristic ceramic and lithic technologies, maize agriculture) points to the A.D. 1500s. Archaeological evidence for an earlier Athapaskan presence has proven elusive, and interpretation of data has been prejudiced by hypotheses regarding the timing of migrations. Further complicating this issue is that most aceramic artifact scatters and camp sites encountered on large data recovery projects that may shed light on this issue have not been selected for investigation as they are considered to have minimum research potential. The current project seeks to devote more attention to defining and dating sites that may contribute to understanding the early Athapaskan occupation of the region.

Chair Chunag, Amartuvshin [234] see Wright, Joshua

Church, Robert [4] see Damour, Melanie

Church, Warren (Columbus State University, GA) [78] Where Was Chachapoyas? A View from the South

To answer the query “what was Chachapoyas?” we must think in terms of time, space and identity. Chachapoyas scholars have encountered documentary and/or archaeological evidence of a mosaic of social identities, all undergoing transformations during successive pre-Inca, Inca, and Colonial times within a truly vast Andean region. In this paper, I consider notions of Chachapoyas internal and external boundaries as they have been conceived in the southern area where I conduct my research. Chachapoyas scholars usually make reference to ethnohistorian Waldemar Espinoza’s 1967 map of “Grupos Étnicos” and/or the map drawn by Langlois ca. 1940. Neither scholar provides detailed justifications for border placements. Scholars concur that differences in material patterning indicate the existence of a poorly understood boundary that once separated Chachapoyas into northern and southern sub-regions, and perhaps justified the Inca’s creation of northern and southern Inca administrative units (or hunos). The meanings underlying these differences require explanation, as these “halves” do share material attributes. My research suggests that wholesale inclusion of the southern area under the “Chachapoyas” label inhibits understanding of cultural developments at important sites like Gran Pajatén. Here I examine when, where, and perhaps why some boundaries may, or may not have functioned in southern Chachapoyas.

Chair Church, Michael (HDR) [228] Renaissance Florentine Palaces, Costly Signaling, and Lineage Survival

The elites of Florence, Italy built a huge number of palaces during the city state’s period of republican government between 1282 and 1532. Intuitively, these palaces seem like a perfect fit with the predictions of costly signaling theory: they were expensive, highly visible, and vast, and the families that commissioned their construction viewed them as ways of reflecting and producing status. But were these structures costly signals, or did elites spend money on lavish houses simply because they could afford to do so? This research uses the material record of 174 extant palaces built between 1282 and 1532 and demographic and political data extracted from the city’s republican-era election records to evaluate whether palaces are consistent with the predictions of costly signaling theory. My findings indicate that palace owners had more offspring and more political
success than their non-palace owning peers, but they obtained these advantages before they commissioned their palaces, not after. In addition, palaces’ fit with the predictions of costly signaling varies over time. My results indicate that costly signaling can operate in complex ways, offer new insight into Florentine elites’ consumer choices, and reveal parallels with modern American decision-making regarding residential real estate and other spending.

Chykerda, C. Myles [368] see Kontonicolas, MaryAnn

Cinquino, Michael [352] see Hayward, Michele

Cioffi-Revilla, Claudio (George Mason University - Center for Social Complexity) and Thomas Dover (George Mason University)

Implementing Politogenesis by Canonical Cycling in an Agent-Based Model with Circumscribed Environment

“Politogenesis” is a fundamental social process for understanding how and why early societies increased or decreased their social and political complexity. Agent-based models (ABM) of archaeologically recorded processes of early polity formation and regional dynamics are beginning to show promising results for advancing theory and research on politogenesis, especially when ABM results can be compared with empirical patterns, such as cycling. This study investigates politogenesis in a geographically circumscribed region by implementing an ABM. The model uses a decision-making process enabling agents with bounded-rational adaptive capacity for managing significant changes in subsistence or living conditions. Qualitative analyses of simulation results demonstrate how the model generates regional polities with detailed narratives of politogenesis with face validity. Significantly, model outputs are validated by “peaks and valleys” of political and social complexity similar to those proposed by earlier models of polity cycling, such as the Dynamic Model of J. Marcus and related theory and research. Interestingly, the model identifies a period of time in regional politogenesis that exhibits a phase transition from polities with low complexity to polities with higher complexity. Increased population densities that enabled production beyond subsistence, with regional territorial limits imposed by circumscription, can account for this shift.

Ciravolo, Amber [294] see Smith, Eugene

Cirillo, Laura (California State University, Chico), Alexandra McGough (University of California, Berkeley), Julie Ding (University of California, Berkeley), Rebecca Jabbour (Saint Mary's College of California) and Gary Richards (A.A. Dugoni School of Dentistry, University of the)

Geometric Morphometric Assessment of Cranial Shape Change in Trigonocephaly

Investigating the only known prehistoric example of trigonocephaly, a condition thought to result from premature sutura frontalis fusion, we address cranial shape changes in this condition that have been previously limited in scope and based on living individuals. The individual derives from a prehistoric context on Santa Rosa Island (CA-SRI-24), dates to 1500-1650 A.D., and is housed at the PHMA, UC Berkeley. Ninety-three 3D landmarks were collected from normal skulls for comparison (n=43, range from 6.0-8.0 years) with a Microscribe 3D digitizer and from a CT scan of the trigonocephalic (8.0 years ±24 months) using Amira 5.5. Skull shape was explored using Principle Components Analysis (PCA) on Procrustes-aligned shape variables. Principle components of the face and vault separated provide more of an insight into the overall shape change and potential cause. The PCA reveals major shape change in the face and anterior cranial base. These changes are coupled with cranial shortening and supramastoid-level broadening. Maximum cranial breadth is displaced anteroinferiorly. The degree of shape change occurring in virtually all regions of the skull in this malformation is well beyond that currently documented and has potential implications for understanding suture closure, skull growth, brain development, and modern surgical intervention practices.

Civitello, Jamie (Valles Caldera Trust)
Earthwatch at the Valles Caldera National Preserve: Building a Successful Volunteer Research Partnership with Obsidian, Quarries, Soil, and More!

Since 2012, the Valles Caldera National Preserve has partnered with Earthwatch Institute to bring volunteer-scientists into the field to participate in archaeological research. Volunteers stay overnight on the Preserve for 11 days and work side-by-side with Preserve archaeologists to excavate a large obsidian quarry in the heart of the caldera. The volunteers gain skills in applying archaeological methods, while living and working in one of the most spectacular landscapes of northern New Mexico. Each person feels personally invested in the research that will help Preserve managers interpret and protect a poorly understood resource. Outcomes from excavations so far include insight into site formation processes and ongoing research and analysis aims to explore quarry site use over time as compared to a nearby habitation site. Beyond the research aspects of our partnership, connecting our constituency (the American people) to the archaeological resources under our stewardship is the transcendent goal of the partnership between the Preserve and Earthwatch.

Claesson, Stefan (SEARCH, Inc.)

Pleistocene Megafauna Finds from the Merrimack River Delta

In 2013, two Pleistocene mega-faunal remains, a single mammoth tooth and a partial juvenile mastodon mandible with teeth, from two separate locations, were recovered by a scallop-fisherman in the Merrimack River embayment off the coast of New Hampshire and Massachusetts. These well-preserved finds follow on previous finds by fishermen in the same locale over the last two decades, as well as numerous other offshore finds that have occurred in the Gulf of Maine for more than 50 years. This presentation will broadly discuss the provenience and scientific sampling potential of previously recovered mammoth and mastodon specimens in the Gulf of Maine, the seafloor and sub-seafloor characteristics at the approximate locations of the 2013 recovery sites, and the potential coexistence of late Pleistocene – early Holocene mega-fauna with the initial Paleoindian occupation in the region.

Clardy, Kelsey (The University of Tulsa)

The Muscogee (Creek) Nation Council House: A Continuation of Architectural Traditions

Public architecture is reflective of society. Council houses were an important example of public architecture during both prehistoric and pre-removal times and were prevalent across the Southeast. The original purpose of these council houses was to provide a place for the people to conduct official meetings in the winter months. The purpose of this research is to demonstrate that the Muscogee (Creek) Nation Council House in Okmulgee, OK is an example of post-removal public architecture that was a continuation of past architectural traditions, as well as a cultural adaptation to a new situation. This council house was constructed as a meeting place for a nation attempting to retain sovereignty in the wake of removal and war. Life was significantly altered by removal. The construction of the council house in Okmulgee, although not identical to pre-removal council houses, was a way to maintain a connection to the pre-removal world and demonstrates cultural continuity in its use as an important meeting place for the nation in Indian Territory.

Chair

Clare, Lee (German Archaeological Institute), Oliver Dietrich (German Archaeological Institute), Jens Notroff (German Archaeological Institute) and Joris Peters (Ludwig Maximilian University of Munich)

Establishing Identities in the Protoneolithic: History Making at Göbekli Tepe in the Late Tenth Millennium cal B.C.

Processes of early sedentism are associated with the agglomeration of complex hunter-gatherer populations within the ‘confines’ of spatially limited permanent settlement systems, possibly with ‘fixed’ territorial claims, and with an economy based on stored harvests of wild cereals and pulses, and broad-spectrum hunting. Against this background, the emergence of social hierarchies and identities has long been an area of discussion among archaeologists. Be this as it may, we still find it extremely challenging to describe the different paths which social evolution may have taken in the Early Neolithic, let alone backing up any assumptions with empirical or physical evidence. In this
paper, we turn our attention to the PPNA ritual enclosures at Göbekli Tepe. We will discuss the role of these structures in the genesis of Early Neolithic group identities. In doing so, we posit that the monumental architecture at this site was used as a means to express and substantiate long-term (historical) social relationships in the Early Holocene.

Clark, Jamie [7] see Phillips, Cassidy

Clark, Bonnie (University of Denver)  
[34] The Good, the Bad, and the Awkward: The Archaeology Open House as Heritage Process
The open house has long been a tool employed by archaeologists who wish to engage or at least inform the public about their field work. Projects that have a strong community mandate would seem tailor-made for this type of activity. Yet if these events are to meet their promise, they need to move from mere “show and tell” to more thoughtful and theoretical interventions. That is particularly true for sites with difficult or contested histories. This presentation draws on four seasons of open houses held by the University of Denver Amache field school at the site of Colorado’s WWII-era Japanese American internment camp. Ranging from 400 person tours, to museum exhibits, to one-on-one tours, activities at these open houses have often, but not always, been successful. Framed by critical heritage studies, especially Laurajane Smith’s contention that heritage is a process, this presentation will highlight some ways archaeologists can enable or hinder engagement through the open house. Voices of visitors, community volunteers, and students are woven through this reflection.

Clark, Brian (Rice University)  
[47] Problems of Archaeological Site Preservation and Identification in the Highland Mountains of Ethiopia
This paper will discuss how historical, environmental, and social changes have effected archaeological site preservation in the mountains of the central Ethiopian Highlands, with implications for improving archaeological research in the region. Over the past decade, archaeological and historical research in the central highlands of Ethiopia has seen a growing interest to move beyond prominent Aksumite and Pre-Aksumite monumental sites to more ephemeral sites like medieval settlements and royal camps. The mountainous terrain of the highlands and its settlement history, however, has posed a number of challenges to good site preservation and effective reconnaissance. Based on fieldwork conducted around the mountains of Lasta, Amhara Region, this paper will review some of the human and environmental impacts on archaeological site preservation. These include conditions such as deforestation, the erosion patterns of intensively cultivated vertisol soils and the unintended consequences of locally organized environmental remediation efforts. The results of this research can help to better assess the archaeological potential of an area in the Highlands prior to invasive fieldwork and devise research strategies appropriate to the expected conditions. They may also contribute to better land-management practices that protect both the environment and its tangible cultural heritage.

Clark, Tiffany  
[69] Discussant

Clark, John (Brigham Young University)  
[82] The Transition to Home Living in Middle America
In Middle America the transition from the Archaic to Early Formative period (ca. 2000-1400 B.C.) was marked by the first use of pottery and the construction of durable dwellings clustered in small hamlets or villages. These markers of year-round dwelling in one place represent a major transition in Early Formative times to neolithic lifeways and presumably lifeworlds. I review the evidence of the earliest houses known from highland and lowland regions of Middle America, with an emphasis on the Pacific coastal lowlands of Chiapas, Mexico. The evidence of Late Archaic dwellings is extremely sparse for all of Middle America, so the full nature of the transition in domestic architecture and structures cannot be reconstructed. One is left mostly to conjecture based on the earliest structures
built in the Early Formative period. I review the evidence of early domestic structures known for proto-Mesoamerica here and speculate on how the transition from living in caves or ephemeral shelters to durable houses may have been experienced. At a minimum, the transition must have involved a shift from living in sheltered areas to dwelling in one’s own home.

[151] Discussant

Clark, Meagan (University of Oregon), Scott Fitzpatrick (University of Oregon), Frances White (University of Oregon) and Christina Giovas (University of Oregon)

[164] Precolumbian Vertebrate Remains from the Coconut Walk Site, Nevis, West Indies

Archaeological investigation of the Precolumbian site of Coconut Walk on the island of Nevis (northern Lesser Antilles) revealed midden deposits dating between ca. A.D. 850-1440. While the site had been previously excavated by the British Time Team television show in 1998, only cursory examination of faunal remains was conducted (NISP=451). We report on the complete analysis of more than 18,000 recovered vertebrate remains from a 5×5m trench in the core midden area, providing enhanced understanding of the relative importance of various taxa and methodological issues associated with site recovery techniques. Analysis indicates that the assemblage consists largely of herbivorous reef parrotfish species along with several species of pelagic fish, birds, lizards, and rodents such as the indigenous rice rat (Oryzomyini) and the introduced agouti (Dasyprocta sp.). When coupled with the invertebrate assemblage, the vertebrates constitute a complementary and extensive dataset to help examine human diet and site use on Nevis that provides a framework for understanding numerous issues related to Caribbean island adaptations during the Late Ceramic Age.

Clark, Barbara

[188] The Pros and Cons of “Public Archaeology Days”

The Florida Public Archaeology Network is tasked with educating Florida’s public about the state’s rich archaeological heritage. One method that has been used to do so is what we call “Public Archaeology Days”. These days mainly consist of identifying artifacts that the public has legally collected on private land, usually their own backyards or farms. There has been much debate surrounding this method of public outreach and much discussion on how to properly host these events. Often we partner with other educational venues to host these events. We strive to make them educational for the public and attempt to provide them with not only information about the artifacts they bring us, but also teach them about the laws, the importance of archaeological site context, the Florida Master Site File and also the ethics involved with collecting. Of course, this must be done in such a way as to not deter the public from approaching archaeologists with their finds or information about potential sites. Through trial and error, we are constantly working to enhance this program and ensure that it meets our goal of public education while remaining a positive experience for both the archaeologists and the public.

Clark, Andrew (SUNY-Albany)

[230] Boots on the Ground and Planes in the Air: Assessing Damage to Archaeological Sites Caused by the 2011 Missouri River Floods

In the spring of 2011, the Missouri River Mainstem received unprecedented combination of snow melt and rain causing widespread flooding unseen since the construction of the Missouri River Dams. One of the consequences of the flooding was damage to archaeological sites located on the lands surrounding the reservoirs. As a result, South Dakota State Historical Society (SDSHS) partnered with the University of Arkansas Center for Advanced Spatial Technologies (CAST) to assess potential damages related to the flooding for the US Army Corps of Engineers (USACE). The SDSHS/CAST team developed a program that combined on-site erosion monitoring with the collection and orthorectification of historic aerial imagery, ground based geophysics, low level aerial photography, and high altitude remote sensing. This integrated approach incorporates a time-series of GPS data and aerial imagery with recently collected geophysical data providing a surface and
near subsurface view of many sites damaged by the recent floods, providing assistance to the USACE in the management of these finite resources.

Chair

Clark, Jeffery (Archaeology Southwest)

[Twenty Years of Studying the Salado]

Archaeology Southwest (formerly the Center for Desert Archaeology) has been heavily engaged in studying the Salado Phenomenon through the lens of migration for nearly twenty years. Our research has been both intensive and extensive in scope: gathering new data from sites on public and private lands, reanalyzing existing collections, and scrutinizing published and unpublished reports from nearly every valley and basin in southern Arizona and southwestern New Mexico. Here we summarize this research and the salient empirical facts that any model of Salado must accommodate. We then present our conception of Salado, consistent with these facts, as an inclusive ideology that was developed by a spatially dispersed, but culturally connected, immigrant minority from northeastern Arizona. This ideology was ultimately adopted by many local groups in an attempt to ease tensions in the wake of migration and integrate multi-cultural coalescent communities. Many of these communities failed prior to the arrival of Europeans for reasons that remain obscure.

Chair

Clark, Amy (University of Arizona)

[Analyzing Activity Areas When Only One Material Remains: The Interpretation of Low Density, “Empty” Spaces in Open-Air Middle Paleolithic Sites]

It is common for open air sites dating to the Pleistocene to lack organic preservation, including bone. Many of these sites also do not contain features such as hearths. Therefore, the dominant signal that remains is the result of lithic reduction. Because knapping is a reductive process, it creates a large amount of waste material and this debris dominates the artifact count numerically and volumetrically. Lithic pieces associated with other types of activities, such as wood working or butchering, can easily be overlooked when dealing with such a quantitative bias. Furthermore, most archaeologists would be hesitant to identify an “activity area” based on the presence of only one artifact, even if that artifact has been associated with a particular activity through use wear analysis. The lack of organic debris makes such a conclusion unwarranted. This presentation will focus on a method that highlights these so-called “empty” areas and places them on equal footing with the high density concentrations of material. It is argued that these low density/blank zones are as important to the site’s structure as the dense clusters of debris, particularly for sites with limited preservation.

Clark, Dylan (New Mexico State University)

[Believing Is Seeing]

Humans use an array of senses to experience the world, vision being how we primarily characterize most experiences. Color, contrast, and brilliance are all factors that are both consciously and unconsciously considered when visually interacting with the material world. These are not passive factors that are simply filed away by the brain, but active communicators that trigger responses in the mind of the viewer. This influence on human behavior has a direct impact on material culture. Since archaeological study seeks to make cultural inferences from material objects, consideration of these elements’ agency on a viewer makes it desirable to understand how visual attributes guide behavior. The area I will focus on is the American Southwest, which has a long history of ethnographic and archaeological study, allowing examination of the importance of color in Pueblo ritual behavior and material culture, both present and past. I will use artifact and architectural examples from the Mogollon and Anasazi regions as well as existing anthropological research to identify and analyze elements of visual perception and their relationship to past cultures and the archaeological record. Though this study focuses on the Southwest, the aim is to explore a workable methodology applicable to general archaeological research.
Clarke, Mary (Boston University)  
[193] *The Role of the Sweatbath in Classic Maya Ritual Performance*  
This paper reviews the scholarship regarding Mesoamerican sweatbaths and their role in performance, specifically choreographing locations for transformation and sympathetic transition in supernatural space. The recently discovered sweatbath at the site of Xultun in Guatemala, known as Los Sapos, will be inserted into this dialogue in conjunction with that regarding plazas and Maya theatricality more broadly. After both contextualizing Los Sapos and presenting interpretations regarding its site-specific function, this paper will propose conclusions that will add to the knowledge of these unique structures within the known corpus of Mesoamerican architecture.

Clarkson, Chris [33] see Shipton, Ceri

Clauter, Jody (Office of the Wyoming State Archaeologist)  
[201] *The Results of Using Associated Records to Facilitate New Research: Recent Excavations at the Elk Mountain Site (48CR301)*  
The Elk Mountain site (48CR301), also known as the Garrett Allen site, is located in south-central Wyoming in the Carbon Basin along Halleck Ridge. The site was excavated every year from 1969 until 1978, and a University of Wyoming field school was held at the site in 1979 and 1980. The excavations were highly productive and recovered artifacts included ceramics, manos and metates, large amounts of lithic debris, tools, and faunal remains. Despite its productivity, a site report, site map showing the extent of all excavations, and artifact analyses were never completed. In 2014, personnel from the Office of the Wyoming State Archaeologist began field investigations at 48CR301 in order to relocate the previous excavations, generate a topographic site map, determine the feasibility of future research at the location, and explore a collections-based approach to excavation through information housed in the associated records on file at the University of Wyoming Archaeological Repository. Along with detailing the results of the 2014 excavations, this presentation discusses how useful and important associated records like catalog cards, candid photographs taken by crew members, and field notes are for facilitating new excavations at previously investigated sites.

[201] Chair

Clayton Martinez, Lucia (University of Western Australia)  
[137] *Patterns Through Space: A Spatial Analysis of Murujuga Rock Art, Northwest Australia*  
Spatial analysis is a methodology that has been widely used for researching rock art. It has had a wide-ranging focus, varying from informed methods (using ethnographic information), to formal, and experiential methods. Rock art perceived as communication is a structured form of transmitting information to a specific audience. This allows us to look for conventions of representation, grammatical rules that determine the form that rock art should take according to its location within the site. Spatial analyses undertaken on Murujuga, the Burrup Peninsula in northwest Australia, have primarily focused on establishing chronologies, the clustering of rock art motifs at a broad landscape scale, and the relationship with resource foci. My research has focused on formal methods, using spatial information to identify patterns in the rock art assemblage at the Happy Valley site, an engraved site complex in southern Murujuga. I have sampled the rock art assemblage at Happy Valley to look for these conventions and identify the cultural choices made by the artists in the production of rock art. In this paper I will identify patterns in the rock art that provide an insight into the nature of the site's occupation and how the occupants perceived the landscape.

Cleghorn, Naomi (University of Texas Arlington)  
[356] *The Blind Spot: An Early Later Stone Age perspective on the Agulhas Bank from Knysna Eastern Heads Cave 1, South Africa*  
The exposure of the wide continental shelf of the Agulhas Bank during the gradual regression of the shoreline from 45,000 years ago, culminating in the Last Glacial Maximum (LGM), opened up a vast new area for foragers. Humans with well-established coastal resource exploitation strategies would have naturally shifted their foraging range to the south, following the regressing shoreline. During this
period, the South African technological record underwent a critical transition from the prepared core and flake-based technologies of the Late Middle Stone Age (MSA) to the bladelet-rich Later Stone Age (LSA). Unfortunately both the nature of the Agulhas Bank habitat and this transition from MSA to LSA are not well documented in the southern South African archaeological or paleoecological record. Here, we examine new data from KEH-1 at Knysna - the only site with dates throughout this period to face out onto the now drowned Agulhas Bank. We consider the potential relationship between KEH-1 and the overlapping sequences of Nelson Bay Cave and Boomplaas, and discuss the importance of current coastal sites for understanding human population movement and strategies during the Last Glacial.

Clifton, Breanne

Phytolith Processing Methods and the Effects upon Results

Biological microremains such as pollen, diatoms, starches, and phytoliths are invaluable data sources for reconstructing paleoenvironments and subsistence practices among human populations during times of technological transition. A primary goal of archaeological research is to use these remains to reconstruct the relationship between environment and technology. Phytoliths in particular allow us to reconstruct the specific flora that comprises the biome in a particular place and time. Currently, no standardized method of phytolith extraction exists. Researchers operating in a variety of geographical and chronological locales employ individual methods to achieve the same basic processes in sediment samples: the removal of clays, carbonates, and organics in order to isolate phytoliths for analysis. The effect that these differences in methodology may have upon the results when comparing samples has not yet been studied. The goal of this paper is to quantify the variance in results between three different processing methods. Thirty sediment samples from three diverse geographic regions and time periods were processed (Olduvai Gorge Plio-Pleistocene/Oldowan; Kapthurin Formation Pleistocene/MSA; northern Tunisia, Iron Age; Goytepe, Neolithic. Additional testing is necessary for an accurate understanding of these methodologies and their effects upon results in phytolith analysis.

Cline, Emily (Cranfield University)

St Bees Man: A Cold Case Review

St Bees Man was discovered in 1981 during an archaeological excavation of the south chancel aisle of St Bees Priory in Cumbria, England. His body was extremely well-preserved with pink tissue, blood present, and intact organs all observed during a forensic autopsy. This ‘cold case’ review shows the importance of balancing both archaeological and forensic techniques. In forensic archaeology, the handling of potential evidence, overall sampling strategy, and opportunity for further analysis are significant factors in the re-examination of archaeological cold cases. After providing background information on this case and analyzing previous research involving St Bees Man, new evidence is given for the mechanism of preservation in the burial environment using analytical techniques including XRF/EDS, textile analysis, and soil analysis. While efforts were made to preserve St Bees Man at the time of his death, many other factors influenced the remains, most significantly the inter-relationship of the lead, resin, shroud, soil, geology, and moisture in the burial environment. This presentation will consider the burial environment, preservation methods, adipocere formation, issues with exhumation, and the opportunity for interviews and further forensic analysis in an archaeological cold case along with the burden of proof for establishing an identity for St Bees Man.

Clinnick, David and James Walker (Durham University)

The Forgotten King

One hundred and fifty years ago, a letter of correspondence was read aloud at a meeting of scientists in Newcastle, UK, boldly claiming for the first time that humans had not always been alone
in their genus. William King, the Anglo-Irish geologist, was the first person to recognize Neanderthals as a separate species of Homo, and one of the first people to substantiate claims regarding the antiquity of man. He did not live long enough to see his proposition or name (Homo neanderthalensis) become accepted, and even now, with his foresight on the matter widely recognized, he is rarely afforded much more than a cursory description as a footnote in the history of Neanderthal research. This presentation provides a timely celebration of King and his contribution to Neanderthal studies.

Close, Hilary [191] see Popp, Brian

Cobb, Allan and Jeremy Coltman (California State University Los Angeles) [355]  
_A Wind from the Depths of the Earth_
Among the hundreds of caves I have observed in the Maya area a number stand out in possessing relatively large tunnel systems with restrictions near the entrances. When air is driven from the caves due to atmospheric pressure, the restrictions create a fast moving flow of air that is quite noticeable around the entrance to the cave. Ethnographic evidence suggests that modern Maya are quite aware of such air movements. Because rain was closely associated with caves among the ancient Maya and wind was closely associated with rain, there can be little doubt that the presence of cave wind held significance prehistorically. Iconographically, the IK or wind sign can also indicate a cave. On Chenes monster-mask façades, the mouth, which is recognized as a cave symbol, takes the form of the IK sign. This paper argues that recording the presence of air currents should be considered an indispensable part of recording any cave.

Coben, Lawrence [134] see Serrudo, Eberth

_Coben, Lawrence (UPENN and the Sustainable Preservation Initiative) and Eberth Serrudo T. (Quelcay) [134]  
The Inca Incorporation of the Canete Valley, Part 1: Conquest or Incanization_
Field research by the Canete Archaeological Project 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 and 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.

_Cobos, Rafael [130] see Zimmermann, Mario_

_Cobos, Rafael (Universidad Autónoma de Yucatán) [413]  
_Chichén Itzá and Its Maritime Ports during the Terminal Classic Period_
The ancient city of Chichén Itzá reached its apogee as a regional capital in the tenth century. Part of this apogee included the territorial hegemony that Chichén Itzá exerted over a vast area of the maritime coasts of the Yucatán peninsula and Belize. By controlling the coasts, Chichén Itzá maintained strict authority over the different objects and merchandise that were distributed and exchanged throughout the maya lowlands in the Terminal Classic period. In order to control the distribution and exchange of objects and merchandise, Chichén Itzá developed a complex and efficient seaport infrastructure, which resulted in the establishment of at least two contemporary types of seaports along the Gulf of México and the Caribbean seas. The morphological differences between seaports founded in those two areas suggest that Chichén Itzá faced distinctive economic as well as political challenges. However, the ancient city successfully acquired objects and merchandise from other regions of the Maya area and beyond.

_Cochran, Lindsey [284] see Britt, Tad_
Cochrane, Ethan [52] see Golitko, Mark

Cochrane, Ethan (University of Auckland) and Timothy Rieth (International Archaeological Research Institute, I)

[77] Petrographic and Geochemical Evidence Reveals the Local Focus of Interaction throughout Samoa’s Prehistory

Bill Dickinson's extensive and unequaled ceramic petrographic research has identified spatial patterns of artifact production and population interaction across the Pacific Islands. In Samoa, his work on ceramic collections suggests a largely local focus of production and distribution. We combine Dickinson’s ceramic petrography with all available geochemical analyses of ceramics, basalt and obsidian artifacts, and demonstrate local-scale production and movement for all of these artifact classes. Additionally, local artifact production and distribution is the dominant pattern for Samoa’s prehistory. We argue these patterns are explained by Samoa’s demographic history and environment.

Cockram, James [345] see Przelomska, Natalia

Cockrell, Bryan (UC Berkeley, Anthropology)

[117] Moderator

Coddington, Brian (University of Utah)


In his watershed 1995 publication, O’Connell outlined the utility of approaching ethnoarchaeology through a general theory of behavior by noting the disparity between studies examining faunal remains and those attempting to explain site structure. While the former was finding great success by drawing on models from behavioral ecology, the latter was stagnant and lacking a general theory of behavior. Drawing on ethnoarchaeological data collected with Martu Aboriginal foragers, we highlight a possible explanation for this pattern. At large spatial extents, human behavior is constrained by patterned environmental variability, as such, a general theory of behavior is likely to characterize key aspects of human decisions. At small spatial extents, human behavior is not constrained by patterned environmental variability, as such, any general theory is unlikely to explain human decisions that produce site structure. While studies of site structure will likely remain descriptive, ethnoarchaeological analyses examining variability at larger scalar extents can provide archaeologists with key insights into the interpretation of prehistoric human behavior.

[1] Discussant

Coddington, Brian [119] see Mohlenhoff, Kathryn

Coffey, Grant [85] see Schleher, Kari

Coffey, Grant (Crow Canyon Archaeological Center) and Susan Ryan (Crow Canyon Archaeological Center)

[85] The Changing Scale of Integrative Pueblo Communities in the Northern San Juan Region: Basketmaker III through Pueblo III

Most studies of ancestral Pueblo communities in the northern San Juan region of southwestern Colorado use clusters of roughly contemporary habitations, often associated with public architecture, to define the spatial extent of residential communities. The term “community” has also been used to define important social groupings at both larger and smaller spatial scales depending on the focus of study and the type of social connection suggested. This study uses the locations of great kivas, one of the most persistent forms of Pueblo civic architecture, to analyze the spatial extent of integrative communities in the central Mesa Verde region from A.D. 500 to A.D. 1280. Analyses of data using
different GIS techniques suggests that changing spatial relationships between great kivas, as architectural symbols coordinated community effort, reflect accompanying changes in the scale and composition of the associated integrative communities. This study uses data developed by the Village Ecodynamics Project and provides an empirical means of delineating approximate community boundaries while also discussing accompanying changes in social structure over time. Finally, this study addresses how the definition of integrative communities can complement previous community studies spanning a range of scales.

Cohen, Rachel (University of Pennsylvania)

Sites and Sight Lines: An Investigation of Intervisibility Among Hilltop Sites in Azerbaijan

Most archaeology takes as its primary unit of focus the archaeological site. Yet sites did not exist in isolation: interactions between sites, and between people and the surrounding landscape, were also an important component of ancient societies. These interactions were social, political, military, and/or ritual, and investigating the use of landscape provides archaeologists with a means to understand larger-scale processes such as growth and expansion of urban centers. One way of looking at interactions between sites involves an examination of intervisibility. In open regions such as the Near East, sites were often located on natural or man-made hills with a commanding view of the landscape and of other sites. This high visibility could be used for defense against approaching enemies, to facilitate communication, and to create social unity. This project examines a group of eight Early Iron Age hilltop sites in the Naxçivan region of Azerbaijan. Using GIS analysis, I demonstrate the role that visibility played in the location of these sites and in their interaction with the surrounding landscape. This information, in turn, can be combined with survey and excavation data to provide a better understanding of urban development in this region.

Cohen, Anna S. [21] see Solinis-Casparius, Rodrigo

Cohen, Anna (University of Washington)

Toward a Comparative Approach: Postclassic (A.D. 900-1521) Ceramics from the Pátzcuaro and Zacapu Basins, Michoacán, Mexico

Research on the Purépecha Empire (A.D. 1350-1521) in western Mexico has traditionally focused on elite activities after imperial formation. Consequently, there is limited information about the mechanisms for imperial development and changes in internal social, political, and economic structures that must have occurred in pre-imperial contexts. Study of artifact production is particularly important for understanding political reorganization strategies because producers and consumers may have been susceptible to state directives. This presentation compares recently excavated ceramic material from Angamuco in the Pátzcuaro Basin and the Malpaís Prieto in the Zacapu Basin, Michoacán dating to the Middle to Late Postclassic periods (A.D. 1200-1521). Comparison of changes in pottery form and style highlight similarities and differences in manufacturing, decoration, and consumption practices at these two important urban centers before and during the formation of the Purépecha Empire. Ultimately we seek to establish a comparative approach for studying ceramics in the Pátzcuaro and Zacapu Basins, two regions with a long history of occupation in western Mexico.

Colaninno, Carol (Center for American Archeology)

The Fisherfolk of the Two Late Archaic Shell Rings on St. Catherynes Island: Similarities and Differences in Contemporaneous Coastal Economies

Late Archaic (2250-1800 cal B.C.) shell rings, found along the Atlantic coast of the southeastern United States, are large, ring-like structures composed of shell. Sometimes shell rings are complexes with two or more rings in close proximity, while others are singular rings. Rarely are two rings found on an island system without the rings forming a complex. Two shell rings on St. Catherynes Island, GA, have been documented and excavated on opposite sides of the island and do not form a complex. Large, systemically analyzed archaeofaunal collections from these rings provide the opportunity to make inferences about Late Archaic coastal faunas. In this paper, collections
from these roughly contemporaneous shell rings located on opposite sides of the same island are compared. Overall, fishes comprise the vast majority of individuals in these collections. Assemblages from each ring, however, reflect the different localities of the two rings. Further differences are noted in the densities of vertebrate remains from these two sites. Vertebrate remains, particularly fish remains, are far denser in the McQueen Shell Ring compared to the St. Catherines Shell Ring. This preference for fishes can be interpreted as control and access to resources.

Cole, Matthew (California State University, Long Beach), Matt Becker (California State University, Long Beach) and Carl Lipo (California State University, Long Beach)

Coastal Groundwater Seeps on Rapa Nui

Rapa Nui (Easter Island, Chile) is a remarkably resource-poor volcanic island. Significantly, it lacks surface streams found on more tropical Polynesian islands, other than several remote access volcanic crater lakes. Due to the island’s highly permeable, volcanic subsurface, rainwater infiltrates rapidly and becomes groundwater. Only along the coast does the water table intersect the topography to form seeps or springs. We hypothesize these seeps and springs were a primary source of fresh water for the prehistoric inhabitants of the island. In this study, we measured salinity and temperature just below the ocean surface in transects along the coast. Our findings show a marked decrease in salinity and temperature, indicating the proximity to freshwater seeps. Significant groundwater discharge was detected in the areas of La Perouse, Anakena, and Vaihu. These findings provide a foundation of spatial constraints to test hypotheses about settlement patterns and prehistoric land use.

Cole, Sara (Yale University)

Curating Ancient Glass in the 21st Century Museum: The Case of the Yale University Art Gallery

The Yale University Art Gallery’s ancient glass collection has never been the subject of a dedicated exhibition, despite being one of the most extensive of its kind in the United States. As a YUAG Graduate Curatorial Intern (2012-2014), I curated a future exhibition of this collection. Numerous pieces will be available for public view for the first time, drawing together examples covering a timespan of over 2,000 years and a geographical range from the Levant to the western Roman provinces. The objects illustrate the evolution of an industry and the artistic and social factors that impacted the aesthetics and functional use of glass in antiquity. This project allowed me to examine the role of the museum in collecting, conserving, and displaying ancient glass. For instance, I explored ways to use glass from Yale’s archaeological excavations to contextualize unprovenanced objects. I also curated plans to integrate more of the YUAG’s ancient glass collection into the permanent gallery, so as to make this resource more widely accessible. This talk employs the YUAG’s forthcoming exhibition as a case study to investigate how museums can best utilize their ancient glass collections to the benefit of specialized scholars, students, and the general public.

Cole, James (University of Brighton), Pastory Bushozi (University of Dar es Salaam), John McNabb (University of Southampton), Martin Bates (University of Wales Trinity Saint David) and Phillip Toms (University of Gloucestershire)

Dating the Early Stone Age Site of Isimila, Tanzania

The Early Stone Age (ESA) site of Isimila is located on the Iringa plateau, Tanzania, close to the East African Rift Valley. Due to the abundance of handaxes present at the site in both primary and secondary contexts, Isimila has long been recognized as a key site of international importance for understanding the behavioral complexity of our hominin ancestors often compared to major East African sites (e.g. Kalambo Falls, Olduvai Gorge and Olorgesailie). Despite the international significance of Isimila, the chronology, taphonomy and geomorphology of the site remain poorly understood, and are in urgent need of re-examination using modern analytical techniques and theoretical perspectives. Previous dating efforts (a single U-series date from a bone sample) gave an age estimate of 260 kya for the site (Howell et al. 1972). However, this date is problematic due to methodological inadequacies and therefore it is timely to undertake a re-characterization of Isimila. The subject of this paper is to therefore give details of a new OSL dating programme undertaken at Isimila in 2014 that allows, for the first time, a chronological contextualization of this unique and
important ESA site within the broader setting of the East African Palaeolithic.

Cole, Kasey (Dept. of Anthropology, California State University, Chico; Chico, CA 95929-0400), Heather MacInnes (Dept. of Anthropology, California State University), Eric Bartelink (Dept. of Anthropology, California State University) and Gary Breschini (Archaeological Consulting, Salinas, CA 93912-3377)

[373] Late Holocene Dietary Variation along the Central California Coast: Isotopic Evidence for Marine Dependence

Reconstructing dietary variation among earlier human populations remains a major goal of archaeological research. Along the central California coast, archaeological reconstructions of hunter-gatherer subsistence have primarily focused on data gleaned from archaeofaunal remains and lithic assemblages. In this study, we examine paleodiets in Late Holocene (ca. 3430-660 B.P.) humans and animals from the Monterey Bay area of the California coast. Using stable carbon and nitrogen isotopes of collagen and stable carbon isotopes of bioapatite, we track the relative importance of marine versus terrestrial resources in the diet. Our sample includes radiocarbon dated human burials from 13 coastal archaeological sites, excavated over the past three decades through cultural resource management efforts. In addition, stable isotope data from Monterey Bay hunter-gatherers are compared with previously published data on coastal groups from the Santa Barbara Channel to the south and Drakes Bay and Tomales Bay to the north. Variation in human paleodiet is examined in light of latitudinal differences in terrestrial versus marine resource productivity and time period. This data contributes to the sparse isotopic literature on human foragers from the California coast.

Coleman, Drew [380] see Parker, Kathryn

Colin, Bradley [192] see Mackie, Quentin

Collard, Mark [57] see Raffield, Ben

Collard, Mark (Simon Fraser University)


Identifying the causes of spatiotemporal variation in technological richness and complexity is an important task for archaeology. James O’Connell has proposed that diet breadth can be expected to affect investment in subsistence technology and therefore the number and intricacy of subsistence tools. Narrower diets, he suggests, will be associated with lower investment and therefore fewer and/or less complex tools, while broader diets will be associated with higher investment and therefore more tools and/or tools of greater complexity. This relationship can be expected to exist, according to O’Connell, because technology affects the time devoted to capture and processing, and investment in reducing capture and processing time should be low when diet is narrow and only increase if return rates fall and diet becomes broader. Here, I report the first empirical test of O’Connell’s diet-breadth hypothesis. I used data for a large sample of historically-documented nonindustrial populations to examine the relationship between diet breadth and food-getting toolkit richness and complexity. I did so while controlling for several factors that have been found to affect toolkit structure in previous studies. The results I obtained indicate that we need to be cautious when invoking the hypothesis to explain patterns in the archaeological record.

Colledge, Sue [288] see Manning, Katie

Collins, Joe (University of Texas at El Paso), Richard Langford (University of Texas at El Paso) and Thomas Gill (University of Texas at El Paso)

Sedimentological investigations were conducted on Unit 2 of Rimrock Draw Rockshelter (35HA3855), a deeply stratified, multi-component Paleoindian site located in the Harney Basin, eastern Oregon. Field descriptions and end-member mixing analysis (EMMA) of grain-size distributions of 13 sediment samples identified six stages of site formation: three stratigraphic units (SU), two unconformities, and a Bt soil horizon. EMMA resulted in the characterization of three end-members (EM) that correlate with field descriptions. EM 1 and 2 represent 88.4% of the total variance among samples and are present within SU1 and SU3. EM 1 correlates well with the bottom stratigraphic unit, SU1, a well-sorted fluvial deposit. EM 2 correlates well with the upper stratigraphic unit, SU3, a poorly sorted aeolian deposit punctuated by colluvium derived from a nearby colluvial wedge and the brow of the rockshelter. EM 3 correlates well with the poorly developed Bt horizon that overprints an eolian deposit within the middle stratigraphic unit, SU2. These results demonstrate the applicability of EMMA to distinguish between depositional units within an archaeological context and provide geologically meaningful interpretations of paleoenvironments for the development of hypotheses related to human-environment interactions.

Collins, Benjamin [35] see Ames, Christopher

Collins, Lori (University of South Florida), Travis Doering (University of South Florida, Alliance for Integrat) and Margo Schwadron (National Park Service, Southeast Archeological Cen) [83] Progressive Partnerships for Heritage Preservation: 3D Immersive Learning, Documentation and Research Tools in our Nation’s Park System

Today, much of the world’s cultural heritage is at risk from natural and human-induced causes. New technologies such as terrestrial laser scanning, advances in imaging and photography, 3D printing, and other spatial and visualization techniques are greatly advancing capabilities for heritage preservation and research. These technologies are democratizing data access, and improving the ability to share and interpret archaeological information globally. The ability to rapidly and accurately document the world around us is revolutionizing fields of archaeology and museum sciences, and is creating new areas of research integration. Using case study examples from collaborative work in our nation’s National Park Service (NPS) System, we will demonstrate the latest in research involving heritage and archaeological documentation and to emphasize effective workflows and approaches for the heritage management. These projects are bringing National Parks to the classroom and are enhancing and improving the way we teach, learn and interact with our past, offering educators and the NPS immersive and interactive methods for interpretation and instructional experiences.

Collins, Shawn, Sarah Payne (Crow Canyon Archaeological Center) and Erica Olsen (Crow Canyon Archaeological Center) [188] There’s No App for This: The Value of Archaeology and Experiential Education in a Digital Universe

The Crow Canyon Archaeological Center, a not-for-profit organization located in southwestern Colorado, has used archaeological research to teach multiple audiences about the human experience for more than 30 years. Changing educational standards and transportation needs have affected Crow Canyon’s student program attendance, and an aging demographic increasingly limits our adult program attendance, with ramifications felt in our membership and donor support. We face the challenge of communicating the relevance of archaeology in the modern world to our varied audiences, and help them appreciate the value of experiential programs though abundant digital media are accessible from afar.

Collins, Ryan (Brandeis University) [263] At Yaxuna X Marks the Spot: Centering across in a Middle Formative Maya Landscape

From the placement of objects in household offerings, to monumental works of art and architecture, it is well known that the ancient Maya commemorated their cosmological center in a variety of ways. Even at the settlement level, quadripartite divisions of space are observed branching out from a central core giving modern researchers insight into the way ancient Maya peoples may have
understood their world. At the Maya site of Yaxuná, Yucatan, Mexico investigations have made it apparent that traditions of marking the center were taking place as early as the Middle Formative. Yet, evidence from recent excavations in the E-group plaza reveal that the center was not marked in the same way, or even in the same space, over time. This paper has two purposes. The first purpose of this paper is not only to explore the implications of change evident in practice, performances, and political displays once held within the central plaza of the ancient site but how such changes were reflected within the greater settlement. The second is to explore how the data from Yaxuná suggest the exchange of ideas with contemporaneous sites in the central lowland Petén, and how such an exchange likely changed over time.

Collins, Shawn (McMaster University), Eduard Reinhardt (McMaster University) and Dominique Risso (Waitt Foundation)

Reconstructing Water Levels and Access to Hoyo Negro

“Hoyo Negro” was discovered in the Sac Actun Cave system in the Yucatan Peninsula; Mexico which contained abundant fossil remains of Pleistocene animals including the remains of a young PaleoIndian woman. There are several cenotes of varying size and age which may have been used by Paleoamericans to access Hoyo Negro. The two closest cenotes are “Ich Balam” and “Oasis”. To determine if these cenotes provided access to Hoyo Negro during occupation of the area, the paleoenvironmental evolution of Ich Balam and Cenote Oasis were investigated. Measurements of cave conduit morphology were taken from Cenote Oasis to Hoyo Negro. Additionally, 9 sediment cores were acquired directly in, and around the cenotes. Radiocarbon dating, identification and abundances of foraminifera, thecamoebians and ostracods were determined for each core to reconstruct the flooding history of the pit and cave passages. Microfossil assemblages, along with sedimentary markers, indicated that Ich Balam was open by at least 8170 Cal BP and the Hoyo Negro Pit was isolated from the surface around 8000 Cal BP due to the flooded cave passage. These results provide constraints on the access and use of Hoyo Negro, and provide important information for interpreting the taphonomic history of the skeletal material.

Colman, Arlene (New World Archaeological Foundation)

La Venta’s Offering 4: Representation of Olmec Ritual Practices

Offering 4 at La Venta consists of one brownstone and 15 greenstone human figurines arranged in front of six jade celts set on end. This unique offering was placed north of the pyramid in the Ceremonial Court of Complex A as part of a ritual activity that dedicated a new building phase in the court around 600 B.C. It was associated with a massive serpentine pavement and a cruciform axe offering. About a century later, Offering 4 was reopened and checked. Offering 4 at La Venta conveys a story in media res. The vertical celts, apparently representing stelae, appear to reference the six stelae, which were positioned on the south base of the pyramid that flanked the stairway. The scene created in Offering 4 commemorated an event performed against the backdrop of the pyramid and the stelae. I explore this inference and possible roles and meanings that these stone stelae once played at La Venta.

Colocho, Connie “Destiny” [310] see Garrison, Andrew


Identifying Ground Stone Production at Bolsa Chica through Hammerstone Analysis

Debris attributed to the manufacture of groundstone implements are not always identified or collected. This can make groundstone production difficult to quantify through debitage analysis. Therefore, the identification of groundstone production often rests on the analysis of hammerstones. Recently Scientific Resource Surveys, Inc., conducted an intensive technological analysis on the lithic assemblage from a well-known Millingstone Horizon site, located on the Bolsa Chica mesa, in Orange County, California. During the analysis, SRSinc identified hundreds of beveled shaped hammerstones thought to have been instrumental in the manufacture and maintenance of utilitarian and ceremonial groundstone artifacts. Previous studies have shown that beveled hammerstones are
used for the initial shaping, modification and rejuvenation of ground stone implements. Similar methods of manufacture would also be attributed to ambiguous artifacts like cogged stones and charmstones. This poster discusses the manufacture of utilitarian and ceremonial ground stone artifacts at Bolsa Chica and how the analysis of hammerstones has aided in the interpretation of this industry.

Colombo, Leah (University of Miami)

Finding the Needle in the Haystack: Submerged Prehistoric Archaeological Sites in Everglades National Park

Many attempts have been made to consistently locate submerged and inundated prehistoric archaeological sites offshore the state of Florida. In many instances these attempts have not been successful in some respects but beneficial in others. This paper will identify the issues of studying such sites and the results of past and recent studies. However, the main topic of the paper will focus on a recent study exercised within the Florida Bay region of Everglades National Park. Working in conjunction with RSMAS, a project was developed by the National Park Service to identify the parameters necessary to build a predictive model for prehistoric site locations in Florida Bay. While focusing on the model, the potential effects of climate change and sea level rise on Florida Bay since the initial flooding will also be discussed.

Colón, Justin, Jimmy Daniels, Lana Ruck and Clifford T. Brown

Obsidian Exchange Patterns among the Coastal Plains of Northwest Nicaragua

We performed morphotechnical and trace element analysis of 2871 obsidian artifacts recovered during survey and excavation from 12 archaeological sites in the Department of Chinandega, northwest Nicaragua. The elemental analysis was conducted using the Bruker Tracer III-V portable X-Ray Fluorescence (pXRF) spectrometer. The pXRF spectra and elemental concentrations of artifacts were compared with those of known source provenience. The results show 98 percent of the specimens match the geochemistry of the Güinope obsidian source in Honduras. The remaining specimens are sourced to La Esperanza in Honduras and the Ixtepeque source in Guatemala with one specimen from El Chayal in Guatemala. Most specimens arise from a core-flake industry consistent with the small size of the obsidian nodules at Güinope. Some prismatic blades and flakes were made of Güinope obsidian. We show that there were small but significant differences in the rate of consumption of prismatic blades among the sites. The overall regional pattern appears to be that sites in the Pacific coastal plains were engaged in more robust trade with the more distant sources of La Esperanza and Ixtepeque, while inland sites used Güinope obsidian almost exclusively.

Coltman, Jeremy

Radiocarbon and the Stable Isotope Chemistry of Grand Gulch Basketmaker II Burials: Age-Based Dietary Patterning and Geolocation.

The stable isotope chemistry of 149 directly dated Basketmaker II burials from the Four Corners region of the American Southwest indicates relatively heavy reliance on maize and low animal protein intake. Sex and age patterning reveals differences in adult male versus female diets and distinguishes adolescent diets from those of adult males. Hydroxyapatite oxygen isotope values effectively sort individuals relative to the latitude and elevation of burial sites and are further used to clarify the origins of a subset of poorly provenienced remains, thought to be from Chaco Canyon. Grand Gulch Basketmaker II burials date to a two sigma range of 415 B.C.-A.D. 322, contemporary with Black Mesa Lolomai Phase occupations and post-dating the March Pass, AZ, White Dog Phase.

Coltrain, Joan

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Colvin, Matthew
[177] Emergence of Place: The Great Circle of Fort Center, Glades County, Florida

In South Florida, earthen enclosures represent some of the earliest and largest communal monuments. At around 300 meters in diameter, Fort Center in Glades County, Florida contains one of the largest enclosures in the entire Southeast. As the earliest recorded earthwork at Fort Center, I argue the construction of the Great Circle acts as a trigger and anchor for coalescence and the establishment of place. Since this event occurs during a period of long term fisher-hunter-gatherer practices, examining the life cycle of this monumental enclosure offers insight into emergent institutions within these communities. Although contemporaneous and comparable earth moving occurred among northern Woodland Period communities, the Great Circle of Fort Center may have persisted as the creation of communal memory rather than developing as a result.

Colwell, Chip (Denver Museum of Nature & Science)
[116] Makak: Between History and Heritage

This paper examines a “mythic” settlement named Makak, located at the edge of Le Morne Cultural Landscape, a World Heritage Site, in Mauritius. A recent ethnohistoric study, conducted in collaboration with Mauritian colleagues used an array of oral, written, and material evidence to show that Makak is an informal place name for an area first settled by French colonists in the 1700s, then by several prominent “Free Colored” families in the 1800s, and finally depopulated as residents were forcibly removed in the 1940s. The investigation suggests that Makak is a serial settlement, which apparently long thrived as a multicultural community, tapped into global trade networks. As a key historical site adjacent to Le Morne Cultural Landscape, a World Heritage Site, Makak also plays a vital role in the Mauritian sense of identity and belonging. This presentation will thus also explore how Makak lives on not just as history, but as a place of heritage in Mauritian collective memory.

[160] Discussant

Comer, Douglas (Cultural Site Research and Management (CSRM))
[199] Searching for Evidence of Early Human Occupation of the New World with Aerial and Satellite Imagery

The pluvial lakes in the Mojave Desert, Which are today simply expanses of sand in nine years out of ten, were once large bodies of water, many of them linked together by streams and large rivers. Several were fed by the Mojave River, which introduced aquatic life. Fresh water clams were common along the beaches on lakes fed by the Mojave River, which were also places frequented by human groups that were attracted to the resources to be found there, among which were now extinct mega-fauna. Both Clovis and Western Stemmed tools have been found in the area that we investigating, which includes the playas known as Coyote Lake and Silver Lake. We are using synthetic aperture radar imagery produced from data collected from the NASA UAVSAR platform, Lidar, and multispectral and hyperspectral imagery to search for the shorelines of the pluvial lakes as they existed 13,000 to 20,000 years ago, with the objective of finding material altered by human activity on association with fresh water clam shells or other datable materials.

[218] Discussant

[199] Chair

Comer, Douglas [199] see Megarry, Will

Commendador, Amy [233] see Dudgeon, John

Commendador, Amy (Idaho Museum of Natural History), John Dudgeon (Idaho State University) and Bruce Finney (Idaho State University)
[233] Prehistoric Diet on Rapa Nui via Stable Isotope Analyses of Bone Collagen and Carbonate

Previous analyses of carbon and nitrogen stable isotopes in dentin collagen from prehistoric individuals on Rapa Nui suggested a predominately terrestrial diet in the early phase of occupation,
followed by a slight expansion into marine-based subsistence post-A.D. 1650. This was unexpected as the documented pattern across Polynesia is a marine-dominated strategy in the early phases of occupation with terrestrial resources incorporated later, as agricultural systems supplant foraging behaviors. To examine this further, we conducted carbonate analyses (for C and O stable isotopes) on 28 of the same individual tooth samples used in the collagen study. These combined analyses provide a more accurate understanding of prehistoric diet, as collagen represents primarily the protein portion of the diet while carbonates have been shown to record whole diet (including non- or low-protein sources). Our results are similar to those of the collagen analysis, providing additional support for a primarily terrestrial-based subsistence system throughout the prehistory of the island.

Compton, Mary (University of Western Ontario)  
[95] Taking Tech on the Road: Mobile Makerspaces and Archaeological Engagement  
This poster introduces a London, Ontario-based initiative called the Digital Humanities MakerBus, a school bus converted into an innovative classroom, laboratory, and creative play space. The purpose of the project is to provide access to digital technologies and other hands-on resources to community groups wherever they may be located. Although the project has been wildly interdisciplinary since its inception and was not conceived of with any specific disciplinary purpose in mind, our team believes that there is enormous potential for mobile makerspaces to democratize access to technologies and inspire new forms of archaeological engagement. The MakerBus provides a means for individuals and groups to develop community-driven projects in their own meaningful spaces. Potential projects include archaeological, historical, and heritage based projects, which, heretofore, have not been a common focus of other established “maker” projects. Along with an introduction to the “maker movement,” this poster will present a short outline of several maker technologies and demonstrate how they have already been utilized toward the aims of archaeological and heritage engagement by our project. Ultimately this poster aims to inspire dialogue about the implications of democratizing technologies and about what it means to change the locus for archaeological exploration and engagement.  
[42] Discussant

Compton, John [294] see Cawthra, Hayley

Comptour, Marion [350] see McKey, Doyle

Conard, Nicholas (University of Tübignen) and Britt Starkovich (University of Tübingen)  
[135] Explaining Diachronic Trends in Paleolithic Subsistence in Central Europe  
This paper examines changing patterns of subsistence during the Lower, Middle and Upper Paleolithic of Central Europe. We present data on faunal assemblages from our excavations in Germany and look at the extent to which the selection and exploitation of prey reflects expectations from behavioral ecological models. We also consider how these faunal assemblages inform us about the evolution of social and economic behavior during the Middle and Late Pleistocene.  
[190] Discussant

Conger, Megan [273] see Watson, Adam

Conger, Megan (University of Georgia) and Adam Watson (American Museum of Natural History)  
[382] Ornaments, Pigments, and Household Production: Spatial Patterning and Residue Analysis of Ground Stone Artifacts from Pueblo Bonito, Chaco Canyon, New Mexico (A.D. 800-1200)  
Previous investigations of craft industries at Chacoan great houses have focused largely on finished objects (e.g., ceramics, turquoise, and shell). This study explores an often overlooked but ubiquitous and highly diverse class of artifacts – ground stone abraders – in an effort to better understand the organization of production at Pueblo Bonito great house. Analysis of variation in form of these versatile implements provides insight into the range of craft items manufactured. Drawing on the
recent results of a comprehensive radiocarbon dating project, GIS and pXRF analysis reveals the spatial patterning of and temporal trends in craft production, pigment processing, and subsistence activity. Discrete clusters of heavily-used lapidary and mealing tools confirm that both craft manufacture and food processing occurred at Pueblo Bonito and that, over the long-term, these activities were spatially associated with specific areas of the pueblo. We further contend that these spatial clusters reflect individual households or working groups of craft laborers in Pueblo Bonito.

Conkey, Margaret (UC-Berkeley)


Although we had previously been colleagues at different institutions, it was when we were both on the faculty at Berkeley (starting in 1987) that we elaborated our mutual “you go first” relationship in our research and teaching. I had once corralled Ruth into participating in a Women in Anthropology kind of seminar while still at Binghamton (1977), but it was with her now famous “kicking and screaming” foray to the Wedge for the conference that became the volume, Engendering Archaeology, that we first began to bait each other to try new ideas, issues, and practices. I will discuss some of our collaborative and “out on the ice” adventures and the impacts that such a relationship can have and how it has been integral to the flourishing of the feminist practice of archaeology.

[353] Discussant

Conlee, Christina (Texas State University)

[31] Early Maize on the South Coast?

Presently evidence for the earliest domesticated maize in the Central Andes comes from the north coast of Peru. Dating to the Middle Preceramic this early maize consists of Proto-Confite Morocho and Confite Chavinense, which were primitive types of popcorn. In contrast, little is known about the early use of maize on the south coast. A cob of Confite Chavinense was found in a Preceramic context at the site of La Tiza in southern Nasca. Surrounding contexts, including a hearth, date the context to ca. 3640–3365 B.C. in the Middle Preceramic. However, the uncharred corn cob was radiocarbon dated to the Late Intermediate Period, a time long after Confite Chavinense is known to have been cultivated. Researchers at the north coast sites also had dating problems with uncharred corn cobs that produced dates that were far too young and propose that they were contaminated. It is possible that the La Tiza cob may have been similarly contaminated and that it too dates to the Middle Preceramic. Conversely, the cob may have been intrusive from a Late Intermediate Period occupation and reveal a long history of the use of ancient types of maize on the south coast.

Conley, Hillary [3] see Carrier, Sam

Conlin, Dave [29] see Morgan, David

Conlogue, Gerald (Quinnipiac University), Mark Viner (Inforce Foundation, Cranfield Forensic Institute, ), Ronald Beckett (Bioanthropology Research Institute, Quinnipiac Uni) and Jelena Bekvalac (Center for Human Bioarchaeology, Museum of London,)

[299] A Post-Mortem Evaluation of the Degree of Mobility in an Individual with Severe Kyphoscoliosis Using Direct Digital Radiography (DR) and Multi-Detector Computed Tomography (MDCT)

Since 2010, the Bioanthropology Research Institute at Quinnipiac University, in collaboration with the Inforce Foundation, Cranfield Forensic Institute at Cranfield University and the Center for Human Bioarchaeology, Museum of London, has established a temporary field radiographic facility under St. Bride’s Church, Fleet Street, London in order to conduct a radiographic survey of the skeletal remains of 227 individuals from the 18th and 19th centuries interred in the crypt and retained in the church. The collection constitutes a unique assemblage of skeletal remains covering a date range of 1676–1852/3, with biographical data and detailed parish records. One of the skeletons demonstrated not only severe kyphoscoliosis, but also an uncharacteristic robustness of the femora and humeri for such a severe spinal deformity. Based on initial radiographs, it was determined the remains were
stable enough to be transported to St Bartholomew's Hospital for additional examination using multi-detector computed tomography to better visualize the internal structure of the skeleton. The presentation considers the different diagnoses derived from the radiographic studies and the analysis in attempting to establish the individual's degree of mobility and impairment, placed in conjunction with the social conditions for the parish at this time.

Connaughton, Sean P. [336] see Herbert, James

Connell, Samuel [411] see Anderson, Amber

Conner, Clare

[275] The Hoecake Site: Marking the Woodland-Mississippian Transition in Southeast Missouri.

The Hoecake site is a Late Woodland to Early Mississippian (A.D. 500-1100) site, located in the Cairo Lowland in southeast Missouri. This mound site contained as many as thirty to fifty mounds at one time, some of which contained burials. Multiple excavations were done at the site in the 1960s as part of the land leveling salvage archaeological work done in the area at the time. Other than an initial report of the excavations, no major analysis has been done on the site until now. The ceramic assemblage will be the focus of this analysis, in order to gain a better understanding of the transition from the Woodland period to the Mississippian period in southeast Missouri.

Conner, Michael [365] see O’Gorman, Jodie

Conner, Michael (Illinois State Museum-Dickson Mounds), Jodie O’Gorman (Michigan State University) and Nicole Silva (Michigan State University)

[365] Introduction to the DMM-MSU Morton Village Project

Morton Village and Norris Farms #36 cemetery, located in the central Illinois River valley in Fulton County, Illinois, offer a rare opportunity to investigate migration and conflict with multiple data sets. The cemetery was excavated in the 1980s for highway improvements. Archaeologists from the Dickson Mounds Museum branch of the Illinois State Museum recovered 264 apparent Oneota burials dating to ca. A.D. 1300, and the cemetery is well known for the high level of violence evidenced. The Morton Village site is about 400 m from the cemetery on the same valley-edge ridge complex. Limited excavations in the 1980s provided evidence of both Oneota and Mississippian use of the site. In 2007 DMM and Michigan State University began a long-term effort to more fully understand the village, its relationship to the cemetery, and the nature of Mississippian and Oneota interactions at the site and in the region. Data from excavations, remote sensing, and radiocarbon assays suggest co-habitation by Oneota and Mississippian people at the village in the 1300s, engendered preliminary interpretations of site organization, and fostered questions about the role of ritual and stress in this multicultural population.

Connolly, Robert (University of Memphis)

[223] Discussant

Connor, Simon (Monash University), Shawn Ross (University of New South Wales), Adela Sobotkova (University of New South Wales) and Ilia Iliev (Yambol District Historical Museum)

[40] Early Holocene Aridity and the First Farmers of Europe

The spread of agriculture into Europe from its Near Eastern heartland was an important cultural event, the causes of which have been debated for many decades. DNA analyses are increasingly providing insights into the genetic inheritance of Europe’s first farmers, yet the triggers for their initial migration remain elusive. The earliest agricultural sites in Europe appear to be those situated in coastal Greece, while more fertile inland areas, such as the Thracian Plain, were settled centuries to millennia later. In this presentation we interrogate the paleoenvironmental record from Thrace to elucidate the environmental factors that may have affected the timing and distribution of the earliest European agricultural settlements.
Forager Efficiency, Demographic Shift and Environmental Change: Re-evaluating the Broad Spectrum Revolution in Mainland Southeast Asia

On the Thai-Malay Peninsula the Pleistocene to Holocene transition was accompanied by significant post-glacial sea level rise, new environmental conditions, and increased human population densities. How did foragers adapt to these changes? In this region, the BSR has been the primary framework for understanding forager response to these conditions since Gorman’s analysis of the fauna from Spirit Cave (1971). Gorman suggested, following Flannery’s in the Near East, that at the Pleistocene-Holocene transition a broadening of the diet occurred to include resources previously ignored by Southeast Asian hunter-gatherer groups because of the environmental change and human demographic shifts that occurred. This paper reexamines the BSR in this region by quantifying zooarchaeological data from a series of Pleistocene-Holocene sites in Thailand and Malaysia, guided by the theoretical predictions of the prey-choice model in foraging theory. Results suggest that a ‘true’ BSR did not occur during the Pleistocene-Holocene transition; instead forager efficiency remained high during periods of environmental change and human demographic increase.

Reflections on Digital Data Acquisition and Analysis at Chavín de Huántar, Peru

The monumental center of Chavín de Huántar in the Peruvian Central Andes has been the subject of mapping efforts for more than a century, and of digital mapping efforts since the mid-1990s. Spatial technology has been fundamental to significant revision of the site’s construction sequence, definition and extent, and ultimately interpretation. This results from the site’s complex, three-dimensional, and often-obscured architecture, mapping which has only become practical – and perhaps even possible – with digital tools. The array of technologies brought to bear over the last 15+ years includes total station, high-precision GPS, satellite imagery, laser scanning, photogrammetry, near-surface geophysics, and kite aerial photography; data have been managed with both CA.D. and GIS. That rare duality resulted from the need to simultaneously manage complex, three-dimensional data and extensive, attribute-rich data, as well as distinct sets of research questions. This paper reflects on the respective contributions of these two strategies to the analysis of complex architecture, teasing apart the relative contributions of different strategies of digital data acquisition and considering what analyses they have enabled, before contemplating the risks of digital representation becoming an end unto itself.

Dynamic Households on the Irish Frontier: An Archaeology of the 18th -19th Century West Coast
This research explores colonial transformation of households and communities on the fringes of empire - the frontier. Often overlooked, these fluid spaces have revelatory potential regarding deeply situated cultural change and social dynamics in the face of catastrophic adjustment. This project focuses on the local processes as embodied by these individual households and rural communities on the coast of western Ireland in order to understand larger regional and national social and cultural transformations. Contextual variability and social change are examined through the lens of material activity and change in the 18th and 19th centuries. The material remains from Inishark and Inishbofin, two islands off the coast of Co. Galway, demonstrate the presence and connection to broader global networks of economic trade and access. This evidence counters the pre-existing academic narrative of colonialism by framing these areas as frontier zones in order to better understand the degrees of complexity and nuances of change. Through examination of ceramic material and architectural remains from excavations of several different households on these islands, the data reveals dynamic and complex economic interactions between communities off the coast, on the mainland and abroad.

Coochyuma, Brett [225] see Loendorf, Chris

Coogan, Alan [187] see Smith, Michele

Cook, Lauren (Department of Anthropology, Texas A&M University) [92] Spatial and Temporal Analyses of Redeposited Projectile Points from McFaddin Beach, Texas

McFaddin Beach (41JF50), in Jefferson County, Texas is a 32 kilometer-long beach, stretching from High Island in the west to Sea Rim State Park (next to the mouth of the Sabine River) in the east. Since the 1950s, artifacts from almost all periods of Texas prehistory have been recovered on this beach. The projectile points found on McFaddin Beach are redeposited material from an offshore, submerged location. Results indicate that projectile point distribution is significantly correlated to longshore drift and hurricane activity in the Gulf of Mexico. These redeposited artifacts inform us about the mobility patterns of Paleoindians who lived on the Texas continental shelf. Further, typological variability in projectile points throughout the Holocene transgression inform us about mobility patterns and resource allocation of later groups on the Texas continental shelf.

Cook, Duncan (Australian Catholic University), Timothy Beach (The University of Texas at Austin), Sheryl Luzzadder-Beach (The University of Texas at Austin) and Thomas Guderjan (The University of Texas at Tyler) [176] Mercury Pollution and the Ancient Maya: Where, Why and How

Multi-element inorganic geochemical studies across the Maya lowlands have revealed elevated levels of mercury (Hg) in soils and sediments that date mainly from the Classic period (c. 250-900 A.D.). Mercury pollution has now been recorded at a range of archaeological sites despite the absence of metallurgy until the Postclassic Period (after 1000 A.D.), or any other industry capable of significant heavy metal pollution of the environment. This paper presents the first detailed analysis of the extent and magnitude of anthropogenic Hg in the natural environment of the ancient Maya. Given the scarcity of mercury sources in the Maya world, and the importance of liquid (native) and solid forms of mercury (cinnabar) to the Maya, we examine the possible sources and idea of mercury as a prestige commodity, and the implications of this for our understanding of the trade of high-value natural resources in antiquity.

Cook, Jessica (University of Georgia) and Ervan Garrison (University of Georgia) [192] These Are the Pearls that Were His Eyes: Interpretive Frameworks for Submerged Middle Archaic Sites in the Big Bend of Florida and the Georgia Bight, U.S.A.

Sedentary occupations and monumental architecture first appear during the Middle Archaic (8,000 BP to 5,000 BP) in Florida at sites where marine, estuarine, and riverine resources were exploited, spreading to the coast of Georgia by the Late Archaic, around 4,500 BP. However, the coastline did not reach its modern position until around 5,000 BP, leaving many sites submerged. Fieldwork was
initiated in June of 2014 in order to relocate, excavate, and interpret Middle Archaic sites submerged in Apalachee Bay, Florida, that were initially documented during the 1980s and 1990s. Concurrent synthesis of extant datasets gathered off the Georgia coast is also ongoing. Our results highlight issues commonly encountered when working with submerged prehistoric sites: the difficulty in locating/relocating them in an open water context; the need to implement appropriate protocols for recognizing sites as such when encountered; and the need to develop a useful interpretive framework for understanding highly reworked deposits. None of these issues are insurmountable and even disturbed marine sites have potential to elucidate the behaviors of sedentary foragers of the coastal southeastern U.S., and earlier groups. These sites also add to the body of knowledge around site formation processes, a critical need as sea levels rise today.

Cook, Robert A. [331] see Pazan, Kyra

Cook, Della (Indiana University)
[410] Discussant

Cook, Duncan [350] see Beach, Timothy

Cooke, Richard [170] see Martin, Juan

Cool, Autumn [230] see Wiewel, Adam

Coolidge, Frederick (University of Colorado, Colorado Springs)
[33] Higher Cognitive Sequelae of the Recently Expanded Parietal Lobes in Homo sapiens

Bruner and his colleagues (Bruner et al. 2013) have demonstrated that the parietal lobes in Homo sapiens are expanded in comparison to Neandertals and Homo heidelbergensis. The traditional parietal lobe function of the brain, somatosensory integration, is thought to be among the phylogenetically oldest functions of the brain. However, recent research has shown that the parietal lobes may be critical to many of the higher cognitive functions of modern Homo sapiens. There are two regions appear to be the epicenter of parietal expansion: the intraparietal sulcus (IPS) and the precuneus. The IPS has been well documented by fMRI research to have topographically dedicated neurons for the appreciation of numbers, known as numerosity. Numerosity has been shown to have two core functions: subitization, which is the ability to distinguish between one, two, and three things, an ability present in human infants and monkeys. The second is the ability to distinguish between small sets from large sets of things, known as fuzzy set comparison or analog comparison. The precuneus has been shown to be critical to autobiographical memory and future simulations. The present paper will discuss the implications of these functions as a feral basis for abstraction and modern symbolic thinking.

Cooney, Gabriel (UCD School of Archaeology)

A notable feature of the Irish prehistory is the recurrence of activity over long periods of time in specific areas. These persistent places or landscapes are also a feature of the wider world of prehistoric Atlantic Europe. This pattern of human activity has been long debated. Depending on the point of view of the researcher it can be explained for example as indicating foci of long-term settlement, as the repeated but unrelated use of areas improved by human modification in the context of technological constraints on land use or as special places, sacred landscapes. Not only does the understanding of such landscapes require explanation in terms of how they articulated with everyday life in the past, but they also pose problems of recognition and sustainability in today's world. Globally significant cultural landscapes, for example as indicated by World Heritage status, are recognized as requiring specific protection, but there are problems relating to the wider recognition of prehistoric landscapes. The protective focus tends to be placed on visible monuments; dots on a map. In the context of modern development pressures, competing land uses and social
change can we retain an ability to recognize and retain what was sacred in prehistory?

Cooney, Gabriel [199] see Megarry, Will

**Coons, Aaron (University of Alberta) and Kisha Supernant (University of Alberta)**

[394]  *Remote Sensing at the Buffalo Lake Métis Wintering Site (FdPe-1): Preliminary Results*

The Buffalo Lake Métis Wintering Site (FdPe-1), located in central Alberta, Canada, presents one of the most extensively studied examples of overwintering practices amongst the Fur Trade-era Métis. With historical records accounting for approximately four hundred cabins being present at the site in 1876, this site has the potential to have been the largest settlement west of the Red River at the time of its occupation. However, surficial evidence of these cabins is now scarce as a result of modern agricultural practices. Geophysical surveys were conducted at the site during the 2014 field season, with a focus upon magnetometry, conductivity and resistivity. The preliminary results of these surveys are presented, with the goal of determining more accurately any spatial patterning amongst the cabins and the total extent of the site.

Cooper, Martin [182] see Williamson, Ronald

**Cooper, Jago (British Museum) and Alice Samson (McDonald Institute of Archaeological Research, Uni)**

[288]  *Small Island Water Security: considering how the past can help secure a safer future*

Water security is the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods. Small islands can often face particularly problematic issues surrounding water security with the impacts of precipitation variability and relative sea level change keenly felt on islands with limited rain catchment and fast draining hydrological systems. This paper explores some archaeological case studies on small islands from the Caribbean and the Pacific that have studied long-term human-water relationships to consider how findings can inform current debates surrounding improved water management systems, sustainable island population capacities, early warning systems for water insecurity and the management of island abandonment.

[351]  *Discussant*

Copeland, Toni J. [220] see Mathena, Sarah

**Copeland, Sandi (University of Colorado Boulder), Hayley Cawthra (Council for Geoscience, South Africa), Richard Cowling (Nelson Mandela Metropolitan University), Julia Lee-Thorp (Oxford University) and Petrus LeRoux (University of Cape Town)**

[294]  *Testing the Paleo-Agulhas Plain Migration Ecosystem Hypothesis with Serial Isotope Analysis of Fossil Fauna*

In contrast to Holocene sites, late Pleistocene sites along the South African south coast are dominated by large and medium-sized ungulates, many of which are typical of open-habitat grasslands and migration ecosystems. During much of the late Pleistocene, sea levels were substantially lower, exposing the Paleo-Agulhas Plain up to 100 km south of the modern coastline. The Migration Ecosystem hypothesis proposes that the Paleo-Agulhas Plain supported a migration ecosystem driven by summer rainfall producing fresh green grass during summer in the east, and winter rainfall producing fresh green grass during winter in the west. We tested the migration hypothesis with serial samples of strontium, carbon, and oxygen isotopes in fossil fauna enamel from Pinnacle Point sites PP13B and PP30. We also created a bioavailable strontium isoscape for the region. Results indicate that bioavailable strontium is strongly influenced by marine sources, as well as bedrock geology. Strontium isotopes of the fauna vary by less than 0.0005 within each individual, and suggest that most animals spent their time on or near the Paleo-Agulhas plain, not further inland. Carbon and oxygen isotopes of potentially migratory individuals are consistent with east-west movements, showing evidence for consumption of C3 and C4 grasses in varying proportions.
Corbett, Debra [7] see Hornbeck, Bobbi

Corbett, Debra (Nanutset Heritage), Edward DeCleva (US Fish and Wildlife Service), Dara Glass (Cook Inlet Region, Inc), Alexandra Lindgren and Sherry Keim (Chugach National Forest)


One of the more unusual provisions of the 1971 Alaska Native Claims Settlement Act allowed the 12 newly formed Alaska Regional Native Corporations to select significant historic and cemetery sites as part of their settlement. Cook Inlet Region, Inc. (CIRI), selected three sites at the confluence of the Russian River with the Kenai River. The two federal agencies managing the area protested the claims. Among many complications was the fact that the area is one of the most popular sport fisheries in Alaska. Twenty-seven years after the claims were filed, facing drawn out legal action, the major parties sat down and negotiated a co-management agreement that was signed into law as the Russian River Lands Act in October 2002. The result is a unique partnership for managing archaeological and cultural resources and public use. The fundamental agreement could be a strong positive template for co-management of other significant heritage resources.

Corcione, Maria

[107] Health Conditions Between the Muisca-Tibanica Society: Bioarchaeological Analysis of Phenomena in Porous Skull

The doctoral research I drive seeks to understand whether there is relationship between nutrition and the appearance of porosity in the skull within the Late Muisca society Tibanica located in the Soacha Colombia. From the macroscopic, histological and radiological analysis is to perform a differential diagnosis to understand the true involvement anemic trait. According to the etiology presented for porous phenomena, its causes is the high consumption of maize, which inhibits the absorption of iron, resulting in iron deficiency anemia; if true, a high maize consumption among the non elite group of Tibanica, reveal high frequencies of porotic hyperostosis and cribra orbitalia. The designed to answer questions about the relationship feeding disease bioarchaeological analyzes have not been carried out to the country with a large sample of Late Muisca period, which is an opportunity to conduct research that attempts to approach the phenomena porous in the skull from a not only paleopathologica but biocultural perspective.

Corcoran-Tadd, Noa (Harvard University)

[108] Slow Thinking: Beyond the Entangled List

Several theorists under the broad umbrella of a new materialism have argued that our accounts of the social-natural world proceed too quickly, skating over rich complexities and contradictions in favor of simple ontological impressions. In response, they suggest, we need to slow down our analytical movements in order to track the complex articulations of a world that becomes difficult to resolve at higher speeds. Here I argue that this issue is particularly relevant for archaeologists for whom issues like temporal compression and interpretive gaps are often highly explicit. I seek to use archaeological materials to both slow down historical accounts of the silver economy in the colonial Andes and to move beyond the descriptive list stage of analysis often encountered in . Faced with a list that might include llamas, mules, alfalfa, altitude, hemoglobin, capital, and adobe walls, I deploy this heterogeneous assemblage to trace specific questions of animal labor, bioplasticity, and precarity in the colonial Andes.

Cordell, Ann (Florida Museum of Natural History), Neill Wallis (Florida Museum of Natural History) and Thomas Pluckhahn (University of South Florida)

[79] Ceramic Petrography and Woodland Period Social Interactions in Florida and the Southeastern United States

Swift Creek Complicated Stamped pottery found throughout much of the lower Southeastern U.S. is arguably the premier material for the systematic study of Woodland interactions. The unique
impressions of individual carved wooden paddles are often found on pottery at multiple sites, lending an unparalleled level of detail and spatial resolution to social connections. Furthermore, the distribution of vessels potentially reflects a broad range of interactive practices among a large proportion of past populations rather than only the occasional practices of a few individuals. Petrographic analysis of Swift Creek pottery has been undertaken as part of an ongoing research program that uses integrated materials analyses of pottery, including Neutron Activation Analysis, digital imaging of paddle stamp designs, technological analysis, and absolute dating, to identify patterns of social interaction. This paper focuses on petrographic data obtained thus far. Several hundred samples have been taken from more than two dozen sites distributed across Florida and Georgia and dating between A.D. 200 and 800. Preliminary integrative results indicate that interactions were geographically extensive, but clearly most intensive along particular corridors.

Cordell, Ann [166] see Walker, Karen

Cordero, Maria-Auxiliadora (University of Pittsburgh), Esteban Acosta and Paulina Rosero [367]  
Settlement Patterns Study in the Lake San Pablo Area, Northern Highland Ecuador: Preliminary Results  
The project "Cultural and Technological Principles Associated with Occupation Modalities during the Integration Period: Value and Use in Present Day Ecuador", carried out by the INPC (National Institute of Cultural Heritage of Ecuador) and funded by SENESCYT (Ecuador’s Department of Science and Technology) has researched five areas of the country, including in the Otavalo Canton. This paper presents the preliminary results of a survey, conducted with the collaboration of community members, from three parishes next to Lake San Pablo. We report on earthen mounds, raised fields, and areas of dispersion of cultural materials in a 30 square kilometer area. Mounds close to the raised fields in the low-lying areas near the lake may represent chiefly control of these agricultural works, while habitation sites of the regular population seem to have been mostly located on the slopes around the lake. Complementing information from the archaeological survey will be data gathered by historians, geographers, and cultural anthropologists (among other professionals) in this multidisciplinary project.

Cordova, Guillermo (Guillermo Cordova) [231]  
The River Suchil Valley project, Zacatecas and Durango 10 years of its inception  
This project aims to understand social complexity in prehispanic Mexico by studying the strategies of landscape use and resource management throughout the first millennium A.D. in a territory occupied today by the municipalities of Sombrerete and Chalchihuites in the state of Zacatecas, as well as Suchil in the state of Durango. In our presentation, we will evaluate and present the results of multiple lines of research, such as bioarchaeology of the ancient inhabitants, hierarchy and complexity of settlements, mining, the importance of the lapidary industry, funerary patterns over time, etc. The information generated so far allows us to consider the dynamic social developments of the Chalchihuites culture. For example, the establishment of settlements with public areas for the performance of agricultural and funeral rituals required the importation of turquoise from the American Southwest for the production of jewelry, which was also used by elites as grave goods and perhaps exported to western and central Mexico as well.

Cordova Tello, Guillermo [217] see Fiehring, Benno

Córdova Tello, Mario [249] see Sereno-Uribe, Juan

Corl, Kristin (New Mexico State University) [110]  
Faunal Evidence for Subsistence Strategies at Cottonwood Spring Pueblo  
The zooarchaeological assemblage from Cottonwood Spring Pueblo (LA 175), an El Paso Phase (A.D. 1275-1450) horticultural village in southern New Mexico, is dominated by small game. What explains this pattern? The high relative percentage of rabbit to deer follows a general trend
associated with aggregated populations, growing agriculture dependence, and less seasonal mobility. Additional variables possibly contributing to this trend include shifts to small game in response to droughts, over exploitation of larger game, niche creation by human modification, and preferential hunting strategies, all of which influence the faunal ratios regardless of dependence on agriculture. My hypothesis is that hunting of small game is a direct result of the intensification of farming. The expansion of cultivated fields creates a niche that attracts rabbits that would otherwise live in grassland environments, which are then targeted for hunting. To assess this hypothesis I examine archaeological evidence of field expansion, environmental evidence of precipitation and temperature, and faunal data including game species (lagomorphs, deer, antelope) as well as proxy species of microenvironments (e.g. rodents). I also examine stable carbon and nitrogen isotope patterning in a sample of lagomorphs to assess whether they were consuming grassland plants (C4) or domesticate plants (C3).

Corl, Kristen [273] see Sartin, Sunnie

Cormier, Aviva (Boston University) [206]

A Combined Bioarchaeological and Isotopic Approach to Understanding the Regional Diversity and Population Mobility within the Holmul Region, Guatemala

The northeastern Petén of Guatemala is an ideal area for applying stable isotope analysis to reconstruct past population histories and to explore the interplay of migration and social complexity throughout the rise of the Maya. The strontium and oxygen isotope analysis of dental enamel is a productive alternative when bone collagen is not available or is severely altered by taphonomic processes or conditions of preservation. These isotopic analyses of dental enamel can be combined with biological profiles of interred individuals in order to address questions of regional identity, differing mobility, and changing complexity of the Maya in the Holmul Region. This poster presents the preliminary osteological analysis and biological profiles of individuals excavated from Homul, La Sufricaya, Cival, and Hamontun, emphasizing burial treatment, estimated age, biological sex, perimortem trauma, cultural modification, pathology, and/or dental health. Further, this poster presents the methodology of a combined bioarchaeological and isotopic approach to understanding regional diversity and population mobility. An application of this method would encourage the use of these bioarchaeological and isotopic analyses at sites in the greater Maya region and throughout the world, especially where the difficulties of excavating and the poor preservation of human remains may have previously dissuaded scholars.

Cornwell, Kelsey (University College London) [120]

Theoretical and Practical Advances in Underwater Regional Survey

To contend with expensive and invasive ‘big dig’ excavations, archaeologists have trended towards using regional surveys to examine and interpret distribution patterns across a given area. Regional surveys offer an effective and efficient way of analyzing the long-term use and wide scale development of variably occupied spaces. With the introduction of Geographic Information Systems and other new technologies, archaeologists have been able to capitalize on the insights gained from statistical analyses, such as regression and predictive models, to further our understanding of pre-modern societies.

Underwater archaeology, however, has not enjoyed the range of theoretical and methodological developments that terrestrial archaeology has over the past 50 years. Until recently, conducting regional surveys underwater was too costly in both time and finances. In the past twenty years, though, archaeologists have begun to utilize oceanographic tools to inspect large expanses in both shallow and deep water, revealing a great deal of submerged cultural material. This project examines if, where, and how theories established to investigate land sites and regions could be applied to underwater environments, with particular focus on the Mediterranean, and offers a case study from Eratosthenes Seamount as a practical application.

Coronado, Anabella (The University of Texas at Austin) and Adriana Linares (The University
Arqueología Comunitaria en la Región Ixil de Guatemala

Esta ponencia detalla la reciente investigación participativa en las comunidades de Santa María Nebaj, San Juan Cotzal y San Gaspar Chajul, localizadas en el Departamento de El Quiché, Guatemala. La investigación socialmente comprometida comienza con la elaboración de un atlas regional que reconozca y actualice el listado "oficial" de sitios arqueológicos para su protección. Entre las herramientas metodológicas más valiosas destacan los datos provenientes de historias orales que sobreviven varias generaciones de migraciones, exílios, destierros y repoblaciones en la región, así como la participación activa de autoridades indígenas, arqueólogos, etnohistoriadores, antropólogos, y conservadores expertos en patrimonio. Inclusivamente, se propone realizar el cambio de los nombres ya institucionalizados de sitios arqueológicos para que sean más acordes a las realidades locales. Se presenta también, la parte correspondiente a la excavación que se ha discutido con las autoridades y localidades para la elaboración de mapas culturales. El alcance final del proyecto es que dichos mapas abarquen y proyecten las distintas etapas históricas y la sobervivencia autónoma de éstas comunidades.

Chair

Corona-M., Eduardo [141] see Ulloa-Montemayor, Ximena

Unearthing the Mysteries of the Frank Palmer Archaeology Collections

The Frank Palmer collections were the founding collections of the first museum in Los Angeles, the Southwest Museum, opened in 1914, and also for the Southwest Society’s exhibit in the Pacific Electric Building in downtown Los Angeles of 1907. Their profound importance to the individual founders of the museum, the Southwest Society and to the general populace of Los Angeles is well documented in meeting minutes, newspaper clippings and articles in magazines. The artifacts assembled by Frank Palmer came from all over southern California from sites such as Redondo Beach and the southern Channel Islands. However, the origins of the collections are murky as are many of their current locations. Additionally, very little research has been conducted on the collections and so they are poorly understood. Collections such as the Frank Palmer collections represent an important resource for research into early collecting practices and the aims of early museums and archaeologists. I plan on discussing my research on the Frank Palmer collections that I have conducted at the Autry National Center of the American West on the Southwest Museum Collection.

Exchange, production and consumption of exotic and exclusive goods in the delta of Diquís, Costa Rica.

Exchange and consumption of various goods in late prehistoric period chiefdom societies of the Diquís Delta, southern Costa Rica is discussed. Because of its geographical position and socio-economic development the Diquís region had a major role in exchange and regional relations, in Greater Chiriquí (southern Costa Rica and western Panama), and at the extra regional level (southern Central America). Various goods (metal objects, statuary, polychrome and biscuit pottery, polished axes, stone spheres, etc.) had different areas of distribution and consumption within Greater Chiriquí that have been related to manufacturing sites and centers of power. At the same time, in major sites like Finca 6 and Caño Island, fragments and whole pottery vessels from Guanacaste (NW Cost Rica) have been found, suggesting trade routes along the Pacific coast. This pottery has been found in contexts along with other polychrome types and anthropo- and zoomorphic statuary with a restricted area in the Diquís delta, suggesting the acquisition of exotic goods and production of exclusive goods by the delta’s chiefdom societies.

Corteletti, Rafael (Rafael Corteletti)
Chair

Cortes-Rincon, Marisol [248] see Kieffer, C. L.

Cortes-Rincon, Marisol (Humboldt State University), Adam Forbis (Humboldt State University), Erik Marinkovich (Humboldt State University), Kyle Ports (Texas tech University) and Robert Foster, Jr. (Humboldt State University)

Geospatial Analysis of Material Procurement and Distribution in the Hinterlands of Northwestern Belize

The ancient Maya employed a wide variety of lithic raw materials for tool manufacture, such as strategies that combined local production of flaked stone tools with the import of some finished tools from distant sources. Over time, variable stone tool acquisition, manufacture, and use are reflected in the comparative differences in the formal versus expedient technologies and raw material types from a variety of contexts, including ceremonial, non-domestic, and domestic. The authors will present an overview of the dataset from excavations in northwestern Belize and the lithic raw materials available from sources within and adjacent to the research area. Geospatial analysis of raw material procurement and distribution during the Late and Terminal Classic periods will be examined through the use of a Geographic Information System. The spatial distribution of materials will provide insights into the regional and localized circulation of goods. Indicators of greater diversification and intensification are expected to appear in productive households to confirm that the local economy was focusing on supplying and procuring materials for commodity and non-commodity production to support administrative structures and guarantee integration in the local and regional economy.

Cossin, Zev

Indigenous Labor and the Hacienda System: Examining Everyday Micropolitics and Global Capitalism at the Historic Hacienda Guachalá, Ecuador

Scholarship in a variety of disciplines pertaining to global flows of people, goods and ideas have begun to emphasize the mediating effects of local communities and cultural logics on and against broader transformations and structural conditions. This topic is of particular importance to an anthropological understanding of both contemporary capitalist processes globally as well as their historical precedents. Recent theoretical approaches to contemporary capitalism, specifically, approach capitalism as performative, as highly adaptive yet premised on stable repetition, and as a relational series of networks that compose an ongoing project rather than a fixed total system. More than an economic system, it is a medium for intercultural entanglements that consist of dynamic social formations, networks of production and circulations. In this paper I synthesize archaeological and documentary evidence pertaining to the colonial and post-independence occupations of the historic Hacienda Guachalá in the highlands of Ecuador. In so doing, I reflect on the ways that this literature usefully intersects with archaeological work and the capacity of material analysis to contribute to such discussions.

Costa, Benilde [9] see Wagner, Ursel

Coster, Adelle [186] see Kealhofer, Lisa

Costin, Cathy (California State University, Northridge)

Crafting Identity and Wealth on the North Coast of Peru

The "organization of production" is not a monolithic, homogeneous entity in complex empires, and the production of different types of goods will be organized commensurate with the role they play in sociopolitical processes. In this paper, I investigate the ways in which craft production was reorganized after the Inka conquest of the Chimú polity of Peru to control the creation and deployment of wealth and to manipulate the construction of social identity in the changing sociopolitical landscape. Some ceramic production became more centralized under the auspices of the state than it had been under the prior regime, because heretofore most ceramics had not been
politically charged. In the case of textiles, authority over production was decentralized. The greater centralization and establishment of attached ceramic production served to consolidate control over symbolic content and the distribution of objects used in political feasting and ritual. In contrast, the decentralization of textile production both precluded provincial administrators from monopolistic control over the production of wealth items and supported state ideological ends. Overall, by assuming control over elite textile production and instituting state-sponsored ceramic production, the Inka co-opted the production and display of social identity and established control over the visual discourses of power.

Costion, Kirk (Oglala Lakota College), David John Goldstein (National Park Service) and Lizette Muñoz Rojas (University of Pittsburgh)

[347] Social Implications of a Maize-Free Botanical Assemblage in Early Middle Horizon Contexts at the Huaracane Site of Yahuay Alta, Middle Moquegua Valley, Peru

Analysis of the micro and macrobotanical remains from the Huaracane settlement of Yahuay Alta's early Middle Horizon (A.D. 550 – 800) contexts revealed no recorded signature of maize use at this site, but the presence of a variety of other agricultural remains. We know that the Tiwanaku and Wari states established colonial settlements in the Moquegua Valley in this period, and that the Tiwanaku colonial project in the middle valley focused on its excellent potential for maize agriculture. Regardless of Yahuay Alta’s close proximity to Tiwanaku maize fields, the site’s maize signature was silent. Importantly, sampling on living surface and midden contexts recovered no indicators of other Andean crops, typical of the Middle Horizon, e.g., potatoes, quinoa, or aji peppers. Instead, the remains of weedy greens and the root crop arracacha (Arracacia xanthorrhiza, Ban. APIACEAE) dominated the botanical assemblages from domestic contexts. We consider the presence of the evidence together with the rest of the material culture remains to discuss Yahuay Alta’s early Middle Horizon agricultural and political economy. We argue that this apparently maize-free diet was at the root of a complex Huaracane strategy that avoided cultivating and/or consuming maize to remain inconspicuous in a potentially contentious political landscape.

Costosa, Jen-I (Graduate School and University Center CUNY)

[290] Digging the Past- Creating New Pathways for the Future: Graduate Student Perspective from the Field

As local communities are trying to adapt to the challenges of the anthropocene they are being faced not just with the loss of archaeological sites but also their livelihoods, identity and home. When living in a small island developing state (SIDS), the partnership of cultural heritage investigations with citizen science, transcends theory and provides the local participants with the tools to conserve and preserve the stories of the past while making empowered solutions towards challenges of the future. Teamwork and collaboration has always been key in archaeological fieldwork but it was mostly driven from the outside in. This new bottom up approach assists junior researchers in building cultural sensitivity and awareness while generating the colleagues of tomorrow from the very communities they have the privilege of working in. An archaeological understanding that values and is inclusive of local stakeholders is necessary to foster heritage and pride to combat paralysis in the face of climate change and create resilience for the future. Citizen science is not only life changing for the local citizens but a new way of training the scientists of tomorrow.

Côté-Landry, Maude [121] see Gardner, Chelsea

Coudart, Anick (Arizona State University)

[82] European Neolithic Houses & New-Guinean Contemporary Houses: Toward a Material Culture Theory

The archaeological and ethnographical study of domestic dwellings gives us the opportunity to grasp the logical structure that underlies the transformation of any architectural tradition, then the process of reproduction-transformation of a cultural group, and ultimately the evaluation of its sustainability. A comparative architectural approach between Bandkeramik Neolithic and New-Guinean Anga groups allows us to extract the structure inherent in architectural traditions; i.e. the articulation between cultural rules, variations between households or settlements, and contingent differentiations. Since
there is a structural correspondence between the dwelling and the collective representations that underpin each culture, it becomes possible (through domestic architecture) to measure the relative importance of the terms that describe this structuration. As each of these terms relates to a greater or lesser degree of stability, this allows us to measure, at the level of the cultural 'system', the relationship between the factors contributing to stability (cultural norms) and those relating to instability (individual expressions and contingent adaptations). In other words, this allows us to investigate the relationship between sustainability and resilience, and presents us with one avenue to evaluate the logic that is responsible for the reproduction of a cultural system, as well as the potential life-span of its identity.

Couey, Lauren (University of Denver), Ian Kuijt (University of Notre Dame), Liam Murphy (Coastways, Ireland) and Max Lopez (Hamilton College)


This poster examines the use of ground-penetrating radar in combination with three-dimensional modeling to identify, examine, and virtually reconstruct the subsurface material remains of nineteenth century homes on the islands of Inishark and Inishbofin, Co. Galway, Ireland. In this research we employ a multi-stage research program starting with a ground-penetrating radar survey of multiple house sites and a digital scanning of the ground surface to develop a high-resolution topographical map, followed by the archaeological excavation of houses. This allows for a more nuanced understanding of the interconnections between different data sets and the changing nature of architectural remains on the island. The spatial arrangement and layout of sod and stone buildings, as well as the extent of their preservation, can provide valuable insight into the daily lives and shifting residential practices and social customs of the nineteenth and early twentieth century villagers of Inishark and Inishbofin.

Couplin, Shawna see Delaney, Colleen

Coutu, Ashley (University of Cape Town/University of York)

ON THE TRAIL OF IVORY: MAPPING TRADE IN IRON AGE SOUTHERN AFRICA

Our current knowledge of the pre-colonial ivory trade in southern Africa consists of evidence from a number of archaeological sites dating from the 7-11th centuries A.D., such as Schroda, K2, Ndondonwane, and KwaGandaGanda. These sites have yielded large caches of ivory debris, suggesting that these places were centers for ivory carving/production. However, it is unknown whether raw ivory was obtained locally or brought from further afield, whether there was a standardised mode of production, and which markets drove the demand for its manufacture.

In order to investigate these questions, a combination of bioarchaeological techniques has been utilized to determine the species of the ivory (Zooarchaeology by Mass Spectrometry), as well as isotope analysis to determine possible source regions. This paper will present the ZooMS and isotope data (δ13C, δ15N, δ18O and 87Sr/86Sr) from the analysis of ivory artifacts and working waste from Iron Age sites in southern Africa. Isotope measurements from the ivory have been mapped onto environmental variables to reconstruct the catchment areas. Ultimately, this data will be combined with evidence for other trade goods (cattle, metal, glass beads) to better understand the movement of commodities across southern Africa from the first millennium A.D. onwards.

Covert, Alexandra (Hobart and William Smith Colleges/Archaeology Southwest) and Leslie Aragon (University of Arizona/Archaeology Southwest)

True Facts About the Dinwiddie Site: Surprising Results from Limited Testing in a Disturbed Site

Archaeology Southwest and the University of Arizona’s 2014 Upper Gila Preservation Archaeology (UGPA) field school excavations at the Dinwiddie Site (LA106003) produced interesting and somewhat unexpected results. Dinwiddie is a Cliff Phase (A.D. 1300 – 1450) Salado site located along Duck Creek, a tributary of the Gila River, in southwestern New Mexico. It was partially excavated by avocational archaeologists in the 1960s and the remaining deposits have faced
multiple sources of disturbance. Despite this history, test excavations in small areas of intact deposits at risk for future disturbance revealed unanticipated variability in architecture and ceramics between roomblocks. Spatial variation in pottery types represented in different parts of the site may be linked to temporal differences or to variability in social connections. Evidence of intensive remodeling and rebuilding in some rooms indicates a longer period of occupation than has commonly been attributed to Cliff Phase sites.

Covey, R. Alan [398] see Aland, Amanda

Coward, Fiona (Bournemouth University)

Using Networks to Investigate Material Identities in the Epipaleolithic and Early Neolithic of the Near East

This paper will illustrate the potential of methods derived from network science and especially social network analysis can be used to investigate the social interactions and relationships within and between the earliest village sites in the Near East across the shift from a mobile hunting-and-gathering way of life to a more sedentary, village-based and ultimately agricultural lifestyles. This approach provides a new perspective on the question of social change at the time as it views social groupings as dynamic, emergent networks of relations, rather than as discrete, static and homogeneous entities. The fundamental significance of material culture to personal and group identity is used as the basis for social network analyses of a database of material culture from more than 500 sites across the region; This paper thus challenges accepted ‘cultural’ and temporal groupings but also points to some potentially significant temporal trends in the data over the course of this period, and goes on to consider ways in which the use of SNA might be developed and enhanced to address these issues in more sophisticated ways in future.

Chair

Cowie, Sarah [90] see Laluk, Nicholas

Cowling, Richard [294] see Potts, Alastair

Cox, Eric

To Retest or Not To Retest: A Case Study at Wide Ruins

To conduct an archaeological data recovery project using another’s testing results as your guide can be problematic, especially when those results are over a decade old. In 2014 Northland Research, Inc. undertook a large data recovery project at two sites located at the Wide Ruins Community on the Navajo Nation. Both of these sites had been previously tested by a company other than Northland. One of these sites AZ P-37-42(NN) was an obvious habitation with the remnants of a room block and an associated great kiva located just outside of the right-of-way. For this reason a less than robust testing strategy was utilized on this site. As a result of testing, a total of 80 cultural features were projected to be within the right-of-way. In reality Northland located well over 350 archaeological features within this site. This poster presents the results of the archaeological testing and subsequent data recovery at AZ P-37-42(NN) and examines if an alteration of testing methodology would have made a significant difference in the archaeological feature projections. Additionally this poster seeks to provide some insight on the lessons learned from the Wide Ruins excavations.

Cox, Jim (Oklahoma Anthropological Society)

Discussant

Cox, Jeffrey [284] see Rowe, Marvin

Cox, Alexandra (Humboldt State University)

The UseWear Analysis of the Blue Lake Museum Lithic Collection
This paper examines the usewear related modifications on an assemblage of North American lithic artifacts that is held by the Blue lake Museum. The collection consists of a variety of material and tool types. There are a number of flaked projectile points and scrapers, as well as groundstone tools. All pieces were acquired by the Blue Lake museum through donation by private individuals and not all of the pieces have a known context. There has not been any intensive analysis carried out on this collection. Usewear analysis will be used to determine whether or not a given artifact was utilized and, if possible, to determine the work action the tool was engaged in as well as what material the tool was used on. Microscopic analysis will be used to examine usewear and coupled with ethnoarchaeological research to determine origins of the pieces. This paper will provide the Blue Lake Museum with a greater understanding of their lithic assemblage as well as guidelines for doing usewear analysis on museum lithics collections with no archaeological context.

Crabtree, Pam (New York University)

Beyond Bones: Non-Faunal Evidence for the Role of Dogs in Anglo-Saxon Society

Zooarchaeological data have provided much new information on Anglo-Saxon dogs including information on animal sizes, ages at death, paleopathology, and evidence for the treatment/mistreatment of dogs. However, many aspects of the relationship between humans and dogs in the Anglo-Saxon period cannot be understood on the basis of animal bones alone. This paper will explore the non-archaeozoological evidence for human-dog relationships in the Anglo-Saxon period drawing on evidence from literature and art history. The paper will focus specifically on the role of dogs in hunting and falconry.

Crabtree, Stefani (Washington State University)

Alliances, Coalitions, Hierarchies and Conflict in the Ancestral Pueblo World

Using the experimental testbed of the Village Ecodynamics Project's agent-based simulation “Village,” we examine how population growth and resource depletion in the Central Mesa Verde landscape between A.D. 600 and A.D. 1280 set the stage for territorial conflict, and how lineage and clan membership likely affected the structure of coalitions. We take a three-pronged approach, combining models for the evolution of leadership, models for the formation of coalitions and alliances, and models for conflict. In our model, groups may choose to fight offending groups or offer a merger with those groups when territories are contested. As time goes on, conflict may arise over productive agricultural land and a structure of hierarchical relations between groups may develop, forming what we call “complex groups.” These hierarchies may be more or less stable due to many internal dynamics, including the productivity of the environment, the ability of dominant groups to retain dominance, and the ability of subordinate groups to leave hierarchies. This paper thus directly examines how networks of relationships among groups emerge through time, and how those networks (in the form of coalitions or alliances) ameliorate conflict or help groups win in conflict.

Chair

Crabtree, Stefani [348] see Kohler, Tim

Craft, Sarah

Going Where the Job Takes You: Itinerant Producers in the Eastern Roman Empire

Architectural relationships between the eastern Roman imperial capital at Constantinople and its provinces have traditionally been understood as derivative. In the province of Isauria on the southern coast of Anatolia, however, distinctive remains have led to the conceptualization of a group of native stonemasons known as “Isaurian builders,” who traveled through provinces across Anatolia and northern Syria, leaving in their wake an identifiably Isaurian style of early Christian churches. At the same time, brick masons from the capital were exported to the provincial capital at Seleukeia, whose workshop in turn exported its product even further afield. This paper addresses the movement of craftpersons to, from and within Isauria, questioning traditional understandings of innovations and developments in construction materials and techniques between a province and its capital, as well as relationships between provinces within the same empire. This has ramifications for understanding
these workmen as itinerant specialists, matching the quality of the regional limestone in the caliber of its stonemasons, or as seasonal workmen, driven by economic circumstances to ply their skills and labor outside their native province. More broadly, it illuminates our understanding of the inter-provincial movement of productive knowledge and technologies, facilitated by the very fabric of empire.

Craig, Oliver [17] see Little, Aimee

Craig, Douglas (Northland Research), John Marshall (Northland Research) and Brent Kober (Northland Research)

[304] From La Villa to Pueblo Grande: Corporate Descent Groups and Property Rights Along Canal System 2

Most studies of the organization of Canal System 2 have taken a “top-down” approach and focused on the degree to which a centralized management structure was required to operate and maintain the canal system. In this paper, we take a “bottom-up” approach and focus on the interests and concerns of the irrigators themselves. Architectural data from several pre-Classic sites along the canal system are examined in an attempt to reconstruct the organizational strategies of multi-household, corporate descent groups. We argue that corporate descent groups often contained a core set of high-ranking households and affiliated households of lesser rank. It is further suggested that high-ranking households were able to maintain a position at or near the top of the social hierarchy for several generations, similar to “house” societies in many parts of world. The implications of the emergence of house-like social formations in early Hohokam society are discussed. The implications for our understanding of the pre-Classic to Classic period transition are also considered.

Craig, Lorena (University of Montana)

[312] Lithic Raw Materials Procurement and Exchange at Housepit 54, Bridge River Site, British Columbia: What a Diachronic Perspective Reveals

While the Bridge River settlement in the Middle Fraser Canyon of British Columbia is located in one of the richest salmon producing areas on the Fraser River, occupants of the site had limited direct access to many sources of raw material critical for production of chipped stone tools. Current excavations by Dr. Anna Prentiss at Bridge River Housepit 54 focus on an estimated 15 housepit occupation floors dating in the range of 1000 to 1500 cal. B.P. This allows for a unique study of intergenerational adaptations. This poster presents results of analysis of lithic raw materials acquired from known sources with a focus on defining relationships between the organization of lithic raw material acquisition and use and variation in subsistence pursuits. More specifically, this study seeks to test hypotheses linking patterns of land use to strategies of lithic procurement. For example, it can be hypothesized that periods of subsistence diversification and “search” oriented foraging strategies led to more frequent use of distant lithic raw material sources. However, access to toolstone through trade also remains an important alternative hypothesis for lithic raw material procurement, especially in light of Bridge River’s highly productive fisheries and proximity to trade routes.

Cramb, Justin [77] see Jones, Sharyn

Crandall, James (University of Florida)

[78] The Development of ‘Peripheral Communities’ in the Eastern Andes

The Chachapoya have come to be seen as a peripheral cultural entity in relation to the broader Precolumbian Andes, yet little work has addressed how these ‘peripheral’ communities developed in relation to each other. While it is clear that the material culture that is manifestly associated with the Chachapoya developed prior to A.D. 1000, it is unclear how uniform this process was on a regional level. In the Precolumbian Andes the development of centralized and partitioned monumental architecture has been commonly used as evidence for social and political transformations. This paper utilizes a scalar perspective to position the social and political changes of the Chachapoya on a regional level. Further, in order to better understand the development of Chachapoya communities,
this paper addresses the significance of centrality for one such community, Purumllaca de Soloco, and the role that the construction of its monumental architecture and the accretional changes of the surrounding settlement played in the social and political development of its community.

Crandall, John [202] see Martin, Debra

**Cranford, David (UNC-Chapel Hill) and Mary Elizabeth Fitts (UNC-Chapel Hill)**

[311] *Trends in Catawba Architecture, ca. 1750-1820*

Recent archaeological investigations have documented a series of sites associated with the historic Catawba Nation in South Carolina dating from 1750-1820. During this period Catawba communities underwent dramatic and abrupt changes associated with population loss from epidemic disease, settlement relocation, and the development of new economic strategies. Among the most striking of these, were changes in domestic architecture. In this poster, we define various types of Catawba structures present on late eighteenth-century sites and identify chronological shifts that demonstrate a transition from the construction of post-in-ground houses to log cabin architecture. Finally, we address what these changes in architectural modes tell us about shifts in community organization through time.

Crass, Barbara [360] see Holmes, Charles

**Crater Gershtein, Eli, Steve Black, Amanda Castaneda, Tammy Boanasera and Daniel Nadel**

[342] *Shiny Grooved Surfaces: The Case Study of the Skiles Rockshelter, Lower Pecos, Texas*

Shiny grooved surfaces are common in rock shelters and cave sites in the Lower Pecos region, Texas. They are found on horizontal as well as vertical exposures, usually in close association with mortars and/or rock art. The shiny appearance has been interpreted as the result of human traffic, hand touching, animal sacrifice, etc. In many cases these surfaces are densely grooved and incised by a variety of shallow and deep marks which are not found outside the shiny surface. Such phenomena have scarcely been analyzed in detail, in spite of their central location within many sites and their assumed social/ceremonial importance. The aim of this paper is to present a new analytical protocol based on Structure from Motion photogrammetry, high-resolution 3D models and spatial analysis. We use one case study from the Lower Pecos (Texas) and focus on the location, context and characteristics of the shiny surface, background noise, associated features (mortars), microscopic residues, and especially the grooves and incisions. These are characterized in terms of dimensions, cross-section, location, orientation, production and use signs. Their spatial clustering and super-imposition are studied in detail. The results provide new insights into the utilization history of the surface and suggest possible interpretations.

Crawford, George [150] see Kilby, David

**Crawford, Laura (The Ohio State University)**

[333] *Thule Response to Climate Change at Cape Espenberg, Alaska, CE 1500-1700*

Food plant remains and wood charcoal provide insight into how prehistoric Arctic peoples may have adapted to climate change. This study addresses Thule plant and fuel use at Cape Espenberg, Alaska from CE 1500-1700. Plant macrofossil and charcoal remains were sampled from occupation layers of three Thule semi-subterranean houses. Macrofossil and charcoal counts were analyzed using ANOVA, T-test, and Tukey Post-Hoc tests. Results indicate that plant foods contributed vitamins and fiber to Thule’s primarily meat diet. Wood was an important fuel, but was supplemented by bone and blubber. Conservation of woody fuel may reflect a decline in local driftwood availability due to climate change. These results underscore the importance of plants as food and fuel to prehistoric Arctic peoples, and demonstrate how these variables can be interpreted as proxies for climate change. Furthermore, these data suggest how modern Inupiat subsistence strategies may change in a warming Arctic.
Crawford, Gary (University of Toronto)

[Niche Construction and Early Agriculture in Northeastern North America]

Agriculture in the Northeast is a secondary development with research focusing on migration as a result of population growth in agricultural centers and the introduction of maize, bean, squash, sunflower and tobacco and the subsequent consequences of their introduction. Unlike pristine/primary origins whose explanations are couched in complex ecological considerations, be they interactive (ecological engineering, niche construction) or based in HBE (human behavioral ecology), ecological considerations are rarely considered in secondary origins. This paper explores varying modes of human-environment (particularly plant) interaction before and after the onset of maize production in Ontario. Human decisions and activities in Ontario before and after the introduction of maize appear to have played a significant role in agricultural development in the region, including the evolution of crops and the local landscape.

Creager, Brooke (University of Minnesota)

[Problematizing Religious Transformation: Burial Evidence for the Transition to Christianity]

The identification of religion through the examination of burials faces many problems, mainly the different avenues of interpretation. This paper will examine the conflicting evidence for religious belief used to identify religious practice in burials. The use of a few key features, or lack of features, to designate a burial of one religion or another does not take into account variation or coincidental practices, which only resemble a particular religion. Mixed burials present another problem of interpretation, as they are often described as transitional, marking the period between a traditional polytheistic and Christian society or as a hybrid religion attributed to the catchall of polytheism. Religious theory allows for multiple interpretations of any one burial assemblage. My thesis developed using a case study of conversion in early medieval Britain will be considered at such sites as Spong Hill and Sutton Hoo.

Crebbin, Kyle (Southern Oregon University), Chelsea Rose (Southern Oregon University) and Shana Sandor (Southern Oregon University)

[The Jim Rock Historic Can Collection Online Database at Southern Oregon University, Ashland]

Jim Rock was an historical archaeologist known for his passion for the humble ‘Tin Can.’ Prior to his death in 2010, Rock spend much of his lengthy career with the Forest Service focusing on education and outreach. Rock amassed a large comparative collection of bottles and cans, which he housed in suitcases and carted around teaching both the public and the professional archaeological community about the importance of often overlooked and undervalued artifacts, particularly cans. Rock’s 1987 volume “A Brief Commentary on Cans” remains instrumental in historical archaeology in the American West. Upon his death, the collection was given to the Southern Oregon University Laboratory of Anthropology (SOULA), who continues to use it as a teaching aid. In the interest of honoring Rock’s legacy and sharing his collection with a wider audience, SOULA collaborated with the Southern Oregon University Hannon Library in the digitization of the collection within a searchable database available to the public.

Creger, Cliff (Nevada Department of Transportation) and Beth P. Smith (Nevada Department of Transportation)

[spatial and Small-scale Geoarchaeological Analysis of a Middle Archaic Antelope Trap in Northeastern Nevada, U.S.A.]

Great Basin Antelope Traps are ideal laboratories due to their feature system level focus on one set of subsistence behaviors (antelope hunting). By combining data collected using LiDAR, GPS and GIS, our analysis in the Liza Jane Trap focused on the spatial patterning of lithic artifacts and the location of small-scale landforms.

The geoarchaeological analysis indicates relatively stable landforms modified by cultural-transforms.
Analysis to locate small-scale landforms was performed to locate remnant landforms that might bely the location of the trap wall.

The spatial analysis of the site lithics indicates that the breakage pattern and distribution of the projectile points is concentrated along specific trajectories. Both dart and arrow points are present at the site. The spatial analysis of the projectile point accumulations show trajectories that stem from one location and repetitively use the same trajectories based on the range of points, although distances covered by each technical projectile system are different.

The results of the geoarchaeology and the lithic spatial analysis indicate that the harvest zone is spatially patterned and stable even though the technology shifted from dart points to arrow points over time.

Crema, Enrico [73] see Rubio-Campillo, Xavier

Crema, Enrico (UCL -Institute of Archaeology-) [84]
Empirical Validation and Model Selection in Archaeological Simulation
Empirical validation is a key stage of any model development process and should provide an objective and quantitative account of the model performance. Yet, too often this stage plays a marginal role in the inferential exercise, with many discussions almost exclusively dedicated on the model building process. This paper discusses this neglected aspect of archaeological simulation, distinguishing two approaches drawn from epistemological parallels with statistical modelling. The first utilizes simulations as some sort of null templates; observed summary statistics are compared against simulation generated data, and significant deviations often becomes the basis for the development of more complex models. The second approach, which is the main focus of this paper, is centered on the theoretical framework of multi-model inference. Multiple competing models are formalized as computer simulations and compared against each other on the basis of their complexity, knowledge of the parameters, and goodness-of-fit to the observed data. The result is a probabilistic evaluation of whether one model is “better” than another, a solution that can overcome the problem of equifinality through its quantification. Examples from Neolithic and Bronze Age Europe will showcase the pros and the cons of this latter approach.

Cressler, Alan [353] see Simek, Jan

Crèvecoeur, Isabelle [190] see Mallol, Carolina

Crisp, Molly [356] see Penkman, Kirsty

Critchley, Zachary (Binghamton University) [232]
Explorations of Public Space at the Site of Panquilma
This work discusses and explores the results of excavations performed in the public sector of the site of Panquilma, located in the Lurin Valley on the central coast of Peru. It was a complex multicomponent community dating to the Late Intermediate Period, which has been divided into three sectors based on use. The first sector, containing three ramped pyramids, was used for ritual and administrative purposes. This work provides an examination of what is known about the uses of the public areas, as shown through the lenses of different literatures and theories of public archaeology.

Crites, Gary [373] see Baumann, Timothy

Crock, John (University of Vermont) [43]
Levels of Public Engagement in Vermont Archaeology and Striving to Match Outreach with Outcomes
A review of the last 15 years of the University of Vermont Consulting Archaeology Program’s public outreach activities suggests that projects with experiential learning components and strong community partnerships have had the greatest impact. Efforts that combine visits by school groups to the field, excavations open to the public and field work opportunities for volunteers generate the greatest participation and public interest and yield the most positive feedback. Handbook style publications in print and online also have been well-received by both general readers and teachers tied to a standards-based curriculum. Due to common issues such as project size and accessibility, however, it is difficult to regularly replicate the grand successes and often challenging to link specific project areas and results to specific outreach efforts. It is even more difficult to measure the long-term, lasting impacts of any efforts, especially for desired outcomes such as engaging an all-inclusive public, promoting archaeological awareness and stewardship, and maintaining support for compliance-related legislation.

Crock, John [287] see Dorshow, Wetherbee

Croft, Shannon [17] see Little, Aimee

Cromartie, Amy [12]  
"Shared Ritual Ideologies: Long Spouted Vessels on the Iranian Plateau in the Third and Second Millennium B.C.E."

Interactions between Mesopotamia, Iran, and Central Asia during the third and second millennium B.C.E. are well documented with much written on this topic. I will expand on this scholarship by tracing long spouted Iranian vessels across these regions to investigate possible shared ideologies. These vessels are often associated with Iron Age context in northern Iran, but this characteristic trough spout has been present on vessels on the plateau since at least the 4th millennium B.C.E. This unique design forces the user to confront the vessel’s shape making it an ideal object for transmission of cultural ideas. Depictions in cylinder seals and figural art suggest a possible ritualistic function and grave analysis suggest their inclusion in a ritual set. For this poster, I combine these data with spatial and network analysis to illustrate how these vessels may represent a shared ritual ideology that persisted across the Iranian plateau and Central Asia during the third and second millennium B.C.E.

Crombé, Philippe (Ghent University, Department of Archaeology) and Erick Robinson (Ghent University) [40]  
"The Impact of the 9.3 Cooling Event on the Human Environment in the Southern North Sea Basin"

In a recent paper Robinson et al. (2013) could synchronize major changes in Mesolithic armatures and the development of the Rhine-Meuse-Scheldt Culture with the abrupt cooling event of 9.3 cal BP. It is suggested that this climatic event led to environmental stress which triggered the development of inter-regional social networks, e.g. by expanding long-distance raw material exchange and creating particular socially symbolic artifact types. Yet, the impact of the 9.3 cooling event on the landscape, in particular the vegetation, still remain poorly understood due to a lack of sedimentary deposits. Today, new evidence has become available which points to a marked increase of forest fires at the onset of this particular cooling event. In this contribution we will investigate whether there is a causal relationship between both and which impact these forest fires may have had on contemporaneous hunter-gatherers. One possible explanation is that the colder and drier conditions connected to the 9.3 event induced the burning of large stands of trees. Alternatively the increase in forest fires may reflect a response of hunter-gatherers to abrupt cooling. Controlled burning of the forest may have been applied in view of stimulating particular plant species (e.g. hazel) and/or optimizing the hunting.

Cronin, Joseph (PIARA) and Rebecca E. Bria (Vanderbilt University and PIARA)
Feasting has long been recognized as one of the most widespread and significant political and ritual activities in the prehispanic Andes. In spite of this deep significance, the undecorated ceramics that undoubtedly played important roles in these ritual events are often overlooked for analysis in favor of their more elaborate, decorated counterparts. Here, we present a quantitatively constructed typology for undecorated ceramic vessels recovered from an Early Horizon ceremonial mound at the site of Hualcayán in the highlands of Ancash, Peru. Examining functional characteristics like vessel form alongside a suite of technological variables including firing, temper selection, and surface finish technique, we explore evidence for multiple production processes and consider their implications for reconstructing the social organization of feasting events in the Ancash highlands. More broadly, we examine Hualcayán’s parallels with and departures from other models of feasting organization during the Early Horizon, taking into consideration the reported ceramic assemblages from contemporary sites on the north-central coast as well as those throughout the neighboring highlands.

Cross, John (Bowdoin College)

Archaeological fieldwork in the Northeast over the last 20 years has resulted in a significant increase in the number of known pre-Contact sites with radiocarbon-dated components; we no longer speculate on whether or not people occupied the region during the Early and Middle Archaic periods. However, the emphasis has largely been on fitting new data into an existing framework of anthropological and evolutionary generality, rather than on exploring the historical specificity of the archaeological record. In an effort to re-cast the discussion, I draw on insights from human agency to frame research questions that are appropriate for the social, spatial, and temporal scales at which people lived their lives in the past. Excavations at the multicomponent Simpson-Stewart site in Maine illustrate several promising avenues for research and also examples of the challenges and biases introduced by preservation, field methods, and in the ways in which variation in the archaeological record has been aggregated into broad-scale units of time, space, and culture. Future syntheses of the Archaic Period in the Northeast will necessarily involve a critical re-examination of the assumptions that underlie the culture history that we think we know, and a recognition of the historically-contingent nature of the archaeological record.

Cross, Michelle (Cardno)

The historic south access road to the iconic Golden Gate Bridge, was known as Doyle Drive. It was identified as structurally and seismically deficient in the early 2000's and construction on its replacement began in 2009 by the California Department of Transportation (Caltrans). The Doyle Drive Project was unique in that it spanned the Presidio of San Francisco, a National Historical Landmark District, and that it involved several agency landholdings and stakeholders including the Presidio Trust, National Park Service, San Francisco County Transportation Authority, Federal Highway Administration, and Caltrans. This presentation will address the archaeological and mitigative approaches undertaken for this multi-year project, unexpected archaeological finds, and review the unique history that the "freeway" crossed through. The presentation will present the results of archaeological and historical research associated with the Doyle Drive Project through 2012 and how these finds shed light on the history and development of the Presidio of San Francisco, as well as the growth and development of the City of San Francisco at large.

Crothers, George [35] see Carlson, Justin

Crothers, George (University of Kentucky), Justin N. Carlson (University of Kentucky), David Gárate (Universidad Veracruzana) and Matthew Litteral (Eastern Kentucky University)

Electromagnetic Induction Survey at Matacanela to Detect Off-Mound Structures and Landscape Features
Approximately 2.28 ha of Matacanela were surveyed using an electromagnetic induction meter to measure near-surface variations in magnetic susceptibility and/or conductivity. Eight distinct areas were selected for survey deemed most likely to reveal Late Classic or Postclassic occupation or landscape features based on topographical features, LiDAR imagery, and surface finds. The primary areas of interest were off-mound and plaza areas containing domestic or non-elite contexts. The largest contiguous survey block, measuring 1.1 ha, encompasses two U-shaped plazas with intervening low mounds. Despite some limitations in data collection due to field crops, survey results indicate several subsurface anomalies that can be tested in the second field season or further explored with more detailed or alternate prospection techniques, including ground penetrating radar.

Croucher, Karina [299] see Wilson, Andrew

Crowell, Aron (Smithsonian Institution)
Late 19th century harbor seal hunting among the glacial ice floes at the head of Yakutat Bay attracted hundreds of Tlingit, Eyak, and Tsimshian participants who harvested thousands of seals, an annual congregation of indigenous peoples that exceeded any other in southeast Alaska. The extraordinary scale of this communal, clan-mediated enterprise by the 1870s derived in part from the abundance of seals at Yakutat and subsistence demand (especially for seal oil) but appears to have been increased by the availability of guns and a new commercial market for seal products. Extensive archaeological data from the Smithsonian Institution’s NSF-funded Yakutat Seal Camps Project (2011-2014) are joined with Yakutat oral narratives, indigenous knowledge of seal ecology, archival sources, and camp photographs from the 1899 Harriman Alaska Expedition to reconstruct this post-contact trade and hunting pattern.

Crown, Patricia (University of New Mexico)
[276] Possible Images of Theobroma cacao in the Prehispanic American Southwest
The discovery of cacao residues in southwestern pottery raises questions about how much southwestern populations knew about Theobroma cacao. A number of possible images of cacao trees and pods suggest that some southwestern people were either familiar with the tree and the fruit that held cacao beans. Comparisons of Mesoamerican and southwestern imagery offer possible parallels in depiction of trees and fruit, and the southwestern material provides potential iconographic models that may be sought in other media.

Crown, Patricia [287] see Dorshow, Wetherbee

Crowther, Benjamin (The University of Texas at Austin) and Eric Poehler (The University of Massachusetts Amherst)
[59] The Impact of Low-Cost, Low-Tech DIY Approaches at the Pompeii Quadriporticus Project
Born a paperless research project, the Pompeii Quadriporticus Project (PQP) employed multiple digital approaches to archaeology in its first three field seasons (2010-2012), including 3D modeling, ground penetrating radar, and a host of iPad applications. By the PQP’s final season (2013), the availability of a number of low-tech, user-accessible digital techniques tempted us to consider if these DIY approaches could produce data sets of commensurate quality to those recorded using expensive and/or complicated equipment. Therefore, in our final season, the PQP evaluated several low-cost, low-tech DIY approaches to supplement our extant collection procedures and data sets. This paper focuses on the impact of three of these approaches: 1. DIY spectrometry, 2. in-field archival documentation, and 3. DIY aerial photography. In terms of results, some techniques proved more useful than others, but the process of implementation for each – including failures – offers insight for crafting successful future DIY approaches. Therefore, this paper also considers larger issues concerning DIY approaches to archaeology through the lens of the PQP’s experience. These include the role of specialists in the implementation of DIY techniques, collaboration with a variety of fields outside of archaeology, and the combination of low-tech, DIY with high-tech, specialist
Whose Ancestors, les Gaulois?

Four decades ago this summer, newly arrived in a country where we barely spoke the language, our field crew began excavation of an Iron Age hill fort. First encounters quickly taught us that local identity was grounded in the tradition of the Iron Age Celts, not the later arriving Romans, Franks, or the region's powerful medieval dukes. My intention was to see how indigenous peoples had fared before and after the Roman conquest; I planned a colonization framework. But the site was a surprise, yielding evidence for repetitive utilization over three millennia as a sacred precinct, a place of feasting and the exercise of power, and a fortification against marauders. No familiar narrative could cover the site's complex history. We constructed a "meta-narrative" that could fit the site into a more encompassing framework. Landscape archaeology was in its infancy and did not yet include a regional perspective. Using a comprehensive understanding of archaeological “best practice,” we assembled a new toolkit for interpretation. Our project was among the first to integrate ethnography, remote sensing, and regional- and continental-scale paleo-environmental and documentary evidence. Burgundy's complex and well-preserved history of settlement and environmental change taught us historical ecology.

Archaeology Not Only for Archaeologists: Examples of Integration of Archaeology and Rural Communities in Perú

Many people in our society misunderstand the nature of archaeological fieldwork. The misunderstanding often results from a lack of open access with the public by professionals in our discipline. An aggressive shift to providing the public with information and education about archaeological research and the value of cultural heritage will address this concern.

In the highlands of Ancash, Perú, a central objective of PIARA (Proyecto de Investigación Arqueológico Regional Ancash) promotes co-created projects with members of rural communities to explore their prehistory. PIARA designs programs in which the host community discovers the value of their heritage and cultural identity, and archaeologists realize the value of the modern host community.

This poster focuses on PIARA’s 2014 projects including the creation of a small museum in the Hualcayán community, an oral history project on the early history of the community, and fine arts projects that allow students to use the prehistoric material culture to link their past and present. PIARA's co-creative approach successfully meets both community needs and those of the professional archaeological community.
Oaxaca and its Eastern Neighbors in Prehispanic Times: Population Movements from the Perspective of Dental Morphological Traits

The dynamic interaction among human groups in Prehispanic Mesoamerica led to population exchange and migrations that have begun to be untangled from a bioarchaeological perspective. Still, little is known about the demic biological exchange between Southern Sierra Madre populations and their coeval Eastern neighbors along the isthmic and Maya corridors. The present paper focuses on dental morphology and affinities among Prehispanic settlers that inhabited the present state of Oaxaca (Mexico) during the Classic and Postclassic periods, and their relationships with coeval groups from the East. Three dental collections dated to the Classic (Monte Alban) and the Postclassic periods (Zaachila and Cerro Guacamaya) are compared with coeval collections from the Eastern territories. When the three samples are compared to Postclassic Maya ones, they cluster together, showing expected differences with the Maya coastal sites. However, when the Classic period samples are included, the collections from Oaxaca are distributed in different clusters witnessing heterogeneity within the Oaxaca region, indicating some level of morphological affinities with an isthmic sample and with Southern Lowland Maya groups, triggering broader questions regarding affinity-by-distance and population movement in Prehispanic Mesoamerica. The study has been funded by CONACyT grants CB-2010-154750 and I0010-2014-02-232831.

Mapping Matacanela - the complementary work of topographical survey and LiDAR.

This talk compares methods used for the topographical mapping of the archaeological site of Matacanela. Specifically, we compare the results of the GIS processing of LiDAR data collected and distributed for no charge by the Instituto Nacional de Estadística y Geografía with the results of traditional topographical mapping, undertaken using a Sokkia total station. For the purposes of project planning, the LiDAR data was processed, and maps were generated using GIS. These LiDAR-based data enabled the first topographical map of Matacanela and its environs to be generated, the project area to be defined, and for cost and time assessments to be estimated for the purposes of budget preparation. Because of the uncertainty of the quality and resolution of the LiDAR data, topographical mapping of the site area was considered an important step to “ground-truth” the LiDAR, and to collect more fine-grained measurements from small-scale architectural features, artifact concentrations, and other cultural and natural features that may have been missed during the fly-overs. Here, we consider the two approaches and the type and quality of data achieved by each, as well as the benefits and drawbacks of using either approach alone.

Use-wear Analysis of Ground Stone Tools from the Jiahu Site

Jiahu is one of the most important settlement sites of the Chinese Middle Neolithic Age (ca.7000-5500 B.C.) and is located in the upper Huai River Valley, China. During excavations, a number of ground stone tools were uncovered. Use-wear analysis and replication experiments were conducted in order to understand the functionality, usage and contact materials of these tools. Our experiments
involved stone shovels, axes, adzes, gouges and other common stone tools from Jiahu site. Experimental results indicate that shovels at the Jiahu site were the primary digging tools. Axes and adzes were used to process wood, animal bones and fur. In addition, we found that gouges were used to process wood, meat and animal furs. Based on these findings, we propose that quite a few ground stone stools at the Jiahu site were multifunctional composite tools and there is no direct corresponding relationship between the tool morphology and function.

Cullen, Sara [95] see Johansson, Lindsay

Cullen, Sara (University of Colorado Boulder)

[260] “Where the Mountains Meet the Plains”: Plains-Pueblo Connections on the Park and Chaquagua Plateaus During the Diversification Period, A.D. 1050-1450

The Park and Chaquagua Plateaus—politically bisected by the Colorado-New Mexico state line—are distinctive geographical features that demarcate the transition from the Rocky Mountains to the Llano Estacado and High Plains. Regional archaeology has emphasized interpretation of sites as part of a cultural demarcator between the Northern Rio Grande Pueblos and residents of the Southern and Central Plains. Yet there has been limited work to examine local, between-household interactions and the effects of increasing trade, conflict, and movement in those regions during the Late Pre-Colombian Period. Utilizing decades of archaeological undertakings in southeastern Colorado and northeastern New Mexico, this paper will focus on Sopris, Apishapa, and Cimarron sites of the Diversification Period (A.D. 1050-1450) and their material record as a case study for questions surrounding the concept of a “cultural frontier.”

Culley, Elisabeth (Arizona State University)

[377] Operationalizing Semiotic Theory as an Archaeological Research Method: A Levantine Case Study

Archaeology has long flirted with Peircean semiotics as an heuristic for interpreting prehistoric behaviors and the cognitive processes that support them. Yet beyond the widespread adoption of Peircean terminology (icon, index, symbol), the discipline has been unable to operationalize the approach as a viable research method. This paper introduces Peircean Semiotics as a means of re-classifying non-utilitarian artifacts in terms of their target audiences and concomitant social consequences. Preliminary results from an analysis of Levantine deposits dating from 200ky to the Pleistocene/Holocene boundary reveal different symboling behaviors across the region and with implications for the evolution of ‘modern’ human cognition. As a case study, this research highlights the potential for identifying the shared cognitive substrate and social implications of seemingly diverse artifact types and for articulating multiple theoretical perspectives for more holistic analyses in a range of research contexts.

Cunnar, Geoffrey (WCRM)

[179] Interpretation of Burial M33 at the Longshan Site of Liangchengzhen

A relatively rich burial, M33, was excavated in 2000 at the late prehistoric, Longshan period center of Liangchengzhen by a collaborative team from Shandong University, The Field Museum, and Yale University. The most unusual grave good was a turquoise artifact located on the left arm of the interred. This presentation provides a description of contextual, use-wear, comparative and replication analyses in order to better understand the nature of the turquoise artifact and the burial ritual for the deceased.

[179] Chair

Cunningham, Jerimy [153] see McGeough, Kevin

Cunningham, Jerimy (The University of Lethbridge)


In this paper, I outline alternative hypotheses on the nature of the late-Viejo and early-Medio Period
political economies in the Casas Grandes Regional System from what is now Chihuahua, Mexico. Recent research has described in impressive detail the productive base and the ideology that may have emerged at Paquimé during its late-Medio Period (A.D. 1350-1450) florescence. However, little is known about power in the Casas Grandes region either prior to Paquimé’s brief 14th Century expansion into a primate center or outside of its immediate hinterland. Drawing on recent research from the Santa Clara Valley, I offer some alternative hypotheses for the political economies of the late-Viejo and early-Medio Periods. I emphasize the role that ritual performance may have had in local modes of production and consider its implications for the emergence of inequality in the Casas Grandes Regional System.

Cunningham-Bryant, Alicia (Temple University)  
[240] Living on the Edge: Syncretism, Acculturation, and the Meroitic Kingdom

Although Greco-Roman Egypt has received more scholarly attention, the contemporaneous Meroitic civilization of Nubia deserves recognition as an important culture in the history of North Africa and the Eastern Mediterranean world. Examination of the archaeological evidence from the Meroitic civilization of Sudan (ca. 400 B.C.E. to ca. 400 C.E.) presents the opportunity to further current understandings of evolving cultural interaction on the fringes of several distinct world powers (namely Egypt, the Hellenistic World, and Rome).

While previous discussions of Meroitic funerary religion have attempted to address the nature of Meroitic cultural and religious integration, the small data sets, geographic specificity, and narrow scope of the attempts has meant that the entirety of Meroitic funerary religion as currently understood, is in essence based on limited archaeological evidence. This has led to skewed and incomplete presentation of the culture as a monolithic unit. Through the inclusion and analysis of significantly more archaeological evidence, taking the form of Meroitic offering tables, a more nuanced and dynamic view of the Meroitic kingdom emerged, one which demonstrates a diversity of cultural processes due to varying levels of interaction and exchange, and which presents an entirely new view of the structure of the Meroitic kingdom.

Cunningham-Smith, Petra (University of Florida) and Elizabeth Graham (Institute of Archaeology, University College London)  
[248] Invertebrate Zooarchaeology of Marco Gonzalez, Belize as One Aspect of an Investigation of Trade and Environment

The zooarchaeological remains associated with ancient coastal communities are an important source of information on how past societies used their natural resources. They reflect people’s interaction with their environment and can yield information on how these interactions affected culture, economy and—not least—the ecology of such areas. The research presented here is an analysis of large invertebrate remains, primarily conch but also other large mollusks found at the ancient Maya site of Marco Gonzalez on the island of Ambergris Caye, Belize. Large invertebrates have been hypothesized as an important commodity, traded to inland Maya sites as complete shells, as raw material “blanks,” and as finished artifacts. Shell artifacts are ubiquitous in elite and ritual deposits at inland sites, although the distances from these sites to the coast is often great. This study explores the possible uses of large invertebrates as construction material, food, and raw material for artifact production and trade, and considers the impact of mollusk exploitation on the local environment.

Curbelo-Canabal, Francez [313] see Martinez-Cruzado, Juan

Curet, L. (National Museum of the American Indian, Smithsonian Institution)  
[387] Exchange and Interaction in the Caribbean: The View from Two Collections of the Smithsonian

Recent research in the Caribbean has produced strong evidence of long distance interaction throughout the Circum-Caribbean region, including possible direct exchange between Central America and the Greater Antilles across the Caribbean Sea. A recent casual survey of the Caribbean
collections in the Smithsonian’s National Museum of the American Indian and the National Museum of Natural History has identified two objects that may add information on this topic. The first one is a three-pointer found near the Lake Valencia region of Venezuela and the second a “condor” amulet from the early Ceramic Age found in Trinidad. This paper discusses the artifacts, the collection information, background on the collectors, and how these objects fit within the models suggested for long-distance interactions in the Caribbean.

Curran, Robert [362] see Stirn, Matthew

Curry, Ben [90] see Laluk, Nicholas

Curtis, Jason [130] see Lohse, Jon

Curtis, Caitlin (University at Buffalo) and Peter Biehl (University at Buffalo)

Çatalhöyük and Localized Universality: The Challenge of Sustaining Heritage Post-UNESCO

UNESCO has long set the example for heritage practice, with site practitioners worldwide motivated to achieve the nearly universally desired World Heritage Site (WHS) status to help preserve and sustain their sites. However, the idealized goals espoused by UNESCO, a global organization, are inherently universalizing, which can render them incompatible with the particularities of each local setting. One illustrative example is Çatalhöyük, Turkey. Since being granted UNESCO WHS status in 2012, more constrictive government regulations have been enacted, in what seems to be a proactive measure by local bureaucracy to ensure it maintains WHS status. Though sustainability has become a priority in UNESCO policy recently, these increasingly strict local regulations have actively hindered archaeologists from trying to institute sustainability measures locally--such as making changes on the site that would benefit the nearby community--as every modification to the site is now being strictly monitored. It is important, therefore, to consider this cautionary tale of the inherent dichotomy between global UNESCO and each unique local situation. Despite how it is widely conceived, UNESCO designation is not always the ideal answer for sustainable preservation.

Cuthrell, Rob (UC Berkeley)

Archaeobotanical Evidence and Diachronic Changes in Foodways of Indigenous Groups in the Central Coast and San Francisco Bay Regions, California

The Central Coast and San Francisco Bay regions of California are areas of high climatic, ecological, and indigenous cultural heterogeneity. During the last two decades, archaeobotanical research in these regions has begun to document the contributions of botanical resources in indigenous foodways systems through time. In the San Francisco Bay Area, a large number of anthropogenic shell mounds were population aggregation sites used for thousands of years, and, for the period after ca. 1050 CE, archaeological evidence indicates increased sedentism and sociopolitical complexity among Bay Area groups. Elsewhere on the Central Coast, these attributes are not as apparent. By the onset of Spanish colonization in the late 18th century, indigenous peoples in both of these regions employed fire-based landscape management practices that transformed vegetation structure over large areas. This paper presents an overview of the current state of archaeobotanical research in the two regions, describes how archaeobotanical data contributes to research on changing foodways and sociopolitical systems, and considers how archaeobotanical data may make greater contributions to these topics through future research.

Cuthrell, Rob [268] see DeAntoni, GeorgeAnn

Cutrone, Daniel (California State University Los Angeles)

The Montezuma Canyon Citadel Complex: A Major Prehistoric Religious Shrine

Spirit Bird Cave created a new model to evaluate Southwestern caves and earth openings in relation to prehistoric Native American beliefs about religion and sacred landscape. This model suggests that such concepts were major considerations in the choosing of settlement locations and foremost in the
ideology of the prehistoric peoples. Site 42SA2120 in Montezuma Canyon, which fits this new paradigm, has not been formally described to this point. A survey of the site found evidence that the site was a place of prime importance and perhaps served as a major religious location for the surrounding area through at least the Pueblo II period. A rockart panel associated with the complex documents an origin extending back to at least the Basketmaker III Period. It was given the name “Montezuma Canyon Citadel” during the 2013 Pecos Conference.

Cutts, Russell (University of Georgia) and Sarah Hlubik (Rutgers University) [174]  Thermal Curve Fracture (TCF) as a Diagnostic Tool for the Identification of Anthropogenic Fire

Recognizing fire evidence in the record can be challenging and contentious. Aside from baked earth features – hearths, daub, etc. – a widely reported associated artifact is fire-cracked rock (FCR). Unlike flaked stone assemblages, FCR lacks a standardized description, criteria, test or model; archaeologists often learn identification ‘in the field.’ Recent actualistic studies have demonstrated that a previously undescribed type of FCR has likely been unknowingly lumped with other ‘angular fragments’—another widely reported, but not usually fire associated, artifact class. Termed thermal-curve fracture (TCF), these pieces tend to be proportionally uniform in thickness and width with a curve angle between 173° and 176°. This report details experiments testing three hypotheses: that thermal curve fractures are 1) a distinct angular fragment type, describable and clearly associated with fire; 2) produced in fires that are anthropogenic, as suggested by temperature and duration; and 3) produced primarily when knapped materials are exposed to fire. A cursory survey of 1.5 Ma collections from FxJ20, Koobi Fora, Kenya, revealed a number of potential TCF classed as ‘angular fragments’, suggesting the possibility that fire evidence is present on ESA sites.

Cyr, Howard [120] see Hacker, Stephanie

Cyr, Howard (University of Tennessee), Scott Meeks (Tennessee Valley Archaeological Research), Rocco de Gregory (Tennessee Valley Archaeological Research) and Hunter Johnson (Tennessee Valley Archaeological Research) [173]  Location, Location, Location: Multi-scalar Investigations into the Unexpected Timing and Length of Occupation of a Late Woodland and Early Mississippian Site in the Lower Mississippi Valley

Site 22HO626 is a multicomponent site located along an abandoned meander loop of the Yazoo River, Holmes County, Mississippi. Due to the presence of surface collected exotic lithic materials and a close proximity to the Poverty Point center of Jaketown, 22HO626 was expected to represent a Late Archaic settlement within the lower Mississippi Valley. However, work by the University of Tennessee’s Archaeological Research Laboratory and Tennessee Valley Archaeological Research indicates a more recent period of occupation for this riverside location, beginning during the Late Woodland period and continuing only into the Early Mississippian. This multidisciplinary study, which incorporates site-level artifact, feature, and stratigraphic analyses with a landscape-scale remote sensing investigation, provides an explanation for the unexpectedly late period of occupation and for its relatively short duration. This case study illustrates the importance of multi-scalar approaches in examinations of cultural resources and settlement strategies within dynamic environments such as those found within the complex fluvial landscape of the Mississippi Alluvial Plain.

Czaplicki, Jon [90] see Slaughter, Mark

Czerniak, Lech [211]  Is Length Significant? LBK Longhouses and Their Social Context in Central-Eastern Europe

In studies of LBK societies, one of the categories of feature which are potentially indicative of differences in social status are longhouses that are notable for their substantial length (e.g. over 33 m). The author examines this issue based on examples of LBK longhouses in Poland. Rescue excavations carried out during the past decade along the routes of planned motorways have led to the discovery of over 100 new longhouses together with their broader settlement contexts. This has
provided a fresh insight into the social significance of very long longhouses based on analysis of their construction details and interior layout, evidence of extensions and repairs, the composition and distribution of refuse, as well as spatial relationships with other houses and changes over time. The author believes that the longest of longhouses was not the seat of an individual of exceptional status, but rather home to the most numerous (and most important?) household.

Daehnke, Jon (University of California, Santa Cruz)
[146] Turning Privilege into “Common-Sense”: Truth-Claims and Control of Cultural Heritage
Over the course of the last few decades Indigenous and descendant communities have increasingly made calls for control of their own heritage, both in terms of material objects and historical narratives. While these efforts have resulted in at least some measure of success, these communities continue to occasionally face challenges from researchers, scholars, and other agents who are in positions of power that allow them to control and define what heritage consist of. In my paper I interrogate the ways that those in positions of power use language and other mechanisms to normalize and universalize what are actually very culturally dependent views on the ownership, forms, and purposes of heritage. In effect, their position of privilege gets transformed into "common sense," and culturally contingent truth claims become reasonable and shared, while the views of others are denigrated as outside of the norm, irrational, and therefore subject to skepticism. I explore this topic by looking at ongoing debates over the issue of cultural continuity, especially as it applies to repatriations, as well as recent calls for the celebration of a "shared" heritage.

Daggett, Adrianne (Michigan State University)
[140] Chair

Dahlstedt, Allisen (Arizona State University)
[203] Infectious Diseases within the Tiwanaku Periphery
Today, infectious diseases, such as tuberculosis, devastate millions of lives annually. The prehistoric prevalence and distribution of such infectious diseases provide context for their modern (re-emergence, spread, and associated social perceptions, as well as inform the experiences of individuals in the past. Here I examine the expression and distribution of pathological lesions on the skeletal remains of 143 individuals from Omo M10, a Tiwanaku migrant community in Moquegua, Peru. The Middle Horizon (500-1000 A.D.) was a time of population growth and early state expansion in the south-central Andes. During this period, individuals moved between the Tiwanaku capital in Bolivia and peripheral sites in southern Peru, likely to gain access to fertile agricultural land. Infectious diseases often appear and spread with such population growth and increased human interaction, among other environmental and behavioral factors. Differential diagnoses reveal several probable cases of infectious diseases, including human treponematosis and tuberculosis. The presence of Pott's disease supports the relatively early presence of tuberculosis in southern Peru. These results encourage future research examining social perceptions of these illnesses expressed in mortuary contexts. The integration of future isotopic analyses can additionally inform the potential spread of these diseases through the residential mobility of infected individuals.

Dai, Xiangming
[283] Backgrounds of Emergence of the Early States in Central and Northern China
Traditionally Erlitou was considered the capital city of the first kingdom—the Xia dynasty, in Chinese history. However, an increasing amount of archaeological data in the past decades has suggested that Taosi was the first state-level society earlier than Erlitou emerging in central China. With the amazing discoveries of the Shimao walled site in north Shaanxi province in the past several years, I offered that Shimao was another early state appearing in northern China, which was approximately simultaneous with late Taosi and early Erlitou. In this paper I will demonstrate some common circumstances of the emergence of these three early states, including the similar economic activities, control and monopoly of prestige goods by elite, competition and warfare among different regional social groups, and so on. I will also attempt to demonstrate some differences for the causal
factors resulting in the rise of the three states, and further discuss the similar and different dynamics of the formation of these early states.

Dal Martello, Rita (Peking University, School of Archaeology and Museology)

Rethinking Burial Practice in Qiija Culture

Mortuary data is one of the few now available tools we have to understand Chinese late neolithic culture of Qiija. With the exception of Lajia site, the most famous and best investigated sites are cemeteries, scattered throughout the regions of Gansu, Qinghai and Ningxia in Northwest China. The data they revealed has been a long time source for Chinese archaeologists in the attempt of reconstructing the social organization of the time, often putting too much emphasis on only certain type of burial (e.g., the so-called "suttee" burials) and neglecting the wide range of possibilities present within the same cemetery. New insight on this data can help us review the theories and assumptions made in the past. In this paper I attempt to evaluate the rate and pattern of change over time of some aspects of mortuary practice, such as presence and quantity of prestigious and ritual goods, tomb architecture, arrangement of burials within one cemetery and so on. Although a secure chronology has yet to be established for Qiija Culture, its significance on the overall context of pre-imperial China is increasingly recognized by scholars, and therefore its studying is of primary importance to get a better understanding of the time.

Dalan, Rinita [220] see Greenlee, Diana

Dalan, Rinita (Minnesota State Univ-Moorhead)

Development of Magnetic Susceptibility Instrumentation and Applications

A 1997 NCPTT grant to develop a prototype down-hole magnetic susceptibility instrument arose out of frustration with existing technology and a desire to expand archaeological field studies of magnetic susceptibility. This instrument allowed high-resolution vertical investigations of susceptibility within a small diameter (ca. 2.5 cm) hole made with a push-tube corer. An NSF grant supported improvement of the prototype via robust laboratory and field testing, resulting in a final engineered product (the MS2H) in partnership with Bartington Instruments, and also established an archaeological soil magnetic laboratory to improve research and training. A second NSF grant extended equipment and software, allowing increased integration of field and laboratory geophysical studies. Two additional NCPTT grants addressed the last crucial step in the advancement of down-hole susceptibility technology, namely application within archaeological practice. The first advanced the instrument’s use in the detection of buried archaeological sites, and the second focused on the identification of unmarked graves. Due to its broad applicability, use of magnetic susceptibility technology has steadily grown. Integrating down-hole and laboratory techniques with surface geophysical surveys has produced a more mature magnetic susceptibility method that is much more widely employed than it was in 1997.

Dale, Emily (University of Nevada-Reno)

Give Me a Y-Beam: Architecture and Agency at Rural Chinese Woodchopping Camps, Mineral County, Nevada

For the turn-of-the-century rural Chinese woodchoppers of Mineral County, Nevada, the construction of cabins, dugouts, corrals, and fences served myriad functions. Yet, architecture, even in its simplest forms, consistently goes beyond the functional. The orientation of and relationships between structures, material preferences, and diverse construction techniques demonstrate the choices made by the Chinese as they strove to make a living supplying firewood to nearby mining boomtowns. This paper will discuss the ways the Chinese adapted their construction methods to the rural environment, their various needs, and lack of traditional architectural materials and how the architecture informs on the builders’ ethnicity, masculinity, and sense of community.

Chair

DAIpoim Guedes, Jade (Washington State University)
[283] **Modeling a Rapid Transition in Subsistence Regimes in Highland Western China**

The highlands of western Sichuan (or Eastern Tibet) experienced a profound change in both settlement patterns and in subsistence regimes when a shift from a millet-based agriculture to wheat and barley based agro-pastoralism took place c. 2000 cal. B.C. Using a model that predicts the changing possible distribution of crops across the area, we examine the role that changes in ancient climate could have played in the reversal of subsistence practices in this area.

Dalpra, Cody, Linda Scott Cummings (PaleoResearch Institute), R. A Varney (PaleoResearch Institute), Peter Kovácik (PaleoResearch Institute) and Jennifer Milligan (PaleoResearch Institute)

[309] **Micro Analyses of 17th Century Adobe Bricks from the “New” Church at Pecos, New Mexico**

The clash of Pueblo farmers and Spanish missionaries in central New Mexico marks the transition from prehistoric maize farming to the modern era along the Rio Grande River. The interaction between Native Americans and Spanish was not totally either peaceful or confrontational. The first church, built in the 1620s, was later burned during the Pueblo Revolt when Spanish were forced to leave, then rebuilt when relations improved. Four bricks from the new church (Mission de Nuestra Senora de los Angeles) were examined for microscopic, chemical, elemental, and structural information. Combining pollen, phytoliths, starch, macrofloral remains, charcoal, XRF and XRD signatures with petrographic analysis yields a record of both native (maize) and introduced (Old World cereal) crops. Sporormiella dung fungal spores indicate presence of grazing draft animals and possibly use of dung making adobe. Evidence for treating stems used to make the adobe was sought in the phytolith record and thin sections. Quantities of charcoal varied between the lower bricks (more charcoal) and the upper bricks. This study examines evidence for porosity, mineral composition, and other factors that affect structure, as well as economic and behavioral evidence of life at Pecos, New Mexico during this period of alternating strife and peace.

Dalton, Jordan and Colin Quinn (University of Michigan)

[54] **Agropastoralism in Bronze Age Transylvania: An Analysis of Faunal Assemblages from the Geoagiu and Mureş Valleys**

The Bronze Age was a period of dynamic social transformations in Transylvania. Unfortunately, there have been no systematic archaeological studies of the subsistence economy that funded, and was affected by, the social transformations of emergent inequality. In this poster, I present the first analysis of faunal assemblages from Bronze Age contexts in Transylvania. The faunal assemblages, collected during the 2012-2014 surveys of the Geoagiu and Mureş Valleys, provide the first opportunity to understand the diet and ecology of the communities living in southwest Transylvania. By monitoring similarities and differences in the use of animals across space and through time, and situating these practices within the broader regional context of the Carpathians, it is possible to shed new light onto the role of agropastoral economies in the dynamic social transformations of the Transylvanian Bronze Age.

Dalton-Carriger, Jessica and Elliot Blair (University of California, Berkeley)

[140] **Answering Chronological and Regional Interaction Questions via pXRF and LA-ICP-MS Analyses in the Interior Southeast**

Native American inhabitants in the interior Southeast did not experience direct and prolonged European contact until the late 1600s, however European trade goods still managed to filter their way into the area. While trade goods are present, site chronology has not been clearly defined in many areas. Both pXRF and LA-ICP-MS testing on glass trade beads from East Tennessee and surrounding states has revealed trends in their chemical composition which can be correlated to date ranges. This method of analysis allows us to answer questions about Native American habitation in East Tennessee and regional interaction with Europeans in the interior.

Daly, Niamh (University College Cork)

[332] **Till Death Do Us Part: A Bioarchaeological Investigation of Female Kinship Ties in Early Medieval Ireland**
The introduction of Christianity in the 5th century A.D. had far reaching effects in Ireland. The first few centuries of the early medieval period (c. 400-1200 A.D.) is considered a time of dramatic cultural transformation. The documentary record that emerged in the wake of this process was created by male clergy in a rural, hierarchical, patrilineal society where the position of women was complex. This research uses archaeologically-recovered human remains from the immediate post-conversion period to assess the changing culture of female kinship ties and post-marital residence patterns. An essential strategy for this research is the application of biogeochemical techniques, namely stable isotopic analysis, to assess if the chemical analysis of the human skeletal remains negates or validates historically-derived narratives regarding female kinship ties. The results of this research increase the visibility of the lives of the female cohort in early historic Irish society.

**Damick, Alison (Columbia University) and Severin Fowles (Barnard College)**

[342] *Ground Stone Landscapes of the Ancestral Pueblo World*

The lives of precolumbian communities in New Mexico were anchored and shaped by stone features in the landscape. Stones were pecked, ground, and piled into cairns or circles; ethnographic evidence from descendant communities suggest certain stones received offerings of corn pollen, antlers, or prayer sticks; in other cases, parts of stones were removed as potent medicine, either as stone powder or flakes; elsewhere, it was the abrasive contact between fixed bedrock and tools that appears to have been significant. To call such features “shrines” is to focus on how they were bound up in indigenous understandings of the points of access to worldly powers. Here, we examine the logics of ground stone shrines (slicks and cupules) associated with ancestral Pueblo sites of the northern Rio Grande, paying special attention to their mode of construction, spatial distribution, and relationship to natural features of the landscape.

**Damitio, William [168] see Campbell, Sarah**

**Damour, Melanie (Bureau of Ocean Energy Management), Robert Church (C&C Technologies, Inc.) and Daniel Warren (C&C Technologies, Inc.)**


3D imaging creates a permanent digital record that allows scientists to study minute site details and also serves an important outreach role by allowing the public to virtually explore archaeological resources. While 3D imaging of archaeological sites using laser and lidar is a growing trend in terrestrial archaeology, its application in marine archaeology has only recently emerged. Marine archaeologists are now beginning to use 3D laser- and sonar-derived models as new tools for interpreting shipwreck sites and analyzing site formation processes in the marine environment. Using the sub-centimeter accurate 3D laser/sonar data collected repeatedly at the same site over time in conjunction with traditional diver collected or remotely sensed data, archaeologists can better quantitatively analyze the changes occurring on a site. Collectively, these datasets can provide important information to archaeologists and submerged cultural resource managers about site stability versus continual degradation as well as changes in sediment deposition. As an example, discussions of the results of a Bureau of Ocean Energy Management-funded study employing 3D imaging of deepwater shipwrecks in the Gulf of Mexico to study anthropogenic impacts will demonstrate how this technology can assist with long term monitoring efforts.

**Damour-Horrell, Melanie [170] see Hanselmann, Frederick**

**Daniel, Salazar [242] see Barrientos, Isaac**

**Daniels, Megan (Stanford University)**


In this paper, I approach religion and ideology in the archaeological record through an analysis of iconographic symbols, one that centers on the dialectic between longstanding meanings of symbols
as they are transmitted across space and time and the local social, political, and intellectual contexts in which they appear. I situate my analysis within recent models from cultural evolutionary psychology, which see religion, along with its attendant rituals and symbolisms, as an adaptive mechanism for human groups that both reflects and enables growing social complexity in human societies. My paper will move forward on two levels: I will first analyze the meanings behind the broadly shared mythical, literary, and iconographic motif of the Queen of Heaven as she was transmitted between the Near Eastern and Mediterranean worlds across the Bronze and Iron Ages, particularly in terms of her socio-political connotations. I will then consider the appearance of her symbolism within several sites on mainland Greece in the Iron Age. In particular, I will interpret the meanings behind these symbols against the longstanding tradition of the Queen of Heaven as a deity connected to divine kingship as well as the novel socio-political and intellectual contexts developing in the Iron Age.

Daniels, James (University of California, San Diego and ASM Affiliates, Inc.) and Paul Goldstein (University of California, San Diego)

Establishing Chemical Signatures for Cabuza Style Pottery and the Tiwanaku Tradition Using Portable X-Ray Fluorescence (pXRF)

Portable X-ray Fluorescence (pXRF) was used to analyze the chemical composition of 60 Tiwanaku and derived style ceramic sherds from different locations in the south central Andes. The results indicate that there are four distinct geochemical groups and that the local Cabuza style pottery from survey collections in the Azapa Valley in Chile has a distinct chemical composition from all other Tiwanaku tradition ceramics. The results also indicate that pXRF is a viable technique for distinguishing between local and imported ceramics and, when considered in tandem with contextual and stylistic data, can provide important information on Tiwanaku ceramic sourcing, technology and exchange.

Daniels, Jimmy [246] see Colón, Justin

Daniels, Brian (University of Pennsylvania)

Community Archaeology and Emergency Responses to Heritage in Crisis

How are we to respond to the current intentional destruction of heritage occurring in Syria and Iraq? The international regime of heritage protection rests upon the consensus of actors within the modern system of nation-states. But in the present crisis, one actor, the Islamic State of Iraq and the Levant, rejects that system. Furthermore, in the case of Syria, UNESCO and other international preservation organizations find themselves locked into a structural situation where they are obliged to interact with the Assad government, which has been responsible for so much of the damage to historic sites. What alternatives might exist? Using the work of the Safeguarding the Heritage of Syria and Iraq Project as an example, this paper articulates an alternative model of intervention. While there may yet be hope under customary international law to address ultimate criminal culpability, in terms of practical interventions, focusing efforts on community activists and other heritage professionals outside of formal government structures may prove to be one of the few viable strategies available for effective emergency actions in ethnonationalist and sectarian conflict.

Danis, Ann (Barnard College)

Zelia Nuttall and the Vexed Question: Between the Devil and the Deep Blue Sea
It’s been almost two score and four hundred years since Francis Drake and his company in two ships, the Golden Hinde and a small ship only known as Tello’s Bark, landed somewhere on the west coast of American. This interlude was during what became known as ‘The Famous Voyage’ (1577-1580). Seventy to eighty men— and a pregnant black woman named Maria— disembarked, built a rough fort, and remained for five or six weeks. The geographical location of this landing has been the subject of much archaeological investigation and debate in California, but no evidence of the landing has ever been found. In 1908 Archaeologist Zelia Nuttall found a trove of contemporary documents relating to the voyage. The Hakluyt Society published her ‘New Light on Drake’ in 1914 to great acclaim. She promised a subsequent publication addressing the location of the landing, which she theorized was on the Northwest Coast. Editors rejected that manuscript: to take Drake out of California would be like uprooting the redwoods. I discuss the evidence that lead her to the Northwest Coast, and I will introduce ethnographic, cartographic and new linguistic information that support her theory.

Darby, Connie [304] see Lindeman, Michael

Darling, J Andrew (Southwest Heritage Research, LLC) and Barnaby V Lewis (THPO, Gila River Indian Community) [225]  Place, Place Name and Property in the Identification of O’odham and Pee Posh TCPs
Ethnogeography considers the ways in which human beings invest places, spaces, or points on the land with names and information that render them culturally meaningful. Many places in a culture’s ethnogeography are also Traditional Cultural Properties or TCPs. TCPs are eligible for the National Register of Historic Places and by definition are significant to the perpetuation of traditional worldview and living indigenous cultures. This presentation reports on recent advances in O’odham and Pee Posh TCP investigation and documentation. O’odham and Pee Posh ethnogeography and place names are examined in relation to archaeological data and site location in order to underscore the importance of indigenous systems of geographic knowledge for recognizing TCPs. It also explores the inherent difficulties encountered in the translation of traditional, multi-dimensional concepts of place into western concepts of property based largely on two-dimensional locational systems for mapping and visualization.

Darling, J. Andrew [409] see Eiselt, B. Sunday

Darwent, Christyann [28] see Brown, Sarah

Darwent, Christyann (University of California, Davis) [302]  Chair

Darwent, John (University of California, Davis) [302]  Chair

Daryl, Fedje [192] see Mackie, Quentin

Daughtrey, Cannon (University of Arizona (BARA)), Jesse Ballenger (Statistical Research, Inc.), Matthew Pailes (University of Arizona) and Francois Lanoe (University of Arizona) [92]  A Place to Pause: Investigations at the St. Mary Bridge Site (24GL203), Glacier County, Montana
Two field seasons of archaeological excavations along the banks of the St. Mary River in Glacier National Park, Montana have resulted in the recovery of artifacts ranging in age from late Paleoindian to historic times. In partnership with the National Park Service, archaeologists from the University of Arizona and tribal students, preliminarily interpret this site as an area for temporary winter encampments as well as a staging area for residentially mobile groups in the past. Staging areas are transitional places on the landscape where people evaluate the resource potential of their
surrounding environment as they move, leaving behind a variety of tools and materials. The significance of staging area sites across a vast and altitudinally rugged landscape is evidenced in the consistent return of groups to these areas, even into the ethnographic present. A continuous record of archaeological activity is now documented at the St. Mary Bridge Site. What remains to be explicated is the nature of activities at the site specifically. Drawing from our analyses of artifacts, namely a number of projectile points, and site formation processes, we build a site chronology and document those behaviors associated with the transient populations that occupied the St. Mary Bridge Site.

Davenport, Bryce (Brandeis University), Douglas Comer (Cultural Site Research and Management), Will Megarry (Cultural Site Research and Management, Johns Hopki), Alexandru Popa (National Museum of the Eastern Carpathians) and Sergiu Musteata (Ion Creanga State University)

Terrain Modeling at Orheiul Vechi, Moldova

The Moldovan site of Orheiul Vechi has been continuously occupied since the Late Paleolithic due in part to its commanding position over the local landscape and its strategic situation on the nexus of Eurasian cultural flows and population movements. From the Iron Age onward, the inhabitants of Orheiul Vechi took advantage of natural fortifications, tributary access to the Dniester River, and nearby chernozem soils to consolidate a long-term power base. Using data from ongoing archaeological studies and newly acquired Lidar and geophysical datasets, we present terrain models of the features that contributed to the diachronic significance of Orheiul Vechi in the local and regional landscape.

Davenport, Bryce [199] see Megarry, Will

David, Robert (University of California, Berkeley)

The Landscape of Klamath Basin Rock Art

For the past three decades, efforts to interpret Klamath Basin rock art symbols using ethnographic literature and concepts of sacred landscapes have advanced our understanding of the art. This approach, however, is limited by the assumption that the rock art symbols meant the same thing in every social and land use context. From my research of the past decade I have inferred that rock art designs are not distributed randomly across the landscape. Instead, rock art displays appear to vary predicatively across three archaeologically-defined contexts that I have identified as settlement sites, frequently used areas and special use areas. In the research presented here, I use this apparent pattern to propose a context model for the rock art of the Klamath Basin and suggest that Klamath Basin shamans situated their varied repertoire of sacred symbols within these distinctive contexts in order to structure the way people encountered and experienced them. Understanding how rock art is patterned on the landscape has led to refined interpretations in an area where relatively little rock art research has been done.

Davies, Benjamin (The University of Auckland)

Simulating Late Holocene Landscape Use and the Distribution of Stone Artifacts in Arid Western New South Wales, Australia

The archaeological landscapes of arid environments often feature surface scatters of stone artifacts, which are used to infer past human activity and organization. For hunter-gatherer groups this typically involves some interpretation of mobility; however, the scales of activity inferred from these assemblages usually extend beyond the boundaries of study areas. Understanding what these assemblages mean in terms of human mobility requires assessment of how samples fit within a wider landscape distribution. This study uses computer simulation to evaluate interpretations of mobility and place use from the ratio of cortical to non-cortical stone in surface assemblages from arid western New South Wales, Australia. First, the cortex ratio concept is investigated using an agent-based model coupled with an experimental dataset. These initial model outcomes are found to be consistent with expectations from the distribution of cortex, and the influence of core reduction intensity and selection intensity on assemblage variation is demonstrated. Second, a measure called
the cumulative cortex ratio is proposed for evaluating the dispersal of cortex over a continuous surface. Finally, the differential distribution of cortex within the Rutherford's Creek study area is assessed by simulating different scenarios of place use and computing the cumulative cortex ratio on simulated data.

Davis, Stephen (University College Dublin), Knut Rassman (RGK, Frankfurt), Hans-Ullrich Voss (RGK Frankfurt), Chris Carey (University of Brighton) and Christine Markussen

Landscape-Scale Survey at the Brú na Bóinne World Heritage Site, Ireland

The Brú na Bóinne World Heritage Site in Ireland is one of Europe's most significant Neolithic landscapes, and has been the focus of significant effort as regards remote sensing for the last 20 years. Until recently this focused on relatively low-resolution lidar survey and small-scale geophysical prospecting, often 'monument-centric' in approach. In 2014 much higher resolution lidar data were obtained for part of the WHS alongside the first landscape-scale geomagnetic surveys within the area, covering in excess of 60 hectares. These surveys have redefined our understanding of the landscape of Brú na Bóinne, and have led to the identification of a number of new monuments within the wider Boyne complex. This presentation firstly outlines these new discoveries and their place within the archaeology of Brú na Bóinne, and secondly discusses their significance more broadly within the context of Neolithic Ireland and Great Britain.

Davis, David (Central Washington University), Patrick Lewis (Central Washington University) and Patrick McCutcheon (Central Washington University)

The Effects of Sampling by Size Class on the Organization of Technology at the Sunrise Ridge Borrow Pit Site (45PI408), Mt. Rainier National Park, Washington

Prior lithic paradigmatic classification at the Sunrise Ridge Borrow Pit site (45PI408) has shown significant intra-site variation in chipped-stone technology and function. Recent fieldwork recovered an additional sample of artifacts bringing the total chipped stone assemblage to a sample size of n = 13036. Size grading, or mass analysis, was done for all lithic artifacts before cataloging. Recent attribute analysis of all lithic artifacts > 0.635 cm mesh size (n = 3681) demonstrates that significant technological variation is present, but the results of an analysis of lithic artifacts < 0.635 cm mesh size (n = 3543) reveals meaningful frequency changes across multiple dimensions suggesting that some of the intra-site variation resides in the < 0.635 cm mesh size lithics. Dimensions affected significantly, both diachronically and synchronically, include fragment type, cortex, wear, raw material type, platform type, thermal alteration, and reduction class. Analysis of the < 0.635 cm mesh size lithics revealed a 13 percent increase in obsidian raw material type and a 14 percent increase in the pressure flake platform type. Although the sampling of lithic assemblages by size class is performed for a variety of reasons, the significance should be carefully assessed before interpretations of the organization of technology.

Davis, Richard (Bryn Mawr College)

Aleutian Microtechnology in Anangula Times (9000 - 4000 BP)

Since its discovery more than 50 years ago, the Anangula phase has been recognized as the first known occupation in the eastern Aleutian Islands. The initial discovery of the Anangula Blade Site near Umnak Island, and the more recent find of Hog Island in the Unalaska District revealed assemblages in many ways characteristic of highly mobile terrestrial hunter-gatherers with only minimal evidence of a maritime economy. This seeming paradox of island dwellers heavily invested in terrestrial resources may be explained by seasonal land fast ice which provided a route for caribou access onto the archipelago. Microblades, most likely hafted to arrow shafts, are abundant during Anangula times. Bows are best used for terrestrial, not maritime, game. The Anangula sites are extensive but shallow, without middens, have ephemeral structural remains, and have a limited repertoire of tools. Individual tool types including microblades, blades, burins and scrapers, however, are numerous. This pattern suggests specialized extractive activity. Anangula most likely represents
an off shoot of the interior Paleoarctic tradition, and it developed toward the end of the phase into a populous and sedentary adaptation to the rich marine environment.

Chair

Davis, Jacob (University Of Queensland), Shiela Nightingale (City University Of New York), Jessica Thompson (Emory University) and Elizabeth Gomani-Chindebvu (Malawi Ministry of Tourism, Wildlife, and Culture)

[118] Quantifying the Effects of Erosional Processes on Stone Artifact Concentrations: Implications for Site Formation at Open-Air Paleolithic Sites

An essential part of archaeological site management and interpretation is determining how recent landscape modifications affect artifact distributions. Stone artifact scatters can be an initial indicator of subsurface concentrations, yet little scholarship has focused on quantifying the nature and rate of the erosional processes that affect them. The archaeological record of northern Malawi demonstrates that despite abundant surface scatters, subsurface distributions may vary considerably in density and integrity. This study uses GIS to examine the processes by which a large concentration of stone artifacts has eroded over multiple monsoonal cycles, and how artifact attributes vary and potentially contribute to site erosion and/or preservation. In 2012, total station data and complete collection of surface finds at the “Bruce” site in Karonga, Malawi, yielded an assemblage of over 3000 artifacts. In 2014, over 2300 newly exposed artifacts were plotted and collected from the same area, resulting in high-resolution provenience data and two complementary lithic assemblages. Artifact attributes such as size class and weathering stage are combined with the spatial data to quantify how the surfaces of archaeological sites can change over even brief periods of time. This highlights the need for modern analogues in assessing the depositional histories of open-air Paleolithic sites.

Davis, Kaitlyn (University of Colorado, Boulder) and Scott Ortman (University of Colorado, Boulder)

[229] Transformation in Daily Activity at Tsama Pueblo, New Mexico

This paper analyzes the artifact assemblage from Tsama, an ancestral Tewa community along the Rio Chama in north-central New Mexico. This site was excavated by Florence Hawley-Ellis during a field school in 1970, but basic analyses of the resulting collections were only completed recently by the laboratory at the Crow Canyon Archaeological Center as part of a project investigating Tewa origins. We present the results of these analyses and compare the artifact assemblage from Tsama with that of Sand Canyon Pueblo, a 13th century site in southwest Colorado, to examine the continuities and changes in daily practice that accompanied migration from the Four Corners region to the northern Rio Grande. We also examine the degree to which differences in artifact assemblages reflect changes in social organization, as expressed in the differing community plans of these two sites.

Davis, Mary (UW-Madison)

[292] Urban Lithics -- The Role of Stone Tools in the Indus and at Harappa

Lithics are one of the most common artifact classes encountered at nearly every site of the urbanized landscape of the Indus Civilization of Pakistan and Northwest India. This paper examines the lithic assemblage at the urban center of Harappa (3300-1900 B.C.E.), one of the type-sites of the Indus, focusing on the chipped stone assemblage collected by the HARP excavations from 1986-2001. This assemblage is contextualized within the specialized production and the complex inter-regional distribution system of chert prismatic blades in the Indus. This assemblage illuminates that the lithic use at Harappa was not limited to agricultural or domestic tasks but was integral to many specialized craft productions. Intra-site analysis of these tools was used to address fundamental questions of the political, economic and social organization at the urban center. This paper highlights the utility of lithic analysis, moving beyond inferences about subsistence, mobility, and the limited role that lithics often play in archaeology of complex societies.

Dawson, Peter (University of Calgary)
Day, Peter [25] see Tenconi, Marta

**Day, Peter (University of Sheffield)**

*Revealing the Common Ground: Technological Practice, Intrusive Shapes and Hybrid Pastes in the Kampos Group Pottery of Crete*

The dawn of the Early Bronze Age in the Aegean is of undoubted importance. Whether we emphasise the crafting and consumption of copper or the appearance of whole assemblages of pottery outside of their stylistic “homeland” in the Central Cyclades, Early Bronze I (c. 3100-2600 B.C.E.) has always been characterized as a time of change, featuring the movement of people, goods and ideas. In our haste to categorise, label and seek identities, we have perhaps lost some of the complexity and creativity involved in this web of contacts and transactions, of acceptance, resistance and the emergence of new practices.

The distinctive material culture set which we label the Kampos Group has caused interest by its appearance in specific settlements and contexts, mainly on the north coast Crete. Aided by an integrated programme of ceramic analysis, involving minero-petrographic, chemical and microstructural studies the apparently intrusive pottery is characterized, contextualising its operational sequence within Cretan ceramic practice. Through raw material choice, tempering practice, surface modification and firing, we consider aspects of itinerancy, hybridity of technological practice and identity in a ceramic world which is totally transformed by the time of Renfrew’s phase of ‘International Spirit’ in Early Bronze II.

**Day, Zachary (University of Nebraska-Lincoln), LuAnn Wandsnider (University of Nebraska-Lincoln) and Matthew Douglass (University of Nebraska-Lincoln)**

*Sourcing Interactions: X-Ray Diffraction of Central Plains Tradition Ceramics during the Medieval Climatic Anomaly*

Recent research by Roper (1995 and 2007) questions the long-held perspective that the various phases of the Central Plains tradition (CPT) consisted of small village dwelling populations with distinct borders. New evidence suggests a more fluid distribution of autonomous farmsteads following major stream systems throughout the Central Plains (USA). This debate has led to various questions surrounding the interaction amongst communities and individuals in the CPT populations with an emphasis on the scale, degree and nature of the interaction. To begin examining this issue of interaction, our research has focused on developing procedures using X-Ray Diffraction (XRD) to obtain detailed compositional data on CPT ceramic deposits and thereby determine the source of these deposits in the Nebraska Sand Hills during the Medieval Climatic Anomaly. We compare these compositional data sets with those reported by Roper (2007) for CPT deposits elsewhere. By comparing the composition of CPT ceramics with clay from surrounding sources, this research aims to understand more about the movement and spatial distribution of the pottery and, in addition to, the people within the broader CPT system during this time period.

De Anda Rogel, Michelle [298] see Matadamas Gómez, Diego

**De Anda Rogel, Michelle Marlene (Proyecto Templo Mayor), Fernando Carrizosa (Proyecto Templo Mayor) and Valeria Hernández (Proyecto Templo Mayor)**

*Graphic Documentation of the Mural Painting in the Sacred Precinct of Tenochtitlan*

From historical sources we know that the religious buildings of Tenochtitlan (1325–1521 CE) were richly polychromed. Architectural remains of the sacred precinct corroborate this information, as they still contain important remnants of the mural painting on their façades and interiors. Unfortunately, their state of conservation is quite poor, owing, on the one hand, to the particular pictorial materials and techniques utilized by the Mexica during the fourteenth, fifteenth, and sixteenth centuries, and, on the other, to the aggressive deteriorating agents that currently characterize the archaeological
contexts of the Historic Center of Mexico City. In this paper, we propose a methodology of digital graphic documentation specifically developed to recover and store the most information possible about the Great Temple archaeological zone’s mural paintings, whose long-term conservation is seriously threatened. This methodology is based on the combined application of topographic surveying with total station and GPS, the imaging and digitization of the mural paintings, computer-generated chromatic reconstruction, digital photography, vector modeling, and virtual reality. The result is the generation of three-dimensional reconstructive models of the most important religious buildings of Tenochtitlan and an exhaustive catalogue of their mural paintings.

de Angelis, Hernán [251] see Nuevo Delaunay, Amalia

De Boer, Deanna (University of Washington), Zara Steinhart (University of Washington), Ben Marwick (University of Washington), David Bulbeck (Australian National University) and Sue O'Connor (Australian National University)
[407] Stone Artifacts from Southeast Sulawesi: Technology beyond the Toalean
We report on the stone artifact assemblages and geoarchaeological contexts from two recently excavated rockshelters in southeast Sulawesi, Indonesia. Human occupation starts at 19,000 BP. We find low density occupation during the Pleistocene, followed by a major increase in discard and change in local environmental conditions in the early Holocene. Striking changes in artifact discard rates occur during the middle Holocene, and distinctive retouched forms appear. We discuss the implications for human colonization of large islands such as Sulawesi and the interpretation of spatially discrete technologies such as the Toalean in south Sulawesi.

De Carteret, Alyce (Brown University)
[22] A Good, Old-Fashioned Patio-Group Raising: Domestic Architecture as Ritual among the Classic-Period Maya
As anthropological and archaeological scholarship attests, household ritual has a potent role in forging and maintaining sociopolitical relationships both within the household as well as with the communities, cities, and states of which it forms a part. Archaeological research in the Classic Maya area has revealed evidence of feasts, ancestor veneration, dedication and termination caches, and other ritual practices taking part within the limits of the house. The most substantial remnant of Classic Maya domestic ritual, however, may be the patio group itself, whose construction and renovation--much like the barn raisings of nineteenth-century North America--united households and communities in ritual activity. This paper will consider domestic architecture as ritual among the ancient Maya, and how the ritualized aspects of homebuilding may have changed over the course of the Classic period (ca. 200 - 900 CE). As its driving question, this paper asks, “How did the Classic Maya build their homes, and how did homebuilding build the Maya?” Evidence will be drawn from both archaeological excavation, consisting primarily of non-elite residences in the Central Peten, as well as ethnographic data from modern Maya communities.

de Gregory, Rocco [173] see Cyr, Howard

de la Torre, Ignacio [33] see Morgan, Thomas

De La Torre Vázquez, Jesús (Gibrán de la Torre) and Víctor Joel Santos Ramírez (Joel Santos)
[156] La industria lítica precerámica del sitio La Flor del Océano, Sinaloa
El hallazgo en el año 2010 de puntas de proyectil del tipo foliáceo manufacturadas casi en su totalidad en cantos rodados de riolita, así como la gran cantidad de desecho de talla asociado a ellas, en el sitio La Flor del Océano en Sinaloa; cuyas excavaciones continúan hasta el día de hoy, ha propiciado una serie de debates académicos acerca de su antigüedad y tecnología aplicada a ellas. En la presente ponencia, expondremos los resultados de las últimas temporadas de campo del Proyecto Arqueológico Las Labradas y las propuestas entorno a la aparición de dicha industria lítica en un contexto precerámico.
De Leon, Jason (University of Michigan)

[146]  The Edge of Humanity: Why Commonsensical Notions about Nature Impede our Understandings of Structural Violence in the Arizona Desert

Since the 1990’s Border Patrol has employed a strategy known as “Prevention Through Deterrence.” This policy emphasizes heightened security around urban ports of entry so that undocumented migrants will attempt to cross the border in more remote areas that are difficult to traverse but easy for law enforcement to patrol. Rather than deterring migration, hundreds of thousands of people each year now spend days in the desert attempting to walk across one of the most extreme environments in North America. Moreover, hundreds die annually during this process. In 2012 and 2013, the Undocumented Migration Project conducted a series of experiments in the desert that used pig carcasses as proxies for the human body. The goals were to understand how unburied bodies decomposed and the political implications of this form of death. Drawing on these data and a historical review of burial treatment, I argue that humans have long employed nature to construct forms of post-mortem violence that I term “necrovioence.” I posit that anthropologists working in all time periods can gain new insight by rethinking long-held notions about the nature/culture divide in taphonomic studies and that “natural” post-mortem treatment can be productively added to current anthropological frameworks of violence.

[258]  Discussant

De Leon, Sandy (University of Illinois at Chicago/National Museum of the Philippines)

[238]  Investigating Social Practices, Community and Interaction in the Philippine Islands during the Metal Age

Investigations of social interaction and notions of community among island societies of Southeast Asia during the Metal Age (500 B.C.-A.D. 800) are very limited, especially in the Philippines. This general lack of well-documented settlement, household and burial data, and underdeveloped theoretical frameworks interpreting the archaeological remains, impede our understanding of social organization in the period and fail to contextualize the appearance socially stratified and politically centralized island societies during the late prehistoric and early historic period. This paper presents a proposed multi-scalar research plan to utilize mortuary remains and examine similarities and variation in mortuary styles, pottery composition, trade goods and mortuary landscape features to investigate how Metal Age societies may have maintained ideas of community and group identity, as well as how they may have structured social relations. It presents preliminary findings of micro-regional analysis of jar burial remains from the Bacong Region of the central Philippines that will be expanded to include jar burial sites from the greater Philippine macro-region, and discusses some of the challenges of settlement archaeology. The research findings query the notion that late prehistoric island societies were necessarily simplified hierarchical and politically centralizing antecedents to the more complex societies of the Early Historic period.

De León, Jason [93] see Forringer-Beal, Anna

De Loera, Alexia [273] see Fernandez, Andrew

De Loney, Marguerite (Stanford University)

[117]  Discussant

de Miranda Chaves, Sérgio [415] see Dos Santos, Isabel

De Smet, Timothy, Tanya M. Peres (Middle Tennessee State University) and Jesse W. Tune (Texas A&M University)

[8]  Near-Surface Geophysical Investigations at the Multicomponent Magnolia Valley Site (40RD314) in Rutherford County, Tennessee

In May 2014 we collected magnetic gradiometry, frequency-domain electromagnetic-induction (EMI),
and ground-penetrating radar (GPR) data at the Magnolia Valley site (40RD314) in Rutherford County, Tennessee with the Middle Tennessee State University 2014 Field School, a component of the MTSU Rutherford County Archaeology Research Project (RCARP). We collected data using Geometrics G-858 cesium vapor magnetometer, GSSI’s Profiler EMP-400 multifrequency electromagnetic conductivity meter, and Sensor’s & Software’s pulseEKKO PRO GPR with 500 MHz antennas at a line spacing of 0.5 m and station spacing of 0.1, 0.25, and 0.025 m, respectively. The use of multiple methods was necessary to characterize feature type. Negative apparent conductivity paired with strong dipolar magnetic responses were indicative of historic metal artifacts. High magnetic susceptibility and strong magnetic gradient contrasts indicated probable Archaic pit and habitation features. A historic two track wagon road was identified approximately 25 cm below the surface with both GPR and magnetometry. Ground-truthing the results proved the efficacy of this multi-method survey strategy and resulted in the identification of a rock-lined earth oven, several large (over 1 m in diameter and 1 m in depth) pits, and a possible Archaic structure/living space footprint along with the historic two-track road and metal artifacts.

de Smet, Timothy S. [310] see Everett, Mark

De Vynck, Jan (Arizona State University), Kim Hill (Arizona State University), Robert Anderson (University of Cape Town), Richard Cowling (Nelson Mandela University) and Curtis Marean (Arizona State University)

Foraging for Shellfish in a Predictable and Productive Inter-Tidal Environment, the South Coast of South Africa

The south coast of South Africa has the oldest and best studied evidence for early use of coastal resources, and various researchers have argued that coastal resource use was significant for cognition, social complexity, and the maintenance of population refugia. To date there has been little consensus on the foraging returns and sustainability for inter-tidal resources in this coastal environment. Here we present the first net return and regeneration rate estimates for inter-tidal foraging in the varied south coast of South Africa. Foraging experiments were conducted with Khoe-San descendants in the area and hourly caloric net return rates were recorded over 35 low tides and through the seasons. Net return rates varied as a function of gender, tidal range, marine habitat types and weather conditions. The mean net return rate (kcal/hour) in some instances equals or exceeds that recorded for hunting of large mammals, and shows that under the right conditions the south coast provides an extraordinarily rich protein resource. Our results show that strategic coastal foraging along the south coast could have been a highly predictable and productive foraging strategy for emerging modern humans. We relate these results to recent analyses and discussions of Middle Stone Age coastal foraging.

de Vynck, Jan [294] see Atwater, Chloe

Deagan-Harris, Kathleen

Spanish Mission Archaeology in the Southeast. 1974-2014 A.D. (After Dave)

The archaeological study of Spanish missions among the American Indians has been underway in the Southeastern and Western regions of the United States for more than 70 years. This paper considers the directions and contributions of that body of work in the Southeast, with particular attention to the interdisciplinary impacts of the Santa Catalina Mission program, carried out by Dave Thomas between 1974 and today on St. Catherine’s Island, Georgia.

Deal, Michael (Memorial University of Newfoundland)

Site Formation and Paleoenvironmental Reconstruction at a Terminal Archaic/Woodland Period Site in Central Nova Scotia, Canada.

Despite being the area of earliest European occupation in Canada, with ample Contact period ethnohistorical evidence, very little is known about Pre-Contact occupation along the Annapolis River drainage system, in central Nova Scotia. At present there are less than 50 recorded Pre-Contact sites and virtually no private collections. This has long puzzled local archaeologists, as the Annapolis
River is an obvious travel route to the interior, and a large (2130 km2) watershed rich in plant and animal resources. The recently discovered Boswell site has revealed a complex history of site development. Continual vertical accretion of river sediments at the site during the Terminal Archaic and Woodland periods has created a deeply stratified deposit. Current research at the site suggests new strategies for the survey and excavation of sites along the Annapolis river system. The authors will also present the results from ongoing paleoethnobotanical and paleoenvironmental analyses and discuss their significance for interpreting aboriginal lifeways at the Boswell site over the last 4000 years.

Dean, Jeffrey [110] see Guiterman, Christopher

Dean, Jeffrey (University of Arizona) and Ronald Towne

[354] Tom Windes and Southwestern Dendroarchaeology

Tom Windes is virtually unique among archaeologists for his appreciation of the range of dendrochronology’s contribution to archaeology and of the preservation crisis that afflicts the integrity of wooden elements in Southwestern archaeological sites of all ages. Tom’s interest in dendrochronology as more than dating led him to develop sampling tools, techniques, and protocols that maximize the behavioral and chronological information in dendroarchaeological wood. His recognition of the accelerated rate of deterioration of archaeological wood, due to both natural and human causes, persuaded him that as many as possible wooden elements should be recorded and sampled before their scientific potential was irreversibly compromised. Beginning his decades-long effort to sample archaeological wood with National Park Service sites, Tom scoured the Southwest, from the Rio Pecos to the Grand Canyon, for suitable material. Adhering to LTRR’s dictum to collect one sample from every wooden element and to his conviction that valuable chronological and behavioral information is in peril, Tom and his volunteers collected and documented thousands of samples that otherwise would have gone unstudied. The scale of this contribution is exemplified by the numbers of samples available before and after his activities and by numerous sophisticated analyses of these dendroarchaeological data.

Dean, Emily (Southern Utah University) and Amelia Perez Trujillo (Ministerio de Cultura, Cusco, Peru)

[393] The Archaeology of Rebellion and Resistance: Archaeological Investigations of the Neo-Inca State of Vilcabamba, Peru

In 1536 Manco Inca, the ‘puppet’ ruler installed by Pizarro, threw off the shackles of colonial rule and led a rebellion against the Spanish. After failing to retake the former imperial capital of Cusco, Manco Inca and his followers established a Neo-Inca state in Vilcabamba, the remote region east of Cusco. Vilcabamba functioned as the seat of Inca resistance against the Spanish from A.D. 1536 to 1572. While the historic record from the 1600s and 1700s is rich, few records exist for the period of ‘first contact.’ Those accounts that do exist are mostly slanted towards the Spanish point of view. The daily lives of the Inca who defiantly rejected Spanish rule during this time of intense culture contact remain obscure. This paper draws upon original survey and excavation data from Vitcos and the surrounding Vilcabamba region collected from 2008-2011 to investigate the lives of the Inca during this time of upheaval. More specifically, we address the degree to which these ‘rebel’ Incas adopted and/or rejected Spanish material culture in their architecture, ceramic technology, religious life, and food-ways. We hope that our analyses will illuminate the material forms of resistance taken by the inhabitants of this 16th c. Neo-Inca state.

Dean, Randall (City and County of San Francisco Planning Department)

[416] Use of Archaeological Districts in San Francisco

It is very probably the case that more archaeology is done in San Francisco than in any other major city in the U.S. Yet this archaeological work is done without the benefit of any archaeological ordinance or adopted archaeological guidance but rather through the City’s implementation of State environmental laws. To overcome the vagueness and generality of these regulations, the City Planning Planning Department has initiated an Archaeological District Project (A.D.P), with the aim
of creating codified theme-based archaeological districts. The archaeological districts are to be
designed so as to enhance potential archaeological site identification, provide theme/period-specific
historic contexts, identify significant related property types and research issues, and will actuate
archaeological investigation and treatment procedures and protocols for archaeological consultants
for resources related to the specific district theme. This paper will discuss the problem-basis, design,
mechanics, and anticipated operational nature of the codified theme-based archaeological districts in
San Francisco, and the development of its first archaeological district, thus far, for the Hispanic
Period.

Deane-Drummond, Celia see Kissel, Marc

DeAngelis, Joseph

Between Party Lines: A Bipartisan Reevaluation of the Early Paleoindian Zooarchaeological
Record

The debate regarding early Paleoindians as megafaunal specialists or subsistence generalists has
had a long and contentious history in Americanist archaeology. A quantitative reanalysis of the early
Paleoindian zooarchaeological record in the continental United States is presented. Previous
analyses of the faunal record focused only on taxonomic richness and have not utilized other
measurements of taxonomic diversity. My analyses of the faunal record include measurements of
taxonomic richness, evenness and heterogeneity. Evenness and heterogeneity indices of fauna are
also based on body size class. Indices are calculated based on two different methodologies used by
previous authors. The first is a conservative method that includes only fauna with strong evidence of
subsistence use while the other is a liberal method that includes all fauna found on an early
Paleoindian sites. Analyses produce results that are opposite of what the original authors concluded
with the conservative method indicating that the early Paleoindians were megafaunal specialists
while the liberal method indicates the early Paleoindians were subsistence generalists. This poses
more questions regarding early Paleoindian subsistence patterns and poses implications of what
faunal remains can tell archaeologists about prehistoric human diets.

DeAntoni, GeorgeAnn (University of California, Berkeley), Peter Nelson (University of
California, Berkeley) and Rob Cuthrell (University of California, Berkeley)

Charcoal Identification as Means of Central California Landscape Reconstruction

The purpose of my paper is to present a paleoethnobotanical study of a late prehistoric Central
California site (located in Sonoma County) that reconstructs the pre-contact landscape via the
identification of wood charcoal remains. The analysis of charcoal and the low-impact
euthnobotancial methodologies utilized in this study provide the basis for generating hypotheses
about how Native peoples interacted with the local environment while also considering how the
landscape may have changed over time through anthropogenic management. By identifying the
representative tree taxa of the site through wood charcoal analysis and identification, this study will
provide critical information for future environmental restoration projects initiated by local tribes and
resource managers. With the completion of this project, a better understanding of human interactions
with the pre-Contact Bay Area landscape may be reached and plans for the restoration of native
plants can be initiated.

Deats, Jennifer (University of Colorado)

Occupation Lengths in Middle Missouri Sites

Collections and reports from Middle Missouri salvage archaeology, conducted primarily in the 1950s,
hold a wealth of information about Plains Village farming communities, much of which is still being
studied. In this paper, I provide a basis for the assessment of occupation lengths in the Middle
Missouri utilizing data culled from site reports on several Middle Missouri sites, spanning time and
space. This study utilizes evidence of repair of housing structures, overlapping storage pits, and
artifact counts to build a statistical model for the examination of occupation length. A unique aspect
of this study is the incorporation of potsherd counts for each site. Due to the general approach of
Plains Archaeologists to the study of ceramics, the potential for ceramic potsherds and vessels in a study of this kind is largely overlooked. Though they are usually resigned to taxonomic purposes, I attempt to incorporate sherd counts into an analysis of site occupation lengths, utilizing accumulations research that has been conducted in other areas of North America.

DeBlasis, Paulo (Museu de Arqueologia-USP)  
[157] Chair

DeCleva, Edward [336] see Corbett, Debra

Dedrick, Maia (University of North Carolina at Chapel Hill), Patricia McAnany (University of North Carolina at Chapel Hill), Sarah Rowe (University of North Carolina at Chapel Hill) and Ivan Batun-Alpuche (Archivo General del Estado de Yucatán)  
[188] Learning heritage while teaching archaeology at Tahcabo, Yucatán: archaeologists’ perspectives on the opportunities and risks of local community engagement

While a great deal of archaeological research in the Maya area has been conducted with the interests of the academic community and tourism industry in mind, there are fewer examples of archaeology conducted with the needs of local “publics” foregrounded. We propose greater dialogue between archaeologists and the people who live near (and within) places where archaeologists conduct research, and consider the dissemination of archaeological information to communities involved in archaeological projects to be an important principle of best practices within the discipline. Drawing from ongoing community-engaged archaeology at Tahcabo, Yucatán, we explore the opportunities and risks inherent in intensified dialogue and dissemination. In particular, we consider the challenges of balancing epistemologies within a co-learning project in which community members share their perceptions of archaeology and knowledge of cultural heritage and we propose archaeological techniques as beneficial ways to learn about local pasts and present-day issues. Reaching a rapprochement requires commitment to collaboration on both sides. Co-learning projects to be considered in this light include a field trip for middle school students and their parents to a nearby archaeological site, a youth photography project that addressed strengths and problems within the community, and a heritage day at the primary school.

Deffebach, Nancy  
[303] Beyond Surrealism: The Anthropological Sources of Leonora Carrington’s “El mundo mágico de los mayas” (1964)

In 1963 Leonora Carrington was invited to create a mural-sized painting for the highland Maya ethnography room at the Museo Nacional de Antropología in Mexico City. El mundo mágico de los mayas (1964) portrays the humans, gods, and spirits that inhabit the sacred space of the modern Maya. Carrington’s debt to surrealism is immediately apparent. Her greater debt to anthropology is less obvious.

Carrington made several research trips to Chiapas and read extensively about the Maya before she designed the painting. She always acknowledged the profound influence of the “Popol Vuh” but was intentionally vague about her other written sources.

I interpret Carrington’s imagery in relation to publications about modern Maya ethnography and the ancient Maya that were available in the early 1960s. Carrington made numerous preparatory sketches that contain brief notations. The notes and imagery of the drawings indicate that she drew heavily on Calixta Guiteras-Holmes’s “Perils of the Soul” and Sylvanus Morley’s “The Ancient Maya.” I discuss the significance of Carrington’s notations and the major shift in subject matter that took place between the creation of the drawings and the completion of the monumental painting.

deFrance, Susan [250] see Lofaro, Ellen

Dega, Michael (Naga Research Group) and Kyle Latinis (Director of Social Science)
The Social and Ecological Characteristics of Prehistoric Cambodian Earthworks
This paper moves discussion of prehistoric earthworks in Cambodia from normative archaeology into an ecological landscape structure, based on archaeological datasets. Discussions provide a synthesis of archaeological and newly borne out ecological explanations for original site construction, occupation, landscape use, sustainability of occupation for the earthwork culture over a c. 2000 year period, and terminal use of the sites. The paper moves discussion of the earthworks in the direction of landscape archaeology cum historical ecology to add more elements to explain this unique social system.

Advanced Spatial Documentation of Cultural Resources at Southern Arizona National Parks
This poster presents the experiences to date associated with the execution and development of an advanced spatial documentation program at the National Park Service Southern Arizona Office, including sample products, case studies, success metrics and challenges associated with development and implementation. In late 2013, resource managers and support staff of the NPS Southern Arizona group decided to invest in the capacity to complete 3D digital documentation projects in-house. The goals of this effort were to reduce project management overhead expenses associated with the contract process, control costs, standardize products, foster a workflow where the NPS retained control of products and data, and ultimately expand the scope of spatial resource documentation at park units. This effort has been assisted by recent advances in spatial documentation technology such as close-range photogrammetry and the enhanced speed and portability of phase-based terrestrial laser scanners. These advances allow the efficient documentation of backcountry archaeological sites that would previously have required significant time and expense. Additionally, rapid data capture capabilities facilitate the spatial documentation of multiple preservation project phases, increasing the temporal as well as spatial resolution of documentation products.

Use of Faunal Resources as Trade Commodities During the Late Period - Evidence from a Stege Mound (CA-CCO-297)
Site CA-CCO-297 (a Stege Mound) is a prehistoric shell mound located on the northeastern margin of the San Francisco Bay. Recent archaeological investigations at CA-CCO-297 suggest that fish, waterfowl and sea otters were exploited as commodities for exchange rather than purely subsistence items. Emphasized production of locally available resources for participation in inter-regional exchange systems appears linked to demographic pressures and reduced foraging efficiency. This paper explores the dynamics of economic behaviors and commodification of natural resources in Central California as manifested in the Late Period archaeology of a Stege Mound.

The Pyramid 12H3 Xultun Archaeological Site, Peten: Transition from the Preclassic to Classic
The pyramid 12H3 is located on the east of the B group and is the largest pyramid at the site of Xultun, measuring 50.0 x 20.0 m, and approximately 26.0 m tall, with a north-south axis orientation. The pyramid has at least five construction phases. The early work on the structure and documentation consisted of cleaning looter’s tunnels with the intention of understanding the phases of construction and obtaining relevant data on the early occupation of Xultun. Research conducted within Sub-1 revealed the first settlement of Xultun, dating to the Middle Preclassic period characterized by the presence of the ceramic type Savana Youth Red Orange Red Rejolla.
Del Giudice, Caroline (Kenyon College), Patricia Urban (Kenyon College) and Edward Schortman (Kenyon College)

[314] Is It Hot Enough Yet? Reconstructing Firing Temperatures for Prehistoric Honduran Ceramics through Re-Firing Experiments

Investigations conducted in the Naco valley and its environs within NW Honduras from 1975-2008 have revealed multiple facilities in which ceramic containers were fired. The vast majority of these date to the Late (A.D. 600-800) and Terminal Classic periods (A.D. 800-1000). Their diverse forms and dimensions hint at variations in aspects of production including the temperatures at which the vessels were heated and the degree of control artisans exercised over the manufacturing process. One line of evidence that we have pursued in trying to describe this variability involves re-firing a sample of over 200 pottery sherds that span a wide range of domestic and decorated Late and Terminal Classic taxa derived from settlements that fashioned, and those that consumed, ceramic containers. The results of these tests are used to reconstruct the varied ways craftworkers who fabricated different classes of vessels in diverse facilities at sundry locations might have participated in the area’s political economy and to infer how their roles in those relations changed over time.

Del Solar, Nino [411] see Muro, Luis Armando

Delacorte, Michael and Mark E. Basgall (California State University, Sacramento)

[341] More than a Bivouac, Less than a Village: Middle Archaic Use of Great Basin Alpine and Other Uplands

The role of Great Basin alpine/upland habitats within broader land-use strategies has long been debated. We explore upland and lowland data from either side of the White Mountain highlands to reconstruct late Middle Archaic (~1350-2500 B.P.) use of regional landscapes. This information suggests that regionally wide-ranging, logistically organized patrilineal groups made seasonal use of alpine and other uplands for late summer/fall hunting and gathering prior to winter encampment in valley lowlands on either side of the mountain range.

DeLance, Lisa (University of California, Riverside)

[133] From Rags to Riches: The Class, Status, and Power of Clothing Among Ancient Maya Women

Analysis of Maya female imagery has generally centered on the role of women as depicted on monumental architecture. While we understand these depictions to be tools of propaganda, they are often used to make assertions about the lived experience of ancient Maya women. In contrast to the analysis of highly politicized and highly public imagery depicted on monumental architecture, this paper examines depictions of feminine performance on a personalized medium: Maya painted vases. More specifically, this paper will focus on the juxtaposition of clothing design and performativity, including gesture, pose and activity, among Maya women.

An examination of vessel imagery through the comparative lens of performance and clothing challenges the idea of Maya social organization as a dichotomized system in which individuals are classed as either elite or commoners, but not both, never somewhere in-between. Although primarily an analysis of vessel imagery, these inferences can be extended to other forms of representation including ceramic figurines and mural paintings to form a more complete, and more complicated, picture of ancient Maya social relations. When clothing design and performative action are analyzed in tandem, the elite/commoner dichotomy collapses, revealing the highly meaningful intersection of ancient Maya social, political, and economic identity.

Delaney, Colleen (Cal State Channel Islands), Shawna Couplin (California State University-Northridge), Charles Fazzone (California State University-Channel Islands) and Kathleen M Marsaglia (California State University Northridge)

[391] They Sent Sandstone Across the Sea? A Preliminary Petrographic Study of Stone Bowls and Mortars

The Spanish chroniclers of the 18th century document extensive and intensive long distance regional trade networks among indigenous peoples throughout southern California (and beyond).
Archaeologists are currently reevaluating these long-held interpretations of Chumash regional exchange networks in the southern California region during the late prehistoric period. We report a pilot study focused on the determination of the lithology/mineralogy of stone bowls/mortars collected from various sites in the Channel Islands on the mainland using thin-section petrographic techniques. Our project documents the range of lithologies for a sample set of groundstone bowls and mortars, and compares them to the range of lithologies of potential natural outcrop sources of these groundstone tool types on the various northern Channel Islands of California, and the adjacent mainland. The rock types include sandstone, volcaniclastics, and volcanic rocks. Our study has implications for interpretations of archaeological materials specifically from the southern California Bight region, as well as broader studies focused on regional trade and exchange.

Chair

Delgado, Florencio [119] see Stahl, Peter

Delgado, James (NOAA)

Archaeology of the Gold Rush Waterfront

Archaeological research conducted in the former, now land-filled Gold Rush waterfront of San Francisco has defined a rapidly developed port infrastructure and substantial remains of discarded material culture that comprises a several block wide and deep macro-site. Buried ships, collapsed buildings, pilings from wharves and piers, and discarded cargoes buried by urban expansion and the filling of the are have emerged periodically due to redevelopment since 1907 and discoveries continue well into the early 21st century. These discoveries should not be looked at as single sites but rather as part of a more extensive buried maritime cultural landscape. As well, the material culture and features of this massive site define an “instant port” in an “instant city” reliant not only on intense capitalization by entrepreneurial maritime interests, but also reliant on global maritime trade diverted in response to the Gold Rush.

Delgado Ku, Pedro [344] see Masson, Marilyn

Dell’Anna, Rossana [185] see Rissetto, John

Dellopoulos, Emma (University of Iowa) and Shelby Putt (University of Iowa)

Performativity and Pedagogy: the Effect of Verbal and Nonverbal Instruction on Experimental Acheulian Handaxe Symmetry

The Acheulian techno-complex is comprised mostly of bifacial handaxes, which became increasingly symmetrical through time, especially after 400kya. Symmetry has recently been considered a highly significant aspect of the Acheulian toolkit. It has many potential opportunities for a better understanding of the evolution of cognition in early Homo; however, little is known about how this complex skill was transmitted. Could the increasing symmetry of handaxes in the archaeological record be evidence for the introduction of language instruction? We conducted an experiment with novice flintknappers to investigate whether spoken language instruction has any effect on symmetry. Using the Flip Test, we acquired the index of asymmetry for 172 bifaces made by 28 individuals. Overall, we found no significant difference in symmetry scores between the verbal and nonverbal groups; however, only the bifaces produced by the nonverbal group became significantly more symmetrical over time. These results indicate that not only is language instruction unnecessary for the transmission of this complex skill, but language may actually be a hindrance. Thus, the introduction of linguistic instruction was probably not the variable responsible for the increased symmetry of handaxes in the archaeological record.

DeLong, Richard [90] see McMurry, Sean

Demakopoulo, Katie [79] see Burke, Clare
Demarchi, Beatrice [356] see Penkman, Kirsty

Demarest, Arthur [338] see Thornton, Erin

Demarest, Arthur (Vanderbilt University) [413]

Transformations in Political Economy and Routes of Exchange on the Eve of the Classic Maya Collapse: New Evidence from the Port Kingdom of Cancuen and the Classic Maya Frontier

The Classic period archaeology and history of the Pasion River “highway” and its connecting land routes demonstrate the vital role of riverine exchange systems and also register major changes in routes, agents, and economies. The riverine port city of Cancuen held a critical position at the intersection of both river and land routes that connected the southwest Classic Maya cities to other Peten centers, to southern highland trading partners, and to the more distant realms of Tabasco and Veracruz. Recent evidence from excavations at Cancuen and in the Verapaz highlands, as well as from compositional analyses, demonstrate that in the late eighth century there were dramatic shifts in both river and land routes of exchange connecting the southern lowlands with other areas of Mesoamerica. These shifts also involved changes in political economy, port control, commodities and market exchange, and the agents involved — as well as the impact of specific historical events. Taken together this interregional pattern reveals a change in both economic modes and routes as part of a general transformation (at times violent) in the political economy of eastern Mesoamerica near the end of the Classic period.

[413] Chair

DeMarrais, Elizabeth (University of Cambridge) [307]

The Materiality of Emotion: Steps toward Understanding Affective Experience in the South Andes

Anthropologists routinely acknowledge the affective significance of things. Display and use of objects (in rituals and performances) can evoke strong emotions. Elaborate objects may be used to forge consensus, to evoke memory, or to foster solidarity and express shared interests. Alternatively, displays may divide opinion, generating a diverse response. Understanding the role of emotions in the past is crucial, both for creating rich and nuanced pictures of past societies, as well as for explaining their trajectories of change. In this paper, I set out initial steps for thinking about past emotions using archaeological evidence. First, I consider the visibility, scale, and permanence of different categories of objects, suggesting how their varied materialities afforded distinct potentials for materializing affective experience. I discuss how specific objects may have sustained particular types of affective experience, taking audiences and scale into account. Through a case study from the Andes of northwest Argentina, I show how objects were used in creative and idiosyncratic ways (1) to evoke a sense of place and locale, (2) to sustain memory of events in the life of a household, and (3) to forge personal networks within the wider South Andean region.

Demel, Scott (NORTHERN MICHIGAN UNIVERSITY), Marla Buckmaster (Marquette Regional History Center), Terrance Martin (Illinois State Museum), James Paquette (Marquette Regional History Center) and Kathryn Parker (Kathryn Parker Archaeobotany) [280]

A Proto-Historic Site in the Western Great Lakes

The discovery of several early iconographic/Jesuit rings in 1996 in Marquette County, Michigan led to the subsequent discovery of a proto-historic locus within a larger multi-component site. Professional archaeologists and volunteers spent two summers excavating 34 square meters near this discovery, and eventually identified the area as Location A at the Goose Lake Outlet #3 site. The excavated area is a single component occupation located in an ecologically diverse region that has been used from the Late Paleo Indian period to present. This region is immediately adjacent to the Lake Superior basin, but is located on Goose Lake Outlet which is part of the Lake Michigan drainage system. Preliminary evidence including numerous glass trade beads suggest the area was
a winter encampment dating between A.D. 1630-1640. The recovery of abundant large animal remains will aid insights to subsistence and seasonality, and botanical analysis will help establish the habitat and potential plant resources. This locus represents a unique opportunity to investigate the Proto-Historic, a poorly defined occupation in the Western Great Lakes.

Demoule, Jean-Paul (Université de Paris I - Sorbonne)
[82] The Neolithic House, from Anatolia to Central Europe
It is accepted with good reason that the appearance of the Neolithic in Europe results from a phenomenon of diffusion, notably demic, from the Near East and more particularly Anatolia. At first sight, there are considerable differences between the Near Eastern houses, which are often small and stone-built with white plaster floors, and the large wood and earth houses of Central Europe. In fact a more detailed analysis of the situation in intermediate regions, especially the north-west Anatolian forest and the south-east Balkans (Kovacevo excavations), shows a gradual development, also linked to available building materials. Thus wood and earth construction is well attested in Anatolia (Ilipinar), while stone is used in Greece (Sesklo). This paper will thus examine the respective contribution of environmental constraints and cultural choices, including the social organization that can be deduced from architecture. Comparisons will be made with other regions of Eurasia at the same period (Russia, Japan, etc).

[13] Discussant

Dempsey, Erin (National Park Service, Midwest Archeological Center)
[29] Losing Ground but Gaining Data: Erosion and Archaeology in Badlands Parks
In 2013, the Midwest Archeological Center initiated a five-year project to study the impacts of erosion on archaeological sites in Great Plains parks, specifically those parks with badlands geography. The project is designed to provide information on erosion rates in a variety of environmental contexts, as well as erosion’s effect on different features and artifact types. In the future, these data will be used to predict which sites or potential site locations may be most vulnerable to climate change and attendant erosion. Parks included in the study are Scotts Bluff National Monument in Nebraska, Badlands National Park in South Dakota, and Theodore Roosevelt National Park in North Dakota. This presentation will share the results of the first two field seasons, which took place at Scotts Bluff and Badlands.

DeMuth, R. Carl [125] see Noack Myers, Kelsey

DeMuth, R. Carl (Indiana University - Bloomington), Kelsey Noack Myers (Indiana University - Bloomington) and Stephen J. Yerka (University of Tennessee, Knoxville)
It is recognized that certain biases exist in the archaeological recording of historic sites and contexts in comparison to those from prehistory. Typically, these studies deal only with one state or a discrete region of interest due to the legacy limitations of archaeological record keeping in research and cultural resource management settings. This study demonstrates a first step toward providing historical archaeologists with greater insights into the larger effects of the many discrete choices made during historic site reporting. The advent of the Digital Index of North American Archaeology (DINAA) affords historical archaeologists an important opportunity to categorically and quantitatively assess how site recording is accomplished at a massive level. DINAA is a growing, open access system that provides research definitions for archaeological sites and can make interoperable multiple archaeological databases (currently covering 15 states and over 500,000 sites), through a linked open data strategy that correlates site descriptive ontologies to more standardized vocabularies. This poster provides an assessment of archaeological site definitions and other recording trends through multiple queries of the publicly available DINAA structure, and highlights potential patterns that emerge from disciplinary interests in reporting of cultural components, activity types, or material culture types.
Deng, Lingling [67] see Wolin, Daniela

Denham, Tim (Australian National University)

[414] Early Cultivation Practices and Plant Domestication in New Guinea and Island Southeast Asia

Early cultivation practices and plant domestication in the New Guinea and Island Southeast Asian regions were largely based on the vegetative propagation of a range of plant types – including root crops, shrubs, grasses and herbs – as well as the transplantation of palms, pandans and trees. The character of early agricultural practices within these regions, as well as in tropical rainforest environments elsewhere, requires different conceptual and methodological approaches than have been adopted or proposed elsewhere. This stance does not represent a descent into conceptual relativism, rather it seeks to understand the emergence of agriculture for each region of the world on its own terms.

Dennehy, Timothy

[153] Free or Despotic? The Distribution of Hunter-Gatherer Ethnolinguistic Groups in California

How do hunter-gatherers divide their landscape into territories? In this paper, I will delve into results from a prior study showing a significant difference in territory size between coastal and inland groups in California (Dennehy et al. 2014). I will first simulate territory sizes and locations using an Agent-Based Model (ABM) of hunter-gatherer bands. The model will draw on human behavioral ecology to simulate distribution of foraging groups under three different conditions of social organization: an Ideal Free Distribution (IFD), Ideal Despotic Distribution (IDD), and a hybrid where both forms are possible. "Ideal" here refers to agents that have perfect knowledge of the suitability of different patches in their environment. Such agents are "free" when they can come and go from any patch as they please; they are "despotic" in cases where social hierarchies exist that allow a patch's current inhabitants to successfully defend it from newcomers. I expect each condition to produce a different distribution of forager groups, visualized as maps of simulated territories. I will then compare these maps to that created by Alfred Kroeber (1922) to test which condition more accurately matches the known distribution of California foragers.

[153] Chair

Dennett, Carrie [170] see Manion, Jessica

Dennis, L. Meghan

[267] Representations of Looting and Bad Practices as Entertainment

Representations of archaeology in films and television have been historically problematic, frequently emphasizing bad practices, shoddy scholarship and ethically questionable professional behavior. In video games, however, there is an additional dimension of experience as the user in effect commits the acts actively instead of viewing them passively. By looking critically at the modern "adventure" game, Uncharted 3: Drake's Deception, examples of encouragement of looting, creating a false object pedigree, and participating in a black market in antiquities will be examined for their role in creating interactive experiences about how archaeology and archaeologists function.

[267] Chair

Dennison, Rory (University of Illinois at Chicago)

[391] Porcelain, Kilns, and Chiefs: LA-ICP-MS Analysis of Sherds in the Pre-Colonial Philippines and Southern China

This research examines issues of production and distribution of Chinese porcelain in the Song, Yuan, and Ming dynasties by comparing chemical signatures of porcelain sherds and clay collected from sites in Fujian, China both to each other and to sites of dispersal within Philippine chiefdoms in Tanjay, Cebu, and Manila. This research examines how patterns of long distance trade were negotiated within the Philippines at one end of the network and the variations in production
strategies, distribution, and sources within Fujian kiln sites at the other. Chemical signatures, through the use of Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) are used to distinguish patterns, examine ceramic homogeneity across the sites and regions, and begin to suggest porcelains kiln sites as sources of production within the network. This focus across various scales, and at both ends of this trade connection, allows for the examination of not just centers but also interior or ‘periphery’ groups which were likewise connected and interlinked into this porcelain exchange network.

Denoyer, Allen [278] see Trumbo, Aaron

Dent, Joshua (University of Western Ontario)

[13] In(di)visible Fulcra: Perception and Balance in Canadian Archaeological Governance

The history of provincial heritage legislation and policy in the Canadian context has been infrequently studied and rarely theorized. Contemporary critical heritage and applied archaeological research are beginning to reverse this trend and the past that is coming to light has significant implications to future archaeological governance. Drawing from research conducted in British Columbia and Ontario, this paper highlights two important facets of archaeological governance: perception and balance. Perception revolves around the fluctuating identities and performances within the provincial regulatory apparatus during the transition from academically to commercially driven archaeology. Perceived shifts in the roles of state-affiliated archaeologists and the negotiated perceptions of stakeholders segue into a discussion of balance within the archaeological bureaucracy. The history of archaeological governance is one of an orchestrated balance between seemingly competing interests and identities. Both internal and external equilibria are consciously and unconsciously maintained as provincial archaeologists realize their roles within a wider bureaucracy and the role of cultural resource management within wider economic and cultural sectors.

[13] Chair

Denton, Anne [260] see Radermacher, Matthew

Dering, Phil [256] see Hanselka, Kevin

Dervanian, Anaïs [24] see Matos Llanes, Carlos

Des Lauriers, Matthew (California State University, Northridge) and Danny Sosa (California State University, Northridge)

[32] The Assumption of Insular Marginality: The Curious Case of Isla Cedros, Baja California

What about islands inspires us to think of them as places on ‘the edge?’ The idea of an island is often more remote than the reality. The word itself conjures up notions of loneliness and isolation. Some islands are inextricably linked, to other islands and/or the adjacent mainland, while the nonpareil isolation of Rapa Nui is legendary. Lying off the Pacific Coast of Baja California, Isla Cedros presents a strange combination of these factors. The island supported a large resident population before European Contact due to ample fresh water, surrounding seas teeming with marine resources, and a robust terrestrial ecosystem. The islanders were tied into the social networks of the adjacent peninsula as evidenced by Jesuit documents and an abundance of obsidian brought from the mainland. This island was the largest population center for hundreds of kilometers in every direction. Isla Cedros was not a marginal place, but one of the most important centers, one of the most ecologically rich locations, and home to one of the most dynamic social environments in the region. Its remoteness from other major centers provides archaeologists an opportunity to examine the essential qualities of an island and the impacts of such on human behavior.

DeSantis, Larisa [202] see Tung, Tiffiny
Desrosiers, Ryan [168] see Campbell, Sarah

Dettman, David [55] see Palacios-Fest, Manuel

Devos, Yannick [309] see Vrydaghs, Luc

Dewar, Genevieve (University of Toronto) and Brian Stewart (University of Michigan) [174] Explaining Intraregional Assemblage Variability in Southern Africa during MIS 2: Different Strokes or Different Folks?

In southern Africa Marine Isotope Stage 2 was a period of intense cold, and palaeoenvironment and geoarchaeological data indicate inverse moisture availability in the different rainfall zones. Sea levels fell rapidly, exposing the continental shelf while the number of archaeological sites across the subcontinent decreased, likely a result of populations concentrating along the now-submerged coastline. There were, however, pockets of inland ‘refugia’. People contracted into centers of occupation in the northwestern escarpment, the Western Cape, the southern Cape Fold Mountains and the Maloti-Drakensberg Mountains when the rest of the country seems largely abandoned. Similar artifacts (bladelets) suggest that these distant groups were socially enchained. In two of these regions, the northwestern escarpment and Maloti-Drakensberg, some sites dated 24-23 cal kBP conform to the popular culture: Spitzkloof A and Sehonghong, but there are also contemporaneous intraregional differences, with other sites lacking not only bladelets but also grindstones (Apollo 11 and Melikane). Two hypotheses are being tested. First, there were multiple groups on these landscapes, with some participating in attenuated social networks and others not. A second hypothesis is that the different signatures reflect differences in the use of individual sites, whether seasonally or because of variable catchment potential.

DeWitte, Sharon (University of South Carolina) [207] Developmental Stress and Disease Susceptibility: The Association between Skeletal Indicators of Leprosy and Other Physiological Stressors

Leprosy has long interested bioarchaeologists because of its antiquity and because it can cause skeletal lesions. These lesions are primarily associated with lepromatous leprosy resulting from a minimal cellular immune response. This study tests the hypothesis that early-life developmental stress increases the risk of developing lepromatous leprosy by examining the association between skeletal signs of leprosy and other skeletal stress markers. A combined sample of 126 adults from two Danish cemeteries (c. 12th-13th centuries CE) was assessed for the presence of skeletal indicators of leprosy and other, non-specific stress markers. Based on the results of chi-square tests, there are no significant associations between any indicators of childhood stress and having two or more signs of leprosy. There is, however, a significant association between tibial periosteal lesions and having two or more signs of leprosy. These results suggest that childhood stress is not predictive of developing lepromatous leprosy (or skeletal manifestations thereof) but that stress that can occur later in life might be. However, several of the leprosy-lesions have low specificity and thus the co-occurrence of periosteal lesions and signs of leprosy might reflect other conditions rather than indicating that previous physiological stress increases the risk of lepromatous leprosy lesions.

Dexter Kennedy, Jaime (University of Oregon) and Geoffrey M. Smith (University of Nevada, Reno) [415] Paleoethnobotany at LSP-1 Rockshelter, Lake County, OR: Assessing the Dietary Diversity of Plant Foods in Holocene Diet

Over the past five field seasons, collaborative research at the LSP-1 rockshelter in Oregon’s Warner Valley conducted by the University of Nevada, Reno archaeological field school and Bureau of Land Management has revealed a record of human occupation spanning the Holocene. While faunal remains are prominent in the deposits, nutritional information can also be derived from pollen and seed data at LSP-1. This paper presents the results of paleoethnobotanical analysis with respect to diet breadth and foraging of locally available plant taxa during the Early (~11,000-7,600 BP), Middle (~7,600-3,000), and Late Holocene (~3,000-contact). These data contribute to a growing body of
research identifying plant resources targeted by people living in the Warner Valley. Additionally, data generated by this study also have the potential to provide insight into the nutrient intake associated with preferred plant foods and to facilitate our understanding of hunter-gatherer dietary diversity over the course of several millennia in the northern Great Basin.

Di Giuseppantonio Di Franco, Paola (University of Cambridge)

[188] Experiencing the Past through “Digifacts”

This paper presents DIGIFACT, a project aiming at improving our understanding of how people perceive artifacts through different media. This project will clarify the role of 3D technologies in the perception of archaeological artifacts, which are critical to our world heritage, and help us understand how people experience artifacts in a museum and how 3D replicas can improve visitor experience of authenticity and understanding. For this research, I will collect data on how visitors experience the archaeological record in the Museum of Anthropology and Archaeology in Cambridge, developing a research program to feed into the redevelopment of the World Archaeology Gallery. In order to explore how people perceive museum artifacts through different media, I will videotape volunteer participants at the MAA while they interact with selected artifacts through different forms of media. Speech and gestures will be analyzed with methods borrowed from Cognitive and Information Science, to see how the medium (e.g. tactile experience vs interaction with 3D virtual copies) influences the way people describe and understand objects.

Diaz, Diana (Graduate Student in Anthropology, California State University, Northridge) and Danielle Kurin (Assistant Professor of Anthropology, University of)


In the Andahuaylas region located in the southern central highlands of Peru, archaeologists have documented the presence of three critical cultural occupations: Wari, Chanka, and Inka (ca. A.D. 700-1400). Previous investigations claim that environmental change may have influenced collapse and played a decisive role in resettlement patterns. Using spatial data from 86 surveyed sites, this study investigates how state collapse, reorganization, and environmental transformations influenced settlement patterns in the region. Nearest neighbor analysis and other GIS applications are marshaled to evaluate how regional site density, settlement location, agglutination, and length of occupation varied over time. These data are then used to address the nature of site abandonment as well as motivations for population aggregation. This research emphasizes the role social agency as our results suggest that human settlement on the landscape may be more strongly predicated by the social milieu than macro climactic conditions.

Diaz, Amélie [401] see Khalidi, Lamya

Díaz Rocha, Ana María (Boston University)

[12] Lacquer Arts of Viceregal Latin America: A Study of Transculturalization

The establishment of a trade route between Asia, the New World, and Europe during the sixteenth century allowed admiration, exchange, and adaptation of different motifs, materials, and artistic techniques. The study of lacquer arts offers unique evidence of the transculturation that defines the arts of Spanish America during the viceregal period. This poster explores the use of unique American lacquer traditions that combine indigenous techniques and European forms with designs borrowed from Europe, Asia, and prehispanic America. I look specifically at two separate lacquer art traditions that developed in the sixteenth and seventeenth centuries and are still in use today: Maque Lacquer and Barniz de Pasto. Both techniques developed from precolumbian Lacquer techniques that used organic materials prevalent in the regions of production. While trying to understand cultural and artistic modifications and new outcomes during the colonial period, I also focus on the subject’s implications for our understanding of material and iconographic studies in archaeology.

Diaz Vazquez, Juan Carlos [111] see Rios, Jorge
Díaz-Díaz, Miguel (Para la Naturaleza) [290]  
*La erosión costera como agente de cambio geomorfológico y pérdida de contexto arqueológico*

La erosión costera es el proceso por el cual la acción hidráulica del mar transporta los sedimentos de un lugar de la costa a otro. Esta situación es particularmente importante en islas, donde gran parte de la población ha vivido y continúa viviendo en zonas costeras. Dentro del contexto de ciencia ciudadana, en esta charla presento el desarrollo de mi investigación multidisciplinaria que combina geomorfología y arqueología para evaluar cómo la erosión puede amenazar un sitio arqueológico costero. El proyecto evalúa el transporte de sedimentos en la boca del Río Grande de Manatí y su relación con el sitio arqueológico Tierras Nuevas dentro de la reserva natural Hacienda Esperanza en Manatí, Puerto Rico. El sitio comprende seis bateyes pre-colombinos y colinda con playa Machuca la cual le sirve como protección contra erosión. El estudio analiza datos sedimentológicos y geomorfológicos para entender el dinamismo de la playa y si la erosión presenta una amenaza para el recurso. Esta información nos podrá ayudar a identificar el potencial de riesgo para la preservación del sitio arqueológico, para la estabilidad de las comunidades aledañas ante el cambio costero futuro, y para la preservación de las áreas naturales que componen la Reserva Natural de Esperanza.

Dibble, Loretta (Rutgers University) [174]  
*Worked Bone Harpoon Technological Persistence and Variation Through Time and Geography (Turkana/Omo Basin, Kenya/Ethiopia)*

This paper reports results from a detailed study of the variation in Holocene worked bone harpoons from the Lake Turkana/Omo Basin (Northern Kenya/Southwest Ethiopia). Bone harpoon sites in this basin span more than 6,000 years (approximately 9,000/10,000 bp through 3,000 bp). A review of the dates associated with these archaeological assemblages and the dating of sedimentary features correlated with the changing lake levels in the basin is presented along with new dates and new material from recent excavations (FxJj108) and survey in Koobi Fora, Kenya. Throughout the basin considerable spatial and temporal variation exists in features such as harpoon length, heft, barb design, and attachment styles. Post-tool production variables such as harpoon usage breakage patterns and taphonomic variation also vary from site to site. A theoretical framework of harpoon functional variation is presented to encompass environmental differences, differences in prey species, and patterns of tool use. The goal is to use the archaeological record to test the hypothesis derived from this theoretical model and to identify patterns of harpoon production and usage. How this research can connect to larger issues related to movement of peoples and the persistence and function of bone technology will be considered.

Dibble, Harold [190] see Sandgathe, Dennis

Dibble, Harold (University of Pennsylvania), Alain Turq (Musée National de Préhistoire), Laurent Chiotti (Muséum National d'Histoire Naturelle), Marie Soressi (Leiden University) and Laurent Bruxelles (INRAP) [190]  
*A Brief Review of the Work of Paul Goldberg in SW France*

There are few researchers who have achieved the breadth of experience of Paul Goldberg, whose work spans almost every continent on the planet, and from the early Pleistocene to the Holocene. There are some regions, however, that have greatly benefited from his expertise, including SW France. In this paper we will review some of his work here, beginning with his dissertation work at the site of Pech de l’Azé II, and over the past 14 years at the sites of Pech de l’Azé I and IV, Roc de Marsal, and La Ferrassie.

DiBenedetto, Katelyn (University of Nevada Las Vegas) and Levi Keach (University of Nevada Las Vegas) [7]  
*Playing with Fire at ‘Ais Giorkis: A Geospatial Analysis of Prehistoric Fire Residue*

Kritou Marottou ‘Ais Giorkis is an Early Neolithic (9.5 kya) site located, uniquely, in the western foothills of Cyprus’ Troodos Mountains. It is one of five near contemporary sites and has produced
the largest chipped stone and faunal assemblages recovered thus far. There are also several preserved circular, cobbled platforms, whose function has yet to be determined. In fact, little is currently understood about the lifeways practiced at the site. This includes the intensity and duration of its occupation, making interpretation of the site and its past human experience difficult. To better engage with this issue, this study will employ geospatial analysis, while taking a landscape approach. It specifically examines the residue of fire activity, including the spatial distribution of both burnt chipped stone and faunal remains as well as observed ash lenses. Preliminary examination of the burnt chipped stone has revealed spatially distinct clustering at the site indicative of anthropogenic fire. The other data will be incorporated within the geodatabase to determine what differences and similarities exist between patterns. This will then be compared within the spatial location of the platforms within the local landscape to produce a more robust understanding of both ‘Ais Giorkis and its inhabitants.

DiBenedetto, Katelyn [138] see Woods, Aaron

Dick, Kristina (Portland State University), Virginia Butler (Portland State University) and Sarah Sterling (Portland State University) [168] Database Development and GIS Analysis at Tse-whit-zen

Digital databases promote consistency and data quality, facilitate analysis of patterning at multiple temporal and spatial scales and promote accessibility to a wide range of potential users. The value of digital databases is especially clear with large complex projects that involve collaborators working in separate research settings with different collections, but where data integration is essential to meeting project goals, such as with the Tse-whit-zen project. This presentation reviews approaches used to create and maintain the Tse-whit-zen database-- that includes faunal, chronological, and geo-spatial records of excavated deposits. Hand-drawn excavation unit-level maps were digitized and stored in a geodatabase. Spatial and temporal analytic units of various scales were defined. Through a unique identifier, the analytic units (e.g. Chronozones) were linked to the faunal and other records stored in an Access database and used as the basis for analysis calculations and visualizations. Records were visualized both in 2D in ArcMap and 3D using ArcScene.

Dickau, Ruth (HD Analytical Solutions), Javier Aceituno (Universidad de Antioquia) and Anthony Ranere (Temple University) [186] From Frontier to Forefront: Microbotanical Evidence of Early Holocene Horticulture in the Middle Cauca Valley, Colombia

Archaeological research in the Middle Cauca region of Colombia has identified significant human presence during the early to middle Holocene (10,600-3600 uncal BP), associated with lithic technology focused on plant processing (e.g., handstones, milling stone bases, and “hoes”). Starch residue analysis on these tools has documented the early availability and use of several domesticates; both exogenous, such as maize (Zea mays) and manioc (Manihot esculenta), and possibly indigenous, such as achira (Canna edulis) and cocoyam (Xanthosoma sp.). The Middle Cauca valley was a conduit for the dispersal of cultigens in and out of South America by early forager-horticulturalists, who were also potentially experimenting with the domestication of local plants. These results reinforce Piperno’s pioneering work demonstrating that the humid Neotropics were an early and independent cradle of plant domestication and agricultural origins in the New World.

[271] Discussant

Dickau, Ruth [226] see Iriarte, Jose

Dickinson, William [77] see Chiu, Scarlett

Dickson, D. Bruce (Texas A&M University) [214] Reinterpreting the Rise of the State in Mesopotamia as a Self-Organizing Process Engendered by the Interaction of Interpersonal Behavior and Religious Eschatology
Anthropologists have long used “integration theory” to explain the rise of the state in Mesopotamia. This perspective, derived from functionalism, structural-functionalism, general systems, or cultural ecology, sees state emergence as a response to problems of population growth, ecological distress, competition, warfare, or the need to organize long distance trade. Integration theory is thus “top down.” That is, it posits that state governance is imposed upon a population as a social solution to one, or a series of, adaptive challenges. Largely ignored in integration theory is human agency. We propose a “bottom up” perspective that gives primacy to interpersonal interaction and religious ideology. Specifically, we posit that (a) the interpersonal behavior characteristic of irrigation agriculture in interaction with (b) the “judgmental” form of religious eschatology that is invariably present where such agriculture is practiced, engendered self-organizing or multi-agent processes that led inexorably to the rise of the state in Mesopotamia.

Diederichs, Shanna (Crow Canyon Archaeological Center), Grace Erny (Crow Canyon Archaeological Center) and Aryel Rigano (Crow Canyon Archaeological Center)

Architectural Specialization in Basketmaker III Proto-Villages

The foundations of Ancestral Pueblo community organization were codified in aggregated communities during the Basketmaker III Period (A.D. 500-725). This study compares morphological differences in public architecture and habitation pit structures at several aggregated sites in the Northern San Juan Region to reveal functional specialization of space associated with both long-term habitation and periodic communal gathering behavior. This specialization may reflect the primary social institutions at the household, settlement, and community levels during Basketmaker III. These patterns are then compared with specialization of structures identified at aggregated Basketmaker III sites in other regions in order to identify the origins of the Northern San Juan Basketmaker III population.

Diehl, Michael

Farmaging and the Limitations of Storage during the Early Agricultural Period at Las Capas

The charred macroplant assemblage from Las Capas yielded one domesticate (Zea mays), and forty-six wild plant taxa endemic to the greater Tucson Basin of southern Arizona. These 47 taxa, their ubiquities, and their natural ranges of occurrence, indicate that the San Pedro phase and Early Cienega phase occupants of Las Capas were primarily dependent upon wild foods. Agriculture was used to mitigate the risks of food shortfalls associated with the alternative strategy of foraging for wild food plant taxa. Limitations on the utility of agriculture for producing sufficient food supplies were a consequence of the use of a very low yield variety of popcorn maize, and the absence of storage facilities capable of protecting stored food from moisture intrusion and subsequent degradation. The resulting subsistence system was likely a semisedentary one that saw multiple abandonments and reoccupations of the site each season. The particular combination of irrigation supported maize cultivation, extensive foraging, and seasonal residential mobility has no clear analog in the southwestern US ethnographic record. The term "Farmaging" is introduced to describe the Las Capas subsistence and settlement system.

Dietler, John (SWCA Environmental Consultants), Heather Gibson (SWCA Environmental Consultants) and Benjamin Vargas (SWCA Environmental Consultants)

“A Mourning Dirge was Sung”: Community and Remembrance at Mission San Gabriel

Recent research at Mission San Gabriel (CA-LAN-184H), conducted in collaboration with descendant communities, has identified two major types of Mission-period features related to communal mourning. In addition to the known practice of interring and memorializing the deceased in the Mission’s cemetery, archaeological data recovery excavation has identified a series of artifact-filled pits that have much in common with prehistoric and historic Native American mourning features that have been documented throughout the greater Los Angeles area. While the cemetery reflects burial practices and mortuary rites under the purview of the mission’s Catholic priests, the possible mourning feature suggests a concurrent ceremonial practice that may have derived from indigenous
ritual traditions with a long history throughout the region. Taken together, these practices allow for consideration of the complicated power dynamic within the mission setting and the ways that group identity and community may have been formed and transformed on multiple levels. When paired with documentary evidence, particularly the mission’s burial journal and ethnohistoric descriptions of traditional Gabrielino burial and mourning practices, these data can provide invaluable insight into the interplay between Native American and Catholic traditions as practiced within the mission community.

Dietrich, Oliver [16] see Clare, Lee

Diggs, David [300] see Brunswig, Robert

Dillehay, Tom
[186] Long-Distance Adoption of Exotic Cultigens in Northwest Peru: Problems and Processes

By 7,000-6,000 BP on the coast and in the western highlands of northern Peru, several long-distance food crops, whether domesticated or not, were adopted by local communities. Most of the crops are derived from Neo-Tropical environments far to the north, perhaps in the Ecuadorian and Colombian lowlands, or from the eastern side of the Andes. The technological, demographic, and economic mechanisms and processes by which this adoption process took place are considered for several archaeological localities dating between 10,000 and 6,000 years ago. The wider social and economic implications of this process are considered theoretically and historically.
[78] Discussant

Dillian, Carolyn (Coastal Carolina University)
[412] Evocative Stones: Variable Obsidian Source Use in Northern California

Northern California contains multiple, geochemically distinct, high-quality obsidian sources that were quarried in prehistory. However, not all were exploited equally. Instead, selection patterns suggest that some obsidian sources were reserved for manufacture of specific types of objects, while others could be used for more routine tools. The geologic and cultural context of the obsidian source may offer explanations for why differential quarrying and use occurred. Glass Mountain in Siskiyou County, California, provides a case study for selective use of obsidian for special objects. Just as obsidian objects fulfilled utilitarian or symbolic functions, obsidian sources retained special roles within prehistoric contexts.
[336] Discussant

[412] Chair

DiNapoli, Robert (University of Oregon)
[233] Despotism, Cooperation, and the Evolution of Social Hierarchy in Prehistoric Hawai’i

Ancient Hawaiian society is often emphasized as a locus for the evolution of complex hierarchical polities. At the time of European contact, Hawaiian society was divided into a large class of commoners and a smaller class of hereditary chiefs and land-managers, the latter controlling a vastly disproportionate share of land and resources. This despotism by Hawaiian elites is regularly emphasized in discussions of the ‘development of the state,’ however, the high level of cooperation inherent in this social organization is not. This paper is an attempt to complement previous research by exploring the evolution of social hierarchy in Hawai’i using a suite of models derived from evolutionary ecology and evolutionary game theory, specifically, the Ideal-Free and Ideal-Despotic Distribution models, economic defendability, and models of cooperation. In particular, problems associated with large-scale cooperation in despotic social groups are emphasized as a powerful force leading to hierarchy. The predictions of these theoretical models are evaluated using the archaeological record of the Leeward Kohala region on the Island of Hawai’i.
[233] Chair
Ding, Julie [132] see Cirillo, Laura

Dison, Braden (The University of Alabama at Birmingham)


Tannehill Historical State Park encompasses a resource rich environment that has supported human settlement for thousands of years. Dozens of possible sites have been identified across the park’s landscape, but few are thoroughly investigated, leaving a gap in current understanding of settlement patterns and land usage in prehistoric times. Josselyn Site 2G, a large surface collection, is one site where little is known. It holds projectile points indicative of the Middle Archaic, Late Archaic, Early Woodland, and Middle Woodland Periods, indicating regular site usage of the area over of thousands of years. Little was found under the surface at this site, indicating disturbance of the artifacts from their original location, likely caused by erosion or water runoff. This project uses existing site information in conjunction with remote sensing to help expand knowledge of land use and site locations at Tannehill State Park. Digital elevation models are used to map watershed in the region, with the goal of locating the possible original context of the artifacts collected at Josselyn 2G, as well as identifying other possible site locations. It holds the potential to greatly enhance our understanding of long term landscape usage as well as human adaption within the landscape.

Ditchfield, Peter [49] see Lee, Cheng-Yi

Ditto, Emily (Univ. of North Carolina)

[22] House Ritual in Chaco Canyon: Scale, Context, Emergent Differentiation and Inequality

At Chaco Canyon, clear indications of social differentiation in the Pueblo world first appeared during the 9th-11th centuries. One materialization of this is the contrast between two contemporaneous architectural forms: great houses, interpreted as populous communities or largely empty centers of seasonal ritual pilgrimage, and small houses, explained as multi-family households. Since ritual artifacts have been excavated from both house categories, analyzing inter- and intra-site variation in ritual assemblages is a fruitful way to investigate the structure of Chaco society. Approaching from the intersection of materiality theory, Pueblo ethnography, and collections-based research, I explore how the differing scales and contexts of ritual in Chacoan houses, particularly cosmological scale, structured sociopolitical relations and emergent inequality. At Pueblo Bonito, objects in ritual caches index a greater breadth and diversity of cosmological phenomena than those indexed in ritual contexts from small houses. This suggests that emerging leaders used their greater control over significant materials and linked cosmological phenomena to connect themselves to potent and distinct forces within a socially valued cosmic order. By doing so in varying public and private contexts, they materialized social differences both among themselves and from small house residents and negotiated their way to greater power in Chaco society.

Dixon, Christine (Green River Community College)

[75] Sacbe Construction, Agricultural Production, and Community Organization in the Classic Maya Community of Cerén, El Salvador

The exceptional preservation of the Classic Maya community of Cerén, El Salvador has afforded the opportunity to examine how one group of people constructed their built environment. The remarkably well-preserved site (public and domestic structures, earthen sacbe (road), agricultural fields, plant casts, and artifacts) greatly aids in our understanding of small-scale socio-political organization. This paper draws on data collected during the 2013 field season as well as earlier research. The presence of an earthen sacbe at the site raises significant questions about labor organization, power distribution, and the relationship of Cerén to other communities in the Zapotitán Valley. Additional understanding of cooperation and autonomy is gleaned from stylistic features of the agricultural fields, the synchronized harvesting, and the physical manifestation of other decisions that farmers made. Examining these multiple features helps to illuminate small-scale socio-political organization within one ancient Maya community.
Dixon, E. James (Maxwell Museum) and Kelly Monteleone

Survey for Submerged Archaeological Sites on the Continental Shelf of SE Alaska: Proof of Concept

Four seasons (2010-14) of underwater archaeological survey (NSF OPP -#0703980 and 1108367) on the continental shelf of SE Alaska demonstrates that survey for evidence of human habitation when sea level was lower is feasible. Real time ROV monitoring and video, hydrologic excavation, airlift sampling, and graduated screening can be reliably employed for sea floor sampling following multibeam, side-scan sonar, and sub-bottom profile surveys. Limiting dates for submerged landscape features and archaeological sites can be established based on their depth in relation to regional sea level curves in combination with 14C AMS dating. This research demonstrates proof of concept for survey and testing for sites on the continental shelf pre-dating post-Pleistocene sea level rise.

Dixon, Kelly [311] see Kemp, Dylan

Doat, David (David Doat)

What Moral and Ethical Considerations Should Inform Bioarchaeology of Care Analysis?

The aim of this presentation is to submit for discussion a proposition of an 'orientation map in ethics' which may be useful for scholars engaged in bioarchaeology of care. To this end, I present as a first step the main objections that have been raised in the literature to any attempt of inferring care toward disabled persons in prehistory. I suggest that most of these objections come from two different ethical backgrounds: a number of them are motivated by the defense of a set of values which are required by the epistemology and methodology of any scientific research, while others relate to the interpretations of the moral signification of the contents and outcomes of a bioarchaeology of care analysis. Such objections rely on another normative field, that of both scholar's philosophical and moral valuations. In relation to this short classification, I state then, on the one hand, that a bioarchaeology of care methodology is an adequate answer to any objector who fears that ethics of scientific research may not be honored in the field. On the other hand, I explain why a moral position which differs from ethical relativism in the anthropological literature can contribute to progress in the field.

Dobereiner, Jeffrey [86] see Schroder, Whittaker

Dobereiner, Jeffrey (Harvard University)

Incorporation and Independence in the Preclassic Western Maya Lowlands: Integrating Local and Regional Traditions at Rancho Búfalo, Chiapas, Mexico

In this paper, I explore tensions between territorial integration and local resilience at Rancho Búfalo, Chiapas, a five hectare Preclassic center that was geographically intermediate to the cultural territories of the Olmec, Lowland Maya, and Pacific Coast. This site's residents employed a localized approach to extra-local architectural packages, ceramic spheres, and burial traditions that complicates traditional narratives of ethnic and political incorporation in Preclassic Southern Mesoamerica. Their continuing access to imported goods such as marine shell and chemically fingerprinted obsidian indicates that this independence did not curtail their productive interaction with broader networks of Preclassic exchange. I contextualize their ability to balance local independence and broader territorial integration by drawing upon studies of the Classic Period and modern Usumacinta River Valley, and the unique geography that has led to its multi-millennia history as a contested space. By demonstrating heterogeneity in political and cultural territories that are traditionally construed as "well integrated," I interrogate the epistemological and geographic boundaries that have been imposed by researchers on the Maya area, and Mesoamerica more broadly.
Dobney, Keith [28] see Larson, Greger

Docchio, Rebecca (University of Colorado - Denver) and Julien Riel-Salvatore (Université de Montréal)

[53] Lithic Analysis of Late Mousterian Assemblages at Riparo Bombrini

We present a preliminary analysis of the Late Mousterian lithic assemblages from Riparo Bombrini, in Northwestern Italy. Riparo Bombrini is an important site because it contains some of the most recent Neanderthal occupations for that region. Our analysis includes both retouched pieces and unretouched debitage, focusing especially on piece dimensions; the presence, kind, and intensity of retouch; platform and termination types; as well as raw material procurement. These multiple dimensions combine to provide a fine-grained view of, among other behaviors, Neanderthal mobility in the various Late Mousterian levels at Bombrini, and thus shed light on the adaptations and behavioral strategies of Neanderthals immediately prior to the arrival of modern humans in NW Italy.

Dockrill, Stephen [351] see Maher, Ruth

Dodd, Walter (California State University, Fresno)

[153] Oh What a Tangled Web: The Symbolic Use of Road Trash to Advertise Drug Sales

This paper summarizes eight years of ethnoarchaeological research into the material consequences of drug-trafficking behavior. Tens of thousands of mundane trash items have been retrieved from roadway margins in a suburban setting, then sorted and analyzed. More than 175 artifact categories and pavement features are identified that carry subtle meaning for both buyer and seller. Artifactual, behavioral, and linguistic evidence has been assembled that links individual drug types to everyday objects on the street. Sales of marijuana, crystal meth, and crack cocaine dominate the sample. Several alternative substances are also represented. Recent interviewing of recovering drug users has provided a crucial chance to test the soundness of ideas generated by the fieldwork. The hidden undercurrent of drug dealing in contemporary society creates a fascinating but illusory archaeological record, one that interweaves systemic and archaeological contexts in an intricate structure of crypsis and mimicry.

Dodd, Justin [333] see Olson, Elizabeth

Dodge, Robyn [248] see Sweeney, Angelina

Dodge, Robyn (The University of Texas at Austin)


The ancient Maya site, Hun Tun is located in northwestern Belize and serves as a platform of inquiry into social complexity at the household level. This paper addresses ancient Maya commoners in household contexts while discussing data that are pertinent to ideas of household identity, social formation, and household production by re-evaluating the value of domestic space. The analysis of everyday objects in domestic contexts contributes to these data. Major archaeological features at Hun Tun will be discussed as they pertain to household archaeology and its contribution to greater Maya social complexity. Particular features challenge existing ideas about the function of hinterland domestic space. In tandem with features, material culture is also discussed as it also contributes to knowledge about the function of domestic activity areas. Such examples include ceramic analysis, various lithic material assemblages, and eccentric artifacts. The data suggests a larger scale of access and exchange for domestic household artifacts and features.

Doelle, William (Archaeology Southwest), Karen Schollmeyer (Archaeology Southwest) and Jeffery Clark (Archaeology Southwest)

[262] Salado in the Upper Gila
Salado archaeology in New Mexico was largely defined in the Upper Gila, where the regional name “Cliff phase” originated. Early work by Kidder and the Cosgroves in the 1920s and several professional and avocational projects in the 1960s-70s included important Salado sites. Despite this early promise many projects were underreported, and there has been comparatively little research with modern methods. Recent research by Archaeology Southwest addresses this gap. A strong base of survey and excavation in the Lower San Pedro Valley coupled with a growing understanding of the spread of Salado pottery and other markers allows us to trace Salado influence into the Upper Gila. The regional scale of Salado as the complex outcome of the Kayenta migration from the northern to the southern Southwest in the second half of the 13th century has become increasingly clear. This paper reviews the story of Salado on the scale of the Southwest and then focuses on current Preservation Archaeology efforts in the Upper Gila. Planning is ongoing to define a long-term research program that will improve our understanding of Salado’s place in the larger cultural and temporal framework of the Upper Gila.

Doelle, William [278] see Clark, Jeffery

Doering, Travis [83] see Collins, Lori

Doering, Travis (University of South Florida - AIST), Lori Collins (University of South Florida - AIST) and Margo Schwadron (National Park Service, Southeast Archeological Cen) [83]  

Digital Preservation and 3D Technology Strategies for the Management, Protection, and Interpretation of the Only Existing American Revolutionary War Tunnel: Developments from the 3D Documentation Project at Ninety Six National Historic Site, South Carolina

New strategies for archaeological preservation and interpretation are emerging from collaborative research occurring within our nation’s National Park Service (NPS) System. This paper shares results from a dangerous and challenging underground confined space archaeological project documenting a Revolutionary War Era tunnel system as part of cooperative work between the University of South Florida and the NPS Southeast Archeological Center (SEAC). Using digital imaging, terrestrial laser scanning, and aerial LiDAR combined with remote sensing and GPS survey, researchers documented, prepared conditional analysis, and developed public interpretation methods that extend management, preservation, and engagement potentials that yield insight into important historical events in our Nation’s history. Three-dimensional survey allows critical assessment of tunnel construction and conditions, and data are being used to create virtual models and replicas for display and educational purposes. Augmented Reality (AR), 3D Printing, and Virtual Reality (VR) models are also allowing for new and engaging teaching methods that bring our Nation’s Parks to life in the classroom and beyond.

Doering, Briana (University of Michigan) [163]  

The Earliest Catch: The Origins of Salmon Fishing in the Alaskan Interior

Ethnographic records indicate that salmon fishing was a primary activity for Athabaskan people living in Alaska’s interior. Evidence of fish use in antiquity is difficult to assess due to the highly degradable nature of delicate fish bones. Fishing in the archaeological record is identified by fishing tools in addition to faunal remains. This poster will discuss the antiquity of salmon fishing in Alaska’s interior through a GIS-based comparison of anadromous fish streams and evidence of fishing in registered archaeological sites in Alaska’s interior. This pilot project will serve as a basis for future archaeological investigations.

Doerner, James [300] see Brunswig, Robert

Dogandzic, Tamara (Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology), Karen Ruebens (MONREPOS Archaeological Research Center and Museum), Michel Lenoir (Université Bordeaux 1, Talence Cedex, France) and Shannon McPherron (Department of Human Evolution, Max Planck Institut) [389]  

Late Mousterian Industrial Variability in Southwestern France: A Case of Abri Peyrony
Variability of late Neandertal technological behavior has been a long debated question in which sites from southwestern France figure prominently. As suggested by some, rich datasets from this region show a pattern of chronological sequencing of late Mousterian technocomplexes. According to this model that assumes technocomplexes reflect different cultural groups among Neandertals, Quina Mousterian is always followed by Mousterian of Acheulean Tradition (MTA) and discoidal-denticulate is proposed as the latest expression of Mousterian in this region. This contradicts previous views where MTA is the latest manifestation of Neandertals and represents an origin of the Châtelperronian. Re-opened in 2009, Abri Peyrony, known as an MTA location since early 1900s, yielded a rich dataset that includes numerous lithic and faunal remains, bone tools and worked manganese oxide. Aside from a known MTA level, an older level has been discovered. In terms of lithic assemblage, it shows no bifacial elements characteristic of MTA and it features predominance of discoidal system and denticulate tools. Here we will present recent analysis of lithic industries from this site and discuss its contribution to the questions of the reality of the Mousterian technocomplexes and the validity of the chronostratigraphic sequencing of the late Mousterian in southwest France.

Dogandžić, Tamara [53] see Martisius, Naomi L.

Doherty, Raymond (University of Mississippi), John F. Lieb (UA/OAR retired.) and Brad Lieb (Chickasaw Nation)

[311] Good Fare and Tribal Affairs: The George and Saleechie Colbert Site

The George and Saleechie (Shillichi') Colbert site in northeastern Mississippi is an early 19th century Chickasaw occupation that has yielded extensive evidence of a well-travelled site, with a wide and prolific scatter of period artifacts, including pearlware, flintlock gun parts, wagon and harness hardware, Chickasaw pottery, trade beads, and in situ architectural foundation features. Historic documentation indicates that Colbert's home served as the Chickasaw council house, where the treaty of 1816 was concluded with Andrew Jackson. This poster compares the rich oral history of the site with the historic record, and reviews recent research along with the latest archaeological findings.

Dolan, Patrick (Washington State University) and Colin Grier (Washington State University)

[80] Reconstructing Settlement Histories Using Simulations and Calibration of Radiocarbon Dates: An Example from a Plankhouse Village in Southwestern British Columbia, Canada

Documenting the formation, growth, and decline of individual settlements is critical to explaining the development of settled village life. Radiocarbon dating is often the best, and in our case only, chronometric tool for establishing these temporal dynamics. Here, we explore several approaches to reconstructing the temporality of settlement at the Dionisio Point site, a precontact plankhouse village in southwestern British Columbia. Two decades of research at this 1,500 year-old hunter-gatherer-fisher village has generated more than 30 radiocarbon dates, presenting a rare opportunity to investigate the timing, duration, and, most importantly, shape of the village occupation. We employ Monte-Carlo simulation of uncalibrated dates to evaluate which of several alternative probability distributions of datable events best fits the empirical data set. We compare the results of this procedure with the summed probability distribution of calibrated dates, and consider our results in light of more recent Bayesian approaches to chronology-building. Our results suggest that using multiple methodologies offers useful insights into the complex settlement histories we seek to understand.

Dolan, Sean (University of Oklahoma)

[91] Black Rocks Beyond the Border: Obsidian in the Casas Grandes World

Archaeologists in the North American Southwest have documented the source provenance of obsidian artifacts throughout the Ancestral Pueblo, Hohokam, and Mimbres Mogollon regions. These results have impacted how we portray obsidian lithic technology, procurement, and social interaction at both macro and micro regional and temporal scales. Despite the methodological and theoretical advances in southwestern archaeological obsidian studies over the years, obsidian from the Casas
Grandes region in northern Chihuahua, Mexico has not been examined. Casas Grandes is the largest and most socially complex regional system in northern Mexico and the North American Southwest from A.D. 1200-1450 based on the large quantities of exotic objects, ceremonial activity, and architecture. This poster presents XRF analysis of 117 obsidian chipped stone artifacts from four Medio period Casas Grandes sites. Preliminary results suggest differences in obsidian procurement and source use at the Casas Grandes sites compared to contemporary sites further north in southwestern New Mexico with the occurrence of both local and non-local sources. This is the largest sourcing project in northern Chihuahua and these data show the importance of studying social interaction, economy, and lithic procurement using sourced obsidian artifacts to address the scale of Casas Grandes influence to the north.

Dombrosky, Jonathan [121] see Barker, Andrew

Dombrosky, Jonathan, Andrew Barker (University of North Texas), Amy Eddins (University of North Texas), Steve Wolverton (University of North Texas) and Barney Venables (University of North Texas)

[122] Characterizing Weathered Protein Residues from an Intra-Annual Cooking Experiment: A Mass Spectrometry Approach

The identification of archaeological protein residues from cooking pottery using non-targeted mass spectrometry based approaches is a promising avenue of research. A major strength of mass spectrometry in archaeological protein residue analysis is that it allows for the reliability of protein identifications to be probabilistically quantified. Though it is clear that proteins can preserve in ceramics under favorable circumstances, little is known about diagenetic processes that affect preservation and identifiability in less than ideal contexts. Thus, archaeologists have few expectations about what residues can be found in archaeological samples, indicating that method development using mass spectrometry in archaeological protein analysis is needed. One pressing question is: Using mass spectrometry, how rapidly do protein residues weather in clay matrices? Here, we employ experimental archaeology to address this question by burying food and protein-spiked pottery in one depositional context (Denton, TX), while extracting the pottery samples at intervals over the course of a year. We use TOC and LC-MS/MS approaches to explore how the identifiability of protein residues changes over the course of a year. Results allow us to evaluate protein identifiability, exogenous contamination, and the utility of non-targeted mass spectrometry approaches.

Domeischel, Jenna (The University of Oklahoma), Leland Bement (The University of Oklahoma) and Scott Hammerstedt (The University of Oklahoma)

[229] Geophysical Explorations at a Reservoir Site in Southwestern Oklahoma

The erosion and subsequent looting of archaeological materials from reservoir sites has long been a cause for concern. The damming of rivers results in the inundation of prehistoric camp and burial sites. Human remains and associated burial goods are a favorite of looters, and are frequently exposed by the rise and fall of reservoir waters. This project employs geospatial analysis of the Lake Altus-Lugert reservoir in southwestern Oklahoma to locate high-risk sites before they are exposed to looters. In addition to point plotting, surface collection, and metal detection, three geophysical methods are used, gradiometry, electrical resistivity, and ground-penetrating radar. Primarily through the use of gradiometry and ground-penetrating radar, 28 areas were pinpointed for testing. The results of this testing will assist in determining a future protocol for dealing with reservoir sites and burial recovery in this region.

Donahue, Randolph (University of Bradford)

[17] Trollesgave: Hunter-Gatherer Social Organization during the Late Glacial in Northwest Europe

Microwear analysis in combination with refitting and lithic reduction is applied to reconstruct the function and social organization at the Late Glacial site of Trollesgave, Denmark. Analyses of the flint knapping and the spatial distribution of its products reveal the traces of at least three individuals: expert, medium competent, and inexperienced. Based on the quality of craftsmanship and the
aberrant habits of disposing their products of the latter, there is evidence for one and possibly two children. As with Bromme Culture sites in general, the assemblage consists of primarily three types of tools. There is a strong association between these types and their use: end scrapers for dry hide scraping; burins for working hard material, primarily bone; and tanged points primarily for projectile tips. Nearly all divergence from this pattern can be referred to the activities of the children. The site appears to be occupied by a single family hunting (and fishing) unit and provides hypotheses about the social organization of other kinds of Bromme Culture sites in northern Europe.

[17] Chair

Dong, Guanghui [37] see Ma, Minmin

Dong, Weimiao (Lanzhou University) and Guanghui Dong (Lanzhou University)

[37] Cereal Cultivation Shift during Qijia Culture Period in Gansu and Qinghai Province, NW China: Archaeobotanic Evidence

Qijia period (4400-3500 cal yr BP) is the key period for the introduction of wheat and barley originated from West Asia into Gansu and Qinghai Province, northwest China. Based on archaeobotanic and radiocarbon data from Caomaidian, Lajia, Jinchankou and Lijiaping Qijia sites, we discuss change of cereal cultivation through that period. Our results suggest only foxtail millet and common millet were cultivated in Caomaidian and Lajia sites dated to 4300-3900 cal yr BP, which account for 97.19% of crop remains in Jinchankou site (4200-3700 cal yr BP), while barley and wheat weight 2.67% and 0.15% in that site respectively, which were firstly introduced around 4000 cal yr BP. Charred seeds of foxtail millet, common millet, barley and wheat weight 69.94%, 28.21%, 14.38% and 0.40% of crop remains in Lijiaping site dated to 3700-3500 cal yr BP. Though millet crops were the most important cultivated cereal crops throughout Qijia period, new crops including barley and wheat were utilized during late Qijia period, and significance of which in subsistence strategy increased after their emergence in the area.

Dongoske, Kurt [197] see Pasqual, Theresa

Dongoske, Kurt (Zuni Cultural Resource Enterprise)

[284] Native Americans and Archaeology Training Workshop: A Twenty Year Retrospective

The Arizona Archaeological Council received funding from the NCPTT during its inaugural granting cycle to conduct a two day training workshop between Native Americans and archaeologists. The goal of the workshop was to promote a productive dialogue between Native Americans, Federal agency archaeologists, academic archaeologists, and archaeologists from the contracting community. Three issues were the focus of that workshop: consultation, oral tradition and archaeological interpretation, and Native Americans' role in archaeology. This presentation reviews the proceedings and the products of that workshop followed by an evaluation of the current condition of the relationship between Native Americans and archaeologists and what progress, if any, has been made in the twenty years since that workshop.

Donner, Natalia (Leiden University)

[246] Asking New Questions to Central Nicaraguan Pottery

Prehispanic Central Nicaraguan pottery has often been addressed as “poorly studied”, or “problematic”. Therefore, a lot of questions remain regarding the region’s ceramic development and especially its interactions with other areas. Even though a ceramic sequence was established at the end of the 1980s (Gorin 1990, Espinoza and Rigat 1994), analyses have traditionally focused on type-variety and modal traits, concentrating primarily on decoration techniques and motifs. As a result, we lack vital technological information that will help us determine pottery production. The Leiden University project “Late Prehistoric settlement of Aguas Buenas, Nicaragua, A.D. 500-1522”, directed by Dr. Alexander Geurds, is surveying several prehispanic sites in Chontales to design a series of excavations aimed to obtain ceramic samples that will be analyzed using the premises defined by the Chaine Operatoire (Grace 1997). In this paper, we will present a general research
Donohue, Patrick [121] see Schurr, Mark

Donohue, James

[230] Buried Middle Archaic Period Occupations on the James River at 39BE122
Evaluative test excavations were conducted at 39BE122 for the Bureau of Reclamation. One test unit and eight backhoe trenches were excavated. Six paleosols were documented in the upper 3 m of alluvium, four of which yielded evidence for cultural components. Four to five components were found from 140 to 290 cm below surface. Radiocarbon dates of 3690 +/- 30 B.P. from Component 2 and 5140 +/- 30 B.P. from Component 4 demonstrate a Plains Middle Archaic age for the site. The size, artifact densities, and features suggest a series of residential camps.

Donop, Mark (University of Florida)

[12] Beings from the Third Dimension: Imaging Weeden Island Effigies
The use of 3-D imaging enhances the ability of archaeologists to record and analyze artifacts for both public and academic purposes. This study used 3-D imaging to scan a sample of ceramic artifacts collected by Decatur Pittman in the 1880s from the Palmetto Mound (8LV2) mortuary facility on the Florida Gulf Coast housed at the Florida Museum of Natural History (FLMNH). This collection consists primarily of Woodland Period (A.D. 200-1000) Weeden Island ceramics that include large portions of eccentric and elaborately decorated sherds and vessels with zoomorphic and anthropomorphic effigies. Over 400 vessels have been analyzed using standard methods that include caliper measurements, hand-drawn profiles, photography, and brief descriptions of decorative motifs. The 3-D scanner at the FLMNH was used to create digital images from a sample of 10 modeled effigies and 20 incised and punctated effigy vessels in an effort to assess the advantages of 3-D imaging before destructive analyses were employed. The study provides a digital record that can be readily accessed and an additional tool to more accurately study artifacts, in this case ceramic effigies.

Donta, Christopher (Gray & Pape, Inc.)

[281] Small Stemmed in the Northeast: Technology and Cultural Continuity in the Late Archaic
Small Stemmed projectile points were made and utilized across a wide area of eastern North America, and are one of the most frequent point types found in Archaic contexts in New England. Recent excavations have shed new light on associations with features, dated contexts, and other artifact types. This paper looks at radiocarbon dating of Small Stemmed features across southern New England to document the connections between this point type and others during this complex time period. These documented associations refine our understanding of the origins, time depth, and likely functions of this tool. The distribution of Small Stemmed points and the manufacturing technology both indicate origins in Middle Archaic contexts, and long-term continuity of settlement across the Late Archaic and into the Woodland period. These data address questions as to the origins of Algonquians in New England and their relationships to the greater Northeast during the Archaic.

Doolittle, William (University of Texas)

[257] In the Spirit of Sauer and Brand: Geographic Reflections on the RSV Project
The Rio Sonora Valley Project directed by Richard A. Pailes in the late 1970s was pivotal in contributing to our understanding of northwest Mexico. It was the first systematic archaeological research conducted in eastern Sonora since Carl Sauer and Donald Brand in the 1930s, and it precipitated later research by John Douglas, Emiliano Gallaga, Elizabeth Bagwell, and most recently Matthew Pailes. The project was not without problems, and critics. As a member of the RSV Project, and one who continued to work in the area nearly annually for the next 30 years, I share my personal insights on the long-term positive aspects that remain unappreciated. The project was not only important in terms of archaeology, but it contributed to the intellectual development of scholars who
specialize in other topics. It also raised some intriguing questions that beg to be addressed, hopefully in the near future. A few of these are reiterated in this paper.

Dorland, Steven [345] see Hanks, Bryan

Dorland, Steven (University of Toronto) [114]  Learning Landscapes within an Ancestral Wendat Village
This paper concerns my proposed doctoral research that focuses on learning environments within Ancestral Wendat potting communities, more specifically, the 15th Century A.D. Keffer village. My theoretical perspective is grounded in a framework of apprenticeship, and experiential philosophy that emphasizes the experience and interaction of an individual within the material world, interwoven with both social and body memory. My methodological approach consists of micro-variation analysis to identify the material traces of learning and skill acquisition, and distribution analyses to identify spatial patterns pertaining to learning frameworks. Traditional approaches to pottery in Ontario isolate “juvenile” vessels from “adult” vessels, however, this prevents learning biographies from being identified, and thus, limiting understanding of the learned experience. I focus on identifying the stages of learning required to build the skills and knowledge needed to both form and decorate pottery vessels, as ethnographic examples demonstrate that learning trajectories involve both an understanding of decoration, as well as forming techniques (see Crown 1999; 2001; Wallaert-Petre 2001; Wallaert 2012). I hope to demonstrate that my theoretical and methodological approaches will allow me to explore how knowledge, both practical and abstract, was transmitted, learned, and mastered.

Dorshow, Wetherbee (University of New Mexico), Patricia Crown (University of New Mexico, Department of Anthropology) and John Crock (University of Vermont, Department of Anthropology) [287]  Clear Views from the Ground: 3D Modeling of Architecture and Rock Art from Chaco to Anguilla
Airborne LiDAR and orthophotography are increasingly ubiquitous in modern archaeological research, particularly at the regional scale. For detailed intrasite analyses of architectural sites, rockshelters, and caves, however, these airborne technologies offer limited utility. This paper highlights the significant research potential and conservation value of very high-resolution terrestrial LiDAR and gigapan HDR photogrammetry for architectural and “built” cultural dwelling places. Drawing on two unique case studies from the American Southwest and the northeastern Caribbean, we explore the benefits of very high-resolution 3D modeling, visualization and analysis afforded by these increasingly affordable, relatively user-friendly “terrestrial” technologies. The first case study focuses on 3D laser scanning and spherical panoramic HDR photography within Room 28 in Pueblo Bonito at Chaco Canyon. Room 28 is notable for the discovery of hundreds of ceramics vessels in the burned room, including the majority of Chacoan cylinder jars. The second case study entails laser scanning at two Amerindian ceremonial cave sites in Anguilla in the Lesser Antilles, one of which (Fountain Cavern), was previously nominated as a UNESCO World Heritage Site. Analysis-based discoveries and extremely accurate digital reconstructions derived from these studies show significant potential for understanding, documenting and protecting rare, inaccessible and unique sites such as these.

Dos Santos, Isabel (Isabel Teixeira-Santos), Luciana Sianto (Luciana Sianto), Sheila Mendonça de Souza (Sheila Mendonça de Souza), Adauto Araújo (Adauto Araújo) and Sérgio de Miranda Chaves (Sérgio Chaves) [415]  Analysis of Food Remains in Human Coprolites from Furna do Estrago Prehistoric Site, Pernambuco State, Brazil
The identification of human food remains from archaeological sites contributes to paleonutrition and paleoepidemiology studies, shedding light on key aspects of human biological evolution and cultural changes. In the present study, macroscopic and microscopic food remains were recovered from human coprolites from Furna do Estrago, Pernambuco State, Brazil. The remains are dated between 1,860 +/- 50 and 1,610 +/- 70 years BP. The region may have been subjected to harsh
environmental conditions periodically in the past. During these times, human groups may have been subject to food shortages and consequently drew on alternative food sources. The study seeks to understand diet alternatives and strategies used by this group during such periods. Based on analysis of microscopic remains, plants were widely used as food sources by the group that buried their dead at the rock shelter, both by the predominance of such items in the analyzed samples, and by the identification of plant resources in the site vicinity. It is necessary to understand the relationship between the natural and social environments, that is, the possibility of selection and distribution of resources beyond the natural supply and their potential use.

Doucette, Dianna [281] see Flynn, Erin

**Doucette, Dianna (The Public Archaeology Laboratory (PAL))**

**[281] Evaluating Archaic Period Settlement and Subsistence Patterns in Relation to Ecosystem Dynamics in New England**

This paper summarizes preliminary data and interpretations of Archaic Period land use patterns in relation to environmental dynamics within Massachusetts. This analysis is a component of a larger NSF-funded research project intended to analyze the drivers of and responses to ecosystem dynamics in the New England region. This project aims to better understand the dialectical relationship among human activity (fire, land clearance, horticulture), vegetational dynamics, and climate. The following are the specific alternative hypotheses examined in this three-year project: (1) changes in vegetation were the result of cultural development or “evolution”; (2) people passively responded to environmental change, contributing minimal ecological impact themselves; and (3) vegetational histories demonstrate the clear influence of human agency, with different drivers and responses in different cultural contexts. We present comprehensive archaeological and ecological data for the state of Massachusetts as a whole, and our more intensive analysis of three sub-regions within the state: Martha’s Vineyard, the Taunton River Drainage Basin, and the Deerfield Valley—representing three distinct ecological zones.

**[281] Chair**

**Dougherty, Sean (MATC) and Akira Tsuneki (University of Tsukuba, Japan)**

**[205] To Snatch the Baby from Its Mother’s Lap: Infant Mortality and Maternal Health at Tell el-Kerkh, Syria**

The injurious effects of the agricultural transition on health have been well documented. However, contributions from the Near East are relatively uncommon. Excavations at the Pottery Neolithic cemetery at Tell el-Kerkh in northwest Syria provide an opportunity to study into the effects of the agricultural transition in this less examined region. The cemetery sample consists of 258 individuals. The mortality profile reveals high infant mortality, with 40% of the sample dying before the first postnatal year. Thirty-six individuals were observed with enamel defects. Most developmental disruptions are estimated to have occurred between 3.5-5 years. Both cribra orbitalia or porotic hyperostosis were observed among 22 individuals, and were associated with early mortality. At Tell el-Kerkh, the increased reliance on agricultural resources, and the population changes that followed, did not come without deleterious consequences to health, particularly for the youngest of the community. The observed juvenile mortality and morbidity may be linked to heterogeneous resistance to acute and chronic disease, parasite loads, and malnutrition. The high frequency of early infant death observed at Tell el-Kerkh, while perhaps expected, further suggest the presence of multiple stressors of maternal health, such as limited dietary resources and culturally embedded expectations of high fertility.

Douglas, Matthew [94] see Magnani, Matthew

Douglass, John [175] see Hull, Kathleen

**Douglass, John (Statistical Research, Inc.)**
Community Formation and Integration in Colonial Alta California

Community formation and integration in colonial settings has traditionally been viewed from the binary perspective of colonists and native people. This session views the concept of community in colonial Alta California (1769-1834) from more holistic and alternative viewpoints. To set the stage for this discussion, this introductory paper offers an overview of the sociopolitical landscape in colonial Alta California and presents a broad discussion of the concept of “community” as it may pertain to the region. How were communities formulated and integrated in colonial settings such as Alta California? Communities are not natural creations, as there are inherent tensions and conflicts within groups, whether by age, gender, ethnicity, or other constructs. What were the geographic and social scales of community seen in colonial settings? Were there “imagined” communities and, if so, in what settings and situations did they emerge? In what ways did multiethnic communities emerge within traditional colonial settings such as pueblos? Drawing primarily on ethnohistoric resources, a case study of the Pueblo of Los Angeles, serves to demonstrate the multi-faceted concept of community and the nature of multiethnic interactions and community formation colonial Alta California.

Chair
Douglass, Kristina (Yale University)

Early Human-Environment Dynamics on the Southwest Coast of Madagascar

This paper discusses early occupations of the southwest coast of Madagascar and the impact that human subsistence practices may have had on the highly endemic spiny forest biome. A major transformation of Madagascar’s environment post-human arrival is the extinction of a suite of mega fauna species. Ongoing work on the spread of domesticates throughout the western Indian Ocean will certainly improve our understanding of Madagascar’s settlement history, but little is known to-date about the earliest arrival of invasive species on the island and the role invasives may have played in contributing to mega fauna declines. Though not as early as forager occupations recently uncovered on the north coast of Madagascar, the sites discussed in this paper also appear to be seasonal forager camps with low artifact densities. Thus far, excavations have yielded little, if any, evidence for the presence of invasive plants and animals. Instead these sites reveal a heavy reliance on endemic wild taxa. Evidence for the exploitation of the now-extinct ratites of Madagascar indicates that foraging for ratite eggs may have contributed to population declines, but the introduction of domesticates like chicken and cattle to the area appears to be a recent phenomenon.

Dover, Thomas [377] see Cioffi-Revilla, Claudio

Dowdall, Katherine [383] see Elliott, Evan

Dowdall, Katherine, Otis Parrish (Kashaya Pomo Tribe), Margaret Purser (Sonoma State University) and John Wingard (Sonoma State University)
The Kashaya Pomo Cultural Landscape Project: A Community-Based Approach

In order to more effectively co-steward Kashaya Pomo cultural resources, the California Department of Transportation and the Kashaya Pomo Tribe conducted a multi-year community-based cultural landscape study. This study documents that for some as yet immeasurable time back into antiquity, the lives of Kashaya ancestors were structured by a landscape that included burn-managed ecosystem components, clearings for villages and other Kashaya places, trails, and boundaries. Their accumulated bank of multigenerational landscape labor and knowledge structured the lives of, and benefitted, each subsequent generation up to the present. This study also documents the enduring relationship that modern Kashaya tribal members have with their ancestral homeland, regardless of their proximity to it, and the importance of it to their cultural identity and well-being. Links between Kashaya tribal members and their places, between the past and the present, and between tangible and intangible heritage, have broadened our view of what is to be stewarded and how. We now see a vital part of stewardship to include protecting the linkages between the Kashaya community and their heritage in ways that support their identity in the present.
Downes, Jane [351] see Maher, Ruth

Downey, Jordan (University of Western Ontario) and Jean-François Millaire (University of Western Ontario)

[404] Anchoring the Absolute to the Relative: Recent Chronological Research in the Virú Valley, Peru

For decades north coast specialists worked within a paradigm that viewed the Moche as an expansionist state. Moche fine ware was regarded as a reliable indicator for dating this polity’s imperialism over its neighbors, an idea that traces its roots to the Virú Valley Project of the 1940s. Extensive recent field research has led many to question this colonial model, however, and to propose other, more fragmented, geopolitical scenarios. This shift has both undermined the universal usefulness of using fine wares like Moche for building chronologies and constructing political histories, and also underscored the need for refined chronologies in each valley. This shift led us to question the accuracy of the original Virú Valley seriation and to develop a program of radiocarbon dating in Virú. In this paper we present results from this program that shed light on the political histories and foreign policies of the Virú and Moche polities during the Early Intermediate Period.

Downs, Mary (National Endowment for the Humanities)

[68] Discussant

Doyel, David (Estrella Cultural Research)

[229] The Earliest Known Occupations of the Globe Highlands in Central Arizona

Excavations along Pinal Creek north of the Town of Miami in the Globe Highlands of central Arizona have identified a lengthy settlement history extending several thousand years from the Archaic period to the historical Apache occupation. The focus of this paper is on the earliest known periods of occupation identified by excavation. A preceramic component consisted of a structure fragment and a pit from which maize was recovered that produced a date of 790-415 B.C. E. (calibrated two-sigma), which could be the earliest dated structure in the area. Several temporally associated dart points, including a Cienega-type, were also present. This Late Archaic manifestation could be attributed to the Cienega phase of the Early Agricultural period within recent chronological schemes. A nearby Early Ceramic component included two structures, several partial ceramic vessels including a seed jar, and other artifacts. Three associated inhumation burials may represent the earliest-known mortuary features in the Globe Highlands. This component appears to date to the late seventh-to eighth century. These early cultural and technological complexes will be placed within the context of the human settlement history of the region.

Doyle, Sean (McMaster University), Tristan Carter (McMaster University) and Daniel Contreras (Kiel University)

[215] Archaeological Visibility at Stélida, Naxos: Identifying Activity Hubs at a Palaeolithic Chert Quarry in the Cyclades

This paper details the methodology used by the Stélida Naxos Archaeological Project (SNAP) to distinguish primary activity areas within a Palaeolithic chert quarry. This work is undertaken in a challenging artifact-rich landscape that has undergone significant post-depositional modification through various environmental factors and anthropogenic disturbance. The two-year non-invasive survey involved walking numerous transect lines to produce a broad-stroke impression of artifact density, which were followed by intensive grid collections in recognized ‘hot-spots’. This strategy was supplemented by grab samples of key diagnostic pieces discovered outside of the standardized collection units. Chert outcrops were mapped and sampled to gauge variability in the raw materials. Degree of slope and vegetation cover were recorded throughout, together with noting ‘artifact trap’ locations such as historic terrace walls and donkey paths, along with all instances of human disturbance including bulldozed tracks, clay pits, and buildings. These systematically documented data are then interrogated using GIS weighted overlay tools and other spatial analysis techniques in an attempt to analyse post-depositional effects and map areas of Lower and Middle Palaeolithic activity (quarrying, tool production). The paper offers some preliminary conclusions, and charts...
alternative and supplementary techniques that will be employed in the future.

Doyle, Shane [236] see Alegria, Crystal

Doyle, James (The Metropolitan Museum of Art) [244] Preclassic Maya Territories and Boundaries

Many Classic period (ca. A.D. 250–900) polities owe the location of their royal courts to decisions made by settlers in the Preclassic period (ca. 1000 B.C.–A.D. 250). This presentation evaluates the basic question of whether there is evidence of territories or political boundaries in the Preclassic Maya Lowlands. In the past, I have argued that Middle Preclassic residents constructed monumental E-Group architecture at specific places on the landscape as a conscious creation of distance between themselves and their neighbors. I based my conclusion on viewshed analysis that showed that early communities had complementary visible access to the landscape, in other words, non-overlapping views when measured from the E-Group. Here I interrogate the meaning of the perceived distance or implied boundaries between these monumental centers.

I include the latest evidence from ceramic production. The Mamom sphere ceramics, produced for several hundred years across the Maya Lowlands, complicate the question, as we lack any long-range studies of regional or polity-scale differences in the raw materials, production technology, or surface decoration of these vessels. I also reexamine the original data set of similar plazas and pyramidal architecture in the Middle Preclassic given new discoveries in recent years.

Drake, Lee [3] see Thomas, Jayne-Leigh

Drane, Leslie (Indiana University) and Joel Lennon (University of Illinois) [173] The Study of Temper and its Wider Implications at the Cahokian Lunsford-Pulcher Site

Lunsford-Pulcher (11-S-40) is a Mississippian mound center located in the American Bottom, near modern day Dupo, Illinois. To date there has been limited excavation and analysis conducted at this important ceremonial village. For this study, 181 rim sherds from a surface collection by Timothy R. Pauketat and Bobby Pauketat were analyzed and then compared to other nearby Mississippian sites (the Washausen, Peiper, and Morrison sites), with a focus on the differences in temper usage. This paper will provide insight into whether people at Lunsford-Pulcher were less inclined to participate in particular Mississippian technological and aesthetic changes in comparison to surrounding sites through our examination of the stylistic and morphological ceramic differences. We investigate how Lunsford-Pulcher people may have used temper to express the fluid ontologies of their diverse population. Researching sites like the Lunsford-Pulcher is a necessary endeavor if we wish to further comprehend the assembling practices and ideologies that were present before and during the rise of Mississippian prominence.

Drane, Leslie E. [188] see Frazier, Mechell

Drelich, Jaroslaw [126] see Scarlett, Timothy James

Drennan, Robert (University of Pittsburgh), Adam Berrey (University of Pittsburgh) and Christian Peterson (University of Hawai’i) [36] Elite Ambitions, Public Works, and Political Consolidation: A Comparative View

We are accustomed to temples, platforms, plazas, tombs, statues, fortifications, raised fields, or other large-scale constructions as archaeologically conspicuous signs of the successes of early complex societies. Archaeologists often assign major roles to such public works in creating social cohesion and extending elite power. This may be a consequence of material benefits, such as increased agricultural production or protection from attack, or it may represent the materialization of politically useful ideology so as to strengthen or extend it. A broadly comparative empirical view makes it clear, however, that larger, more elaborate, and more costly public works do not necessarily
correspond to larger-scale and more successful political consolidation. Some especially impressive examples may instead indicate highly precarious political circumstances. There is a delicate balance of forces between ambition, power, resources, and resistance. Successful elite strategies can contain the seeds of their own destruction if they eventually upset this balance. The balance can also be altered, either to the benefit or the detriment of elites, by forces impinging from outside.

Drennan, Robert [82] see Peterson, Christian

Drew, Brooke [301] see Epstein, Emily


Since its discovery during the original 1990s excavations, the Register of Burials at the Milwaukee County Poor Farm Cemetery has been the foundation for most historical and archaeological research involving the Milwaukee County Poor Farm Cemetery. Until recently the register was considered a complete listing of most, if not all, burials on the Milwaukee County Grounds between 1882 and the final burial in 1974. However, new excavations during the summer of 2013 as well as comprehensive archival investigations of Milwaukee County death certificates and coroner’s inquests have shown that the burial activities on the county grounds were far more complex than the register suggests. This paper provides a summary of the archival findings including a detailed demographic profile of the burial population. A comparison of this data with that generated solely from the register will highlight the potential pitfalls of relying on a single documentary source. In addition, a brief discussion of how this comprehensive archival research will allow this author to identify individuals from this unmarked pauper’s cemetery will be provided.

Drine, Ali [51] see Barnard, Hans

Driscoll, Killian (Université de Montréal), Adrian Burke (Université de Montréal), Gilles Gauthier (Université de Montréal), Graeme Warren (University College Dublin, Ireland) and Stefan Bergh (National University of Ireland, Galway) [185]  The Irish Lithic Landscapes Project: Current Chert Provenancing Research in Prehistoric Ireland

The Irish Lithic Landscapes project is investigating the places where prehistoric communities obtained the raw materials for their flaked stone tools during the Irish Mesolithic, Neolithic, and Early Bronze Age, which dates to c. 8,000–2,000 B.C. While Ireland has a very rich archaeological heritage, there is a significant gap in the island’s raw material sourcing research. This project will begin to fill this gap, and therefore deepen our understanding of the prehistoric communities there. The 2014 geoarchaeological prospection for the project centered on the northwest of Ireland, which includes case study assemblages from domestic sites and ritual sites such as megalithic tomb complexes. During 2014 we collected 350 geological samples from over 400 survey points, which included examining c. 250 outcrop groups. The present analysis is using non-destructive energy dispersive X-ray fluorescence (ED-XRF) as a first-order technique to determine chert whole-rock geochemistry, which will be followed by petrographic analysis on a sub-sample of the collection. A significant part of this project is the creation of a lithoteque reference collection of Irish cherts; this will be physically housed at the UCD School of Archaeology, Ireland and accompanied by a web-based, spatial database, open for use by other researchers.

Driver, Jonathan (Simon Fraser University) and Karen Schollmeyer (Archaeology Southwest) [85]  Intensive Archaeological Sampling for Fine-Grained Resolution of Human-Environment Relationships: Fauna from the Sand Canyon Locality and the Central Mesa Verde Region

In the Mesa Verde region of the southwest USA the intensity of archaeological excavation, coupled with good preservation and high-resolution dating, creates an unusual opportunity to examine spatial and temporal variation in faunal assemblages. We examine methodological issues associated with
the analysis of hundreds of assemblages in a small region, and show how thoughtfully selected data provide opportunities to study a number of phenomena, including: differential human impact on animal species; direct and indirect human impacts; introduction of domesticates; the role of landscape heterogeneity; use of rare species.

Drollinger, Harold [311] see Beck, Colleen

Druc, Isabelle (University of Wisconsin-Madison)

Rojo Grafitado Is Not Graphite. A Slow-Science Interpretation of the Production of an Andean Ceramic Style

Building upon the slow-science movement, and the work of Olivier Gosselain and others, this presentation examines how our understanding of ancient ceramic production depends upon the path a research may take. It argues for a re-articulation and re-evaluation of qualitative observation, small number of samples and quantitative data. The Rojo Grafitado case presented arose from research hazards, curiosity, and a regional perspective on ceramic production. During the first millennium B.C. in the northern Peruvian Andes, finely decorated Rojo Grafitado wares appeared in small numbers in different ceremonial centers. The paste and surface of a few of these wares have been recently analyzed and the petrographic results point to a non-local provenance, while the technology and paste recipe appear to be similar in the cases observed. In addition, an SEM-EDXRF analysis suggests that the black pigment used for surface decoration is not graphite, but manganese. Triangulating macropaste analysis, petrography and SEM analysis, with geological, stylistic and ethnographic data allows us to postulate the existence of specialists, operating from a particular region, and producing a specific type of ware for a particular clientele. Such a production scheme has not been identified yet for this early time period in the Andes.

Chair

Dubois, Jonathan (UC Riverside)

Exchanges in Stone: Tracing the Influence of Amazonian Peoples on Andean Ones as Expressed in the Rock Art of Huánuco, Peru

Recent fieldwork documenting hundreds of rock art panels in the region of Huánuco, Peru has allowed the author to begin to establish a more finely tuned chronology than has previously been possible. The process of revealing this chronology involves stylistic seriation using such features as color, line thickness, superpositions, and preference for particular design features during certain periods and in certain groups. One of the surprising revelations of this work has been the widespread penetration of Amazonian ideas expressed in iconography into seemingly remote parts of the Andes. This paper will begin with a discussion of the chronology, including the methodology involved. I will go on to explore the timing and nature of Amazonian influence in the Andes as expressed in rock art. The present research has revealed a strong similarity between the style of paintings on large boulders beside rivers in the highland Andes and those carved onto similarly located boulders in the Amazon. The presence of Amazonian iconography has also been detected at multiple highland locations. I will conclude by exploring some of the implications these revelations have for Andean archaeology and anthropological archaeology in general.

Dubouloz, Jérôme [211] see Weller, Olivier

Dubreuil, Laure [342] see Nadel, Dani

Ducette, Dianna L. [281] see Ort, Jennifer

Dudgeon, John [52] see Hernandez, Nicole

Dudgeon, John (Idaho State University - CAMAS), Rebecca Hazard (Idaho State University - CAMAS) and Amy Commendador (Idaho State University - CAMAS)
Further Evidence for a Terrestrial-Focused Protein Diet in Prehistoric Rapa Nui

Previous analyses of subsistence activities on Rapa Nui generated new classes of data to explain human persistence on this remote, subtropical and ecologically-marginal island. Even compared to other small to medium-sized islands in Eastern Polynesia, Rapa Nui appears anomalous for several reasons: 1) an apparent shift away from marine protein sources, determined from stable isotope analysis of bone collagen, and 2) a far greater reliance on a single terrestrial carbohydrate (Ipomoea batatas), determined from microfossil phytolith and starch evidence. Here we report our efforts to extend this interpretive framework using next-generation sequenced amplicons from commensal species recovered from dental calculus. These data are compared with existing zooarchaeological sequence data from two Rapa Nui commensals (Rattus exulans, Gallus gallus) and modern marine taxa to further evaluate the terrestrial-focused subsistence hypothesis.

Dueppen, Stephen (University of Oregon)

Opening the House: Transforming Identities at Kirikongo over the 1st and 2nd Milleniums CE (Burkina Faso, West Africa)

Located at the intersection between Voltaic and Mande historical traditions, contemporary western Burkina Faso (West Africa) is a complex cultural mosaic in which local identities transcend linguistic boundaries and cultural practices, exemplifying the difficulties of employing bounded social categorizations in anthropological archaeology. The site of Kirikongo, located in this region and occupied continuously between 100 and 1700 CE provides an important case study to explore the changing nature of identities in a village community. Over time, inhabitants negotiated individual, house, village and regional identities in the context of growing and in-migrating populations at the level of the village and the greater region. This paper examines multiple dimensions of this dynamic and on-going process of identity formation in the past of Kirikongo with particular attention to durable and changing concepts of space and time. Through the analysis of multiple classes of material culture, it explores the complexity of social categories in the ancient community, as the membership of some social groups became more bounded (e.g., hereditary occupation groups) or open (e.g., houses) within the context of a general trajectory of increasingly permeable community and ethnic identities.

Dufeu, Val [155] see Werner, Roger

Duff, Andrew (Washington State University)

Discussant

Dufeu, Val [274] see Satterlee, Ashton

Duffy, Chris [32] see Jazwa, Christopher

Duffy, Lisa (University of Florida) and Timothy Garrett (University of Florida)

Investigating Ancient Beverages from Cerro Maya, Belize through Chemical Residue Analysis

Ceremonial vessels used by the ancient Maya are common archaeological findings, and are thought to have contained beverages made from cacao, maize and other plants of ritual and economic importance. Increasingly, methods of chemical analysis able to detect trace levels of organic compounds are being applied to the investigation of these artifacts. Two whole pottery vessels from the site of Cerro Maya, Belize were selected from the collection at the Florida Museum of Natural History at the University of Florida to undergo mass spectrometry. Goals of this testing were to determine if any chemical traces were recoverable and identifiable that would help reveal what ingredients may have been included. Both vessels were from well protected burial contexts and were in good preservational condition. One had undergone field washing and curation, while the other was unwashed. Both vessels underwent ultra-high performance liquid chromatography-high resolution mass spectrometry at the University of Florida. Results from both items were positive for multiple
chemical biomarkers associated with cacao and other ingredients. Among the implications of these results are that washed pottery artifacts in museum collections may be a valuable source of such information.

Dufton, J. Andrew [385] see Gosner, Linda

Dugmore, Andrew (University of Edinburgh)

[351] Landscape Stability, Environmental Resilience and Anthropocene Transformations in Iceland

Before the Norse settlement, Iceland was characterized by substantial areas of birch woodland in sheltered valleys, highland willow tundra and birch-willow scrub extending into more exposed areas of upland, coast, and marginal wetlands. Terrestrial mammals had been eradicated by Quaternary glaciations. Aeolian sediment accumulation rates were low and correlated over kilometer–scales. Rapid colonisation by the Norse and their introduction of domesticated animals triggered a rapid change in some environmental processes. In the first four centuries after settlement woodlands were cleared, grassland expanded, soil erosion developed, aeolian sediment accumulation rates increased and spatial variability of Earth surface processes intensified. These changes may have enhanced pastoral productivity and societal resilience in the face of climate change. Tephrochronology enables us to understand these transformations in detail, track change across the landscape and correlate episodes of landscape change with putative drivers of subsistence strategy, economic practice and climate. This helps us to understand when humans became dominant drivers of change, and the implications of this development in the interplay of resilience, sustainability, climate and society.

[288] Discussant

Duke, Hilary (IDPAS, Stony Brook University, New York) and Sonia Harmand-Lewis (Turkana Basin Institute, Stony Brook University)

[53] New Data from Old Stones: A Technological Pilot Study of Lithics from Kokiselei 6 (1.8 mya) in West Turkana, Kenya

Behavioral variability is a cornerstone characteristic of Homo sapiens that evolved among earlier hominins. Archaeological lithic evidence records changes in hominin behavior and knowledge systems over time. Major changes are evident among lithic assemblages ~1.76 mya in Africa, with the emergence of large, bifacial, core tools (e.g., handaxes). This technology shows marked change from earlier assemblages, conforming to different reduction strategies. The behavioral and cognitive implications of these changes have been topics of debate for several decades. To test hypotheses about the origins and long persistence of this technology, we need comparable technological data for the periods preceding and concurrent with these assemblages. The Kokiselei complex in West Turkana preserves sites amenable to studies of Early Pleistocene (EP) lithic technological variability. Kokiselei 6 (KS6) is one of the largest, densest and best spatially preserved EP (1.8 mya) sites in Africa, with two distinct stratigraphic layers. This paper presents pilot data on lithic technology from KS6, penecontemporaneous with Kokiselei 4, a site with the oldest-dated evidence for bifacial technology (1.76 mya). Forthcoming technological analyses of lithics from Kokiselei sites will facilitate the measurement of technological variability and change during a key phase in hominin behavioral evolution.

Duke, Daron (Far Western Anthropological Research Group)

[87] Haskett Spear Points and the Plausibility of Megafaunal Hunting in the Great Basin

Recent Haskett projectile point finds from western Utah’s Great Salt Lake Desert provide a compelling case for megafaunal hunting in the Great Basin, a region that stands out in North America for its lack of direct evidence. The Haskett style is likely the oldest representative of the Western Stemmed series of projectile points, and radiocarbon age estimates on black mat organics at the locality suggest a date range between ca. 12,000 and 13,000 cal BP. In this paper, an argument for megafaunal hunting is constructed for critical examination against alternatives. Images and technological attributes for the collection are presented, including one 22.6-cm specimen that is the longest Haskett point documented archaeologically and another that tested positive to
proboscidean antiserum via protein residue analysis.

Duke, Riley (University of Arizona) and Stacy Ryan (Desert Archaeology, Inc)

Black and White and Shades of Gray: Projectile Points and Bifaces from the Dinwiddie Site, Southwestern New Mexico

During Archaeology Southwest and University of Arizona's 2013 and 2014 field school seasons, close to a hundred bifaces were recovered from the Dinwiddie site, a Cliff phase (A.D. 1300-1450) Salado site in southwestern New Mexico. These artifacts include Archaic and late Pueblo period projectile point styles and several bifaces interpreted as having been discarded during the manufacturing process. This poster presents the biface and projectile point analyses results, expanding on a study initially conducted for the 2014 Upper Gila Preservation Archaeology field school public outreach project. The discussion focuses on the temporal and cultural associations of the recovered projectile point types and identifiable evidence for on-site point production. Differences and similarities among the three loci excavated at Dinwiddie are examined, and comparisons are made with previously excavated Cliff phase sites in the Upper Gila region. Located only 30 km from the Mule Creek obsidian source, obsidian bifaces are most common at Dinwiddie, followed closely by locally available chalcedony. Procurement strategies and possible social contacts are discussed using the results of obsidian XRF analysis.

Duke, Guy (University of Toronto), Victor Vásquez-Sanchez (Centro de Investigaciones Arqueobiologicas y Paleo) and Teresa Rosales-Tham (Centro de Investigaciones Arqueobiologicas y Paleo)

Putting Archaeobotany Under the Microscope: A Case Study for Increased Use of Starch-Grain and Residue Analyses on the North Coast of Peru

Due to the arid environment and subsequent excellent preservation on the north coast of Peru, evidence obtained from macrobotanical remains has been the primary source of information on plant use. However, despite the richness of the macrobotanical record, the combination of arid conditions and the nature of many plants, such as potatoes and beans – which are consumed in their entirety – macrobotanical remains can only tell us so much. In this paper, we discuss some methodological issues in north coast Peruvian archaeobotany, specifically the over-reliance on macrobotanical analyses and the relative under-use of starch grain and residue analyses. We discuss starch grain evidence from Wasi Huachuma, a Late Moche site in the Jequetepeque Valley, including traces of potato from a grinding stone and a cooking pot. Prior to this, no physical evidence of potato had been recovered from Moche contexts despite Moche iconography featuring potatoes. This indicates that macrobotanical analyses alone are insufficient for uncovering the spectrum of foodstuffs utilized by the Moche. We argue for a more rigorous and consistent application of starch grain and residue analyses, in order to obtain as much information as possible about past plant utilization, rather than relying on macrobotanical remains alone.

Dull, Bryan (University of Minnesota), Mark Schurr (University of Notre Dame), Terrance Martin (Illinois State Museum) and Tamatha Patterson (University of Notre Dame)

A Hunter's Paradise: A Zooarchaeological Analysis of Hunting Practices in the Kankakee Marsh

From about 16,000 B.C.E. to the early 20th century, the Kankakee Marsh was a vast wetland covering about a million acres in northern Indiana and Illinois. Today the marsh covers about one percent of its original area. After Removal Period, the marsh was famous among hunters for its abundant populations of fur bearing mammals and waterfowl. A regional analysis of the Kankakee Marsh is conducted to analyze the intersite variability of the faunal remains recovered. These sites date from the Archaic to the protohistoric. The data are then compared with primary historical sources in order to assess the ways that faunal populations changed over time. This research contributes to a broader understanding of past foodways, as well as to the discourse on the impact human societies have on animal populations.

Dumas, Ashley (University of West Alabama)
[109] Eighteenth-Century Choctaw Pottery from Fort Tombecbe
The French established Fort Tombecbe in 1736, in part, to secure their relationship with the eastern Choctaw. Over the following twenty-seven years, thousands of Choctaws visited the fort to trade, and, by 1763, a large town was located nearby. Choctaw pottery recently excavated from French components at the fort adds to a regional and offers insights into the relationship between the Choctaw and French during the middle of the eighteenth century at a remote frontier fort.

Dumitru, Ioana A. [287] see Harrower, Michael

Duncan, William (East Tennessee State University), Gabrielle Vail (New College of Florida) and Prudence Rice (Southern Illinois University Carbondale)

Fire and smoke were fundamental ritual forces in the Mesoamerican religious worldview. Found in varied contexts (funerary processing, animation ceremonies, and desecratory rituals), fire and smoke were applied to multiple media (human bodies, architecture, and ceramics). In the Postclassic (A.D. 950–1524) Maya lowlands, burning both processed honored ancestors’ remains and violated enemies’ remains. Ceramic incense burners with deity effigies were used to burn resins to communicate with supernaturals. Here we consider whether fire and smoke were applied in similar fashion to human bodies and censer effigies in the Petén lakes region of northern Guatemala during the Postclassic period. Specifically we document and compare (1) archaeological contexts in which human remains were burned (or have associations with burning), (2) archaeological contexts of ritual use of effigy censers, and (3) descriptions of ritual contexts involving the use of fire and smoke from codices and ethnohistoric and ethnographic accounts. Comparing human remains to representations of bodies suggests that both were subjected to similar ritual processes but that the former were particularly necessary under some political, and religious and calendrical circumstances.

Duncan, Neil (Stanford University)

[226] The Nature and Status of Paleoethnobotany
How does one honor the greatest generation of paleoethnobotany? It should not be difficult. What they have accomplished is no less than establishing paleoethnobotany as fundamental archaeology. Their cutting edge approaches succeeded in keeping scientific methodology in archaeology throughout the discipline’s theoretical paroxysms, all the while keeping the “ethno” in paleoethnobotany. The next generation of paleoethnobotanists is already building on their mentors’ successes by further advancing scientific approaches to phytolith, starch grain, and plant remain studies, working toward greater integration of these approaches, and acting as essential researchers in multidisciplinary archaeological investigations. This paleoethnobotany that the greatest generation established is set to keep advancing, although hurdles stand in the way. In this presentation, I will explain what I believe to be some of the issues facing the next generation of paleoethnobotanists, significantly, the loss of major laboratories and academic attrition, and what I hope the future nature and status of paleoethnobotany will be.

[271] Discussant

Duncan, Lindsay (University College London) and Elizabeth Graham (University College London)

Set in a coastal wetland environment, Marco Gonzalez—to paraphrase the session abstract—is a repository of sediments, fauna, artifacts and plant remains, pertinent to an understanding of human-environment interactions. Marco Gonzalez is also an area of naturally occurring coral sand, grasses and sedges that has been transformed over time into cultivable land. Our preliminary results indicate, however, an inadvertent, rather than planned, transformation. Nonetheless, the site can be characterized by a distinctive interaction of nature and culture that could be classed as anthropogenic.
This presentation examines the contribution of different proxies to an understanding of soil formation at the site by identifying the nature of occupation and characterising the fabric of cultural detritus. These proxies include archaeobotany to detail the important black carbon component, compositional analysis of artifacts and quantification of cultural materials. These data create a profile of available 'parent' materials which can be compared to known soil chemical and physical characteristics for potential delineation of cultural input. In this way, our current research aims to elucidate factors that contributed to soil formation processes in a setting in which transformation of a marginal area is connected directly to human modification and intensive, long-term habitation and exploitative activity.

Dungan, Katherine (University of Arizona)
[262] Venturing into the Borderland: Revisiting the 13th-Century Occupation of the Upper Gila
Between the end of the Mimbres Classic period in the 12th century C.E. and the beginning of the 14th-century C.E. Cliff Phase, most of the Upper Gila region of New Mexico is thought to have been only sparsely populated if not entirely unoccupied. Recent excavation in Mule Creek has demonstrated a strong 13th-century presence in this area, however. Like the Gila Cliff Dwellings on the West Fork of the Gila, the settlements in Mule Creek show clear connections to contemporary sites in the Mogollon Highlands to the north and west. A comparison of ceramic collections from previously excavated sites in the Upper Gila with assemblages from Mule Creek and the Gila Cliff Dwellings provides a window into the variable use of the region during the 1200's. I argue that the 13th-century Upper Gila served as a cultural borderland between Tularosa Phase traditions in the Mogollon Highlands and Black Mountain phase traditions to the south and east. The diverse social connections of the people who occupied or made use of this borderland contributed to the diversity and flexibility visible among 13th-century sites and ultimately at the Cliff Phase Salado sites that flourished in the Upper Gila during the 14th century.

Dunham, Sean (Chippewa National Forest)
[280] Hunter-Gatherer Mobility Strategies: A Late Woodland Example from the Upper Peninsula of Michigan
The Late Woodland (LW) period in the upper Great Lakes region has been linked to the development of the Inland Shores Fishery and especially to the advent of deep water fall fishing. A recent study of LW settlement and subsistence patterns in the eastern Upper Peninsula of Michigan has revealed a shift in the mobility strategies used by LW peoples of that region. Using site locational data and an assemblage diversity index trends were identified that directly inform on LW settlement and mobility patterns that have spatial, temporal, and environmental components. In brief, Early LW people were more residentially mobile and that Late LW people were more logistically mobile. Likewise, Late LW people were making greater use of the interior. This paper will explore the transition in LW mobility patterns and discuss this trend in the context of our understanding of LW dynamics in the region.

Dunning, Nicholas (University of Cincinnati), Vernon Scarborough and David Lentz
[295] Tikal in Environmental Context: Peter Harrison and Ancient Maya Water Management and Subsistence
Through the lens of Tikal, Peter Harrison developed an interest in how the ancient Maya thrived in the seasonally arid central Maya Lowlands. Initially this interest stemmed from his investigations of Tikal's Central Palace and its adjacent reservoir. However, soon his interest spread beyond the elite center to questions of basic subsistence and the potential use of wetlands (bajos) for intensive agriculture. Our work at Tikal, the Bajo de Santa Fe, and smaller bajos benefitted from some of Peter's work and ideas, though even his imaginative mind was ultimately impressed by the complexity of water management and agriculture being revealed today.

Dunning, Nicholas [350] see Griffin, Robert

Dupej, Jan [207] see Veleminsky, Petr
Duranlea, Deena [281] see Doucette, Dianna

Durante, Mark

[9] A Geomorphic and Elemental Analysis of the Johnston Site (36IN002)
The Johnston site (36IN002), in Blairsville, Pa, is the type site for the Johnston Phase of the Monongahela Tradition. This site was first discovered by Ralph Solecki during the River Basin Surveys carried out in preparation for flooding of the Conemaugh River Lake. Following its discovery the site was partially excavated in the 1950’s by Don Dragoo for the Carnegie Museum. The Johnston site has been revisited by archaeologists from Indiana University of Pennsylvania; however, little geomorphological work or chemical analysis have been completed by either group of investigators. Elemental chemical analyses were conducted with a portable XRF to differentiate areas with a higher probability of yielding archaeological data upon subsurface investigation. Soil samples from the base of the plowzone and the horizon immediately below the plowzone were collected from a 90 square meter block and from a single transect spanning the site and analyzed for elemental content to ascertain preferred locations for subsurface investigation. Particle size analyses of column samples taken from three locations were used to correlate horizons across the site, and to propose a rational history of the development of the landform.

Durante, Mark [192] see Ford, Ben

Durécu, Mélisse [350] see McKey, Doyle

Duru, Gunes

[16] Radical Neolithic?
Continuity Phenomenon that lasted for thousands of years in Central Anatolia could be one of the reasons of a distinctive or local process of neolithization in Central Anatolia when compared to the Core Area or the PPN world. The rapid changes, the fast innovations in PPNB, defining discontinuity, have brought a development momentum to the region, however all these PPN began to loose power in their most glorious period. Aşıklı never became part of this system, the people found solutions within themselves, they lived collectively, they were not interested in the attractive but authoritarian life going on in the PPN world. Continuity phenomenon was the basis for the radical Neolithic in Central Anatolia clearly visible at Aşikli, then transmitted to Çatalhöyük and that lasted more than two thousand years. In this presentation, conditions of the continuity phenomenon of Aşikli will be discussed.

Dussubieux, Laure (Field Museum of Natural History)

[140] Elemental Composition of Iron Age Glass Beads from Myanmar
Glass appears in Southeast Asia at the début of the Iron Age, around the middle of the 1st millennium B.C. Variations in Southeast Asian glass type distributions were found to be excellent markers of changes in cultural and economic interactions but are based heavily on material from Thailand, Cambodia and Vietnam. Other regions, in particular Myanmar’s pivotal position with India, have remained largely unexplored, making it difficult to draw a global picture for Southeast Asia during this transitional period. The Mission Archéologique Française au Myanmar has conducted excavations of Iron Age cemeteries located in Upper Myanmar since 2001, throwing new light on social interaction networks around the Bay of Bengal. The cemeteries yielded grave goods including glass, mostly in the forms of beads. An in depth study of this material including typology and elemental composition (using laser ablation – inductively coupled plasma – mass spectrometry) has recently started. Results are giving us insight into the chronology of the sites. Also, they are revealing that if the compositions of the glass do not support the possibility of a local glass production, the singularity of some bead types would suggest that glass beads were maybe
manufactured in the area.

[101] Chair

Dussubieux, Laure [140] see Wood, Marilee

Duwe, Samuel (University of Oklahoma)

[342] Groundstone Shrines of the Pueblo Southwest

The Pueblos of the American Southwest define their sacred geographies by using ground boulders and bedrock shrines (cupules, slicks, grooves, and channels) to establish land tenure, reflect cosmologies and religious organization, and to record history. Based on ethnography and Pueblo collaboration we know that these places mark the remains of the deceased, act as communication nodes with the spiritual world, and delineate social boundaries. Because these landscapes (and their associated shrines) vary between different Pueblo peoples and also change through time, archaeologists are excited to record these landscapes to understand the historical development of each modern Pueblo’s religion and identity. However, similar types of features are found globally throughout history, including diverse Pueblo villages and their neighbors. How can a widespread (and seemingly common) practice of bedrock and stone grinding be used to address historical and cultural questions on a local scale? Using examples from one Pueblo people, the Tewa of northern New Mexico, I argue that archaeologists must go beyond identifying the presence/absence of certain shrine types and adopt a landscape focus that incorporates shrine morphology and the patterns, context, and association of shrine placement.

Duwe, Samuel [409] see Eiselt, B. Sunday

Dye, Thomas (T. S. Dye & Colleagues)

[221] Compendia and Collaboration: A Case Study from Hawai‘i

This paper presents a case study of how open methods and practices of reproducible research facilitated collaboration in the archaeological community that led to the solution of the long-standing problem of when Polynesians colonized Hawai‘i. Central to this effort was creation of a compendium from which the dating analysis could be replicated. Practical advice is offered on how to create and share a compendium using software tools familiar to archaeologists.

Dyrdahl, Eric (The Pennsylvania State University) and Carlos Montalvo (Sapienza Università Di Roma)

[367] Late Formative Craft Production and Interregional Interaction at Las Orquideas, Imbabura, Ecuador

Scholars long have realized the importance of interregional interaction in Ecuadorian prehistory. While many non-local goods have been recovered that signal interregional interaction, archaeologists rarely have had the opportunity to study the contexts where the production of these artifacts occurred. The recent discovery of intact stratigraphy dating to the Late Formative in the rural barrio of Las Orquideas that includes large quantities of craft production waste will help change our understanding of interregional interaction. In this presentation, we discuss the evidence for craft production at Las Orquideas and its implications for interregional interaction in prehistoric Ecuador.

Eakin, Daniel [29] see Peterson, Staffan

Earle, David and John R. Johnson (Santa Barbara Museum of Natural History)

[143] Ethnohistoric Insights Pertaining to the Emigdiano Chumash and Other Southern San Joaquin Valley Indigenous Groups

The native groups who inhabited the San Emigdio Mountains on the southwestern edge of the San Joaquin Valley are believed to have been speakers of an interior dialect of one of the Chumashan languages, although which one has been open to debate. Certainly the Emigdiano Chumash occupied an important position in the economic exchange system that linked indigenous Kitanemuk