Sykes, Becky (Phillips Academy) and Margaret Conkey (University of California Berkeley) [196] Integrating Archaeology into a High School curriculum: the Andover Example

In this paper we discuss the history of how Phillips Academy (Andover) and the R.S. Peabody Museum have worked together over the past seven years to create a model program for the integration of a museum and its resources into a high school curriculum. The presentation include an examination of the critical administrative decisions that initiated the process and how program growth was managed, as well as how the Peabody Museum example can inform other institutions seeking to expand educational outreach.

Sykes, Becky [196] see Doheny, Marcelle A

Szczepeanowska, Hanna (Smithsonian Institution, Museum Conservation Center) and Thomas Mathia (Thomas G. Senior Scientist, Center National de la Recherche Scientifique, (CNRS) Laboratoire de Tribologie et Dynamique des Systems, LTDS, Lyon, Fra)

[242] Space Heritage, model of transmitting aerospace technology concepts to the public; a case study, Apollo heat shield.

The authors merge engineering and scientific knowledge with humanistic studies of complex aerospace technology to develop a model of transmitting technical concepts to the public. This model is focused on human interaction with the environment of which space exploration is one aspect. The Apollo Program and atmospheric reentry technology serve as an example of how a complex aerospace technology can be transmitted to the public in a succinct manner. The space heritage collection at the National Air and Space Museum supplied specimens of heat shield from the Apollo Program testing vehicles AS 201 and AS 202 for this study.

Szirmay, Jenica (California State University, Stanislaus), Lauren Hall (California State University, Stanislaus), Jasmin Valenzuela (California State University, Stanislaus) and Cassandra R. Bill (M.A.R.I. / Tulane University)

[31] This Old Thing?: The Use of Elite Material Culture in Strategies of Affiliation and Domination at Los Naranjitos, El Paraíso Valley, Western Honduras

Portable objects can forge powerful ties among social actors, and are often employed to create and communicate identities, status, wealth, and affiliations. Portable material culture, particularly pottery, appears to have been used extensively in the creation and communication of political affiliations within the elite residential group of Los Naranjitos, adjacent to the autochthonous Classic period center of El Cafetal, in the El Paraíso Valley, western Honduras. In this poster we examine the roles of both elite Copan pottery and locally manufactured wares in negotiations of power, wealth, and prestige on the edge of the Copan kingdom.

Szpak, Paul (University of Western Ontario), Jean-Francois Millaire (University of Western Ontario), Fred Longstaffe (University of Western Ontario) and Christine White (University of Western Ontario) [35] Effects of Seabird Guano Fertilization on the Stable Isotope Composition and Growth of Maize (Zea mays): Results from a Controlled Study

Seabird guano from the arid western coast of South America was one of the most widely used fertilizers in the nineteenth century, although its importance in prehispanic agricultural systems has been difficult to determine. This paper presents data from a controlled study of maize fertilized with Peruvian seabird guano, outlining the effects of different fertilization regimes on maize growth and isotopic composition (d13C and d15N). We discuss the implications of this study for the identification of guano fertilization through isotopic analysis of archaeological materials.

Tabares, A. Natasha [230] see Walsh, Michael R.

Tabor, Neil [3] see Loewen, Natalia

Tackett, Stephanie (Pima Community College) and Ashley D’Elia (Pima Community College) [137] Distribution of groundstone in relationship to the topography and vegetation of the Burro Creek/Pine Creek Archaeological Survey area

The Burro Creek/Pine Creek Archaeological Survey area is best described as pinon-juniper woodlands. Colorado Pinon (Pinus edulis) is a common species there and is an important resource in the subsistence strategies of indigenous cultures due to the high nutritional value of its pine nuts. This poster describes the presence and absence of pinon as it relates to groundstone artifacts found at different sites within the survey area. It interprets geographic data regarding elevation, north vs. south facing slopes, water sources and precipitation necessary for pinon production and discusses site distribution and possible locations of processing stations based on artifact volume.

Tafilica, Zamir [27] see Galaty, Michael L.

Tafari, Maryanne [237] see Robb, John E.

Takamiya, Hiroto (Sapporo University) [149] The Evolution of Complex Societies on the Islands of Okinawa, Japan

Prehistory of Okinawa exhibits several unique cultural phenomena in the context of island archaeology. One of these is that the archipelago witnessed the evolution of social organizations from a band to the state, known as the Ryukyu Kingdom. I will review the evolution of social organizations in Okinawa. In this case, available natural resources did not allow the evolution of chiefdoms. It was agriculture, which was introduced ca.11th century AD, that enabled the evolution of chiefdoms. Furthermore, the
evolution of the state level society might have been explained by what Patrick Kirch (2000) has suggested as “the wet and dry”.

Talbot, Richard [94] see Janetski, Joel C.

Talcott, Johanna (The Pennsylvania State University) [129] Paleoenthobotany of the Salt Springs Archaeological Site, Marion County, Florida Excavations at the Salt Springs Archaeological Site (8MR2322) in the Ocala National Forest, Florida, revealed a submerged, Middle Archaic (approx. 8000–5000 years BP) black earth midden with exceptional organic preservation. The initial paleoethnobotanical analyses have focused primarily on the significance and implications of two important economic plant taxa from the family Cucurbitaceae: the gourd/squash (Cucurbita sp.) and the bottle gourd (Lagenaria sp.). The materials from this site provide valuable insight into the biogeography of both gourd species as well as ancient pre- or non-agricultural management and manipulation of these and other wild plant resources.

Tanaka, Yutaka (Ibaraki University) [148] Contribution of the ‘Burial Group of Chiefly Lineage’ Approach to Japanese Archaeology and Issues Related to this Approach The ‘burial group of chiefly lineage’ concept assumes that a group of burial mounds clustered in a small area and built in chronologically successive stages was a result of generations of a single lineage of chiefs building their own graves. This concept is an important underlying assumption of an influential argument for the Kofun society as an early state. The problem is that, while this concept incorporates some vague assumption, the early state model has gone beyond this vagueness can tolerate. When we overcome this problem, this concept can make further contributions to Japanese studies of state formation.

Tankersley, Ken [124] see Culver, Emily

Tankersley, Kenneth (University of Cincinnati), Nicholas Dunning (University of Cincinnati) and Vernon Scarborough (University of Cincinnati) [119] Developing a Tephrachronology and Paleoenvironmental Record from Tikal’s Anthropogenic Reservoirs AMS radiocarbon dating, X-ray powder diffraction (XRD), petrography, magnetic susceptibility, and particle size analysis of sediments from the reservoirs Corrential and Perdido reservoirs at Tikal indicate at least nine distinctive volcanic events during the early and late Holocene. Volcanic events are indicated by a high relative percent composition of smectite and volcanic quartz in the reservoir sediments. Sequences of volcanic minerals are correlative with magnetic susceptibility records and provide important new insights into the paleoenvironmental record of Tikal. Volcanic ash fall across the southern Maya Lowlands may have occasionally affected regional climate, but also provided an important economic resource.

Tatchell, Britney (Binghamton University, SUNY) [49] Identifying the chosen women of the Inka: A biological profile of aclla crania from Pachacamac, Peru As an institution of the Inka state, the aclla reflected socio-religious values of the Empire and its influence on contemporaneous cultural groups. Analysis of aclla skeletal remains can provide unique information about the composition of this social class and its diverse roles within the Empire. Identification of aclla burial contexts relies in part upon the ability to discriminate physical traits representative of this group. However, a case study from Pachacamac, Peru highlights the tautological nature of assessing “aclla traits” from presumed aclla remains. Preliminary biological findings for this unusual sacrificial sample are also discussed.

Tate, Sarah (College of Wooster) [161] Stewards of Their Own Lands: An Examination of the Tribes’ Role in Historic Preservation American Indians’ role in the preservation process is of major concern to tribes who strive to gain and maintain control over their cultural heritage. Historically, the federal government has retained authority over the fate of native cultural sites. However, over the past few decades, the government has taken action to increase the level of tribal participation in historic preservation. This research examines the effectiveness of federal action as well as the conditions that empower Native American tribes to act as stewards of their own archaeology and cultural identity.

Taube, Karl [41] Discussant

Taylor, Amanda (University of Washington) [232] Triangulating the Emergence of Territorial Circumscription in the San Juan Islands, Washington Ethnographers in the Gulf of Georgia emphasized territorial systems where access to land, water, and resources was negotiated through inter-village kin ties. The development of these systems during prehistoric times remains poorly understood. Following Alison Wylie’s suggestion that strong evidential reasoning can be achieved by triangulating multiple lines of evidence, I test hypotheses on the emergence of territorial circumscription in the San Juan Islands by integrating three different approaches. I build on a traditional settlement pattern study by considering a human behavioral ecology approach to site distribution and a landscape archaeology approach to presence and abundance of defensive sites.

Taylor, Anthony (University of Nevada, Reno) and Robyn Crook (Saint Mary’s University) [35] Assessing the Contribution and Ascribed Status of Floral Resource Collection to Paleo-diet in the Great Basin This poster examines subsistence strategies and possible gender roles of prehistoric peoples within the Great Basin. Floral assemblages from various type sites are examined in detail, as well as distributions of material items associated with food preparation. Local floral food staples are analyzed illustrating caloric values, protein and fat proportion, and nutrient contribution which are compared to foods more often considered high status or prestigious. This data is supplemented by reexamination of existent ethnographic literature. Using this multifaceted approach reveals surprising trends crucial for understanding the roles of individuals and task groups within the greater prehistoric social organization.
Taylor-Perryman, Rebecca [22] see McCall, Grant S.

Teeter, Wendy (Fowler Museum at UCLA), Desiree Martinez (Harvard University) and Karimah O. Kennedy Richardson (National University)

[123] Human occupation and environmental interactions within the Southern Channel Islands

Much discussion has occurred about the societal complexity and resource exploitation of the northern Channel Islands. However, the southern Channel Islands have mostly been excluded from this discussion. This presentation will review and synthesize some of the Southern Channel Islands data to draw comparisons and contrasts with the northern Channel Islands in regards to long-term ecological use and human occupation.

[1] Discussant

Teeter, Wendy [105] see Posadas Vidales, Lylliam I.

Tenorio, Dolores [193] see Jaime-Riverol, Olaf

Teoh, Melissa, Sarah McClure (University of Oregon) and Emil Podrug (Museum of Šibenik)

[106] Figulina on the Dalmatian Coast: Evidence for Trans-Adriatic Exchange

Figulina is a distinctive Middle Neolithic fine ware that is found on the Dalmatian coast of Croatia; it is associated with Danilo period villages (5500-5000 cal BC). There are clear differences in technology and materials utilized in the production of ordinary pottery and figulina. This poster presents preliminary petrographic and sourcing analyses of figulina from the Dalmatian sites of Danilo Bitinj, Pokrovnik, Smilcic, and Krivace. In order to determine the raw material source, figulina samples are compared against local daub samples. Production of figulina may provide evidence of trans-Adriatic exchange as it shows clear similarities to central Italian fine ware.

Terlep, Michael

[211] Cultural Affiliation, Function, and Distribution of Pit and Groove Petroglyphs in the Arizona Strip

Rock art research in the United States commonly focuses on style and motif while cultural and environmental functions remain unevaluated. In the Arizona Strip of the American Southwest a particular rock art form known locally as “pit and groove petroglyphs” or “waterglyphs,” may represent prehistoric navigational markers to water sources, territorial boundary markers, or ceremonial shrines. Pit and groove petroglyphs are located on horizontal surfaces along cliff edges and measure up to 1.50 m long by 5 cm deep. The author presents research regarding the cultural affiliation, function, and distribution of this unique type of rock art.

Terrasi, Filippo [92] see Lubrítto, Carmine

Terry, Richard (Brigham Young University), Chris Balzotti (Brigham Young University), Jeff Findlay (Brigham Young University) and David Wright (Brigham Young University)

[225] The Maize Agriculture Potential of Landforms at the ancient Maya sites of Cebal and Aguateca, Guatemala

Stable carbon isotope data and remote sensing data from Landsat and AIRSAR were used to create non-parametric multiplicative regression (NPMR) models of maize agricultural potential for these important Classic Maya sites. The model is based on data derived from digital elevation models (DEM) and Landsat imagery when compared to the delta 13-C signatures of more than 150 soil profiles collected in and around these sites.

Terry, Richard [225] see Bair, Daniel A. [119] see Coronel, Eric G

Testard, Juliette (Paris 1 / UMR 8096 Archéologie des Amériques)

[98] Personificatoras de Xochitecatl : las figurillas femeninas de la Pirámide de las Flores

Las investigaciones del Proyecto Xochitecatl INAH-UNAM han subrayado que el sitio está profundamente relacionado con cultos a la fertilidad en los cuales la imagen femenina es vectora. En las escaleritas de la Pirámide de las Flores, entre 600 y 750 se depositaron 7 ofrendas compuestas por numerosas figurillas femeninas. Estas concentran en sí a través de un complejo juego de glifos, colores, atuendos, expresiones y posturas, conceptos fundamentales. Encarnaciones del poder político-religioso, aluden de forma repetitiva a la fertilidad; personificatoras de unas proto Xochiquetzal o Tlazolteotl, constituyen las imágenes de las jóvenes sacrificadas durante las celebraciones a los cerros.

Texier, Jean-Pierre, Guillaume Porraz, Teresa Steele, Richard Klein and John Parkington

[12] Human MSA exploitation of ostrich eggs at Diepkloof rock shelter

Thousands of ostrich egg shell fragments were collected from the 4m deep Diepkloof archaeological sequence but no ostrich bone at all. According to the TL dates, Ante-Stillbay, Stillbay, Howiesons Poort and Post-Howiesons Poort complexes ranging from -130ka to -55ka are seen without noticeable gap on the present frontal and sagittal sections exposed in the central part of the site. About 340 engraved ostrich egg shell fragments were collected from a series of contiguous layers dating to about 60ka in the upper half of the HP complex. They appear to securely document a HP tradition of marking eggshell containers.

Thacker, Paul (Wake Forest University)

[133] Landform Evolution and the Early Upper Paleolithic of Central Portugal

Several open-air Upper Paleolithic archaeological sites within the Rio Maio drainage in Portugal remain controversial due to uncertain context, unusual lithic assemblage characteristics, and poor absolute dating results. The stratified archaeological deposits at Espadanal, investigated as part of an integrated landform geomorphology project, provide important new data useful for understanding regional geological processes during the Late Pleistocene. Terrace evolution and site formation at Espadanal can be correlated with depositional history at the nearby site of Gato Preto. This regional geoarchaeological approach provides environmental and chronological context for evaluating competing interpretations of the Early Upper Paleolithic archaeological record in central Portugal.

[8] see Day, Zachary R.

Thakar, HB (University of California, Santa Barbara)

[88] If Floors Could Talk: Excavation of clay floors at the
Recent research at the Tlacuachero shell mound investigated a series of deeply buried constructed clay floors positioned under the mound summit. This work confirmed the presence of as many as three superimposed floors each marked with postholes and other features. We exposed large areas of the two uppermost floors, mapped their features, and sampled their surfaces using random and non-random methods. This paper presents the field and laboratory methods used for the collection of samples from the constructed surfaces as well as the laboratory methods used to study the matrix color and fish bone density. Results of these two analyses reveal interesting and surprisingly similar patterns.

[88] First Chair

Theuer, Jason [134] see Field Murray, Wendi [134] see White, AJ [134] see Wandler, Cole B.

Thibodeau, Alyson (University of Arizona), John Chelsey (The University of Arizona) and Joaquin Ruiz (The University of Arizona) [135] Determining the source of turquoise at Pueblo Bonito, Chaco Canyon, New Mexico

The geologic source (or sources) of turquoise found in the Great Houses of Chaco Canyon, New Mexico has been the subject of speculation for over a century. For the first time, high precision lead and strontium isotopic analyses have been applied to over 25 raw, partially worked, and finished turquoise objects recovered from the canyon's largest Great House, Pueblo Bonito. The data from these turquoise artifacts are compared to the lead and strontium isotopic signatures of 18 major areas of turquoise mineralization in New Mexico, Colorado, Arizona, California, and Nevada and the sources represented by these objects are revealed.

[136] see Hedquist, Saul L.

Thibodeau, Alyson (University of Arizona) and Joe Artz (University of Iowa Office of the State Archaeologist) [234] GIS, Taphonomy, and the Mortuary Rockshelter of Bolores, Torres Vedras, Portugal

The Neolithic-Early Bronze Age mortuary rockshelter of Bolores continues to raise many questions for the interdisciplinary team of project archaeologists, osteologists, and geologists. With GIS, artifacts, bones, stratigraphic levels, and rock fall have been recorded to determine how many people were buried at the site, how they were spatially distributed, and what kinds of burial practices were carried out. This poster employs GIS to address the taphonomic processes responsible for the high level of fragmentation of the bones.

Thomas, Ben (Archaeological Institute of America) and Meredith Anderson (Archaeological Institute of America) [259] Sustainable Site Preservation: Beyond Bricks and Mortar

The future of archaeological sites goes beyond traditional conservation methods. The sustainability of preservation ultimately lies in a local community dedicated to the upkeep of a site. To this end, the Archaeological Institute of America redirected its Site Preservation Program to focus on outreach, education, and economic development with the belief that this approach would make a greater impact than funding expensive conservation work at only a few sites. Nearly two years later, this approach is reflected upon through data, case studies, and research. Ideas on simple methods to reach out to communities surrounding archaeological sites will also be presented.

[94] Alta Toquima: Why Do People Choose to Live at 11,000 Feet?

Only three significant alpine residential sites are known in North America, all of them inhabited by Numic speakers: Alta Toquima (central Nevada), White Mountains (southeastern California) and High Rise Village (Wind River Range, Wyoming). This paper presents the most recent evidence from Alta Toquima, exploring the question of why entire families elected to live in this remote alpine village over the past two millennia.

[57] Discussant

Thomas, David [230] see Thomas, Lorann Pendleton

Thomas, Jonathan (University of Iowa) [122] The Anthropologist as Writer

Archaeologists are immersed in technical writing, grant writing, scholarly writing, and increasingly, public writing that must be both accurate and compelling. This paper discusses anthropological texts that provide creative but historically accurate narratives of the human past. It examines the epistemological validity of these ‘alternative narratives’ within the discipline and without, and the role of creative non-fiction in conveying historical and scientific knowledge of past and present human cultures. It concludes with a brief example, an essay about Franz Boas intended to illustrate the influence of his personal experience on the evolution of the concept of race in the US.

[61] see Kendall, Bryan S. [22] see McCall, Grant S.

Thomas, Lorann (American Museum Nat History) and David Thomas (American Museum of Natural History) [230] Grass Valley Billy: An Appreciation

Leadership comes in many guises and this paper explores the unique leadership style of C. William Clelwood. We applaud his many contributions to the
archaeology of western North America and celebrate his individuality.

**Thompson, Noah (Olivas Adobe Interpretive Center)**

[154] Making Archaeology Relevant for a Diverse Public: Exhibit Planning and Display at the Small Adobe Interpretive Center, Olivas Adobe, Ventura, California

The Olivas Adobe State Monument, in Ventura, California, is a Rancho period two-story adobe built in the 1840s. Two archaeological excavations have taken place on the grounds, but despite this history of work, archaeological information is not well integrated within its interpretive scheme. With the completion of a seismic retrofit in 2010, the Small Adobe Interpretive Center was established to provide a venue for an interactive historical display. This paper documents the attempt at reintegrating the Olivas Adobe's archaeologically documented heritage within a display environment, linking archaeological data to visual, historical, and tactile displays aimed at engaging a diverse public.

**Thomas, Scott [120] see O'Grady, Patrick**

**Thomas-Barnett, Lisa [105] see Whistler, Emily L.**

**Thompson, Abe [192] see Todd, Lawrence C.**

**Thompson, Amy (University of New Mexico), Keith Prufer (University of New Mexico) and Douglas Kennett (University of Oregon)**

[9] Political Dynamics Reflected in Settlement Patterns and Household Archaeology at Uxbenkaá, Belize.

This paper examines variability within settlement groups and individual households at the Early to Late Classic Period (A.D 250-900) Maya polity of Uxbenkaá. Based on the AMS radiocarbon analysis and spatial distribution of artifacts from targeted excavations, specific building functions, duration of occupation, and temporal patterning across settlement groups are discussed. Settlement research at Uxbenkaá suggests periods of rapid growth punctuating what otherwise appear to be long stretches of relative equilibrium. These periods of growth likely correspond with regional demographic shifts and increasing visibility of highly networked elites.

**Thompson, Jennifer [235] see Anderson, Cheryl [237] see Crandall, John J.**

**Thompson, Kerry (Northern Arizona University)**

[99] The Navajo Built Environment and 19th Century Federal Indian Policy

As a nexus of both ceremonial and secular activity the hogan comprises an important representation of Navajo worldview and landscape. Archaeologically, the hogan is often also the most durable, and thus the most visible, Navajo structure. I analyze Navajo architecture from late 19th century and early 20th century Navajo hogan sites in order to elucidate information about continuity and change in the Navajo built environment. Additionally, I use dendrochronological, ceramic, and site history data with broader historical narratives in order to identify those federal Indian policies that may have had the greatest impact on Navajo hogan households.

[130] Discussant

**Thompson, Kim (University of Cincinnati Biological Sciences), David Lentz (University of Cincinnati) and Theresa Culley (University of Cincinnati)**

[119] Ancient practices and diverse habitats: Impact on genetic structure of Manilkara zapota

Manilkara zapota (L.) van Royen is a neotropical tree that has been a resource for ancient and contemporary Maya. We quantified levels of genetic variation in M. zapota from the Petén region of Guatemala, and described how that genetic variation is structured among sub-populations from diverse habitat types and histories. The hypothesis was that cultivation of M. zapota trees by the ancient Maya led to overall reduced levels of genetic diversity. Our results suggest instead that M. zapota sub-populations have high levels of diversity with low levels of genetic structuring among various habitats.

[119] First Chair

**Thompson, Kim [119] see Lentz, David L.**

**Thompson, M (Arizona State University)**


The large number of mortuary features identified in extensive excavations across the Phoenix Basin presents a unique opportunity and challenge for the creation of a regional data set. This paper presents a preliminary effort to construct a database of mortuary programs practiced at large Hohokam villages in the Salt River Valley. It discusses the variables necessary to describe both Pre-Classic and Classic period mortuary remains documented at different settlements along separate canal systems. The data suggest complex patterns in body treatments, handling of remains, and spatial relationships of mortuary remains and architectural features.

[143] First Chair

**Thompson, Robert (University of Minnesota)**

[15] Food Residues and Inca Lifeways at Palmitopamba, Ecuador

The site of Palmitopamba, located Northwest of Quito in Pichincha Province, Ecuador contains a long record of Yumbo occupation, followed by an Inca presence later in prehistory. Unlike the Inca conquest sites nearer the core of the empire, the Inca at Palmitopamba seemed to have adopted the Yumbo lifeways. Food residues from Inca pottery vessels recovered from Palmitopamba yielded phytolith assemblages sufficient to trace the lineages of maize present. Inca vessels contained maize similar to that grown by the Yumbo. This is consistent with a view of the Inca as being at the edge of their expansion, having a limited impact on previously established local lifeways.

**Thompson, Victor (The Ohio State University)**

[198] Conduits of Complexity: Creating, Commemorating, and Materializing Surplus in Hunter-Gatherer Economies

Recent discussions of hunter-gatherer complexity rely on aggrandizer arguments to explain among other things social inequality, monumentality, etc. Implicit in these models is the control and production of surplus by agents. While informative for some areas, such models provide little in the way of how traditions of surplus production are sustained over extended time frames or why the general populace might engage in such
activities. Here I examine surplus production from the perspective of hunter-gatherers who occupy highly productive environments. I argue that for surplus production to become a sustained tradition it must be commemorated and materialized in some form.

Thoms, Alston (Texas A&M University), Andrew R. Laurence (Texas A&M University), Masahiro Kamiya (Texas A&M University) and Vaughn M. Bryant, Jr (Texas A&M University)

[35] Experimentally Tracking Geophyte Microfossils from Raw to Baked-Residue Status

Conventional-oven baking experiments with underground storage organs (USOs) of false garlic, camas, onions, winecup, and rain lily from Texas assessed the potential of earth ovens to yield microfossils from wild geophytes baked therein. Identifiable starch grains, phytoliths, calcium oxalate crystals, and plant-food fibers were exuded from USOs during the baking process, primarily via water vapor, accumulated on the inside of cooking containers and leafy packing materials, and survived prolonged baking (8-36 hrs). Accordingly, it is scientifically reasonable, provided adequate preservation conditions, to expect to find microfossil evidence of plant-foods within remains of ancient earth ovens wherein those foods were cooked.

[1] Discussant

Thoms, Alston [35] see Laurence, Andrew R.

Thornton, Christopher (George Mason University)

[13] Indus-Mesopotamian Relations: The View from Southeastern Arabia

Third millennium relations between Mesopotamia and the Indus Valley have been explored by scholars for almost a century. While the relationships between these two civilizations were once modeled as two "cores" interacting over a cultural wasteland, this was challenged by excavations in Southeastern Iran and later Southeastern Arabia. This research demonstrated how independent cultural groups served as "middlemen" in the relations between the two civilizations. Continued work in this frontier zone, particular on the Jiroft and Umm-an-Nar Cultures, has changed the picture once again. This paper presents a new model for economic and political interaction across this region.

[167] see Massey, David

Throgmorton, Kellam (University of Colorado, Boulder)

[43] Practice Theory and the Study of Ground Stone

Although subsistence and economy traditionally receive priority in ground stone studies, more nuanced interpretation is possible by recognizing that manos and metates represent a considerable labor investment. Applying practice theory to the study of ground stone allows archaeologists to better assess the relationships among critical subsistence tools and daily social experiences. Ethnographic evidence suggests that grinding tools are primarily the purview of women. This novel approach to an oft-overlooked artifact class will explore the ways in which ground stone can be used to understand gendered practices in the prehistoric American Southwest.

Throgmorton, Kellam [134] see Schachner, Gregson

Thurston, Tina (SUNY Buffalo)

[198] Surplus from below: self organization of production in early historic Northern Europe

Surplus production in many regions is traditionally linked to elite power, so that virtually any sign of increase is automatically attributed to elite organization or domination. This may or may not be the case elsewhere, but in Northern Europe, relationships between subjecthood and rulership -- ordinary people and leaders -- were not absolute. Social distances could be traversed through skill or luck. While rulers taxed and conscripted, farmers concealed, evaded taxes, and rebelled. Episodes of increased surplus production often appear linked to farmer agency rather than royal demands.

Tiballi, Anne (Binghamton University)

[49] Expressions of Ethnic Identity Within an Inka State Institution: The Acllas of Pachacamac

The Inka employed large-scale, state-mandated migration of subject groups to redistribute labor sources, quell uprisings, and populate institutions. One of these institutions was the Aclla, a highly specialized class of female artisans who produced textiles for the state. The majority of our knowledge of this group comes from colonial documents, which suggest that the Acllas’ ties with their natal communities were ruptured upon their induction into the state apparatus. Archaeological materials from the Cemetery of the Sacrificed Women, Pachacamac, Peru, suggest that these ties, expressed in textiles, were maintained throughout the Acllas’ lives, and continued after their death.

[49] First Chair

Tibbitts, Tawny (University of Texas at San Antonio)

[32] Ground Stone Tools at San Estevan, Belize: A Petrographic and Distributional Analysis

This research explores the production and exchange of ground stone tools at the prehispanic Maya site of San Estevan, Belize. Petrographic and distributional analyses were used to examine the role played by households in these activities. It would appear that certain groups had greater access to non-local stone resources than others. This variation correlated with differences in household organizational strategies. The study also emphasizes the importance of using interdisciplinary approaches in materials analysis.

Tien, Joseph H. [72] see Devault, Alison M.

Tiesler, Vera (Universidad Autónoma de Yucatán), Arturo Romano-Pacheco (INAH) and Jorge Gómez-Valdés (INAH)

[237] Re-evaluating the human remains of Ossuary 1 from El Zapotal, Veracruz

Our work re-evaluates the human remains recovered in 1971 from a large ritual ossuary at the Late Classic Period site of El Zapotal in southern Veracruz. This context has been previously interpreted as a ritual deposit of women who died during parturition and whose bodies were dedicated to the Tlazolteotl goddess. Here we provide new insights on the sex and age profile of the mostly female cohort, on the distribution of artificial head shapes. From a contextual and iconographic perspective, new insights are provided on the individuals potential human sacrifice and posthumous body treatments by
flaying.

[156] Discussant

Tiesler, Vera [56] see Cucina, Andrea [116] see Sierra Sosa, Thelma

Tiley, Shelly [83] see Shapiro, Lisa A.

Till, Jonathan (Abajo Archaeology) and Winston Hurst (Independent Contractor)

[46] Geography, Society, and Cosmology in the Puebloan Northwest: Monumental Features on Cedar Mesa, Utah

Systems of monumental features (including great houses, great kivas, shrines, and roads) are now apparent for the Northern San Juan region. This presentation calls attention to the “Et Al network” on Cedar Mesa, the westernmost known “system” of monumental features during the Pueblo II-III period. We examine the components of this network, including both natural and cultural features, and use the network as a point of departure to discuss other “great features” on Cedar Mesa. These features have a high potential to contribute to our understanding of social structure, identity, and deep history of the Northern San Juan region.

Timm, Mary Beth (University of Nevada, Las Vegas) and Debra Martin (University of Nevada, Las Vegas)

[171] Arms of Sailors: Evidence of Fishing Behavior from a Bronze Age Tomb on the Arabian Peninsula

The Bronze Age on the Arabian Peninsula (c.2200-2000 BC), referred to as the Umm an-Nar period, is not as well understood as other regions. Faunal and archaeological analyses suggest a coordinated work force produced a mixed economy of fish, cultigens, and domesticated sheep and goats. This study examined enthesopathies (musculo-skeletal stress markers) of the proximal ulnae on human skeletal remains from Tell Abraq, UAE. These markers indicated fishing net usage through evidence of extension, flexion, and supination of the lower arm. Males exhibited a higher prevalence and more pronounced muscle markings consistent with more frequent fishing activities.

Tito, Raul [206] see Belknap, Samuel L.

Todd, Brenda (University of Colorado, Boulder)

[117] Chaco, Chimney Rock, and the Local Community

Chimney Rock Great House was uniquely Chacoan. Survey and limited testing data has demonstrated that the Pueblo I and Pueblo II populations surrounding the stone pinnacles was nearly nonexistent, while the Pueblo II population coincident with the great house was large and concentrated almost exclusively within 1.5 km of Chimney Rock. The lived experiences of the inhabitants of the great house and the community were closely tied to the cycles of the moon and to the political center at Chaco. The implications of Chacoan influence and decline at Chimney Rock are explored here.

Todd, Lawrence (GRSLE), Burnett Paul (SWCA) and Abe Thompson (Colorado State University)

[192] Venus in Flames: Archaeology on a burned landscape in Northwest Wyoming

In 2006 the Little Venus Fire in NW Wyoming burned through about 1400 ha. Large portions of this burn area had been previously surveyed and archaeological material recorded using non-collection, in-field documentation. The fire provided a natural experiment for multi-scale investigation of archaeological fire impacts. Since 2006, studies of artifact damage, changes in site characteristics, thermal alteration of sediments, and evaluation of management protocols have been undertaken. Given the potential for large-scale fires becoming more common and extensive, archaeological research designs that plan for fire-based research should be developed instead of reacting to fires on a case-by-case basis.

Todd, Lawrence [3] see Loewen, Natalia

Toll, H. (Museum of New Mexico OAS) and Nancy Akins (Museum of New Mexico Office of Archaeological Studies)

[237] Violence against People, Bodies, or Bones: Lessons from La Plata New Mexico

Situated between Chaco Canyon and the Mesa Verde, the Totah region has an equally long and complex history. Human remains were recovered from excavations at 17 sites in the La Plata Valley dating from Basketmaker through Pueblo III. Trauma to skeletal remains ranges from violence survived by women, to perimortem violence, to disturbance of the dead, to random pieces of burned and broken bone. This presentation will provide a close look at the contexts of these situations, with an emphasis on chronology and relationships to surrounding regions.

Toll, H. Wolcott [37] see Blinman, Eric

Tomasic, John and Steven Bozarth (University of Kansas)

[75] New Data from a Preclassic Maya Tomb Burial at K’o, Peten, Guatemala

In this paper, we report on the discovery, analysis, and interpretation of a Preclassic Maya tomb burial at K’o, Guatemala. Recently obtained radiocarbon dates suggest the burial dates to the 4th Century BC, making it one of the oldest burials of its kind in the Maya Lowlands. Furthermore, the early dating of the burial indicates that one of the tomb’s vessels bears the earliest known representation of the Jester God headdress in the Maya Lowlands. In addition, phytolith analysis has shed light upon previously unknown aspects of the burial assemblage and mortuary ritual associated with this elite burial.

Tomasto C., Elsa [71] see Peters, Ann H.

Tonoike, Yukiko (Yale University)

[63] Portable XRF Analysis of Sources and Distribution of Obsidian in Iran and Syria

Using a portable XRF (Bruker Tracer III-V), obsidian artifacts from various sites in Iran and Syria were analyzed to better understand the pattern of access to obsidian sources. Based on a pilot project carried out in the spring of 2010, samples were chosen from collections at the Department of Anthropology, Yale University with a focus on pursing the question of difference in preferences of obsidian sources through both time and space. This project is also part of a larger
project in cooperation with McMaster University, which aims at comparing data across different laboratories and different analytical methods (EDXRF).

**Topic, John (Trent University)**

[125] *The Arcones at Chan Chan: Contexts and Contents*

The arcones at Chan Chan are the type of administrative architecture associated with the barrios, retainer areas and caravansaries. They are related to the audiencias, or bureaucratic architecture, of the elite areas of the site. I will discuss the contents and the location of the arcones in an effort to document the lower levels (mandones or foremen) of the bureaucracy.

[15] *see Topic, Theresa*

**Topic, Theresa (Brescia University College) and John Topic (Trent University)**

[15] *The Inca Diffusion of the Catequill Cult to Ecuador*

As part of their strategy for imperial expansion and administration, the Inca are known to have introduced religious cults into newly acquired territory. There are several lines of toponymic and ethnohistorical information that relate to the transplanting of the cult of the oracular god Catequill from Huamachuco into northern Ecuador. This data is reviewed as are the changes in Catequill’s cult and in his perceived areas of power and efficacy. The rationale for the spread of a regional (i.e., not Inca) huaca as part of Inca strategy is considered.

**Topping, Peter (English Heritage)**

[96] *The Ritualisation of European Prehistoric Extraction Sites.*

This paper will review the role of Neolithic, Chalcolithic and Early Bronze Age extraction sites and their place in the cultural landscape. Regional trends amongst the quarries and mines exploiting flint, chert, quartz, jasper, quartzite and hornstone will be examined. The various forms of extraction will be considered alongside the presence / absence of artefact assemblages, burials, animal remains, the use-life of artefacts and trade networks. The collected data will be used to sketch the social context of certain extraction sites as a ritualised locus and their particular role in creating identities through the medium of stone.

**Torbert, H. Allen [162] see Baxter, Carey L.**

**Torrence, Robin (Australian Museum)**

[97] *(Re-) Creating Value: Obsidian Stemmed Tools in Papua New Guinea*

Large, shiny, created by complex reduction sequences, and highly retouched into distinctive shapes, were obsidian stemmed tools from Papua New Guinea prehistoric social valubles? Their widespread distribution across 2200 kilometers, suggests they helped create social networks among high status individuals. Their prehistoric value is re-created through characterization and technological studies of end products, rejects from production, and debitage. The interweaving of data from different approaches illuminates the complex paths through which stemmed tools accrued value and gave status to their owners.

[45] *Discussant*

**Torres-Rouff, Christina (Universidad Católica del Norte & Colorado College), William Pestle (Lake Forest College) and Blair M. Daverman (Purdue University)**

[152] *An Attempt at Re-Contextualizing Bodies and Lives: The ‘A Cemetery’ at Kish*

The city of Kish, in modern Iraq, became the most influential city-state in Mesopotamia during the early 3rd millennium BC. Over the course of a decade, the Joint Oxford-Feld Museum Expedition to Kish recovered skeletal remains from nearly 700 individuals. We focus here on 63 individuals excavated from the so-called ‘A Cemetery,’ who likely lived through a dramatic shift in the power of their city. We use these individuals’ remains as well as fieldnotes and artifactual evidence to situate them within their biological and mortuary contexts and explore elements of living, dying, and being commemorated at Kish.

[217] *Discussant*

**Torres-Rouff, Christina [233] see Hubbe, Mark**

**Toorviken, Andrea (Arizona State University) and Christopher T. Fisher (Colorado State University)**

[58] *The Organization and Accessibility of Social Spaces at Sacapu Angamucu, Michoacán*

Differential construction and organization of open spaces within urban sites is assumed to imply social hierarchy through accessibility. Large, easily accessible and highly visible spaces are interpreted as public, while smaller, restricted and less visible spaces are interpreted as private. Spatial analysis of site layout is undertaken to determine the distribution and characteristics of public vs. private spaces in Sacapu Angamucu in the Lake Pátzcuaro Basin, Michoacán, Mexico. Of particular interest is whether spaces with similar accessibility are located within similar zones of the site and how Sacapu Angamucu’s layout compares to contemporary sites in western Mexico.

**Towner, Ronald (Tree-ring Lab, University of Arizona)**

[99] *Tree-rings and Early Navajo Social Organization in Dinétah*

Tree-ring data provide chronometric, environmental, and behavioral information on past human occupations. The Early Navajo of Dinétah used wood in a variety of structures and exploited the pinyon-juniper forest for many of their needs. This paper examines the spatio-temporal distribution of tree-ring dated Navajo sites from five intensively sampled areas to illuminate aspects of Early Navajo social organization prior to the advent of a pastoral economy. The results suggest that Dinétah Navajos may have developed temporary supra-family groups prior to their use in sheep herding and other animal husbandry activities.

[25] *Discussant*

**Toya, Christopher [196] see Randall, Lindsay**

**Toyne, Jennifer Maria (The University of Western Ontario)**

[156] *Life before death: Human sacrifice, paleopathology, and cultural identity from Templo de la Piedra Sagrada, Túcume, Peru*

Group or individual identity in archaeological burial contexts is frequently established based on associated material culture and mortuary treatment (i.e. grave
accessories, body position). In the case of human sacrifice, often the remains are not treated the same as 'natural' deaths in the community, thus not accorded "typical" burial treatment. As such, the identity of the victims, whether local or foreign, is difficult, to determine archaeologically. This paper will detail antemortem skeletal pathology of the Templo de la Piedra Sagrada sacrificial victims from northern Peru. These data allow us to reject hypotheses concerning the possible origins of these victims.

[156] Second Chair

Tozer, Tristan (California Office of Historic Preservation) [112] Discussant

Trachman, Rissa (Elon University), Kirby Farah (UC-Riverside) and Thomas Ewing (UT-Austin)


A series of water features recently discovered in the hinterlands of Dos Hombres, Belize provide a distinctive opportunity to explore the construction of power and community organization in this locale. The morphology and proximity of these features suggests the formulation of an ancient water system which crosscut several household boundaries. Management of these features infers the formulation of power relationships among and between households communally. This paper will address the set of water features, evidence towards and possible modeling of the communal management of them, and articulate these interpretations to the larger scope of community organization.

[148] First Chair

Trampier, Joshua [258] see Silverstein, Jay E.

Trask, Garrett (Arizona State University) and Matthew Peeples (Arizona State University)


In the Cibola region of Arizona and New Mexico, designs on the exteriors of large serving bowls have frequently been cited as good examples of the active expression of social identities through material culture. During the late 13th and early 14th centuries, a period marked by increasing aggregation, these iconic exterior designs became both more common and bolder in execution. In this poster, we compare regional patterns of similarity in bowl exterior designs from 39 settlements across the Cibola region. These data suggest that the scales at which stylistic conventions were shared changed dramatically during the late 13th century.

Trask, Willa (Texas A&M University) and Lori Wright (Texas A&M University)

[56] Strontium isotopic variability and local identity: Preliminary investigations utilizing the ancient Maya site of Uxbenká, Belize.

The past decade has seen the advancement of both the methods and application of strontium isotypes to answer questions regarding regional migration and local identity throughout the Ancient Maya world. To date, strontium isotope patterning in southern Belize has remained largely undefined. This preliminary study aims to define 87Sr/86Sr variability in the area surrounding the site of Uxbenká. Tooth enamel strontium isotope ratios from individuals excavated from both site core and settlement contexts are compared to modern faunal samples from the region, thus establishing a local "Uxbenká" signature and the means to identify the remains of immigrant individuals.

Trein, Debra (University of Texas at Austin)

[9] Research on Monumental Architecture at the Site of La Milpa, Belize

This paper provides preliminary results of the 2010 excavations of Structure 3, a large monumental structure at the site of La Milpa, northwest Belize. This report is presented in the context of a multi-year research design that aims to investigate the role of monumental architecture at La Milpa as part of a society-wide meaning-investiture process. The evidence gathered in the 2010 field season suggests that a comprehensive analysis of artifact assemblages recovered in monumental spaces may infer on the heterogeneity of use and access of monumental architecture that goes beyond elite-based explanations of ancient Maya monumentality.

Tremain, Cara (Trent University)

[9] Utilization of Looters' Trenches at Structures D4 and D9, Ka'Kabish, Northern Belize

Having once been described as the most looted ancient Maya site in Belize, Ka'Kabish may be thought of as a site with data that is anything but forthcoming. Yet results of the 2010 field season, where investigation included clearing, excavating, and mapping looters' trenches in the large pyramidal structures of D4 and D9, illustrate that Ka'Kabish has worthwhile information for archaeologists and can contribute toward an improved understanding of monumental architecture in northern Belize. This paper will discuss these results and emphasize the paradox between the damage caused by looting and the information to be gained by utilizing these trenches.

Tremayne, Andrew (University of California Davis) and Jeff Rasic (Gates of the Arctic National Park and Preserve)

[7] Lithic Debitage, Meaning and Technological Organization of the Denbigh Flint Complex: An Example from Matcharak Lake, Arctic Alaska

This poster presents the results of a debitage analysis from a 4000-year-old Denbigh Flint Complex site located at Matcharak Lake site AMR-186 in Alaska's Brooks Range. The primary focus of this research is to systematically identify flake types and raw materials to track activities related to stone tool production and maintenance at the site. Secondarily, we use statistical analytical techniques and specific flake attributes to demonstrate typological differences between Denbigh debitage assemblages from other arctic traditions.

Trever, Lisa (Harvard University) and Jorge Gamboa Velasquez

[125] Articulating the Moche Presence at Pañamarca through Architecture and Painting

Despite recent advances and discoveries in Moche archaeology, the monumental center of Pañamarca had been all but ignored since early studies in the mid-twentieth century. In 2010 the authors led the first scientific excavations at Pañamarca in over fifty years.
with the objective to study religious architecture, mural painting, and associated material culture within the Plaza Principal, Plataforma II, and the newly discovered Recinto de los Pilares Pintados. This paper presents new field data as they aid us in defining the nature of the Moche presence at Pañamarca and how that presence was articulated through architecture and mural painting.

Triadan, Daniela (University of Arizona) and Takeshi Inomata (University of Arizona) [225] Ceibal during the Terminal Classic
During the Terminal Classic, Ceibal had one of the most substantial occupations in the Rio Pasion region. It became an independent political entity and possibly a new dynasty established itself. Excavations in the East Court of the site revealed that the royal palace was relocated to this location. The East Court is situated on one of the highest areas of the site, and was occupied since the early Middle Preclassic. The new administrative center and palace were probably moved here because of the significance that this area had in the past.

Trigg, Heather (Univ Massachusetts Boston) and Kurt Anschuetz (Rio Grande Foundation) [53] A View of La Cienega: At the Intersection of the Iberian, Tewa, and Keres Worlds in Seventeenth-Century New Mexico
The relationship between colonizers and colonized in 17th-century New Mexico remains poorly understood. Pueblo peoples had developed sustainable relationships with the environment. Spanish colonists introduced new agricultural systems, but they depended on the Pueblos for survival. Recent research suggests that extreme environmental conditions, combined with incessant demands by colonists on the Pueblos for labor and other subsistence needs led to famine and contributed to the Pueblo Rebellion. We explore the relationships of a 17th-century Spanish ranch with two nearby Pueblo villages – one Tewa and one Keres, examining the competing agricultural systems and the colonists’ dependence on these Pueblos.

Trimble, Michael [161] see McMahon, Catherine

Tringham, Ruth (Univ of California-Berkeley) [122] Creating Narratives of the Past as Recombinant Histories
In this paper I bring together the ideas of Steve Anderson (Recombiant History), Lev Manovich (Database Narratives) and Kathleen Stewart (Ordinary Affects) with my own experience in creating experimental narratives for archaeology using multiple media forms. It explores the fragmentary and non-linear nature of narratives about the past as a legitimate form of presenting the interpretation of archaeological data and the voices of both modern narrators and sentient prehistoric actors, drawing especially on my current research in the challenging world of pre-literate Europe and Anatolia. An essential aspect of this exploration is archaeologist/author responds to the recent critique of the agency/personhood of actors of the past.

[3] see Ashley, Michael

Tripcevich, Nicholas (UC Berkeley) and Daniel Contreras (Stanford) [267] Quarrying and production at the Quispisisa
Obsidian Source
Obsidian procurement at the Quispisisa source in the puna of southern Ayacucho left large quarry pits and associated debris piles but relatively little evidence of production in the immediate vicinity of these pits. Dense deposits of obsidian production debris have been found several hours travel downstream in the upper reaches of a valley that features abundant agricultural terracing. This talk will discuss quarrying and production evidence from Quispisisa in light of regional consumption patterns, geochemistry evidence from surface studies of the source area, and difficulties associated with linking quarrying and reduction activity at a source with particular occupation periods.

Tripcevich, Nicholas [267] see Ogburn, Dennis [97] see Contreras, Daniel A.

Trivedi, Mudit (University of Chicago) [189] Materiality and Alterity in Medieval Mewat
This paper presents the planned investigation of the constitutive relations between politics and social alterity in its multiple situations in the context of medieval North India. Specifically, it proposes an archaeological, architectural and paleoenvironmental study of the Indorei valley. This valley, named after the 14th century fort within it, is located in Mewat, the land of the Meos; the ‘predatory’ and ‘rebellious’ neighbors of the Delhi Sultanate. By studying this instance of the materialization of the political projects and fates of an elite Meo lineage, the paper broaches issues of materiality, politics and alterity.

Tromp, Monica (Idaho State University) and John Dudgeon (Idaho State University) [236] SEM-EDS is an effective tool for population-level analysis of microfossils extracted from prehistoric human dental calculus
Sedimentary microfossil studies are widely used to infer diet in past populations. While profoundly useful for understanding natural and agricultural ecologies, they do not necessarily correspond with the archaeological event of interest: ‘What did people put in their mouth?’ We propose that extracting and quantifying microfossils from human dental calculus is a more appropriate method for understanding population-level variation in diet. Using SEM-EDS we have examined microfossils extracted from human teeth of prehistoric Rapanui (Easter Islanders) and argue that this method provides a more efficient and repeatable means of analysis than light microscopy, largely due to ease of morphological identification.

Tromp, Monica [63] see Meredith, Clayton R.

Trudel, Stephanie (Suquamish Tribe), Dennis Lewarch (Suquamish Tribe) and Leonard A. Forsman (Suquamish Tribe) [178] Middle and Late Holocene Habitat and Economic System Diversification
Thompson (1978) documented an increase in the range of site types and diversification of tool kits in Northern Puget Sound sites over the past 6,000 years. Concomitant with economic diversification, sea level rise, alluvial deposition processes, and seismic processes combined to increase the extent and diversity of productive marine littoral and lowland alluvial floodplain
habitats utilized by hunter-fisher-gatherers. Archaeological and geological data obtained from sites throughout Puget Sound since 1978 are reviewed to evaluate and expand upon Thompson’s seminal observations. Analyses demonstrate the continued utility of Thompson’s model of Middle and Late Holocene economic system diversification.

Tsai, Howard (Museum of Anthropology)  
[125] The Domestic Architecture of Las Varas  
Las Varas, a site in the middle Jequetepeque Valley, is situated 40 km from the Pacific Ocean. This Late Intermediate (AD 1000-1460) site has abundant Coastal Cajamarca-style bowls, as well as domestic pottery similar to that used in highland Cajamarca. Recent excavations exposed a series of residences, ritual plazas, and cemeteries. This talk presents results from my excavation of stone-walled residences constructed on hillside terraces. I will discuss how these residences and neighborhoods can be used to document the presence of diverse cultural practices and possibly diverse ethnic groups in the Jequetepeque Valley.

Tsesmeli, Evangelia (Southern Methodist University)  
[135] Prehistoric Settlement and Continuity in the Middle Rio Puerco Valley  
The Middle Rio Puerco valley forms part of the Rio Grande basin. Archaeological surveys, excavations and CRM projects provided the corpus of data for this investigation on settlements and continuity of habitation within the valley from the archaic to the end of Pueblo IV periods. A composite view of past habitation patterns in relation to environmental settings emerges defining the cultural landscape at the area. A closer look at the material record provides insights into the social landscape and community organization of the valley residents during the tumultuous Pueblo III–IV periods.

Tsouras, Theodore (National Park Service)  
[248] The Easy Way Down: Documentation of Walnut Canyon National Monument’s Ancient Water Trail  
This presentation summarizes recent documentation by NPS archeologists of a massive prehistoric trail that accesses the difficult-to-reach, but lush riparian floor of Walnut Canyon. The trail consists of several broad switchbacks stabilized with large, dry-laid retaining walls—some of which contain stones weighing several tons each. Likely constructed in the 12th century A.D., during the height of Walnut Canyon’s prehistoric Sinagua occupation, this trail provided and continues to provide the safest and most efficient access to the resource-rich canyon bottom through the prohibitively steep layer of Coconino Sandstone.

Tsukamoto, Kenichiro (University of Arizona)  
[182] The Social Roles of Plazas during Turbulent Times: The Classic Maya Center of El Palmar, Campeche, Mexico  
Plazas likely played crucial roles in establishing shared identities during the politically tumultuous Middle Classic period (A.D. 400-600) in the Central Maya Lowlands. Due to El Palmar's location at the boundaries of three large contemporaneous political spheres—Tikal, Calakmul, and Rio Bec—I suggest that political upheavals affected El Palmar more acutely than neighboring centers. By examining excavation data from the previous year’s fieldwork, I attempt to show how the construction and contestation of shared identities can be traced in the archaeological record, in particular by analyzing the diversity of spectacles and the process of building and remodeling plazas.

Tucker, Bryan (Georgia Department of Natural Resources), Heath Tucker (University of Georgia) and Matt Luke (Georgia Southern University)  
[161] Archaeology and Augmented Reality: Using AR to Enhance Archaeological Interpretation  
Augmented Reality (AR) is a process which overlays virtual images, sounds, movies, or other data onto the real world. Historically, constraints on the size and cost of the necessary equipment have slowed its uptake in the public sector. However, recent advances in smartphones and tablet computers have removed these impediments. We discuss ways in which AR can be used to enhance the interpretation and presentation of archaeological sites and artifacts. By enhancing interactive displays and superimposing sensory information on the landscape, AR has the power to actively engage visitors, transforming them from passive spectators to active participants in a historic landscape.

Tucker, Chris [146] see Levy, Richard M.

Tucker, Heath [161] see Tucker, Bryan D.

Tulapurkar, Shripad [261] see Puleston, Cedric

Tung, Tiffiny (Vanderbilt University) [156] Discussant  
[217] Discussant [233] see Lofaro, Ellen M.

Turkon, Paula (Ithaca College) and Michelle Elliott (CNRS Paris)  
[25] Dendrochronology, Chronological Control, and Climate Reconstruction in Northwest Mesoamerica  
Due to the fragility of the modern ecosystem, climate change has been implicated as a key influence in the prehispanic settlement dynamics of Mesoamerica’s northwestern frontier zone. Yet, recent paleoenvironmental research, combined with the prehispanic occupant’s heavy dependence on agriculture, indicate that past environments were less degraded than environments observed today. Thus, fundamental questions, such as the nature and timing of human settlement, abandonment, and environmental change, remain unresolved. This paper reports on findings of a pilot project to determine the viability of dendrochronology, a methodology previously not used in Mesoamerican archaeology, as a way to address these outstanding questions.

Turner, Andrew (University of California, Riverside)  
[98] The Teotihuacan Tlaloc and the Iconography of Rain in Ancient Central Mexico  
The rain deity Tlaloc is one of the most significant beings in Teotihuacan’s pantheon, as numerous artistic representations attest. The Storm God insignia is generally considered to be an abstract representation of Tlaloc used emblematically and as a symbol in writing systems. This study examines symbolism shared by the Teotihuacan Tlaloc and the Storm God insignia ranging from the Formative Period through the Epiclassic in
Central Mexico and it suggests that the insignia did not explicitly represent the deity, but rather elements of the insignia incorporated into Tlaloc’s regalia denote specific characteristics of the deity in visual representations.

Turner, Bethany (Georgia State University)
[49] Locating the aclla: Isotope bioarchaeology and the reconstruction of Inka social class
Scholarly interpretations of the aclla class have been strengthened by more nuanced consideration of their multifaceted roles within the Inka state. However, interpreting the aclla first requires finding them in archaeological populations in ways that avoid gendered assumptions of material culture and archaeological context. Multi-isotope analysis permits rough estimation of social class via demographic composition and subsistence variation, and when combined with sex ratios, may permit identification of aclla independent of material culture. A case study from Machu Picchu is presented here, embedded in a discussion of the limitations and pitfalls of using these techniques in reconstructing Inka classes.

Turner, Sara (Georgia State University)
[154] All About Archaeology
In this paper I will discuss the development of archaeology kits for third through fifth grade children. Each kit contains three units that are designed to teach elementary school children the basic features of archaeology. Children will learn about past human culture and behavior through hands-on projects and educational lesson plans. I will detail the process of constructing lesson plans, developing projects, and providing reading books appropriate for the elementary level. In addition, I intend to discuss the content and format of the kits with elementary teachers for comments on how they think children will respond to the material.

Turner, Terence [24] Discussant

Tuross, Noreen (Harvard University)
[19] Fire, Color and Drink: new approaches to residues
The ranges of time, environment, preservation and, most importantly, questions about residues or molecular information associated with archaeological materials requires some new and varied approaches. What are the best ways of identifying the use of fire in the archaeological record? What is the nature of residues left from fermenting beverages? How can we identify the use of organic pigments? One analytical approach will not fit all. The uses of a broad scanning technique called DART (Direct Analysis in Real Time) are highlighted, and follow on research described.

Tushingham, Shannon (University of California, Davis)
[239] Historic Trends in the Mass Harvest of Smelt (Osmerids) on the North Coast of California
Smelt (osmerids) are a small fish that have been mass harvested on the north coast of California for centuries. This paper will present new data relating to smelt fishing from the fine-grained analysis of several archaeological sites, will summarize the ethnographic and historic harvest, and will discuss the archaeological correlates of smelt fishing.

Tuwaletstiwa, Judy [122] see Tuwaletstiwa, Phillip J.

Tuwaletstiwa, Phillip and Judy Tuwaletstiwa (Artist)
[122] Ways of Seeing
Archeology is a combination of hard and soft sciences. The hard sciences use rigid protocols to govern their application. The protocols of the soft sciences allow greater latitude for interpretation. What lies outside these parameters are metaphors. Ancient people saw the world metaphorically. We believe the judicial use of dreams, myths and artistic vision can enhance scientific interpretation. We explore this in our novel about the origins and meaning of Chaco Canyon, “The Laughing Spiders.”

Tykot, Robert (U. of South Florida)
[97] New Approaches to Obsidian Studies in the Central-Western Mediterranean
Over the past fifteen years, analysis of several thousand obsidian source samples and artifacts from the central-western Mediterranean has provided an excellent dataset to address neolithization and initial island settlement, craft specialization, and changes in political and socioeconomic systems from the beginning of the Early Neolithic (ca. 6000 BC) thru the end of the Bronze Age (ca. 800 BC). This has been accomplished thru detailed studies of the geological sources, and the development of low-cost methods of analysis, including portable, non-destructive XRF instruments. Integration with typological and use-wear analysis has provided information on continuity and change in these ancient societies. [193] Discussant [63] see Ashkanani, Hasan J. [92] see McCormick, David R.

Tyler, Kit (The American Mercury)
A visual tour of California's diverse environmental environments.

Tyson, Rose (University of San Diego) and Alana Cordy-Collins (University of San Diego)
[156] Ritual Bloodletting as Preliminary to Decapitation: A New Interpretation of the Evidence from El Cuarto de los Craneos at Dos Cabezas
A cache of 15 human heads at the Moche site of Dos Cabezas (Jequetepeque Valley) provides important new perspectives on Moche decapitation practice via functional human anatomy and forensics. Removing a living human head utilizing a tumi (simple copper knife) would have challenged Moche decapitators due to the small and thin knife design, complex neck anatomy, potential for victim movement, and penchant for carotid arteries to spray pumping blood. At Dos Cabezas, evidence suggests the Moche used preliminary exsanguination to produce a predictable volume of blood controlled for collection in a vessel. Thus, systematic decapitation followed only after death.

Ullah, Isaac (Arizona State University, SHESC), C. Michael Barton (Arizona State University), Sean M. Bergin (Arizona State University) and Alexandra E. Miller (Arizona State University)
[36] Simpler is better: lessons from modeling coupled human and natural systems in the Mediterranean Landscape Dynamics Project
Over the past six years, the Mediterranean Landscape
Dynamics (MedLanD) Project has developed a modeling laboratory to explore the complex processes that characterize coupled human and natural systems. The laboratory focuses on subsistence-level agropastoralism because such socioeconomic systems dominate most of the Holocene archaeological record and also remain common today. In this paper, we summarize some of the major lessons we learned about the process of doing human-natural systems modeling during the course of the MedLanD Project, including issues of connecting models from different programming environments, sensitivity analysis, scale and resolution, building process equations, and choosing most relevant output data.

Ullah, Isaac [36] see Bergin, Sean M.

Ullinger, Jaime (Ohio State University), Susan Sheridan (University of Notre Dame) and Lesley Gregoricka (Ohio State University) [152] Group Inclusion in the Early Bronze Age Cemetery at Bab edh-Dhra’, Jordan
Early Bronze Age Bab edh-Dhra’, Jordan is unique in that mortuary patterns follow settlement changes. This paper explores who was buried in the cemetery from a paleodemographic perspective and how that relates to settlement transition. Early Bronze IA (EB IA) tombs contain fewer people than chamber houses from EB II-III, but include many neonates and infants. The EB II-III tombs house children, but not many infants. Dental morphological traits show that EB IA inhabitants were buried by family group, and cranial non-metric traits suggest that a similar pattern was followed in EB II-III, despite larger group inclusion in single tombs.

Urban, Thomas [42] see Smith, Kevin P.

Urcid, Javier and Arthur Joyce (University of Colorado, Boulder) [182] Formative Period Transformations of Monte Albán’s Main Plaza and their Political Implications
Between 500 B.C. and A.D. 200 the Main Plaza of Monte Albán underwent successive changes. Semasiographic and epigraphic readings of carved megaliths on several buildings around the plaza suggest that during the city’s first several centuries communal forms of political authority persisted alongside newer, more exclusionary ones. The scale, symbolism, and accessibility of the plaza indicate that the power of rulers was downplayed in favor of communal institutions. At A.D. 200, however, evidence suggests a major political upheaval as indicated by the dismantling of several monumental buildings and their associated narrative programs. We consider causes and consequences of this upheaval.

Ure, Scott (Brigham Young University) [187] Fremont Pottery Standardization: A Preliminary Examination of Fremont Painted Bowls and their Degree of Standardized Morphological Characteristics
Although the Fremont culture has been studied for decades, very little is currently understood about their social, political, and community organization. One aspect of Fremont material culture which may help determine their degree of social complexity is their painted bowls—both the black-on-gray and black-on-white varieties. This paper explores what degree Fremont painted bowls may have been standardized, and whether the degree of standardization is significant enough to draw any conclusions about the Fremont socioeconomic structure.

Uriarte Torres, Alejandro (El Colegio de Michoacán, A.C.) and Christopher T. Fisher (Colorado State University) [58] Arquitectura, inversión de trabajo y asentamiento: un acercamiento a la organización espacial en Sacapu Angamucu
El análisis espacial de la inversión de trabajo evidente en la arquitectura constituye una herramienta metodológica con la que se pueden abordar problemas sobre la estructura urbana y la organización sociopolítica de un asentamiento. Utilizando este enfoque se propone un acercamiento preliminar al estudio de la organización del sitio de Sacapu Angamucu mediante el análisis de la distribución espacial de la inversión de trabajo reflejada en su arquitectura.

Urquhart, Gerald [19] see Raviele, Maria E.

Urton, Gary (Harvard University) [24] The Objectification of Identities, Places and Political Relations in the Inka Khipu
From Spanish colonial accounts we learn that khipus were instrumental in the performance of Inka state administration. From local cord-keepers to provincial overseers to administrators in the capital, Cusco, the khipu played an active role in constructions of socio-political identities and relations among groups within the Empire. This paper looks at Spanish commentary on cord-keeping, as well as at khipu samples, to address the question: What role did the khipus play in articulating political relations and the objectification of identities in the Empire?

Ururuela, Gabriela (Universidad de las Americas) and Patricia Plunket (Universidad de las Américas, Puebla) [98] Costumes and Puppets among Cholula’s Early Classic Figurines
The transition to urbanism implied multiple modifications in prehispanic social behavior; we explore some of these, as reflected in an Early Classic Cholula figurine sample. One major change was that the previous representation of the human body almost or entirely naked was substituted with the portrayal of clothed individuals. Female images became standardized and static, while males increased in number, ornamentation and variation. Among the males, two groups lead us to suggest that some figurines perhaps helped in the transmission of oral tradition via miniature theatrical performances: 1) costumed or masked personages, and 2) a set of horizontally moved puppets.

Vadala, Jeffrey [238] see Leonard, Daniel

Vail, Gabrielle (New College of Florida) [143] Painted Texts from the Northern Maya Lowlands: The Classic to Postclassic Transition
This paper explores texts painted on several different media from the northern Maya area to better understand what features distinguish the “Yucatecan” tradition. Analysis of the relevant records from the Maya Hieroglyphic Database focuses on addressing several
key questions: How is the transition from the Late/Terminal Classic to the Postclassic period documented in the hieroglyphic record? Does the subject matter of texts vary substantially across different types of painted media? And can an analysis of stylistic, morphological, and lexical features from the Classic period epigraphic corpus help determine where and when the Postclassic Maya codices were painted?

Valdez Azúa, Raúl [200] see Evans, Susan Toby

Valdez, Francisco (IRD / France - Ecuador) [15] Evidence of the Inca presence in the Bracamor country (South Eastern Andes of Ecuador) [SEI, Carnegie Mellon University]
The chronicles of conquest of the Chinchaysuyu describe several episodes of the failed Inca incursions into the Bracamor country, located on the fringes of the Eastern Andes that progressively descend to the Amazonian lowlands. Recent archaeological work, in the vicinity of Palanda, has documented the probable emplacement of one of the last battles, fought between the invading Inca armies and the Bracamor, around 1520. We present and discuss several aspects of the Inca incursion in the south eastern ceja territory of Ecuador, including the evidence of roads, fortresses, the local toponomy and the archaeological materials found in the Palanda region.

Valdez, Fred (University of Texas At Austin) and Palma Buttiles (SEI, Carnegie Mellon University) [191] Social-Political Events of the Terminal Classic at Colha, Northern Belize
The prehistoric Maya of northern Belize witnessed significant episodes of stability as well as turmoil over the course of their history. A brief review of these episodes is presented with a short commentary for each. The focus of this paper is the “terminal” event of ca. AD 800 as witnessed from Colha, Northern Belize. The violent end of the Classic Period at Colha may signify an attempt at restructuring, or lack thereof, in northern Belize. While Colha remains at the heart of this study, other lowland sites are referenced as a means of developing a broader view of political stresses and changes across the Maya area.

Valdez, Fred [119] see Buttiles, Palma J. [34] see Hyde, David M.

Valenzuela, Jasmin [31] see Szirmaj, Jenica

Vallieres, Claudine (McGill University) [227] Of Llamas and Maize: Ingesting Tiwanaku
The Tiwanaku polity is associated with a novel ceramic complex for the production and consumption of beer made of non-local maize, central in exporting its attractive ideology through feasting events. The type of food served at feasts is assumed inconsequential, yet the dominance of camelid consumption in private and public contexts suggests a preference. Recent research in a non-elite residential neighborhood of the Tiwanaku capital reinserts camelids in the life of the city and polity’s residents by focusing on quotidian cuisine, and argues that the daily consumption of this preferred food represents a local way to be ‘Tiwanaku.

Van Der Veen, Marijke (University of Leicester, UK) [45] Discussant

van Dommelen, Peter [228] see Loney, Helen L.

Van Dyke, Ruth (Binghamton University) [122] Imagined Subjects Speak: Phenomenology and Creative Nonfiction
Phenomenological approaches create sensory pasts, but such interpretations can be universalizing and solipsistic. To ameliorate these problems, I turn to imagined narratives – creative nonfiction grounded in archaeological information to construct imagined lives in the past. Imagined narratives can be useful tools for analysis, and they can give voice to diverse individuals and subaltern groups. They do not constitute an unethical silencing of “real” voices in the past, I contend, because all archaeological representations are constructed; overtly imagined narratives represent a more transparent authorial hand than do ostensibly subject-less narratives. I illustrate my points with experimental work from the American Southwest.

Subsistence strategies of the prehistoric populations occupying the Ballona wetlands in west Los Angeles over the past 8,000 years have been characterized by general continuity with punctuated change. In this talk, we will discuss the major trends and significant changes in subsistence, while comparing our results to the wider context of adaptive strategies in coastal southern California. Specifically we will address maritime versus lacustrine adaptations, resource intensification and ethnogenesis in food consumption. The talk will identify trends across the entire sequence of human occupation in the Ballona, as well as highlight emerging insights into food consumption during the Mission period.

Van Gijn, Annelou (Leiden University) [59] Science and imagination: methodological issues when examining the meaning of flint for neolithic societies in the lower Rhine Basin by means of use-wear analysis
Use-wear studies have long been limited to the level of individual sites. However, 25 years of use-wear and residue analysis of Neolithic and Bronze Age flint assemblages from the Netherlands has created a wealth of empirical data. The more elusive role of flint in conveying aspects of identity and its ritual treatment are two topics that have been examined at the inter-site level. Three problems encountered: sampling strategy, identifying used zones and description of wear traces, will be illustrated briefly and evaluated in terms of standardization and the extent to which ‘imagination’ is operationalized.

Van Gijseghem, Hendrik (Université De Montréal), Kevin Vaughn (Purdue University), Verity Whalen (Purdue University), Moises Linares Grados (Universidad Nacional Mayor de San Marcos) and Jorge Olano Canales (Universidad Nacional Federico
Villareal)  
[267] Mining of copper and copper-bearing minerals in ancient Peru: New evidence from the Upper Ica Valley  
A survey of the Upper Ica Valley has revealed indirect and direct evidence for the mining of ancient copper and copper hydroxides, carbonates, and silicates in the Upper Ica Valley of Peru that date from the Formative Period to historic times. It is during the Late Intermediate Period that metal extraction underwent an important increase in scale and intensity: material remains associated with mining sites are more numerous and infrastructures more complex. This reveals a process in which mineral extraction went from small-scale and informal to state-controlled, testifying to the heightened social role of metals in late prehispanic times.

Van Gijseghem, Hendrik [267] see Vaughn, Kevin J.

Van Keuren, Scott (University of Vermont), Mark Agostini (University of Vermont) and Hector Neff (California State University, Long Beach)  
[62] Ceramic Pigments and Communities of Practice in Fourteenth-century Arizona  
The poster reports on a comprehensive analysis of glaze-painted White Mountain Red Ware that employed time of flight-laser ablation-inductively coupled plasma-mass spectrometry (TOF-LA-ICP-MS). This analytical approach measures the chemical composition of pigments, which is used here to infer Ancestral Pueblo painting “recipes.” The poster specifically examines the variability of “recipes” used to decorate a striking, iconographic-style pottery type found at early fourteenth-century villages in east-central Arizona. The data are used to evaluate the possibility that these containers were manufactured by groups of potters who held exclusive access to painting technologies or resources.

Van West, Carla (SRI Foundation) and Linda Cordell (School for Advance Research)  
[99] Using Tree-ring Data to Explore Community Origins during the Fourteenth Century in Central New Mexico  
Tijeras Pueblo is a 200-room, fourteenth-century Ancestral Pueblo settlement on the east side of the Sandia Mountains, east of Albuquerque, New Mexico. Ceramic studies and cranial measurements suggest the source areas for the village’s population were south and west, with connections to the Cibola area. This paper uses three independent, tree-ring chronologies from west-central (El Malpais) and central (Middle Rio Grande and Chupadero Mesa) New Mexico, and 275 tree-ring cutting dates from Tijeras Pueblo, to evaluate whether climate conditions differentially affecting food production in each area could have prompted population movement to Tijeras Canyon.

Van Zandt, Tineke (Pima Community College)  
[137] The Lower Hill Fort in Regional Context  
Pima Community College and the Bureau of Land Management have conducted a cooperative inventory survey of the Burro Creek/Pine Creek area of west-central Arizona for the last eight years. This poster session summarizes the overall findings and methodology of the survey and includes posters from undergraduate student survey participants who are conducting additional research using data collected during the project. Posters will cover the survey goals and methodology, use of local lithic materials, typology of projectile points, distribution of ground stone relative to vegetation, prehistoric fortified hilltop sites and the historic use of the area.

Vance, Meghann [134] see Wandler, Cole B.

VanDerwarker, Amber (UCSB), Jennifer Alvarado (University of California, Santa Barbara) and Paul Webb (TRC Garrow Associates)  
[111] Analysis and Interpretation of Intrisite Variability in Paleoethnobotanical Remains: A Consideration and Application of Methods at the Ravensford site, North Carolina  
Paleoethnobotanists excel at diachronic analyses of plant data, synchronic comparative analyses of different sites/regions, and (increasingly) the use of robust quantitative techniques. It is still the rare study, however, that examines variability in plant remains from different contexts within a single site; such an approach has the potential to inform issues of site formation, feature function, and the organization of food preparation, processing, storage, and disposal. This paper highlights quantitative techniques for examining intrasite spatial variability through the analysis of plant data deposited on a burnt house floor from the Ravensford site, a multi-component Cherokee occupation in southwestern North Carolina.

[45] Discussant

Vandiver, Pamela [5] see Rosenstein, Dana Drake

VanEssendelft, Willem  
[32] Deciphering the Tizoc Stone  
The riddle of Nahua writing has been deepened recently by the 2008 publication of Alfonso Lacadena’s proposed syllabary. I examine his proposal in the context of the Tizoc Stone, which provides a wealth of toponymical data regarding the late pre-Contact Aztec Empire. By performing both epigraphic and iconographic analyses of the place names on the massive stone document, I address the structural issues of an enigmatic script and clarify the toponyms on this iconic artifact. This work provides the foundation for a GIS examination of the Aztec city-states and their complex interactions in the crucial decades before the Spanish contact.

VanEssendelft, Willem [38] see Davies, Gavin R.

Vannière, Boris [192] see Rius, Damien

Van Valkenburgh, Nathaniel (Harvard University) and Carol Rojas Vega  
[241] Urbs and Civitas: Forced Resettlement and the Fashioing of Political Subjectivity in the Zaña and Chamán Valleys, Peru - 16th to 18th Centuries, AD  
Through spatial analysis of archaeological survey data and colonial land registers, we examine how Spanish colonial forced resettlement (reduccion) refashioned “indigenous” political subjectivity on the North Coast of Peru in the late 16th century. By contrasting how settlement patterns are alternately expressed in the distribution of archaeological sites and documentary accounts, we demonstrate how ideal, administrative models of resettlement were retracted by prior modes of political affiliation, as well as conflicts and compromises.
during the resettlement process itself.

Vardi, Jacob, Nathan Goodale (Hamilton College Science Center Clinton, NY) and William Andreksy (Washington State University)

[59] Should we standardize lithic use-wear analysis? Although lithic use-wear analysis has been practiced by archaeologists on a regular basis since the 1970’s, there has been much debate about its effectiveness to determine past aboriginal practices and actions. Standardization of protocol, imaging, experimentation, quantification and other aspects of use-wear methods and techniques may contribute to a better understanding of the archaeological record. Alternatively, standardization may decrease technological diversity of the field which is so important for developing new ways of understanding lithic use-wear data. In this paper we address recent developments of new techniques and their historical basis to discuss the future for productive use-wear study.

Vardi, Jacob [22] see Rosen, Steven A.

Varela-Torrecilla, Carmen (Associate research CNRS-Teacher LA SALLE Campus)

[65] One Question, Many Answers: History And Results Of An Archaeometric Research Of Puuc Ceramics

The ceramics associated with the north Yucatan Puuc Phenomena (600-1000 A.C.) represented an important technological and stylistical ceramic production change in comparison with the Early classic pottery production at the Maya Lowlands. The aim of this paper is to present the results obtained with an archaeometric program research about Puuc ceramics started in 1997.

Vargas Sánchez, Patricia [103] see Damp, Jonathan E.

Varien, Mark (Crow Canyon Archaeological Center), Paul Ermigiotti (Crow Canyon Archaeological Center), Scott Orman (Crow Canyon Archaeological Center-Santa Fe Institute) and Timothy Kohler (Washington State University)

[99] Estimating Maize Farming Productivity in the Mesa Verde Region: Computer Models and Experimental Gardens

Tree-ring research has been used to estimate the productivity of Pueblo maize farming in the central Mesa Verde region of southwestern Colorado, and Jeff Dean has been integral to that effort. This paper summarizes that research and focuses on recent work by the Village Ecodynamics Project (VEP). VEP research includes a combination of computer modeling and the Pueblo Farming Project (PFP). The PFP involves modern Pueblo farmers using traditional agricultural practices to plant experimental gardens. Together the computer modeling and PFP gardens provide refined estimates of ancestral Pueblo maize yields and how annual variation in climate affects these yields.

Varney, R. (PaleoResearch Institute), Linda Scott Cummins (PaleoResearch Institute, INC.) and Thomas Lux (PaleoResearch Institute, INC.)

[66] Regional Climate Modeling: Breathing Life into PaleoEnvironments

Understanding the paleoenvironment and climate change is a critical first step to interpreting prehistoric cultures. Cultures change through time, with people often traveling across the landscape. Hardships suffered as a result of climate change often affect many cultures over wide areas. How cold were the winters 10,000 or 5,000 years ago? Do we care? How fast did the weather change? And when was that? Where was the jet stream? Mapping modeled climate change (every 100 years) on a GIS map of Colorado shows the potential of regional macrophysical climate modeling to address questions of paleoenvironment and culture change.

Varoutsikos, Bastien (Harvard Univ.) and Christine Chataigner (CNRS, France)

[114] Obsidatabase Project: Collecting and organizing data on Prehistoric Caucasian and Near Eastern obsidian

Over the last 50 years, there has been considerable analysis of obsidian from the caucasus and near east, which is used in the reconstruction of exchanges. This accumulating body of information calls for a database to present it in a coherent ensemble. The Obsidatabase Project provides scholars with such a resource for Prehistoric Caucasian and Near Eastern obsidian. Archaeological and geological information are accessible through an intelligent browser that can create .xls and DBF IV lists directly exploitable in GIS. The database facilitates collaboration and synthesis of obsidian research.

Varon, John [114] First Chair [114] Second Organizer

Vásquez, Ramon [1] Discussant

Vásquez Sánchez, Victor [156] see Gaither, Catherine

Vaughn, Kevin (Purdue University), Hendrik Van Gijseghem (Université de Montreal), Jelmer Eerkens (UC Davis) and Moises Linares Grados (Universidad de San Marcos)

[267] The Structure and Organization of Mining in Nasca from the Early Intermediate Period through the Middle Horizon: Recent Evidence from Mina Primavera

This paper reports on 2010 excavations undertaken at Mina Primavera, a prehispanic hematite mine located in Ingenio, Peru. Fieldwork at the site revealed the technology and organization of mining at Mina Primavera. Based on artifact evidence including fragments of a faceneck jar and an offering of a pair of cane panpipes, we hypothesize that the nature of mining changed from informal and itinerant with Nasca to more formally organized and administrated by the Wari. We discuss implications for these possible changes in the context of Nasca and Wari as well as in our understanding of prehispanic mining in the region.

[267] First Chair

Vaughn, Kevin [267] see Van Gijseghem, Hendrik

Vaughn, Kevin A. [160] see McCutcheon, Patrick T.

Veit, Heinz [124] see Lombardo, Umberto

Velasco, Matthew (Vanderbilt University) and Elizabeth Arkush (University of Pittsburgh)

Over 400 tombs from 6 nearby sites in the Northern Titicaca Basin dating to the Late Intermediate and Inka Periods (AD 1000-1532) were systematically surveyed and examined for patterns in style, construction, and spatial distribution. Slab-cist tombs (the dominant type in this region) vary considerably in size and elaboration at both the intrasite and intersite level, suggesting that tomb construction helped define distinct social groups within regions and within sites. Tomb construction techniques also span a gradient between slab-cist tombs and aboveground chulpas, suggesting that the former were conceptually and functionally foundational to chulpas building in the Titicaca Basin.

Velasquez, Adrian (INAH) and Emiliano Melgar (INAH) [116] Tenochcan Palace Productions of Shell and Lapidary Objects
Recent researches have shown that a great amount of objects found in the offerings of the Sacred Precinct of Tenochtitlan, are local productions and not pieces obtained by tribute and commerce, as originally thought. An example of that are the researches about the manufacturing techniques of shell and lapidary objects, which morphological and technological standardization, along with its exclusiveness to the offerings of the Great Temple, allowed us to propose that they are palace productions made for the most elitist religious cult of the mexica society.

Veldhuijzen, H. Xander [167] see Khalid, Lamy

Vellanoweth, Rene [263] Second Chair

Vellanoweth, René [103] see Whistler, Emily L. [263] see Aínis, Amira F. [123] see Guttenberg, Richard B.

Venables, Barney (University of North Texas), Andrew Barker (University of North Texas), Steve Wolverton (University of North Texas) and Stan Stevens (University of South Florida) [19] Non-targeted protein analysis in experimental ceramic artifacts.
To date, there are several examples of successful archaeological ceramic protein residue analysis. However, much of the research has relied on targeted protein analysis, a method that is of limited value in situations where little a priori knowledge regarding the artifacts under study is available. In order to refine our ability to conduct non-targeted protein research, we conducted a multi-part analysis of protein binding, survivability and identification via the use of experimentally prepared and archaeological ceramic artifacts, total organic carbon analysis, protein assays and HPLC-MS/MS. Results confirm previous research on protein-ceramic binding and identify key topics for future research.
[19] Discussant

Venables, Barney [19] see Stevens, Stanley M.

Ventresca Miller, Alicia (University of Pittsburgh) [54] Social Organization in the Eurasian Bronze Age: A Bioarchaeological Approach to the Study of Communities
While mortuary archaeology has been a major component of archaeological practice in the Eurasian steppe, multivariate bioarchaeological analyses are rarely undertaken. Therefore, scholars rarely agree on the nature of social organization or relative complexity of these communities. Previously recovered mortuary remains offers a wealth of data to address questions surrounding local social change during the middle to late Bronze Age transition in north central Eurasia. Through a multivariate statistical analysis of two cemeteries from a single microregion (Bestamak - Middle Bronze Age) and (Lisakovsk - Late Bronze Age), we have the ability to examine these societies at different scales.

Vera, Jaime (Zona Arqueológica de Monte Alban-INAH) [95] Los complejos residenciales de élite de Atzompa. Un análisis espacial.
Los patrones y elementos arquitectónicos identificados en las casas de élite en Atzompa nos permiten establecer diferencias tanto regionales (Valles Centrales) como al interior del sitio. Estos elementos y/o patrones marcan funciones y usos variados como lo son la casa habitación o el uso político religioso. Un análisis espacial y distributivo de los elementos arquitectónicos como accesos, patios unidades anexas asociados a estos complejos, nos permitirán un acercamiento parcial al uso y la función de estos complejos de élite y entender un poco de la organización de ésta ciudad zapoteca.

Verano, John (Tulane University) [156] Human Sacrifice in Northern Peru: Continuity or Diversity?
Human sacrifice has deep roots in Northern Peru, and the evidence of such practices has grown significantly in recent years. Have new discoveries helped to clarify temporal trends and overall patterns? In many ways, the picture has become more complex, making simple categorizations difficult. How much can we know about the motivations and significance of sacrificial practices from archaeological evidence and the interpretation of iconography? These questions increasingly are coming to the forefront in current research.

Verbka, Joe (PennDot) and Sean Martorelli (Indiana U of Pennsylvania) [65] GPR Investigations of a Historic Cemetery in Allegheny County Pennsylvania
This poster presents the methodology and results of a geophysical survey conducted by the Pennsylvania Highway Archaeological Survey Team and PennDOT. The practical advantages of utilizing geophysical equipment in CRM archaeology are becoming ever more apparent. In the case of this PennDOT emergency slide project in Allegheny County, the use of ground penetrating radar proved effective in aiding in the assessment of the effects of the project on a historic cemetery. Through systematic survey and the use of GIS and GPR software, anomalies were identified and geo-referenced to avoid excavation while successfully avoiding adverse affects of the project.

Verdugo, Alex [57] see Gassaway, Linn

Verhaaren, Bruce [162] see Wescott, Konnie

Vlau, Andre [72] see Peros, Matthew C.

Villagran, Ximena (Universidade de Sao Paulo) [253]
Second Chair [253] Second Organizer

Villagran, Ximena [253] see Klokler, Daniela

Villalpando, Elisa (Instituto Nacional de Antropología e Historia, Sonora) [253] La Playa. Some Hints on Ritual at Early Agricultural Communities in Northwest Mexico
La Playa, an amazing site in northwest Mexico has become iconic in the study of Early Agriculture communities in the Sonoran Desert. Despite more than 500 features recorded and more than 300 inhumations excavated, emphasis has prevailed on reconstruct daily life and important aspects on ritual have dissolved among subsistence or health conditions information. We explore a different approach to reconstruct ritual among these communities with a diverse lecture of same data.

Villalpando, Elisa [147] see Cruz Guzmán, Carlos

Villanea, Fernando [194] see Monroe, Cara

Villanueva, Patricio [177] see Munoz, Cynthia M

Villaseñor, Isabel [92] see Barba, Luis

Villeneuve, Suzanne (Simon Fraser University), Brian Hayden (Simon Fraser University), Paul Goldberg (Boston University), Guy Cross (Terrascan Geophysics) and Matthew Sisk (Stony Brook University) [176] Investigating Processes of Aggregated Village Formation on the Western Canadian Plateau
Ideology and ritual activities have been emphasized as important factors involved in the initial stages of institutionalized inequalities in transegallitarian societies. Yet, there are few archaeological cases of clearly identified ritual activity at this level. Specially prepared floor sequences in ritual structures at Keatley Creek dating to the early period of village formation provide one of the only fine-grained records for examining such issues. Results from excavations, micromorphology and radiocarbon dating are presented. GIS is also used in analyzing datasets to examine relationships between the development of ritual activity and the timing and resource conditions surrounding aggregated village formation.

Villeneuve, Suzanne [176] see Billy, Nora [176] see Hayden, Brian [176] see Leech, Rhonda [176] see Richards, Michael P. [176] see Hicks, Tyler [176] see Endo, Naoko

Vincent, Allison (Mercyhurst College) [39] Textile production in the Central Coast of Peru during the early intermediate period: Analysis of their political implications
Specialization of textile production has been regarded as an important component of social organization. In the Andes, during the late intermediate and late horizon periods, textile production has been recognized as an important economic factor in the development of state level societies. However, little has been said about the nature of this activity and its social implications during earlier periods and in non-state level societies. In this paper I will present the most important antecedents of earlier textile production in the central coast of Peru, placing special focus on the relationship between the nature of textile production, and its economic implications in social organization.

Vining, Benjamin (Boston University) [39] Rural Land-Use dynamics and the Tiwanaku State in the Suches Basin, Southern Peru
Recent surveys in the high-elevation Lake Suches region (Moquegua, Peru) documents a long and stable history of pastoral land-use. Suches lies directly between Middle Horizon urban Tiwanaku and its principal colonies in the Moquegua Valley, but no direct evidence of a state presence has been recorded. Closer examination of shifting pastoral patterns, however, indicates the indirect influence of Tiwanaku on isolated rural communities. “Atomistic” pastoralists intensified pastoral production ultimately driven by Tiwanaku economic interests. These results refine understandings of the magnitude that archaic states’ influence had, even in areas of no apparent state presence.

Viramontes, Jaime [98] Las representaciones de la figura humana en el arte rupestre de Guanajuato
En el arte rupestre del Centro Norte de México en general, y de Guanajuato en particular, la representación de la figura humana fue uno de los temas iconográficos más recurrentes; en este trabajo daremos a conocer las características formales en las que fue plasmada la figura humana, así como algunas hipótesis para explicar su recurrencia y posible significado en términos de la cosmovisión de las sociedades de los recolectores cazadores que vivieron durante la época prehispánica en Guanajuato.

Vitousek, Peter (Stanford University), Oliver A. Chadwick (University of California Santa Barbara), Thegn Ladefoged (Auckland University) and Aurora Kagawa (Stanford University) [261] Agriculture and Biogeochemistry in Pre-contact Hawai`i: Opportunities and Constraints
Upland rainfed dryland agricultural systems in pre-contact Hawai`i were bounded on their drier margin by a mean annual rainfall of 750mm and on their wetter margin by a striking threshold in soil fertility, beyond which natural ecosystems depend on dilute atmospheric inputs of major plant nutrients. Efforts to restore agricultural production to areas of leeward Kohala suggest seasonal climatic variation influenced agricultural potential; dry, low elevation areas could yield only in the winter wet season, when low temperatures constrained production in the wetter upland areas.

Vitousek, Peter [261] see Browne Ribeiro, Anna T.

Vleck, David [224] see Dowd, Anne

Vogel, Melissa (Clemson University) [125] Casma Architecture Takes Its Place on the North Coast Continuum
As one of the foremost authorities on Chimú architecture, Carol Mackey has influenced generations of Andean scholars with her extensive body of work and her generous spirit. She also sparked my interest in a relatively unknown culture, the Casma polity. This paper
This paper presents an introduction to the symposium examining recent research on Casma architecture, and attempts to place it on the cultural continuum of Peru’s north coast. Architecture from Casma sites is compared to the contemporaneous Chimú tradition, as well as to cultural antecedents found in Late Moche and Wari architecture, as a means for gaining a deeper understanding of Casma public ritual and sociopolitical organization.

Vohberger, Marina, Joris Peters (Institute of Palaeoanatomy and History of Veterinary Medicine), Claus von Carnap-Bornheim (Archäologisches Landesmuseum Schleswig), Olaf Nehlich (Archäologisches Landesmuseum Schleswig) and Gisela Grupe (Bavarian State Collection for Anthropology and Palaeoanatomy and Biocenter LMU Munich, Department I Anthropology and Biodiversity) [42] Ecology and Economy in the settlements of Viking Haithabu and Medieval Schleswig: an isotopic perspective

The sites of Viking Haithabu (9th to 10th century AD) and Medieval Schleswig (11th to 12th century AD) form a settlement continuum in an extraordinary ecological system, the estuary of the Schlei. Performing an economic rise from a small sailor’s village to an important trade centre followed by a descent to meaninglessness, both settlements represent interesting research material. Food webs show the composition of resources for consumers based on stable isotopes of light elements (C, N, S, O). Results on strontium isotopic signatures (87Sr/86Sr) on human and animal samples for migratory evidence and identifying traded animals.

von Carnap-Bornheim, Claus [42] see Vohberger, Marina A.

Von Falkenhausen, Lothar [23] Discussant

von Nagy, Christopher [157] Coastal deltaic dynamics, human settlement, and ancient Olmec polities in Tabasco, Mexico

The recent devastating flooding of Tabasco exemplifies an ever present risk on this coastal plain where the important Olmec polity of La Venta developed and collapsed. Historic avulsions produced major changes in delta structure with significant human and settlement impact, and floods and avulsions have constituted a pattern of risk and change defining regional Late Holocene landscape evolution since the stabilization of Post-Pleistocene sea-level rise. Communities, such as that represented by Olmec San Andrés near La Venta, flourished and failed within this context. Climate and sea-level driven change are two significant factors impacting settlements and polities explored in this paper.

von Schwerin, Jennifer [128] see Richards-Rissetto, Heather

Vonarx, Amy Jo [92] see Hodgins, Greg WL

Voorhies, Barbara (University of California, Santa Barbara) [88] The Site that Keeps on Giving: Thirty plus Years of Research at Tlacuachero

This paper presents an introduction to the symposium including background about the Tlacuachero shell mound, its research history, and the most recent focus on the enigmatic superimposed clay surfaces underlying one area of the site. The paper summarizes previous evidence for both stability and diachronic change in ecological adaptation during Late Archaic Period site occupation as a backdrop for new research reported in the symposium.

[88] Discussant

Voorhies, Barbara [88] see Neff, Hector [88] see Culleton, Brendan J. [5] see Gomez, Josue A.

Voss, Barbara (Stanford University) [48] A Land of Ethnogenesis

Hailed as a land of new beginnings, California is often imagined as a place where people come to reinvent themselves. Ethnogenesis — the formation of new ethnic identities — is one such strategy of reinvention. Archaeological investigations of indigenous, colonial, and early American contexts reveal a persistent tension between the social mobility made possible by ethnogenesis, and the structural conditions and power relations inherent to ethnic differentiation. In particular, the material culture of daily life points to the tight relationship between labor and consumption in negotiating new social identities. [16] Discussant

Wack, Lynn (University of Texas San Antonio) [177] Analyzing Change in Animal Use from the Late Archaic to the Terminal Late Prehistoric Periods at the Burris Bison site (41TV66) in South Texas

Archaeological sites containing bison in South Texas increases between the Late Archaic (400 B.C. to A.D. 800) and the Terminal Late Prehistoric (A.D. 1200–1600) periods. Human behavioral ecology suggests that such an increase should produce a narrowing of the diet breadth. I compare the Late Archaic and Terminal Late Prehistoric faunal assemblages at site 41TV66. These assemblages reveal increased presence of bison during the Terminal Late Prehistoric and an expansion, rather than a narrowing, of the diet breadth. Such a pattern is consistent with a variable bison presence in this area during the Terminal Late Prehistoric.

Wagner, Ursel (TU-Muenchen), Thibault Demoulin (Archaeologische Staatsammlung Muenchen, Lerchenfeldstr. 2, 80535 Muenchen, Germany), Rupert Gebhard (Archaeologische Staatsammlung Muenchen, Lerchenfeldstr. 2, 80535 Muenchen, Germany), Werner Haeusler (Physik Department E15, Technische Universitaet Muenchen, 85747 Garching, Germany) and Cristina Mazzola (Archaeologische Staatsammlung Muenchen, Lerchenfeldstr. 2, 80535 Muenchen, Germany) [162] Attempts to stabilize Archaeological Iron Objects: A Moessbauer Study

Iron Moessbauer Spectroscopy together with X-ray diffraction is an excellent method to identify the components of rust on archaeological iron objects. We report on an ongoing study of objects from the Celtic Culture (300-15 BC) aiming at improving the methods of conservation. Part of the objects were recently excavated, others kept in museum collections for decades. The oxides magnetite, goethite, ferrihydride,
maghemite, hematite and akaganeite were found in varying proportions. Model experiments in humid environments and at elevated temperatures were performed to study the deleterious effect of akaganeite and its thermal decomposition.

Waguespack, Nicole (University of Wyoming) and Todd Surovell (University of Wyoming) [57] Folsom Houses & House Life
In Paleoindian contexts only a handful of sites provide a glimpse at Folsom household organization because direct physical remains of architectural features are rarely preserved. The construction of shelters, explicitly designed to keep some behaviors and processes "in" and other behaviors and processes "out," should result in curvilinear and continuous breaks in artifact spatial patterning. On the basis of artifact density gradients, burned artifact distributions and radial discard patterns, we identify the presence of three residential structures at Barger Gulch Locality B (5GA195), a Folsom campsite in Middle Park, Colorado.

Wahoff, Tanya (AECOM) and Jamie Cleland (AECOM) [50] Native American Trails of the American Southwest
Found throughout the deserts of the American Southwest, Native American trails range from an expression of the purely practical to the intangible or symbolic (story-telling or dream travel). Physical characteristics, associations, and ethnographic documentation all provide insights into these expressions, although interpretations are often wide-ranging. This paper provides an discussion of the range of variability in trails in the American Southwest deserts, focusing on the issue of homogeneity vs. heterogeneity in their development and manifestations.

Wake, Thomas (Cotsen Institute of Archaeology at UCLA) and Benito Guzman (UCLA) [88] Archaic Period Vertebrate Exploitation at Tlacuachero, Chiapas
Recent excavations at the Pacific coastal Archaic Period shell midden site of Tlacuachero, Chiapas, have recovered a diverse array of vertebrate faunal remains. Fish remains dominate these samples that also include reptiles, birds and mammals. Several of the bone samples are associated with constructed surfaces. Distribution of vertebrate remains across these surfaces along with changing fishing strategies through time are examined. Implications for resource depression or stability and regional resource use patterns are discussed.

Wake, Thomas [186] see Barge, Meghan S. [67] see Davis, Michael H.

Walker, Danny (Wyoming State Archaeologist’s Office) [82] CCC and RBS archaeology at Fort Laramie National Historic Site.
Fort Laramie National Monument was established in 1938. That same year, the first archaeological investigations began before restoration of the building started by a CCC group from Camp Guernsey, Wyoming. Since then, River Basin Surveys, National Park Service, University of Wyoming and Wyoming State Archaeologist’s Office have continued the work. The early projects (CCC and RBS) will be presented, with a short review of the future at Fort Laramie.

Walker, Renee (SUNY College at Oneonta) [70] Prehistoric Dogs in the Eastern United States: The Sacred and the Secular
This research addresses the question of what role dogs played in prehistoric Native American culture. Dogs from interment sites throughout eastern North America are analyzed to compare skeletal morphology, size, and sex ratios. Interment patterns are explored to discern how dogs were viewed in these societies. It is hoped that examining the similarities and differences of dogs and dog burials throughout the east will better inform researchers about this phenomenon. Ultimately, this research suggests that dogs played multiple roles linked to both secular and sacred aspects of life.

Walker, William (New Mexico State University) [24] Animation and Conversion in the Ancient Southwest
In studies of animate universes of past peoples it is important to understand how social relationships between human and non human beings (e.g., artifacts, architecture, wind, rain, clouds, stars) are established and the contexts in which they change. In this paper I explore the changing social relationships between people, pottery styles, architecture, and a range of other nonhuman beings in the Mogollon region of the American Southwest. I am particularly interested in how weather contributes to changing contexts of animacy and I seek arguments that bridge the gap between materialist and idealist approaches to the topic.

Wall, Bridget [239] see Larson, William E.

Wallace, Henry (Desert Archaeology Inc) and Michael Lindeman (Desert Archaeology, Inc.) [52] Competition and Cooperation: Late Classic Period Aggregation in the Southern Tucson Basin
By A.D. 1300, all of the major villages along the Martinez Hill to A-Mountain reach of the Santa Cruz River in the Southern Tucson Basin were abandoned and the remaining population aggregated around Martinez Hill. Prior marital ties, craft specialization, and communal water and land rights meant that the nucleated groups were familiar; however, the division of space and presence of 12 platform mounds indicates controlled competition between the multiple village social units that came together. Missing within the new settlement structure are communal facilities that might have promoted a cohesive identity and served to mitigate tensions.

Wallace, JoAnn (Michigan State University) and Jodie O’Gorman (Michigan State University) [106] Another Look at the Norris Farms 36 Cemetery, west-central Illinois
Mississippian influence on Oneotan material culture has been documented in previous archaeological studies. We are interested in the relationship between these two populations evident at the Norris Farms 36 Cemetery in west-central Illinois. This project is a reanalysis of the mortuary context demonstrated at the Norris Farms 36 Cemetery. This analysis will focus on the hypothesized Mississippian and Oneotan cultural interaction through an identity and migration theoretical approach for the
region and an analysis of the GIS information available for the cemetery.

Waller, Kyle (University of Missouri-Columbia), Kathy Durand (Eastern New Mexico University) and Jack Fenner (Australian National University) [219] Strontium Isotope Analysis of Migration at Two Chacoan Outliers in the Middle San Juan Region. Biogeochemistry is well positioned to contribute to the recent resurgence of migration analyses in the American Southwest. Previous bioarchaeological analyses of two Chacoan outliers located near Farmington, New Mexico, the Tommy Site (P-II) and the Mine Canyon Site (P-III) have indicated that the inhabitants of the Mine Canyon Site were not of ancestral Puebloan origins. Here, strontium isotope ratios (87Sr/86Sr) from human molars are compared with the local isotopic ratio to identify migrants at both sites. The likely presence of migrant individuals, particularly at the P-III Mine Canyon Site, has significant implications for post-Chacoan social organization in the Four Corners Region.

Waller, Steven (Rock Art Acoustics) [60] Archaeoacoustic Techniques Lead to New Interpretations of the Thunderous Reverberation at Rock Art Sites Correlation between rock art placement and acoustics was documented, and initial research focused on standardized scientific techniques including quantitative sound level measurements of echoes and reverberation time. However, musical experimentation in reverberating environments of rock art sites, more along the lines of artistic expression than scientific study, resulted in the realization that percussion noises repeated in rapid succession can build up to the point that it sounds like thunder. This thunderous reverberation is culturally significant since major rock art themes are consistent with myths of thunder gods, including in the Old World hoofed animals and New World thunderbirds.

Walling, Stanley [148] see Brokaw, Nick

Wallman, Diane (University of South Carolina) [121] Subsistence and Slavery on a French Colonial Plantation: The Analysis of Faunal Remains from Habitation Crève Cœur, Martinique This paper integrates historical and archaeological data from a French colonial plantation, Habitation Crève Cœur, on the island of Martinique to examine slave subsistence. I present the results of zooarchaeological analyses as evidence of African and Afro-Caribbean slave foodways. Faunal remains are direct indicators of provisioning, eating, and community distribution of subsistence resources. Using these data I reconstruct the strategies and negotiations developed by the enslaved laborers to manipulate the constraints of their social and natural landscape. This study of slave lifeways and subsistence will provide novel insight into the understudied French colonial plantation system within the French West Indies.

Walls, Matthew (University of Toronto) [159] Frozen Landscapes, Fluid Technologies: Inuit Kayak Hunting and the Perception of the Environment in Greenland Both archaeology and ethnography characterize Inuit culture as having a strong dependence on local ecology, as well as complex spirituality. Especially prominent is the concept that every part of the environment is animated by spirits, and all actions, particularly those involved in hunting, invoke reciprocity between humans and their metaphysical surroundings. This paper explores the relationship between such perceptions of the environment and the manner in which it was experienced through traditional hunting technology. Research draws upon an ethnoarchaeological project that studies traditional kayaking in Greenland.

Walsh, Justin (Louisiana State University) [242] Models for the Protection of Cultural Heritage in Space: An Internationalist Perspective The extraordinary historic importance of some sites and objects in space, combined with the special international nature of space law, makes an examination of multilateral efforts to manage earthbound cultural heritage worthwhile. Numerous international protocols exist to protect sites and artifacts from damage. Their implementation offers valuable lessons about the ways nation-states act (and do not act) in concert to preserve cultural heritage. The UNESCO Cultural Property Convention, applicable outer space treaties, the Antarctic Treaty, and the Law of the Sea will each be discussed with regard to their viability as models for protection of culturally significant material in space.

Walsh, Megan [88] see Kennett, Douglas J.

Walsh, Michael (Cotsen Institute UCLA) and A. Natasha Tabares (Southern California Edison) [230] The Inland Chumash Research Project: Not a Chief in Site The Inland Chumash Research Project (ICRP) conducted by UCLA in the 1970’s was spearheaded by C. William Clewlow, Jr. The Project was carried out coincident with two significant transformations in the history of California archaeology: the dawning of the CRM era, and the paradigmatic shift that began to see the Chumash as politically and economically organized as chiefly polities. The role the ICRP played in these significant historical and anthropological developments is explored.

Walsh, Rory (University of Oregon) [169] Experiments in morphology and taphonomy: Foxtail millet Innovative analyses of modern seeds provide valuable insights into archaeobotanical depositions. In this example from Neolithic north China, remains of foxtail millet are compared with modern reference material obtained from a variety of contexts. Modern foxtail is subjected to detailed morphometry before and after charring, illuminating the full range of morphology in a modern domesticate and addressing taphonomic issues. These experiments aid in the identification of archaeological foxtail, and statistical analysis reveals trends in feature type, settlement patterning, and site function.

Walter, Marni (Boston University) [259] In the Eye of the Beholder?: A Framework for Authenticity In the World Heritage Convention, cultural heritage
nominations "must meet the conditions of authenticity." But the problem has always been, what does this mean, and how can it be implemented? "Authenticity" in the Convention's Operational Guidelines has evolved and now includes an expanded definition that incorporates the Nara Document on Authenticity. Examples from archaeological World Heritage sites show that it often is not addressed explicitly in World Heritage nominations or management plans, despite the sites' concern for maintaining authenticity. In this paper I present an adaptable framework for considering authenticity that relates to the Nara Document and existing management plans.

[259] First Chair

Walz, Jonathan (Rollins College)

[100] Seemingly Mundane Objects: Shell and Other beads from Central, Coastwise East Africa, 750–1550 C.E.

I report on beads of shell and other materials identified during survey and excavations in the lower Pangani (Ruvu) Basin, Tanzania. Locally produced beads—for instance, perforated discs made from the shells of African landsnails—challenge extant narratives about connectivity among regional populations during the later Iron Age (especially 900–1250 C.E.). These seemingly mundane objects provide critical insights about craft production, interaction, and shifting political economies in lowland northeastern Tanzania and wider eastern Africa.

Wambach, Thomas (Indiana University of Pennsylvania)

[209] Firing Techniques and their Effects on Susquehannock Ceramic Vessels

Although archaeologists have generated considerable descriptive data on the structure of Susquehannock and other Late Prehistoric/Proto-historic ceramic vessels, there is a lack of information on the manufacture and production of these ceramics especially concerning the details of possible firing processes and techniques. While archaeological research appears to indicate that open pit firing was utilized by the Susquehannock, other firing processes, including above ground bonfiring and clamp firing, would produce similar general characteristics. The results of experiments testing and comparing the effects of open pit, bonfire, and clamp firing on recreated Shultz Incised Susquehannock vessels are presented and discussed.

Wampler, Morgan (University of West Florida)

[105] Alea Lacta Est: Evidence of Recreational Activities Aboard an 18th Century Spanish Frigate

The Nuestra Senora del Rosario y Santiago Apostol sank off the coast of Santa Rosa Island in northwestern Florida in 1705. Archaeological investigation of this wreck site recovered numerous artifacts and faunal remains relating to the daily activities of the sailors. Other maritime studies of similar vessels have focused their attention on ship construction and the lifeways of the commanding officers. In order to understand the daily recreational activities of the sailors aboard this frigate, analysis was undertaken on the various gaming pieces and compared with remains from other wrecks of this period to assess both ethnicity and status.

Wandler, Cole (Northern Arizona University), Jason

Theuer (Petrified Forest National Park, National Park Service), Francis Smiley (Northern Arizona University) and Meghann Vance (Northern Arizona University)

[134] The Rainbow Forest Horse Barn: A Multi-component Paleoindian Site in Petrified Forest National Park, Arizona

The Rainbow Forest Horse Barn Site is the first multi-component Paleoindian occupation yet identified in northern Arizona. The site sits on an elevated landform, surrounding a large natural playa, overlooking the Little Colorado River Valley to the south. This poster presents the results of investigations by NAU and NPS Archaeologists, including artifact type and use-wear analyses, spatial analyses, and test excavations. This site establishes that the Petrified Forest was known to Paleoindian groups by at least Clovis times, and opens the door for future investigations into the role and importance of the Petrified Forest to hunter-gatherer groups over time.

Wang, Minghui (Institute of Archaeology, CASS)

[72] Introduction of Chinese Osteology Research

In this paper, I will give you a short introduction of physical anthropology research achievements of China. It mainly include the types of the ancient population, gender archaeology from the skeletons, the paleopathology, paleo-traumatology, paleo-demography, dental anthropology, the diet research of ancient people, the ancient custom research from the skeletons, and ancient DNA research.

Ward, Christine (Statistical Research, Inc) [215] Discussant

Ward, Sheila [148] see Brokaw, Nick

Warden, Robert (Center for Heritage Conservation, Texas A&M) and Julie Rogers (Center for Heritage Conservation/ Texas A&M University)

[146] Scale matters: 3D technologies and information with the Maya Research Program in Belize

New developments in technologies in the past 20 years have created opportunities for new research products in archaeology. Most of these technologies are well known and their use in projects has been widely published. Though these technologies are no longer novel, issues of how, when, or why one should utilize them remain. This presentation will use case studies of vastly differing scales from architecture to artefact as a means of creating dialogue regarding the use of laser scanning, photogrammetry, and structured light scanning and the utility of the information they provide.

Warinner, Christina (Harvard University)

[111] From the Ground Up: Advances in Stable Isotope-Based Paleodietary Inference

Stable isotope-based paleodietary analysis, in combination with paleobotanical and zooarchaeological studies, has become an essential tool in archaeological reconstructions of past lifeways. This paper reviews the current state of the field and highlights the importance of understanding regional ecology and culture when attempting to infer paleodietary behavior using carbon and nitrogen light stable isotope analysis.

[111] First Chair [111] Third Organizer
Warlander, Sebastian, Michael Neiss (Uppsala University, Sweden) and Sabrina Sholts (UC Berkeley)

[146] 3D-model Analysis of Scandinavian Viking Age Brooches
Surface 3D-models of excavated Scandinavian Viking-Age brass brooches were created with a NextEngine laser scanner. Using RapidWorks 3D software, the digital models of the brooches were investigated in ways not feasible for the solid objects, including digital assembling of broken objects, distance measurements between select brooch landmarks, comparisons of size and volume, investigations of tool-marks, and false-colour imaging to help identify stylistic patterns. As a result, the temporal relation between the objects was established. Furthermore, some brooches display similarities indicating that they originate from the same workshop. The results illustrate how 3D analysis can help answer questions in artifact analysis.

Warner, John (University of Kentucky)

[125] An Examination of Architectural Continuity and Discontinuity from the North Coast of Peru
The rich tradition of monumental architectural construction on the North Coast of Peru provides a long-term record of spatio-architectural development. Analysis over the long-term and across the region of architectural changes and continuities including the allocation of public and private space, access patterns, and the distribution of features typically associated with politico-ritual activity is critical for an interpretation of diachronic trends in North Coast sociopolitical organization. Concentrating upon the Late Formative Period site of Jatancu (Jequetepeque Valley), this paper will examine these architectural histories as a means to reconstruct long-term social processes related to incipient urbanization.

[125] Second Chair [125] Second Organizer

Warner, Mark (University of Idaho)

[175] The other side of the tracks (literally): Historical archaeology of the Disenfranchised in turn of the century Sandpoint Idaho
Between 2005 and 2008 over 500,000 artifacts were recovered from a series of compliance-driven excavations in the north Idaho town of Sandpoint. The excavations produced extensive assemblages associated with the town’s, prostitutes, the mill and railroad workers (and their saloons), and a small Chinese community. Taken as a whole it is an unprecedented collection of materials that tell a rich story about the lives of people who are largely invisible in the archaeological record of the Inland Northwest. This paper outlines some of those stories and discusses the powerful implications this project has for the status of historical archaeology in Idaho.

[175] First Chair

Warny, Sophie [265] see Evans, Amanda M.

Washington, Michelle [232] see Springer, Chris L. M. [263] see Caldwell, Megan E.

Waterman, Anna (University of Iowa), David, W Peate (University of Iowa) and Ana Maria Silva (University of Coimbra)

[234] In search of homelands: using strontium isotopes to identify biological markers of mobility in late prehistoric Portugal
This study uses strontium isotopes (87Sr/86Sr) in dental enamel from burial populations related to the Chalcolithic settlement site of Zambujal (c. 2800-1800 BC) to distinguish non-local individuals. Zambujal has long been considered a central location of population aggregation, craft production and trade during a time of increasing political centralization and social stratification until its eventually abandonment during the Bronze Age. While it is assumed that population migration and long distance trade played an important role in the region’s development, little is known about the migration patterns of individuals or groups. Directions for further study are discussed.

Waterman, Anna [234] see Moore, Sara G.

Waters, Michael (Texas A & M University)

[155] Clovis Chronology and Origins
Radiocarbon dates show that Clovis flourished during a narrow time interval during the late Pleistocene. Evidence from North America shows that Clovis originated south of the Laurentide and Cordilleran ice sheets. More specifically, recent analysis of the 13,000 to 16,000 year old Buttermilk Creek Complex artifacts that underlie a Clovis horizon at the Debra L. Friedkin site, Texas, show strong technological links to Clovis. Genetic data from the Clovis human remains at the Anzick site, Montana, provide evidence of the northeast Asian origin of the First Americans.

[213] Discussant

Waters, Michael [181] see Younie, Angela M. [139] see Wright, David K.

Waters-Rist, Andrea [183] see McCafferty, Sharisse D.

Watkins, Christopher [158] see Higgins, Howard C. [52] see Rice, Glen E.

Watkins, Joe (University of Oklahoma) [184] First Moderator [78] First Chair

Watkins, Timothy (Bureau of Land Management Kingman, AZ) and David Stephen (Pima Community College)

[137] Integrating education, research and resource management at Burro/Pine Creek
Since 2003 the Burro Creek/Pine Creek Archaeological Project has combined the goals of education, research and resource management within the context of an ongoing systematic archaeological survey. A joint venture between the BLM Kingman Office and the Pima Community College Archaeology Centre, the fieldwork now encompasses 5,000 acres with almost 100 sites located and documented. As well as serving as a capstone field experience for PCC students, it has generated a rich dataset for ongoing research, as well as a unique challenge for developing management strategies for the long-term preservation of cultural resources located in such a remote area.

Watson, Andrew [176] see Leech, Rhonda [176] see Hicks, Tyler
Watson, James (Arizona State Museum, University of Arizona)  
[143] Distances in Space and Time: Issues with a Mortuary Database of the First Farmers in the Southern Southwest  
This paper describes issues associated with the construction of a biocultural database from samples of the earliest farmers from the southern Southwest and northwest Mexico. Currently over a dozen archaeological sites dating to the Early Agricultural period (circa 1,600 B.C.-A.D. 150) have produced a large sample of mortuary features (n=413). These samples, and thereby the data, face unique challenges in interpretation compared to similar large data sets in that the materials (sites, features, and individuals) are geographically and temporally distant from each other; they are separated by over 150 linear miles and span almost 2,000 years of cultural development.  
Watson, James [147] see Cruz Guzmán, Carlos [237] see Fields, Misty  
Watson, Karen (California State University Sacramento)  
[96] Identifying Factors that Influence Choice of Stone for the Manufacture and Usage of Maize-Grinding Tools in Ancient Mexico  
Knowing what factors influenced pre-hispanic people’s choice of raw materials for maize-grinding tools is important in increasing our understanding of maize preparation intensification and changes in patterns of social, economic, and political development. In this paper, I identify factors that apparently influenced the choice of stone for the manufacture and usage of maize-grinding tools in ancient Mexico. I analyze data from several collections in three areas of Central Mexico: 1) the Mezquital Valley in Hidalgo, 2) the Apizaco region in Tlaxcala, and 3) the Teotihuacan Valley, Mexico.  
Wattenmaker, Patricia (University of Virginia)  
Challenges to the model of despotic rule in early state societies complicate the question of why households and communities intensified production in support of ancient polities. To better understand intensification surplus production in ancient Mesopotamia, this paper considers the symbolism associated with surpluses, as well as the ways that surpluses were utilized in various sectors of society. An analysis of storage facilities, their locations and contents, combined with insights from written records, suggests some of the ways that motivations for surplus production were embedded in social and ritual, as well as economic and political, realms of society.  
Watts, Christopher (Royal Ontario Museum)  
[55] Points of passage/points of view: Iroquoian animal effigy pipes and the crossing of corporeal borders  
As works of artistic merit, Iroquoian animal effigy pipes have captivated Northeastern archaeologists and other scholars since the late nineteenth century. In reviewing the various mammalian, avian, amphibian and other animal forms associated with these pipes, archaeologists typically alight on their sociopolitical or symbolic significance among Iroquoian groups. I seek to extend this discussion by suggesting that the use of animal effigy pipes, in concert with the act of tobacco smoking, would have permitted a corporeal/perspectival shift in keeping with notions of a human/animal kinship, shared embodiment and relational ontology within an Iroquoian worldview.  
Watts, Joshua (Digital Antiquity - Arizona State University) [118] Discussant  
Watts, Joshua [187] see Lack, Andrew  
Waweru, Veronica (National Museums of Kenya) and Kristy Dahlstrom (University of Connecticut)  
[208] Pharmacology and cultural aspects of arrow poison use in Kenya: An ethnoarchaeological approach  
This study investigates the use of poison tipped arrows in the last 100 years in Kenya among three ethnic groups. The data has been procured from arrows and literature at the National Museum and interviews with elderly persons with knowledge and ritual powers to make poisons for use with the bow and arrow. Bow and arrow weaponry has been used to deliver poison to quarry. The antiquity and contexts of poison use in prehistory are unclear. This research provides insights into the cultural parameters and pharmacology of poisons used with projectile weaponry in prehistoric non-state societies.  
Waweru, Veronica [133] see Dahlstrom, Kristy  
Weaver, Eric, Chris Carr (University of Cincinnati, Geography), Nicholas Dunning (University of Cincinnati, Geography) and Vernon Scarborough (University of Cincinnati, Anthropology)  
[119] Examining landscape modifications for water management at Tikal using 3-dimensional modeling with ArcGIS  
The digitization of the Penn Tikal Project Maps into a GIS format presents many new opportunities to visualize and analyze these data. ArcScene is an extension of ArcGIS which provides the capabilities to convert a 2-dimensional digitized map to a 3-dimensional model. Using ArcScene, two 3-dimensional maps were made based on the digitized maps: one presents the Tikal area prior to Maya settlement and the other displays the Maya-modified landscape. A basic hydraulic model was developed using ArcGIS hydrology tools to examine how these modifications contributed to water management.  
Weaver, Eric [266] see Smyth, Michael P. [119] see Carr, Christopher [119] see Scarborough, Vernon  
Webb, Emily (The University of Western Ontario), Christine White (The University of Western Ontario) and Fred Longstaffe (The University of Western Ontario)  
[255] Isotopic evidence for the regional significance of the Nasca ceremonial centre of Cahuachi  
Stable isotope data from human tissues and environmental water are used to assess the geographical scale of influence of the ceremonial centre Cahuachi in the Nasca region of Peru (AD1-1000). Oxygen- and hydrogen-isotope data from environmental water samples from throughout the Rio Grande de Nasca drainage are used to characterize natural isotopic variation, and to guide interpretation of the bone/enamel
oxygen-isotope compositions of thirty-three adults interred at Cahuachi. By demonstrating the spatial breadth of the geographic origins of these individuals, this study supports the regional significance and use of Cahuachi as a place of burial.

Webb, Monica (University of Tulsa) [187] A Design Analysis of Ramos Polychrome, Babicora Polychrome, and White Paste Babicora Polychrome Ceramic Shards From Test Pits at Site 204, Casas Grandes Region, Chihuahua, Mexico

Despite the vast popularity of Medio-period (A.D. 1200-A.D. 1475) Casas Grandes polychrome ceramics with archaeologists, museums, and private collectors, analysis of symbolic meaning and societal implications is only beginning to be carried out on the elaborate designs. A collection of Ramos, Babicora, and White Paste Babicora polychrome shards from excavations at Site 204, located in the Casas Grandes area in northern Mexico, was analyzed in this project using digitally photographed images. Designs were analyzed for variety, line width, motifs, and symbolism to better understand how they changed from early to late Medio-period.

Webb, Paul [111] see VanDerwarker, Amber M.

Webber, Charlie (National Park Service) and Jim Collette (Museum of Northern Arizona) [20] Insights Into The Prehistoric Occupation at Furnace Flats As Seen From Arroyo 4, Grand Canyon National Park

This paper will focus on the construction sequence and material remains uncovered in Arroyo 4 at Furnace Flats in Grand Canyon National Park. Excavations exposed a limited portion of two roomblocks, revealing three masonry structures. Separating these two episodes of occupation was a time span of less than a generation and a buildup of two plus meters of sediment deposition. In addition, a review of the architectural and artifactual remains found within these six rooms reveal important insights into the material cultural of the occupants living at Furnace Flats.

Webber, Charlie [248] see Brennan, Ellen

Webber, Jennifer (Georgia State University) and Terry Powis (Kennesaw State University) [28] Chasing Sacbes: Ritual Landscape Analysis at the Ancient Maya Site of Pacbitun, Belize

Caves played a vital role in the religious thought of the ancient Maya and were seen as entries to the underworld and homes to deities. Pilgrimages to these sacred places influenced and were influenced by settlement patterns and socio-political relations. This paper discusses the results of the 2010 survey in the periphery of Pacbitun, located in the foothills of the Maya Mountains in the Cayo District, Belize. This data contributes to the analysis of the ritual landscape surrounding ancient Maya sites and the interpretation of Pacbitun as a site center.

Webber, Sadie (Stanford University) and Cheryl Makarewicz (Institut für Ur-und Frühgeschichte, Christian-Albrechts Universität Kiel, Germany) [169] Hidden Roots: Tubers and the Transition from Foraging to Farming in the Near East

Increased predictability and low dietary risk are primary features of established plant agriculture, the earliest stages of plant domestication processes was likely a high-risk enterprise characterized by fluctuating availability of cultivars as foragers first experimented with plant manipulation. Wild tubers, an important, but often overlooked, food source regularly, may have served as an important dietary supplement that afforded first cultivators the opportunity to pursue the potentially risky experiment of food production. Here, we present analyses of starch remains recovered from Pre-Pottery Neolithic A el-Hemmeh, Jordan, in order to explore the role of tubers in the transition from foraging to farming.

Webster, David (Penn State University) [191] What We Don't Know about Maya Kings

Since the 1060s Maya scholars have revolutionized our understanding of Maya kings and royal dynasties. Despite this progress, much remains unknown, including the issues of royal polygyny and marriage patterns, royal management of economic affairs, and the scale of the political arenas in which kings operated.

Webster, Laurie (University of Arizona) and Edward Jolie (Mercyhurst College) [188] A Perishables Perspective on Falls Creek and the Basketmaker II World

Perishable artifacts were an integral component of Basketmaker II burial assemblages at the Falls Creek Rock Shelters. The associated perishable artifact inventory, including coiled baskets, prepared hides, human hair cordage, braided sashes, and twined blankets, bags, aprons, and mats, provides a unique glimpse into the social lives and funerary practices of early agriculturalists at the eastern edge of Colorado Plateau. This presentation describes the style and technology of these artifacts and interprets them in light of perishable assemblages from other regions of the Basketmaker II world.

[203] Discussant

Webster, Laurie [18] see Hays-Gilpin, Kelley A.

Weeks, William (University of Arkansas) [60] T. Crow Rock: East Tennessee Cherokees in the Post-Removal Era

Many east Tennesseans claim descent from Cherokee ancestors that either evaded capture or escaped during the tragic period of Southeastern Indian Removal in 1838-1839. For many, this can be difficult to document beyond their family traditions. However, in some cases, archeology may provide another body of evidence for genealogical research. For example, the descendants of T. Crow have established Cherokee identity, in part, through a petroglyph carved by their ancestor at a spring on Mowbray Mountain, Hamilton County, Tennessee.

Wegener, Robert [80] see Hall, John D.

Wegener, Robert M. [80] see Blake, Karry L.

Weinstein, Richard (Coastal Environments, Inc.), Charles Pearson (Coastal Environments, Inc.) and Sherwood Gagliano (Coastal Environments, Inc.) [265] Establishing Criteria for the Identification of...
**Submerged Prehistoric Sites on the Outer Continental Shelf, Gulf of Mexico**

Over the past three decades, technologies have developed that permit the mapping of submerged paleolandslces on the world’s continental shelves. These include techniques for identifying submerged prehistoric cultural deposits. The examination of potential site locations is typically made difficult because they are submerged and commonly buried. The use of core samples from submerged and buried sites to identify cultural deposits is discussed. Techniques drawn from geology and sedimentology are used to identify the macro- and micro-properties that characterize cultural deposits and distinguish them from natural sedimentary facies anticipated on the Gulf of Mexico’s continental shelf.

**Weir, Andrew (CCRG, Inc.) [80]**

Great Lakes, Harbors, Breakwaters, and Piers...oh my!

Under the direction of John Milner and Associates, and for the U.S. Corps of Engineers (USACE), Commonwealth Cultural Resources Group, Inc. (CCRG) documented 26 sites in the USACE Detroit District. This effort, which occurred between January and September, 2010, resulted in the preparation of 19 National Register of Historic Places (NRHP) nominations and eight Determinations of Eligibility (DOE) reports. These NRHP nominations and DOE reports were completed for numerous canals, harbors, harbor facilities, and waterways throughout Michigan, Wisconsin, and Minnesota.

**Weisman, Brent (University of South Florida) [130]**

Discussant

**Weismantel, Mary (Northwestern University) [24]**

Moche Ceramics as Political Actors

Evidence such as painted representations of fishing lines, boats, clothing and weapons as personified, and formal parallels between human bodies and ceramic vessels, indicates that Moche was a society in which objects acted as subjects. As valuables placed in elite tombs, however, the ceramic vessels do more than just make ontological assertions about materiality; they are also political statements about lineage, inheritance, control of irrigated fields and rights to labor. They taught elite youth that living bodies were vessels for ancestral potency, and reinforced the power of the old over the young, and the dead over the living.

**Weisskopf, Alison [111]**

see Fuller, Dorian Q.

**Weissner, Polly [12]**

see Ambrose, Stanley H.

**Weitkamp, Matthew and Kylie Quave (Southern Methodist University) [5]**

Evaluating Inka Ceramic Production through Horizontal Excavation (Cusco, Peru)

Ceramic production and specialization are typically identified through examination of standardization and variation with a corresponding study of ethnoarchaeological examples. However, the Cheqoq Archaeological Project in Cusco, Peru, has identified a ceramic production workshop linked to attached specialization in the Inka period. In this poster, evidence for ceramic finishing and firing are examined, while comparing a secure to an ambiguous context using correspondence analysis. Implications for understanding elite economies in the developing imperial heartland are also investigated considering Cheqoq’s role in the royal estate. This probable workshop represents the first clear Inka core region ceramic production area identified to date.

**Welch, Daniel [80]**

see Lloyd, Timothy C.

**Welch, David (Int’l Archaeological Research Institute) and Judith R. McNeill (Int’l Archaeological Research Institute) [23]**

Late Prehistoric Landscape Transformations in the Phimai Region, Northeast Thailand

Research in the Phimai region has focused on regional site surveys in diverse environmental zones. These surveys indicate expansion of settlement into new ecological zones, agricultural intensification, and growth in the number and size of settlements in the late prehistoric period. Data on late prehistoric environmental alterations and possible climatic changes from geoarchaeological investigations help explain the late prehistoric landscape, settlement pattern, and agricultural transformations. Both agricultural intensification and construction of moats around settlements may in part be responses to climate changes that affected the regional availability of water.

**Welch, John (Simon Fraser University) and Neal Ferris (U Western Ontario) [197]**

Making a Sustainable Archaeology

Our vision of activist archaeology entails shifts in motivations for, process of, and products from CRM and academic research. We argue for transitions: from intra-disciplinary drivers toward harmonization of research and societal interests; from an extractive conceptualization of archaeology toward an additive or servant culture of practice; and from a primary focus on salvage and narrowly defined research goals toward the perpetuation of cultural heritage, broadly defined. These shifts and applications of sustainable design principles outline a sustainable archaeology in which spectra of values embedded in the archaeological record are conserved and communities are recognized as the true “cultural resources.”

**Wells, E. Christian (University of South Florida) [198]**

Archaeological Perspectives on Surplus Capture in Contrasting Modes of Religiosity

In this paper I examine archaeological data from New World complex societies to consider the relationship between surplus labor and religiosity. Using Harvey Whitehouse’s cognitive theory of alternate modes of religiosity, which seeks to explain how people at different social scales express and experience cosmological beliefs, I suggest that we should expect to find meaningful contrasts in how surplus labor is activated between “imagistic” (behavior involving sensory arousal) and “doctrinal” (behavior involving patterned repetition) modes of religious experience. I argue that archaeologists providing deep-time perspectives on material engagement can contribute to understanding how ritual performance motivates economic change.

**[223]** Discussant [249] Discussant
Wells, E. Christian [92] see McCormick, David R. [31] see Goodwin, Whitney A.

Wells, Helen (Cotsen Institute of Archaeology, UCLA; CalStateLA), Richard D. Ambro (Archeo-Tec) and Evelyn Seelinger
Billy Clewlow, Richard Ambro and their Berkeley colleagues began their investigation of the Grass Valley region of central Nevada in 1969. Over the course of several seasons, powered by summer field schools, their focus changed from prehistoric settlement patterns to the documentation and interpretation of 19th century Shoshoni habitation sites. At the time there were few models for the study of historic period Native American sites, so theories and methods, some from prehistoric archaeology, were tried and abandoned. As the Grass Valley researchers slowly developed their own models, they produced significant publications and influenced the work of others. As Billy himself characterized it in 1978, the project became a series of “particularistic” studies that “will someday make a whole.” More than 30 years later, it is still not a “whole,” but our studies and our understanding continue to evolve.

[230] Second Chair

Wells, Joshua (Indiana University South Bend)
[216] Four States of Mississippian Data: Best Practices at Work Integrating Information from Four SHPO Databases in a GIS-Structured Archaeological Atlas
This paper details an effort to test the research capabilities of multiple archaeological databases created for the organizational functions of State Historic Preservation Offices and their partner offices in state governments. Such databases are a familiar resource to archaeologists in all sectors of the profession, and are often an initial starting point for all manner of archaeological projects. Databases for four states (Illinois, Indiana, Kentucky, and Missouri) have been combined and analyzed in a GIS with geographic and environmental data sets. Applicable best practices and results capable of informing database managers and users will be discussed.

[144] Discussant

Wells, Michael [124] see De Leon, Jason P.

Wendt, Carl (Cal State University - Fullerton)
[131] Household Archaeology at the Olmec Site of Los Soldados
Studies on the Olmec frequently focus on the ostentatious nature of the society such as large centers and monumental works of art, often ignoring the important role of smaller sites in regional hierarchies. Recent investigations at the Middle Formative site of Los Soldados help resolve this elite centered focus by collecting household and community level data at this medium sized site in the La Venta settlement system. Subsurface testing and excavations at Los Soldados revealed living surfaces and features that provide data on the organization of domestic activities and community patterning at this Middle Formative Olmec site.

[186] Discussant

Wendt, Carl [96] see Huerta, Edgar H.

Wernecke, D Clark (The Gault School of Archaeological Research) and Nancy Littlefield (The Gault School of Archaeological Research)
[161] Archaeology in the Classroom: an educational initiative by The Gault School of Archaeological Research
For much of archaeology’s history scientists developed hypotheses, excavated sites, analyzed the data and published with little straying from that path. Modern archaeology finds itself constructing parks, running community development projects and developing public educational programs. This broader mission serves to advance archaeology’s public profile while also passing on knowledge gleaned from archaeology to a wider audience. In 2010 the GSAR, with the assistance of funding from a AIA Site Preservation Grant, launched an initiative to reach out to and assist teachers into bringing archaeology into their classroom lessons.

Werness, Maline (St. Edward’s University)
[102] Space Men: Patrons’ and Artists’ Use of Ceramic Space to Construct Ideology
Patrons and artists who created the Chocholá style, a Late Classic northern Maya luxury ware, chose busts of young lords set against deeply carved backgrounds framed by scrolls more often than any other subject. The three-dimensional presentation of space developed in the ceramic medium functions on several levels. First, artists created unique sets of relationships that define the whole corpus and project a specific, Chocholá identity. Second, they literally imbedded ideological messages in pictorial constructs that revolve around the figure of the young lord, implying a spatial continuum that acknowledges, yet remains separate from, the viewer’s world.

[102] Second Chair [102] Second Organizer

Wernecke, Steven (Vanderbilt University) and Lauren Kohut (Vanderbilt University)
[227] Spatial hegemony and domestic practice: varieties of households at an early colonial mission in the Colca Valley, Peru
How did Spanish and indigenous Andean domestic organization and practices articulate in the early years following the decapitation of the Inka state? The first glimpse of an answer comes from the site of Malata, a terminal prehispanic village and early colonial mission in the southern Peruvian highlands. Comparison of domestic assemblages dating to the first post-conquest generation shows spatial and artifactual variation that point to corresponding differences in identity, political role, and production foci of distinct kinds of households: the probable quarters of a friar, an elite indigenous household, and a non-elite household engaged in a variety of production activities.

Wescott, Konnie (Argonne National Laboratory), Matthew Braun (Argonne National Laboratory), Bruce Verhaaren (Argonne National Laboratory) and Robin Burgess (Bureau of Land Management)
[162] Cultural Resource Challenges of Utility-Scale Renewable Energy Development on Public Land
Wind and solar energy are important strategies for reducing our carbon footprint, but utility-scale development of these technologies involves large land areas, potentially affecting many natural and cultural
understanding of prehistoric agriculture; agricultural fields would have been cost efficient efforts. Analysis will conclude if commutes from Pueblo sites to potential agricultural fields farming communally before Spanish contact. A GIS analysis will determine the potential for agricultural fields that these sites were contemporaneous and were sites. This research is created based on the conjecture that these sites were contemporaneous and were farming communally before Spanish contact. A GIS analysis will determine the potential for agricultural fields and where these fields may have been located. Based on potential agricultural field locations, a GIS cost allocation analysis will conclude ifcommutes from Pueblo sites to agricultural fields would have been cost efficient efforts. Conclusive research results will contribute to the further understanding of prehistoric agricultural communities in the southwest.

The disconnect between existing historic preservation frameworks and non-traditional cultural resources is growing rapidly. While our existing legal framework has grown horizontally to address loopholes that jeopardize our heritage, this patchwork style of state, national, and international laws, ordinances, executive orders, and guidelines has yet to expand vertically, into the heavens. This issue became more apparent with efforts to seek formal designation of the Apollo 11 lunar landing site on the Moon, known as Tranquility Base. [242] First Chair

Westwood, Lisa [242] see Ramirez, Nicole A.

Whalen, Verity (Purdue University) [32] Architecture and status at a Late Nasca community: Preliminary excavations at Cocahuischo I present preliminary data on excavations and architectural analysis at Cocahuischo, a settlement in the Tierras Blancas Valley of Peru occupied from Middle Nasca through the Middle Horizon. During Late Nasca, there was a decentralization of regional power and an aggregation of people into much larger settlements. The results of test excavations in five sectors of Cocahuischo suggest differential access to high status and exotic goods during Late Nasca. Through further analysis of architecture and access patterns, I evaluate the degree of status distinction present at Cocahuischo, and ultimately, the nature of Late Nasca leadership.

Whalen, Verity [267] see Van Gijseghem, Hendrik

Whallon, Robert [6] see White, Andrew A.

Wheelbarger, Linda (San Juan College) [219] The Point Community: Overview of Research at Four Puebloan Sites in the Middle San Juan Region of Northwestern New Mexico San Juan College has sponsored archaeological research at four sites on the B-Square Ranch. The Point Community sites are near Farmington, NM and date to the Chacoan and San Juan time periods, A.D. 850-1300. Field schools have been held at the Tommy Site, a small pueblo, and the Point Site, a great house terraced into the southern bank of the San Juan River, while limited testing and remote sensing were conducted at the Needle Rock and Mine Canyon sites. I will summarize recent research conducted at the Point Community as well as information collected from ranch owner Tommy Bolack. [219] First Chair

Wheelbarger, Linda [219] see Centra, Alexandria E.

Wheeler, Charles [61] see Cunnar, Geoffrey E.

Wheeler, Jessica (Tulane University) [28] Cave and Cenote Iconography in the Maya Codices This paper will examine the iconography and text of related to caves and cenotes in the Maya codices to understand the artifacts from these contexts and their
use by Maya peoples during the Postclassic. An analysis of the iconography and text will be supported by examining the data excavations of caves and cenotes produced. Archaeologists have developed interpretations of the data excavated from caves and cenotes. Examining documents produced in the same cultural tradition will critically evaluate these interpretations.

**Whelan, Carly [UC Davis]**

[57] Prehistoric Patterns of Mobility and Trade in the Sierra Nevada Foothills

The results of lithic raw material sourcing analysis can be used to reconstruct prehistoric mobility and trade patterns. Using X-ray fluorescence (XRF) spectrometry, I have sourced obsidian artifacts from ten prehistoric sites that span more than 5000 years of hunter-gatherer occupation in the western Sierra Nevada foothills of California. The results of the analysis reveal temporal and spatial differences among the sites in the obsidian sources represented in their assemblages. This suggests that the people of the region underwent a diachronic change in mobility pattern and increased their participation in obsidian trade networks with groups east of the Sierra Nevada.

**Whelan, Carly [62] see Arpaia, Angela**

**Whistler, Emily (California State University Los Angeles), Jennie Allen (California State University, Los Angeles), William Kendig (California State University, Los Angeles), Rene Vellanoweth (California State University, Los Angeles) and Lisa Thomas-Barnett (Naval Air Warfare Center Weapons Division, Point Mugu, CA)**

[105] Preliminary Analysis of Middle Holocene Avian Fauna Remains from San Nicolas Island, California

This poster focuses on avian fauna recovered from CASON-40, a dune site located on the west end of the island. The remains were found well-preserved in articulated and dismembered contexts and were represented by a variety of large, medium and small avian species, including an albatross (Diomeda spp.) no longer residing on the island. Our analysis included identifying and quantifying the remains, direct AMS radiocarbon dating of bone, breeding behavior and ecology, and low-power microscopy to examine butchery marks and other modifications. Our findings will build upon previous accounts regarding the evolution of bird hunting on the California Channel Islands.

**Whitaker, Adrian [Far Western Anthropological Research Group, Inc.]**

[263] Short-term Ecological Consequences of Initial Human Occupation of the Punta Gorda Rockshelter

The Punta Gorda Rockshelter on the north coast of California contained a narrow 2.5 meter tall stratified shell midden deposit dating to a tight time span between 670 and 610 cal BP. The age of the site places it at the beginning of the California Athabaskan spread into Humboldt County—the first intensive use of coastal environments on record. Therefore, the deposit provides not only a glimpse into the historical ecology of the north coast of California, but data from the site document the initial effects of intensive human foraging in a previously lightly-occupied coastal strand.

**Whitaker, Adrian [263] see Byrd, Brian F.**

**Whitaker, Jason [The University of Texas at San Antonio]**

[34] Ancient Maya Household Economy: An Example from Operation 11 at the Medicinal Trail Site in Northwestern Belize

Households are fundamental components of both past and present societies. The study of archaeological households enables investigators to situate the micro-scale of everyday life within larger economic and political contexts. This poster examines the economic organization of a single household (Operation 11) at the ancient Maya Medicinal Trail Site. Analysis of these remains shows that the primary economic activity of this ancient household was agriculture. Secondary economic activities could not be definitively discerned. More importantly, the results of this investigation provide information concerning community-level socio-economic integration and household participation in larger economic networks.

**Whitby, Wendy (University of Central Lancashire, UK)**

[260] Cache Caves: A New Perspective on the Interior Landscape of South-central California

The interior region of South-central California is a landscape of sandstone canyons, oak groves, and grassland potreros. Cache caves, hidden throughout this landscape, contain an exceptional collection of artifacts such as basketry and feather skirts. These sites appear to have functioned in a number of ways, in collection and storage of raw materials, in storage/concealment of ceremonial and ritual objects, and in association with rock-art activities. Storage would have been critical for complex hunter-gatherers inhabiting this region and this paper will discuss how indigenous caching and storage were inextricably linked with the unique interior landscape.

**White, AJ (University of California, Los Angeles) and Jason Theuer (Petrified Forest National Park)**

[134] Motivations Behind Stone Choice in Groundstone at Petrified Forest National Park

Much work has been done on the use of groundstone in the American Southwest, however little emphasis has been placed on the choice of source material. This study integrates groundstone analysis with geologic sourcing by studying manos and metates at Petrified Forest National Park. A narrow bed of conglomerate sandstone outcrops in a small number of highly localized areas within the park. This stone is used as a choice material in much of the groundstone at the park, indicating motivation to transport this material over large distances. This research shows how groundstone analysis can be supplemented by geologic sourcing.

**White, Andrew (University of Michigan) and Robert Whallon (University of Michigan)**

[6] Conjoining Lithic Artifacts as Indicators of Site Occupational History at Havelte H1

Havelte H1 is a small, Mesolithic workshop/habitation site in the Netherlands. An analysis of conjoin's identified among the ca. 3,700 pieces of chipped stone is used to construct a possible occupational history of the site. GIS and statistical methods are employed to attempt to
discriminate artifact movements related to purposeful habitation activities from artifact movements related to unintentional disturbances. Patterns in the composition and spatial distribution of groups of conjoining artifacts suggest that the movement of tools, cores, and debris following knapping can be attributed to different phases of site occupation (initial, exploitation, and abandonment).

White, Andrew [17] see Lemke, Ashley K.

White, Chantel (Boston University) and China Shelton (Framingham State University) [111] Construction and Application of the Hand-Pump Flotation System The hand-pump flotation system is a new method for recovering charred macrobotanical remains from archaeological sediments. This system uses a manual bilge pump to circulate water through the tank and separate the light and heavy fractions. It offers the operator more control than large gasoline-powered pumps and is particularly appropriate for sites with very fragile botanical remains. In this paper, construction of the tank at the site of Beisamoun, Israel, is detailed, along with a discussion of hand-pump systems utilized in North and Central America, the Aegean, Europe, and Southwest Asia, and design modifications for varying site and soil conditions.

White, Chantel [169] see Lindberg, Kelly

White, Christine (The University of Western Ontario), Michael Spence (The University of Western Ontario) and Fred Longstaffe (The University of Western Ontario) [16] Gender and Isotopic Anthropology: Moving Beyond Diet and Status We use previously published oxygen isotope data from Teotihuacan, Mexico, to demonstrate the usefulness of residential histories in reconstructing gendered behavior. Teotihuacan was a cosmopolitan city that depended on immigration for maintenance and expansion of its population. We compare marriage patterns, economic and social roles of women living in neighborhoods of differing ethnic composition and examine their relationship to social identity and the needs of the state. It may not have been uncommon for women to have valued social roles and/or high status. At Tlalotlacan, a Zapotec enclave, the maintenance of ethnic identity might have been attributed largely to women, who were gatekeepers of enculturation and frequently moved across the landscape, even while pregnant. At the Merchants’ Barrio, a residential collection of traders who had origins in several parts of Mesoamerica, it is apparent that some immigrant women were able to maintain or achieve high status.

[56] Discussant

White, Christine [255] see Webb, Emily C. [56] see Doris, Alicia E. [21] see Spence, Michael W. [35] see Szpak, Paul

White, Christine D [49] see Hewitt, Barbara R.

White, Devin [38] see Barber, Sarah B.

White, Paul (University of Alaska Anchorage) [166] Timbisha Shoshone Historic Landscapes Project: A Negotiation of Tribal and National Park “Scapes” An archaeological survey of an historic pinyon camp in Death Valley, California, in May 2010, sought to extend cooperative management efforts between the Timbisha Shoshone tribe and the National Park Service (NPS). Designed in the interests of ongoing resource protection efforts and desires for cultural preservation, this pilot project came to meet two seemingly contradictory ends, 1) the creation of a detailed archaeological database shared between the tribe and the NPS and, 2), the documentation of site-specific, sometimes artifact-specific, knowledge to remain with the tribe. This paper discusses findings from the collaborative research process.

Whitehead, William (Ripon College) [35] Paleoethnobotany at Cerro Mejia, a Middle Horizon site the Moquegua, Peru region The botanical remains from Cerro Mejia will be presented, showing the species, quantities, distribution across the site. Site formation processes, behavioural patterns, and local activities combine to produce an assemblage that is much different than the other sites in the region that have been investigated to date. The analysis and collection methods will be highlighted showing the power and utility of performing intensive, digital documentation of museum collections. The final analysis of Cerro Mejia will complement and be compared to other Middle Horizon sites from Peru and Bolivia.

Whitley, Catrina (Office of Archaeological Studies, Museum of NM) [37] Ash And Smoke: Classic And Coalition Mortuary Ritual In The Northern Rio Grande Analysis of Taos Valley mortuary practices (A.D. 1200-1320) revealed distinct methods for burying the deceased. This paper explores variation between Taos Valley Coalition Period mortuary practices and Northern Rio Grande Classic Period mortuary practices, addressing issues of mortuary ritual continuity and change during this period of social upheaval. Since mortuary ritual is conservative, alterations are rare and migrating groups would probably have continued these important traditions in their new communities. Additionally, this study discusses the efficacy of mortuary practices and ritual in the Northern Rio Grande as a means to identify immigrants.

Whitley, David (ASM Affiliates, Inc.) [230] Matters of Fact and Matters of Fiction: Epistemology and Ontology in the Use of Indigenous Knowledge for Rock Art Interpretation Few research topics have been more controversial than rock art interpretation. Although traditionally discussed in empirical terms, the use of indigenous knowledge in rock art interpretation involves epistemological, ontological and methodological commitments that are usually overlooked. Interpretations of the attribution of Great Basin rock art to the actions of spirits illustrate this point. Denial of the relevance of this attribution assumes that religious statements are literal in meaning, reflecting a fundamentalist view of religion. Global ethnography indicates instead that religious statements commonly
assume spiritual causality, and over a dozen Native American tribes attribute the origin of rock art to spirits.

Whitley, David [48] see Whitley, Tamara K.

Whitley, Tamara (Bureau of Land Management) and David Whitley (ASM Affiliates, Inc.) [48] Visions Past and Present in Native California
Few aspects of California archaeology are more remarkable, or more central to Native American consultation, than its rock art. Once thought entirely prehistoric and therefore disconnected from ethnographic peoples, recent studies instead demonstrate continuities in belief and the continued relevance of these sites to contemporary tribes. While archaeological interpretations of the art change periodically, Native California commentary has been consistent for over a century. Case studies from eastern and south-central California, and the Sierra Nevada, illustrate these continuities in belief and ritual systems, and their relevance to site management.

Whitley, Thomas (Brockington and Associates, Inc.) [64] Diet and the Landscape: Modeling the Prehistoric Economies of the Georgia Coast (4500 to 300 BP).
Using a combination of 15 environmental variables and 37 forage categories in 11 counties of Coastal Georgia, this study covers nearly 2 million hectares and represents a series of GIS models; for habitats, available calories, and returned calories. The resultant surfaces were used to develop both predictive and interpretive models of prehistoric economies, and represent both the diachronic and spatial distribution of potential energy sources in the environment. The results allow a great deal of insight into our understanding of how forage categories were utilized, competed for, and how they contributed to the surplus energy available for non-subsistence behaviors.

Whitley, Thomas [80] see Majewski, Teresita

Whitlow, Raymond (SUNY Buffalo) [115] The Geography of Cucuteni-Ariusd sites and the role of the Eastern Carpathian Mountains in the Romanian Eneolithic
Mountains present certain geographic challenges and affordances to the populations living near or among them. During the Eneolithic in Romania, the Cucuteni-Ariusd culture straddled the Eastern Carpathian Mountains, though the majority of sites were located outside of the mountains proper. The single known exception is the Eneolithic settlement at Pauleni, which is located at a higher elevation and deeper in the foothills than any neighboring Ariusd or Cucuteni settlement. Through the use of GIS models, the location and local landscape of Pauleni is compared with nearby Ariusd and Cucuteni settlements, and the importance of proximity to mountain passes is considered.

Whitridge, Peter (Memorial University of Newfoundland) [153] On the track of the track: human and animal paths in the Arctic
Maps, including electronic ones, represent powerful tools for manipulating spatial information. They are anticipated, archaeologically, by actual trails and roads, which are also deliberate materializations of travel routes and spatial knowledge, and impose a similarly abstract, cartographic sensibility on the landscape. Trails, however, are not a human invention. The North American Arctic has few paths and fewer roads, but is nonetheless dissected by animal travel routes, some deeply incised by millennia of animal travel, and many also traveled by human hunters. The overlap between human and animal trail creation and use invites us to re-problematize the human-animal divide.

Whittaker, John (Grinnell College) [84] Discussant

Whittington, Stephen (Wake Forest University) [51] Intersections of Archaeology and History at Teozacoalco in the Mixteca Alta
The dynastic history of Teozacoalco appears in various Mixtec codices and, most importantly, on the Mapa de Teozacoalco from the 1570s. Besides identifying royal couples and their offspring, these documents also provide clues about Teozacoalco’s relationship with other Mixtec polities and the Spanish, its physical movement from a mountaintop to its present location, and the roles outsiders played in founding and maintaining its dynasties. Historical information from documents and archaeological data from surveys and excavations complement each other and help to expose Teozacoalco’s importance within the complex political and geographic landscape of the Mixteca Alta.

Whittle, Alasdair (Cardiff University), Penny Bickle (Cardiff University), Alex Bentley (Durham University), Robert Hedges (Oxford University) and Linda Fibiger (Cardiff University) [255] Diversity in LBK lifeways
Archaeological science is at its most powerful when carefully integrated with both evidence and theorised questions. A three-year project is investigating a range of isotopes (strontium, carbon, nitrogen, calcium and oxygen) from humans and animals, and selected aspects of osteology, to incorporate the results with a detailed re-consideration of their archaeological context. The main objectives are to explore patterns of diet, health and movement and to facilitate the investigation of diverse lifeways in the central European LBK (broadly, in the second half of the sixth millennium cal BC). Case studies include the cemeteries of Alterhofen, Germany, and Nitra, Slovakia.

Wiberg, Randy [194] see Guidara, Andrea L [194] see Griffin, Mark [194] see Marks, Jennifer L.

Wichlacz, Caitlin (Washington State University) and Andrew Duff (Washington State University) [135] Survey of Three Pueblo II Community Centers in West-Central New Mexico
Full-coverage survey of contiguous blocks surrounding the Pueblo II (ca. A.D. 1050-1130) Great Houses of Cox Ranch and Cerro Pomo Pueblos, and adjacent to Largo Gap, has identified sizable contemporaneous occupations that hold great potential for understanding local community dynamics. These survey areas also offer records of both Archaic mesa top activity and historic-era occupations. Here, we present the results of the 2009 and 2010 survey seasons in the context of the previous work in this area.
This paper discusses the results of communities living in the central Arkansas River valley. Regional dynamics of Carden Bottoms phase ceramics and planned provenance studies, utilizing neutron activation analysis. Stylistic analyses have identified three broad categories of wares: local, imported (Mississippian and Caddoan), and hybrid wares produced locally using design elements from other ceramic traditions. Compositional analysis will yield data that can be used to explore the degree of regional interaction present at Carden Bottoms sites and characterize the nature, strength, and direction of these interactions.

Wigen, Rebecca [176] see Endo, Naoko

Wigley, Sarah M. [165] see Figueroa, Antonia L.

Wilcox, David (Museum of Northern Arizona)

[18] Microcosm and Macrocosm in Southwestern Archaeology

For any social system one can look inward to explicate the processes that shape its microcosm and affect its trajectory, or one can look at it from the outside to investigate how its macrocosm shapes it and affects its trajectory. Better yet, one can do both, and on multiple scales of internal/external interactions. The history of Southwestern archaeology is briefly examined from this perspective and suggestions for future applications are made.

Wilde, James (AFCEE) [118] Discussant

Wilke, Sacha (University of British Columbia)

[183] There’s a Gadget for that! Examining changes in fishing tools at El Rayo.

The transition between the Bagaces and Sapoa periods in Nicaraguan pre-history relates to important changes in the material culture, which some suggest are explained by the immigration of a new population to the area. The extent and type of interaction is unclear. This paper will examine the continuity and changes of ceramic and bone tools seen through this transition period, at the site of El Rayo. Special attention will be given to the three style variations of net sinkers found at the site and the use of bone fish hooks throughout time.

Wilkins, Jayne

[2] Blade Production at the site of Kathu Pan 1, South Africa during the Middle Pleistocene

Strata 4a at the site of Kathu Pan 1 in central South Africa has yielded a rich Middle Pleistocene blade assemblage radiometrically dated to 500 ka. Presented here are the results of a technological analysis of the lithic component of strata 4a, which has been attributed to the Fauresmith industry. The chaînes opératoires of blade production at Kathu Pan are compared and contrasted with the published analyses of other Earlier and Middle Stone Age blade assemblages, including the 500 ka assemblage at Kaphurin Formation, Kenya and the Howiesons Poort assemblages at Rose Cottage Cave and Klasies River, South Africa.

Wilkins, Jayne [108] see Oestmo, Simen

Wilkinson, Darryl (Columbia University) and Severin Fowles (Barnard College)

[167] Stylistic and Compositional Analysis of Carden Bottoms phase ceramics and planned provenance studies, utilizing neutron activation analysis. Stylistic analyses have identified three broad categories of wares: local, imported (Mississippian and Caddoan), and hybrid wares produced locally using design elements from other ceramic traditions. Compositional analysis will yield data that can be used to explore the degree of regional interaction present at Carden Bottoms sites and characterize the nature, strength, and direction of these interactions.

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Wilkins, Jayne [108] see Oestmo, Simen

Wilkinson, Darryl (Columbia University) and Severin Fowles (Barnard College)
[211] Roman Catholic Rock Art Traditions of Northern New Mexico
Although the primary focus of rock art research in northern New Mexico has been on Puebloan and Archaic material, the area also offers a rich body of colonial era petroglyphs that are strongly influenced by Roman Catholic iconographies. This poster presents the findings of a recent survey along the Rio Grande gorge that seeks to better understand the local Catholic rock art tradition and the sacred landscape which framed it. As the results of this research suggest, it is increasingly difficult to sustain a strict dichotomy between Catholic and Native American rock art traditions in the region.

Wilkinson, K. [114] see Adler, Daniel S.

Wilkinson, Patrick (University of Arkansas) and Marieka Arksey (British Museum)
[124] Pachychilus as a Sub-local Climate Proxy in the Southern Maya Lowlands
The ubiquitous Jute snail (Pachychilus) presents archaeologists and paleo-climatologist in the Maya Lowlands with a unique sub-local climate proxy. Because of the presence of Jute shells in both construction fill and in ceremonial context, it should be possible to track local climate change and to determine the correlation, if any, with site abandonment. By analyzing the ratio of stable oxygen isotopes found in the leading edges of the shells, it is possible to chart changes in water temperature in the Belize River, the natural habitat for the snails, over the span of occupation of sites in the valley. These temperature changes in the water indicate lower water levels in the river, increased ambient temperature, or both.

Wilkinson, Patrick [208] See Arksey, Marieka

Wille, Sarah (The Field Museum of Natural History)
[268] Discussant

Willems, Willem (Faculty of Archaeology, Leiden University)
[254] Problems with preservation in situ
Preservation in situ has developed into a central premise of archaeological resource management around the globe. This contribution examines the reasons behind this dogma and questions some of them.
[110] Discussant


Willey, P (Chico State) and Richard L. Jantz (University of Tennessee)
[77] Ishi in Two Canonical Axes: Morphometric Assessment of His Cephalic Dimensions
Ishi has been held forth as the last pure Native North American. As such he was interviewed for ethnographic, linguistic and material culture information that he, the last Yahi, possessed. Recent reassessments, however, indicate outside influences on him, including presence of external ideas, words and material culture—if not a different tribal affiliation. To examine this interpretation, we compare Ishi’s face and head measurements with those of other Northern California Natives. While documenting much variation within Native Californians, our results support the more traditional identification of Ishi as a member of a Hokan-speaking rather than a Penutian-speaking group.

Williams, David (University of Colorado at Boulder)
[38] Identifying Change Through Time: Technological, Functional, and Exchange Analysis of Chipped Stone Artifacts from Coastal Oaxaca, Mexico
This paper discusses the results of the analysis of over 5,000 obsidian artifacts from the Lower Rio Verde Valley, Oaxaca, Mexico. Previous lithic studies in the region have been minimal. This pilot study applies XRF sourcing, differences in manufacturing style and technique, and microwear analysis to better understand the changing political and social climates between the Early Formative (1800-800 BC) and Late Postclassic (AD 900-1522). Analyzed obsidian from over one dozen sites in the Lower Verde allows for a more complete archaeological understanding of domestic and political economies, trade networks, social connections, and daily activities in the region.

Williams, Howard (University of Chester)
[226] Burn Up or Fade Away? The Context of Cremation in Early Medieval Europe
For early medieval north-west Europe and Scandinavia, cremation practices can be viewed as technologies of remembrance employed to commemorate by fiery transformation. Cremation was variously and selectively employed in mortuary contexts alongside other modes for disposing of the dead prior to and during conversion to Christianity. This paper examines archaeological case studies from Britain and southern Scandinavia showing how cremation’s social meaning and commemorative efficacy shifted through fluctuating contextual association with other disposal methods.

Williams, James (University of Pittsburgh)
[54] Regional Survey and Communities in China
The spatial characteristics of mobile communities present theoretical and methodological challenges. Modes of analyses can be tailored to address this. The methodologies and analyses presented will explore how to address the variation of community composition and the nature of communities. To explore these concepts relating to the nature of communities the paper will utilize the case of the Zhangwu region of Liaoning China in fieldwork proposed to begin in 2011. The conditions of the Zhangwu region require that a variety of community compositions be understood.
[54] Second Chair [54] Second Organizer

Williams, Justin (Washington State University)
[257] Platform Size and Flake Morphology: the Effects of Nodule Shape
It has been argued that flake size is directly related to the size of the platform of the flake. Many factors which affect this relationship have not been tested. These factors include: the type of hammer used, and the presence, location and size of previous flake scars. Several nodules were reduced by a single knapper in an effort to test the effects of the various factors. When previous nodule flake scars and type of hammer used are considered, the strength of the relationship between platform size and flake size is comparatively weaker.
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Williams, Justin [257] see McIlraith, Erin R.

Williams, Louise [176] see Endo, Naoko

Williams, Patrick (Chicago Field Museum), John Janusek (Vanderbilt University) and Carlos Lemuz (Sociedad de Arqueologia de La Paz, Bolivia) [267] Building Taypikala: Changing Patterns of Stone Procurement and the Production of Tiwanaku Monumentality
Transformations in stone mining and production for the monumental center of Tiwanaku (600-1000 AD) provides insights into processes of political expansion and the emergence of state integrative strategies during the Andean Middle Horizon. We review evidence for the procurement of monolithic stones from sandstone quarries in the local Kimsachata Mountains, and highlight new sourcing data for the acquisition of andesite and other igneous stone from quarries in the broader circum-Titicaca Basin. Chronological changes in the acquisition of stone reveal increasingly broad spheres of procurement through time, with exotic igneous sources becoming pronounced later in Tiwanaku’s hegemony.

Williams, Ryan [142] see Arnold, Dean E.

Williams, Sarah (Indiana University of Pennsylvania) [180] Prehistoric Deer Bones Tell Their Story: Investigating Deer and Human Behavior through Stable Carbon Isotope Analysis
Stable carbon isotopic analysis can provide insight into hunting strategies once held by the Ancestral Pueblo located in the Dolores valley of southwestern Colorado. Mule deer (Odocoileus hemionus) is abundant in the faunal assemblages, but how it was hunted is less clear. Acquisitions during logistical hunts or through hunting in gardens both have been proposed. Current examination of stable carbon isotopes of deer remains clarifies how many C3 versus C4 plants were in the diet. Over time a high C4 signature in the isotopes indicates garden hunting while a high C3 indicates logistical hunting in the Dolores sequence.

Williams, Veronica (CONICET- UBA) and Maria B. Cremonte (CONICET/IDGYM) [68] Social Landscape During Inca Domination in Northwest Argentina
Among the ways that the Inca Empire adopted to rule its territory included actions into ideological, economic, and political sphere which explain in part the diversity and disparity that the state presence reached. Constructions like roads, tampus, pukaras, administrative centers, storage buildings, agricultural works, among others, were common in the entire annexed areas, but it is evident that its architecture, dimensions, monumentality and spatial density show contrasting regional differences. New evidence regarding Inca occupation in Northwest Argentina shows different situations along the period of Inca conquest and domination itself.

Williamson, Andrew [87] see Spencer, Alan C.

Williamson, Ronald (Archaeological Services Inc.) [55] Discussant

Willis, Lauren (University of Oregon) and Jon Erlandson (University of Oregon) [263] The Nutritional Composition of Edible Native Plants on Santa Rosa Island, California
With the recent removal of cattle and major reductions of deer and elk populations, Santa Rosa Island has seen a significant recovery of native plant populations. Unfortunately, our knowledge of how people utilized the island’s plant resources throughout the Holocene is relatively limited. We present nutritional information for a variety of edible native plants, data that contributes to our understanding of how Channel Islanders may have supplemented a diet rich in marine foods. Our research has implications for subsistence, trade, and perceptions of the supposed marginality of the Northern Channel Islands and their resources.

Willis, Mark [15] see Brown, David O.

Willoughby, Pamela (University of Alberta) [109] The Archaeology of Iringa, southern Tanzania: An Introduction
The Iringa Region of southern Tanzania is yielding a long archaeological sequence which includes the Acheulean, Middle and Later Stone Age, Iron Age and historic periods. This poster introduces Iringa and the current research of members of the Iringa Region Archaeological Project. Their work focuses on the archaeology of early modern humans in this important region. Individual research projects include studies of lithic typology and technology, the bioarchaeology of human skeletal remains, zooarchaeological analysis, the evolution of symbolic behaviour, as well as initial attempts at chronometric dating.

[109] First Chair

Willoughby, Pamela [109] see Skinner, Anne

Willis, Chip (University of New Mexico) [53] Reconsidering the Pueblo Alto Community: A Geospatial Perspective
New pedestrian survey in the vicinity of Pueblo Alto in Chaco Canyon, New Mexico, in conjunction with airborne and terrestrial Lidar imagery, provides the basis for a reconstruction that differs in significant ways from earlier interpretations of settlement patterns in Chaco.

Wilson, Andrew [236] see Glasgow, Hillary J.

Wilson, Diane (A M Wilson Associates) [255] A Synthesis of Dietary Stable Isotope Values from the Caddo Culture Region
While stable isotope studies provide a direct measure of maize consumption, they have not provided a simplistic picture of maize agricultural economies. This paper examines the process of maize agriculture intensification through stable isotope analysis among the Caddo. Stable carbon isotope values show maize was present in the earliest component of the Caddo archaeological record and that its use increased through time. Variability was a key component of the dietary regime of the Caddo and may have been characteristic of agricultural economies throughout the greater Mississippi Valley. For the Caddo, dietary heterogeneity is seen among regions, sites, and
Wilson, Gregory (UC-Santa Barbara)
[229] Post-Cahokian Contact in the Central Illinois River Valley

Recent research in the upper Mississippi Valley has generated important new insight into Cahokia’s long-distance historical entanglements. It is now clear that Cahokian contact was a brief but intense phenomenon in several portions of the northern Midwest. Less understood are the impacts of contact in the decades following the termination of Cahokia’s interaction with its northern neighbors. This study examines this issue through an analysis of late 12th century and early 13th century archaeological data from the Central Illinois River Valley.

Wilson, Ken
[259] Hay Ranch Water Extraction Delivery System

The construction of a pipeline to deliver water for injection into an existing geothermal aquifer was controversial because of tribal concerns about the potential to adversely affect the spiritual values and use of Coso Hot Springs, which is listed on the National Register of Historic Places. The undertaking posed a number of interesting challenges; including whether it was reasonable to include the Coso Hot Springs in the area of potential effect, even though the Springs are nearly two miles away from the nearest area of ground disturbing activities.

Wilson, Monica
[33] Something old, something new: Differential GPS technology and the mapping of ancient architectural features

Differential Global Positioning Systems (DGPS) technology is a tool that lends its application to a variety of fields, including Archaeology. I was able to compare the effectiveness of DGPS technology to a Total Station unit while assisting the Pisanay Projecto Arquelogico team with mapping architectural features in Pisanay, Peru. Variations in the locations of architectural features collected by both units were measured using ArcMap 9. The DGPS data was accurate to less than a meter and variation between data sets were negligible. This study supports the potential for DGPS to serve as a cost-effective alternative for mapping site features.

Wilson, Stacie (AECOM)
[50] Mapping and tracking trails: GIS and the BLM national historic trails project

Conducting cultural resources inventories, cultural landscape studies, and visual studies for over 600 miles of high priority trail segments for the National Historic Trails inventory project requires significant archival and background research. A GIS database and interactive website were developed to archive the results of background research, catalog the sources analyzed, and to record, organize, and interpret all project-related survey information. These products will serve as part of the final deliverable to BLM to assist in the management and preservation of the trail resources.

[50] Second Organizer

Windes, Thomas and Peter McKenna
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Valley were conducted in the 1970s by a Peruvian team and in 2005 by Ruiz and Nelson. Both surveys mapped sites ranging from the Preceramic to the Late Horizon. The 1970s survey map was converted to a digital image and georeferenced. The 2005 survey contained GPS coordinates for identified sites. The maps were evaluated for differences using ArcView software and comparison to historic air photos.

Winkler, Daniel (University of Wisconsin-Milwaukee) [96] Plainview Technology and Raw Material Conservation in the Western Great Lakes
The focus of this paper is human use of Plainview lithic technology as represented by lithic debitage and tools from two sites in southern Wisconsin. This work takes an assemblage approach to understanding the structure of the lithic economy in use at the site, in order to examine mobility, site structure, household makeup, and ritual in the western Great Lakes during the early Holocene (circa 8600 BP). The study is focused on the structure of the Plainview lithic economies, examining tools and debitage to determine how groups in the western Great Lakes created, modified, and maintained their tool kits.

Winkley, Marilyn (University of Wisconsin at Whitewater) and Peter Killoran (UW-Whitewater) [33] Forensic Facial Reconstructions from Pisanay, Peru
Digital photographs of skulls from Pisanay, Sihuas Valley, Peru were used to create facial reconstructions. The TPS Dig program by Rolhf (SUNY Stony Brook) was used to mark standard points representing tissue depths on the digital photograph of the skull. The skulls then were artistically rendered by hand using tracing paper over the digitized images to create a living profile. Archaeological materials from the site and other period textiles were used to inform the representation of hair and clothing.

Winterhalder, Bruce [123] see Jazwa, Christopher S.

Witt, David (SUNY Buffalo) [219] Analysis and Comparison of Middle San Juan Chipped Lithics
In 2006 and 2007, the Totah Archaeological Project excavated a room block at the Point Site, a great house community located on the San Juan River outside Farmington, NM. The lithics from the room block were analyzed according to raw material, reduction strategy, and use wear. They were compared to the lithic artifacts from Sterling Site and Fort Site, neighboring great house communities along the San Juan River, as well as Salmon Pueblo, a Chacoan Outlier located approximately four miles to the east. Implications of observed differences in lithic industry and utilization between the four communities will be discussed.

Wobst, H Martin (University of Massachusetts) [1] Discussant [252] Discussant

Wohlgemuth, Eric (Far Western Anthropological Research Group, Inc.) [256] Change and Continuity in Prehistoric Plant

Resource Use along the Lower Sacramento River
Macrobotanical data from four sites along the lower Sacramento River provide an unprecedented, near-continuous fine-grained record from 2500-300 BP, and are used to evaluate effects of climate change and cultural historical transitions previously posited as key shifts in the archaeological record. Macrobotanical trends seen elsewhere in central California indexing intensified acorn use followed by intensive small seed use, are present but muted along the river. Limited choices of relatively high-ranked nut crops along the river may have precipitated earlier intensive use of lower-ranked small seeds than in adjacent regions with access to the broad diversity of nuts in foothill localities.

Wojtowicz, Robert [55] see Pihl, Robert

Wolff, Nicholas (Boston University Department of Archaeology) [249] Discussant

Wolpoff, Milford (University of Michigan) [17] Discussant

Wolverton, Steve (University of North Texas) [128] Data Quality in Paleozoological Faunal Identification
There is no standard for reporting faunal identifications in zooarchaeology. Zooarchaeologists are open to accusations that reported conclusions are invalid. Other sciences counter such problems through use of quality assurance (QA) and control (QC). QA is a standard for procedures adopted during laboratory practice. A rarely cited standard was published by Driver in 1992. QC focuses on criteria for faunal identification and is becoming more common in zooarchaeology. QA and QC must be integral parts of zooarchaeology if identifications are to be accepted. The stakes are high because paleobiological datasets are now used to study problems in conservation science.


Wolynec, Renata (Edinboro University of Pennsylvania) [251] Discussant [251] First Chair

Woods, Alexander (University of Iowa) [96] Raw Material Selection and Aurignacian Blades from Abri Cellier
This talk represents the culmination of three years of research on the relationship between raw material selection and blade production at the Aurignacian site of Abri Cellier. This third report combines the lithic analysis of blades from the Beloit Wisconsin and Les Eyzies collections with the results of mechanical knapping experiments on French flints. The use of fracture toughness testing and mechanical fracturing of experimental cores allows for a quantitative comparison of the flaking quality of Perigord raw materials. This new data sheds light on the reasons behind exotic raw material acquisition during the French Aurignacian.

Woods, James (College of Southern Idaho) and John E. Clark (Brigham Young University)
[22] Experiment, Experience, and Lithic Analysis
The foundational assumption of replication experiments is that experience and observations gained from attempts to make and use replicas of ancient objects leads to reliable knowledge of the manufacture and use of the targeted artifacts. Most truth claims made for ancient stone tools are entangled with experimental outcomes in some way, as are the methods for analyzing these artifacts. In recent years the epistemological dependency of lithic analysis on experiments has been challenged, and rightly so. We explore the debate over what experiments can and can’t do for lithic analysis.

Woodson, M (Gila River Indian Community)
[199] What We Do Not Know About the Impact of Flooding on Hohokam Irrigation Agriculture
A common claim in studies of Hohokam irrigation agriculture is that flooding events were problematic or even disastrous for canal system infrastructure and for irrigators. The sources for these speculations include records of historic floods in Phoenix Basin, reconstructed stream flows based on tree-ring research, and the geological history of river environments. Yet we still do not know exactly how these landscape events affected Hohokam irrigation. In this paper I use recent evidence from the Middle Gila River Valley to examine the impact of discharge changes and streamed alterations on Hohokam canal systems and the populations living along the canals.

Woodson, M.K. [115] see Rost, Stephanie


Woollett, Jim (Université Laval)
[199] Dog Days at Uivak Point: Zooarchaeological perspectives on Inuit dog team management
The reconstruction of animal husbandry practices is an overlooked part of zooarchaeological research into foraging economies. This paper investigates the use of dogs for traction by Inuit though analyses of faunal remains recovered at the sites of Uivak Point, Oakes Bay 1, and Koliktalik 6 (Nunatsiavut, Canada) and will focus on the use of tooth cementum to determine mortality profiles. This study is intended to reconstruct strategies of sled dog management, to gage the security of Inuit subsistence through the proxy of dog mortality, and to cast light on one means by which Inuit actively manipulated their biological environment.

Workinger, Andrew [5] see Brzezinski, Jeffrey S.

Worman, F. Scott (University of New Mexico)
[37] Agricultural Landscapes of the Classic Period
The widespread adoption of dry farming is considered a defining characteristic of the Classic Period in the Eastern Pueblo world. Recent research on the Caja del Rio Plateau and Albuquerque’s West Mesa provides insights into the range of sophisticated techniques used to make agriculture possible in upland areas. Investigations at Alameda and Chamisal Pueblos in the Rio Grande valley suggest that floodplain agriculture was widespread and highly productive at the same time. Patterns visible at the regional scale have implications for migration and social interaction and raise questions of the relationship between site visibility and responses to climate change.

Wren, Linnea [102] see Nygard, Travis

Wright, David (Universidad de Guanajuato)
[21] The role of Otomí speakers in pre-Hispanic central Mexican society
The participation of Otomí speakers in the multilingual society of central Mexico has traditionally been underestimated. In recent years the role of the Otomí in this region has been reexamined. In this paper a transdisciplinary approach is used to bring together linguistic, archaeological, historical and epigraphic evidence, showing that the Otomí were among the most ancient sedentary inhabitants of the central valleys of Mexico, participating fully in cultural developments throughout the pre-Hispanic era.

Wright, David (Seoul National University), J. Andrew Darling (Gila River Indian Community), Craig Fertelmes (Gila River Indian Community/Arizona State University), Steven Forman (University of Illinois at Chicago) and Michael Waters (Texas A&M University)
[139] The Archaeology of Dust: Historical Roots of a Modern Problem
Wind is respected by the O’odham of Arizona for its role in bringing rains (juhiki) and destructive dust storms (civar lick/vomat huh vuhl). However, airborne sediments pose health and subsistence risks to humans occupying desert landscapes. In the modern world, government regulations mandate dust abatement procedures across broad geographic regions but rarely do they consider that eolian activity has always been a part of human existence in dryland environments. Using sediment chemistry, OSL dating and XRF analyses, the Gila River Indian Community in south-central Arizona has initiated a deep-time study to geomorphically contextualize and explore indigenous responses to aerosols.

Wright, David [225] see Terry, Richard E. [115] see Rost, Stephanie

Wright, David K. [223] see Purdue, Louise E.

Wright, Henry [3] see Li, Min

Wright, Joshua (Stanford University)
[54] Interactionist Perspectives in Inner Asia
Interaction is a common framework in which the prehistoric communities of the steppe are interpreted, and it seems very appropriate. However, scale is a key factor of interactionist perspectives based in immobile communities. This paper addresses broad issues of locating community and culture on the Eurasian Steppe, and how a wide range of communities — many of which might appear to be large scale — can appear to be local when style, identity, ethnography, and perception of landscape and environment are used as structural elements.

[54] First Chair

Wright, Lori (Texas A&M University, Department of Anthropology) [56] Discussant
Wright, Lori [56] see Trask, Willa R.

Wright, Patti (University of Missouri--St. Louis) [111] Formation Processes of Carbonized Seed Assemblages

Cultural and noncultural processes contribute to the survival of plants remains and to their incorporation in the archaeological record. In this paper, I discuss carbonization and how it differentially influences the preservation of starchy and oily seeds especially those of the plants, chenopod, maize, sumpweed, and sunflower. I present information on how the carbonized remains of these seeds survive non-cultural processes such changes in temperature, moisture, and pH, and analytical process such as flotation. Ultimately, I indicate how formation processes affect the relative proportions of starchy and oily seeds and, in turn, interpretations of plant use.

Wriston, Teresa (University of Nevada, Reno) and Gary Haynes (University of Nevada, Reno) [4] Geoarchaeological Investigations in Northwestern Zimbabwe

Paleoenvironmental reconstructions for southern Africa are challenging due to a poor understanding of climatic teleconnections and how they have changed over time. In order to decipher these dynamics, detailed proxy data of different types and from different locations is necessary. Recent geoarchaeological investigations in Hwange National Park provide one piece of this puzzle for the mid-to-late Holocene in northwestern Zimbabwe. These investigations include description and sampling of sediments and soils exposed in river cutbanks and archaeological rockshelters that reflect regional environmental changes during the transition from hunter-and-gatherers to farmers and pastoralists.

Wriston, Teresa [60] see Hutson, Jarod M.

Wrobel, Gabriel (University of Mississippi), Christophe Helmke (University of Copenhagen) and Jaime J. Awe (National Institute of Culture and History) [56] Caves as Tombs: A Bioarchaeological Example from the Maya Cave Site of Je’reytheel, Caves Branch, Belize

Je’reytheel, a small, unlooted cave in central Belize, contained the remains of approximately 20 individuals in various states of articulation and spread across seven separate features. A contextual analysis of the various deposits demonstrates that many aspects of the site’s mortuary use closely parallel elite funerary ritual focused on tombs, and thus the placement of human remains in Je’reytheel is consistent with an interpretation of veneration, rather than sacrifice. This explanation is discussed in relation to current models of Late-Terminal Classic 

[56] First Chair

Wrobel, Gabriel [56] see Michael, Amy [204] see Shelton, Rebecca L.

Wu, Chia-Chin (University College London) and Christine Hastorf (University of California, Berkeley) [35] Identification of tuber processing methods: parenchyma studies from Formative Chiripa, Bolivia

Using a refined tuber identification method, we identify dried stored tubers and various cooked evidence through microscopic analysis of tissue damage patterns in parenchymous tissue. The tuber remains were recovered from the Formative site of Chiripa, an early center on the shores of Lake Titicaca. These fragments are associated with an emerging agricultural society in which highland tuber domesticates, especially the potato Solanum, were important. The tuber processing identification method outlined and applied to specimens in this paper provides insights into food preparation as well as the use of space at this pre-Tiwanaku community.

Wuiffen, Jennifer (University of Illinois Chicago) [105] Shell concentrations at Caballete, Norte Chico, Peru: Mapping temporary camp sites in the Late Archaic

Caballete is a large Late Archaic (3000 – 1800 B.C.) coastal site in the Fortaleza Valley, Peru. It contains large mounds with associated circular plazas and stone housing complexes indicative of a complex society. An informal survey of the large open area in front of the mounds documented a broad distribution of shell fragments, and test units in 2006 and 2008 revealed temporary occupations within it. In 2010 a survey was conducted to map the distribution of shell concentrations extending from the mound area to the base of the surrounding foothills. The poster presents the results of that survey.

Wygal, Brian (Adelphi University) [231] Testing the Mammoth Refugia Hypothesis in the Central Alaska Range

The mammoth steppe undoubtedly fostered the expansion of hunter-gatherers into interior Alaska during the turbulent terminal Pleistocene. Archaeologists have long hypothesized that as the first human groups arrived in eastern Beringia, the rapidly declining mammoth steppe forced late Pleistocene megafauna into “mammoth refugia” such as in the foothills of the Central Alaska Range. Recent surveys tested the hypothesis that prehistoric hunters converged on large game species in these once glaciated alpine zones. Undated surface finds, meat caches, hunting blinds, and buried biface production sites, one yielding a date of 12,400 cal BP, indicate a lengthy prehistoric use of these areas.

Xie, Liye (the University of Arizona) [69] Why Bones?: Worked Scapulae from the Lower Yangzi River, China

Worked scapulae, which are assumed to be agricultural implements, have been recovered from archaeological sites in Asia, Europe and the Americas, and yet their distribution seems to be restricted to only certain regions in each continent. To understand why bone was preferred as a raw material for making these tools, the author closely examined worked scapulae (8000-5000 BCE) from the lower Yangzi River, and conducted replicative and functional experiments to compare performance characteristics between worked scapulae and stone shovels and hoes.

Yaeger, Jason (University of Texas at San Antonio) [191] The Ritual Termination of a Provincial Palace and the Restoration of Political Sovereignty at Xunantunich, Belize

Founded in the 7th century A.D., Xunantunich expanded
rapidly in the 8th century A.D., eclipsing its much older neighbors and presumed rivals. This expansion apparently corresponds with Xunantunich’s transformation from an autonomous polity to a province directly ruled by the larger kingdom of Naranjo. A new palace was built to house the truncated ruling court entailed by that new political arrangement. In the mid-8th century, however, the palace was sacked and ritually terminated. This event was followed by a return to political autonomy by the turn of the 9th century. This paper details the archaeological evidence supporting this political history.

Yaeger, Jason [56] see Freiwald, Carolyn R.

Yang, Alice [178] see Stevenson, Alexander E.

Yao, Alice (University of Toronto) [23] *Shellmounds of the Heartland of the Dian polity* Investigations on the Bronze Age civilizations of Yunnan, China have until recently focused on the excavation of large cemetery sites. The locations of the settlements associated with these complex political entities have largely eluded archaeologists. This paper presents preliminary results identifying the Bronze Age settlement pattern from the Lake Dian basin, which features intensive occupation of lowland floodplains and swamps in a highly unique ecosystem.

Yellen, John (National Science Foundation) [144] *Archaeological Information System Standard Design Concepts* Archaeologists are collecting vast amounts of digital data that would be unbelievable a decade ago. Beyond descriptive artifact databases, archaeologists are managing artifact photos, field photos, scanned forms and sketch maps, geographic layers, geophysical data, etc. This paper presents a design and implementation strategy that incorporates digital objects and archaeological data into a distributed Information System (IS). This is a flexible paradigmatic platform that allows autonomous data management, but also provides a technology-independent system that facilitates the sharing and publishing of archaeological information. The system design is demonstrated through the application on several archaeological projects.

Yeske, Kate (Colorado State University, CEMML) and Edmund Gaines (Colorado State University, CEMML) [181] *Prehistoric Land Use of a Vegetated Dune Field, Tanana Flats, Interior Alaska* The northern portion of the Tanana Flats, Interior Alaska, contains a ~19,000 acre vegetated dune field. Archaeological surveys conducted by Colorado State University, CEMML, during the 2009 and 2010 field seasons identified 40 prehistoric sites in this setting. This group represents one of the densest clusters of prehistoric sites known in subarctic Alaska. Recovered assemblages consist of stone tools and debitage reflective of short-term, seasonal hunter-gatherer campsites and activity areas. Radiocarbon dating and stratigraphic position indicate nomadic use of the area beginning in the early Holocene and continuing through the proto-historic period.

Yeske, Kate [181] see Gaines, Edmund P.

Yesner, David (University of Alaska Anchorage) and Norman Easton (Yukon College) [124] *Archaeology and Paleoeconomy of Eastern Beringia, 1980-2010* Twenty years of research in interior Alaska and ten in the Alaska/Yukon borderlands have now produced a clearer idea of spatial and temporal variations in human-environmental relations among the first colonizers of the North American landscape. It is now clear that late-glacial environmental changes, on the one hand, and hypsithermal changes on the other, produced more profound effects than the Younger Dryas period. Fine-grained stratigraphic analyses of faunal remains from key sites with organic preservation reveal regional and temporal differences in climatic conditions, available taxa, settlement patterns, and links with artifact assemblages, with implications for peopling of the Americas.

[124] First Chair

Yoder, David (William Self Associates) [203] *Invisible Culture: The Use of Soft X-Ray Radiography in Perishable Artifacts* The research potential of some artifacts has been hampered by our inability to observe hidden features. This problem can be solved in part by the use of soft X-ray radiography, an archaeometric method that enables the viewing of internal elements that are sometimes unavailable through physical inspection alone. Multiple case studies of perishable specimens from throughout the Great Basin and Southwest are presented to demonstrate the utility of this technique. Results show that while not suited for every situation, soft X-ray radiography can be a powerful, non-destructive, and inexpensive tool in the analysis and interpretation of many types of perishables.

[203] First Chair

Yoder, David [179] see Gabler, Brandon M.

York, Andrew (AECOM) [50] *The Royal Road: Evolution of El Camino Real on Marine Corps Base Camp Pendleton, California* Originally conceived as the trail connecting the missions and other Spanish facilities in Alta California, the route of El Camino Real has undergone an evolution in succeeding centuries that culminates in modern Interstate 5. Several manifestations of this route that are still preserved on Marine Corps Base Camp Pendleton are discussed, as well as their relationship to historic events in this region.

Young, Craig [262] see Duke, Daron

Young, D Craig (Far Western Anthropological Research Group, Inc.)
From Warner Valley to Honey Lake: Middle Archaic Logistical Mobility in the Western Great Basin

Targeted provisioning within a pattern of logistical mobility is a hallmark of the Middle Archaic in the western Great Basin. Discrete components at Honey Lake in northwestern Nevada provide datasets for testing this statement and provide openings for addressing implications of seemingly sub-optimal behavior (e.g., prestige hunting) within a broader socio-economic system. Toolstone collection mirrors other provisioning activities and provides a structure for targeting resources that may not conform to expectations of optimality. These data have forced me outside my intellectual comfort zone, not a difficult push, but one that Don Fowler has consistently challenged and encouraged me to accept.

Young, Erica [80] see Maeyama, Kimberly

Young, Lisa (University of Michigan) and Douglas Gann (Center for Desert Archaeology)

The Pit and the Podcast: Interpretive Collaboration at Homol’ovi

For over 100 years, Homol’ovi has been a place where archaeologists and Hopi people interacted. During this time, this relationship has changed from informant and crew member to collaborative partner. At the Homol’ovi Ruins State Park, recent collaborations have focused on public outreach projects and educational opportunities. This poster examines how archaeologists and Hopi tribal members worked together on two interpretive projects: a podcast audiotour of an ancestral Hopi Village and the construction of a traditional Hopi corn roasting pit. We also discuss the recent changes that have occurred with the closing of the Park.

Young, Lisa [135] see Sampson, Christina Perry

Young, Tatiana (PhD Candidate, Temple University)

Occupation and Abandonment of sites in the Cochuah Region, Quintana Roo, Mexico

Occupation and Abandonment of sites in the Cochuah Region, Quintana Roo, Mexico. The majority of sites in the Cochuah Region, Quintana Roo demonstrate a similar pattern of occupation and abandonment. The sites in the region were occupied during the Middle and Late Formative Periods, with considerable population increase throughout the Formative Period. Most sites in the vicinity experienced population decline and abandonment during the Early and Late Classic Periods, only to witness a peak of occupation during the Terminal Classic Period. What was the determining factor(s) of resettlement in the studied area: geological and ecological settings, environmental conditions or political and religious structures?

Younger, John (University of Kansas)

Minoan-Mycenaean Sealstones: Understanding Chronology and Function

Facilitated by the volumes of the Corpus der minoischen und mykenischen Siegel (Berlin 1960–2009), scholars studying Minoan and Mycenaean sealstones and sealings of the Aegean Bronze Age (ca. 2300–1300 BCE) have worked in two major areas: chronology and function. Chronology is now well understood through a process of creating a stylistic typology for seals that can be fixed in time through seals from stratigraphic excavations. Understanding the function of seals relies on a detailed typology of sealings and their role in administration as witnessed by documents written in the three major Aegean scripts, Cretan Pictographic and Linear A and B.

Younie, Angela (Texas A & M University), Heather Smith (Texas A & M University), Ted Goebel (Texas A & M University), Michael Waters (Texas A & M University) and Kelly Graf (Texas A & M University)

Reconsidering Maritime Trade in the Iron Age Gulf

Enduring models of the ancient maritime economy of the Gulf rely upon a putative Mesopotamian impetus, and the reemergence of trade in the early first millennium BC is no exception. However, new evidence from this period problematizes such notions and calls for further consideration of systems involved. Compelling new geochemical data demonstrate a resumption of maritime trade between 900 and 600 BC, linking southeastern Arabia to Bahrain and Mesopotamia once again. This paper will detail the current corpus of evidence, as well as its implications for economic mechanism and motivation in the Iron Age in southeastern Arabia and
greater Gulf.

Zamora, Fabian
[41] Intercambio Ritual Y Poder En Significación: Miradas Desde El Proceso Productivo De La Pirita.
Se propone a partir del caso de Aguateca una centralización observada en el manejo de la materia prima de la pirita, su transformación y uso ritual. Su distribución restringida a contextos administrativos y residenciales le relaciona con un símbolo clave en la conformación del habitus gobernante, dificilmente intercambiable por otro tipo de objetos. Una comparación con el intercambio ritual de brazaletes en el Kula, y con el consumo ritual de sal entre los Baruya, nos provee de una idea general sobre los posibles significados sociales de la pirita dentro de las élites políticas mayas durante el clásico tardío.

Zaragoza, Diana (INAH)
[21] Los otomíes en la huasteca
La Huasteca es sin duda uno de los sectores que conformaron Mesoamérica en época tardía. Su posición en la llamada “frontera norte” le confiere cualidades excepcionales; probando además, su prolongada secuencia cronológica y muchas de sus manifestaciones culturales indígenas han trascendido hasta nuestro tiempo. Aquí confluyeron muchas etnias las cuales, en el contexto arqueológico, son muy difíciles de determinar; sin embargo, existen ciertos indicadores que pueden relacionarlas. En esta presentación me dedicaré más al aspecto religioso de la región y el impacto que tuvieron los otomíes en ella.

[21] First Chair

Zaro, Gregory (University of Maine)
[223] Agro-ecological management of intervalley landscapes on Peru’s arid south coast
Recent archaeological and geological research on Peru’s arid south coast has highlighted the intensity of human occupation and land use beyond primary river drainages during the late Intermediate Period (A.D. 1200-1400). While human settlement was suitably positioned to take advantage of the rich maritime base, farming remained integral to the local subsistence economy within intervalley settings. This paper specifically addresses Chiribaya agro-ecological management of dispersed intervalley field systems, including terracing, irrigation, and soil properties. When treated in the context of global change, the study of ancient fields holds significant implications for sustainability, resilience, and coupled Earth-human systems.

Zawadzka, Dagmara (Université du Québec à Montréal (UQAM))
[60] Woodland critters great and small in Canadian Shield rock art
Animals figure prominently in the spiritual beliefs of Algonquian-speaking peoples. Oral traditions abound with accounts of animal – human relations and animals are often invoked in ritual practices. Animals are considered other-than-human persons and various rituals accompany the hunting of certain animals such as bears. Though animals are such important elements in Algonquian peoples’ beliefs, they do not figure prominently in their rock art. This paper will examine which animals are depicted in Canadian Shield rock art and the reasons for their inclusion.

Zborover, Danny (University of Calgary)
[200] Archaeology, Ethnohistory, and Ethnology-Interpretive Interfaces in the Chontalpa Historical Archaeology Project, Oaxaca
The systematic integration of archaeological, documental, and ethnographic data sets was a hallmark of Thomas Charlton’s scholarship throughout the decades, while the interpretive interfaces outlined in his 1981 seminal article are still highly relevant to contemporary integrative research. Through a document-oriented archaeology combined with ethnographic data, the Chontalpa Historical Archaeology is examining the Chontal ‘territorial narratives’ in corroborative, complementary, and contrastive frameworks. By critically evaluating both indigenous and European perspectives, historical archaeology is further able to transform the image of the Chontalpa from a passive periphery into a dynamic player in the Mesoamerican arena, before and after the Spanish conquest.

Zeeanah, David (California State University, Sacramento), Douglas Bird (Stanford University), Rebecca Bliege Bird (Stanford University) and Brian Codding (Stanford University)
[74] Anthropogenic Burning, Intensive Seed Exploitation and the Organization of Ground Stone Technology in Western Australia
We propose that the late Holocene proliferation of ground stone tools through the Australian arid zone marked the onset of anthropogenic fire regimes. The effect of controlled burning was to disperse seed patches to catch unpredictable rainfall. Consequent transport costs made investments in ground stone technology worthwhile leading to curated, portable, specialized and cached milling equipment. Ground stone assemblages from Western Australia were analyzed to assess how well variability supports a link between intensive seed use and anthropogenic burning. Results of the study have implications for longstanding issues of seed intensification in both North America and Australia.

Zedeño, María (University of Arizona)
[18] Archaeology, Legitimacy, and the Contemporary Indian Nation
Understanding the relationship between past peoples and present power is one of Don Fowler’s enduring legacies. Particularly compelling is his view of archaeology as a symbolic resource used to co-opt political power and to disenfranchise descendant populations. In three case studies from western North America I illustrate the evolution of sociopolitical ties between tribes and archaeological landscapes and objects since the establishment of reservations, and how these ties contribute to the consolidation of identity and power among contemporary native nations. I argue that archaeologists may strengthen native nations’ legitimate rights to the past through the practice of indigenous archaeology.

Zeder, Melinda (Smithsonian Institution)
[17] Poking the GooGoo: The Value of Being a Contrarian Questioning assumptions is not only a hallmark of John Speth’s work, it is a legacy of the University of Michigan graduate program in archaeology. Innate skepticism of
the status quo coupled with the anal-retentive pursuit of its empirical underpinnings are traits shared by many UofM alum. While this contrarian approach may not always be comfortable, it can result in paradigmatic shifts in archaeological theory and practice. Here I give a few examples from my own work where this ingrained Michiganian characteristic has contributed to changes in the ways we both trace and explain archaeological origins in the Near East.

Zegarra, Fredy Zegarra [269] see Rodriguez, David M.

Zeitlin, Judith (University of Massachusetts Boston) [200] Authority and Representation in the Mesoamerican Past: Relating the Textual and Archaeological Records from Formative to Postconquest Times

North American historical archaeologists focus on the post-1492 globalized world, but it is a temporal perspective not shared across the Atlantic, where researchers may extend their reach back to the Roman imperial expansion. For Mesoamericanists, working in a region where Precolumbian societies produced their own graphic writing systems, bridging the dividing line formed by the Spanish Conquest enables an examination of changing relationships between the written word and the communities it addressed across multiple time periods. A sampling of these developments highlights the materiality of the text and its often ephemeral power over imperial subjects.

Zelazo, Emilie (CSU Sacramento) [256] Resource Intensification in Central California: Evidence from the Sacramento River and Consumnes River Drainage

Recent models of resource intensification in California argue for a decrease in foraging efficiency over the late Holocene for Northern and Central California. Causes of this decrease are understood to be the results of harvest pressure resulting from rising human populations and/or a decline in the absolute number of large mammals available due to environmental change. Faunal assemblages from Middle Period (2800 B.P. to 1200 B.P.) and Late Period (1200 B.P. to 100 B.P.) sites located in the lower Consumnes River drainage and the Sacramento River will be used as case examples.

Zhang, Herong [23] see Li, Fei

Zhang, Xiaoling [22] see Shen, Chen [218] see Gao, Xing

Zheng, Tongxiu [3] see Li, Min

Zhou, Cathy (RFK Science Research Institute), Bonnie Blackwell (Williams College), A.R. Skinner (Williams College), H.L. Dibble (University of Pennsylvania) and S.P. McPherron (Max Planck Institute) [2] ESR Dating at Grotte de Contrebandiers, Témara, Morocco: Developing a New Calculation for Volumetric Doses

Grotte de Contrebandiers (aka Smugglers’ Cave) has yielded anatomically modern hominid remains, associated with large ungulates, as well as Iberomaurusian, Aterian, and North African Mousterian deposits in a stratified context within sandy and silty matrix-supported conglomerates. Determining the external dose rate for mammalian teeth recovered from typical cave sediment always requires that some volumetric dosimetry be used to average out the effects of sediment inhomogeneity (“lumpiness”) and the thin layers typically found in archaeological contexts. At Smugglers’, two methods to calculate the volumetric dose contribution from éboulis and other “lumps”, and its effects on the calculated ages are reported here.

Zhu, Tiequan (Sun Yat-sen University) [142] The Scientific Study on the Exported Porcelains from Xicun Kiln in Guangzhou

Xicun kiln, located in Guangzhou, China, is a typical kiln that produces the exported porcelains during Song Dynasty (907-960AD). Using a series of experimental methods, including Energy Dispersive X-ray Fluorescence Spectroscopy (EDXRF), Laser ablation Inductively Coupled Plasma Mass Spectrometer (La-ICP-MS), X-ray Diffraction (XRD), Raman Spectroscopy (RS), samples were analyzed systemically. Based on the analysis, the technological and provenance characteristics of different types of porcelains (Celadon with the incised and carving flowers, Qingbai wares, Black porcelains, Colored porcelains) were discussed, including material exploitation, glazing, firing temperature, etc. This research has potential for revealing ancient ceramic trade across East and Southeast Asia.

Zihman, Adrienne (University of California, Santa Cruz) [16] Sex differences and gender roles: persisting issues in human evolution

Reconstructions of early hominid social life prior to the 1970s portrayed males as the key to becoming human, through hunting and sharing meat; females, bonded to males, were dependent, inactive, and invisible. Women’s visibility in the evolutionary picture has been shorted lived, with Science articles (1981, 2009) giving prominence to males initially as provisioners of lettuce rather than meat, and now as care-takers. I review the history, question the fossil evidence, and draw on examples from recent textbooks. The profession has not progressed in its portrayal of women in evolution and may have even lost ground in the last decades.

Zimansky, Paul (Stony Brook University) [258] Cultural Assimilation and Imperial Control in an Urartian City

From c. 800 650 BC the Urartian empire constructed settlements in eastern Anatolia and populated them with captives taken in military campaigns. Excavations in the outer town at the center of Ayanis, Turkey, demonstrate that the level of imperial planning was uneven in the settlement area and while all of the inhabitants used artifacts associated with the imperial assemblage, there also many idiosyncrasies in individual households. The patterns will be compared with models of imperial-local interaction in the New World.

Zimmerman, Larry (IUPUI/Eiteljorg Museum) [78] Discussant

Zimmerman, Larry [197] see Singleton, Courtney E.
The remains of 19th century farmsteads are a common feature of the American landscape. Their archaeological excavation and analysis provides a useful supplement to the historical documentary record. The Campus Road Site in Clinton, NY is one such site. A previous study of nails from the site determined that the farmhouse was likely built in the 1870s and burned down in the early 20th century. This study presents the results of further excavations and analysis at the site. It seeks to further refine the site’s chronology and to illuminate aspects of social and economic life at the Campus Road Site.

Zori, Colleen (University of California, Los Angeles) and Erika Brant (University of Virginia)

[228] Community Formation in Post-Collapse Context: Results from a Ceramic Analysis at Pukara de Khonkho, Bolivia

This paper utilizes an archaeology of communities approach to address post-collapse periods, using as an example information that was recently collected through an intensive ceramic analysis of material from Pukara de Khonkho and neighboring sites in Bolivia’s southern Titicaca Basin. The ceramic data suggests important differences between the occupations of Pukara de Khonkho and neighboring coeval settlements, which may help to create a better understanding of issues of community identity formation, craft production, population movement, and intercommunity interaction in Late Intermediate Period Bolivia.

Zralka, Jaroslaw (Institute of Archaeology, Jagiellonian University), Bernard Hermes (The Nakum Archaeological Project) and Wieslaw Koszukul (Institute of Archaeology, Jagiellonian University)

[14] New data on the Preclassic development of Nakum and Yaxha, Peten, Guatemala

Nakum and Yaxha are two important Maya sites located in the area of the so-called Triangulo Park in northeastern Guatemala. Both cities have recently become the focus of intense investigations, yielding significant data on their vibrant development during the Preclassic period. These data are the subject of the present paper and highlight the importance of both Nakum and Yaxha during this period, not only in their immediate vicinity, but in the Maya area as a whole.

Zuckerman, Molly (SC Institute of Archaeology & Anthropology)


This study examines trace element concentrations in skeletons (N=30) with acquired syphilis from 17th to 19th century London for evidence of differential treatment with mercury. Controversial historical evidence suggests that access to mercury, the dominant contemporary treatment for syphilis, varied dependent on sufferer’s gender and socioeconomic status, but actual practice is indecipherable in documentary evidence. Hg concentrations were assessed via X-RF in the above, a non-pathological control sample (N=70), and soil samples (N=15). Skeletal evidence and historical context was employed to estimate gender (i.e., embodied schemas), following the assumption that gendered ideologies and economic realities produced systematic effects on access.

Zufah, Charles (CSU Long Beach)

[163] LiDAR Survey of Soconusco, Chiapas

This poster will be presenting the result of an airborne LiDAR survey of the eastern Soconusco region of Chiapas, Mexico. LiDAR, or Light Detection and Ranging, is a remote sensing technique that, utilizing very rapid laser pulse which record both the xy coordinates as well as the elevation of the point they hit, is able to provide high resolution images of terrain and elevation. Using the data received from this survey, I will identify and map the prehistoric man-made earthworks found in the region to provide a basis for future pedestrian survey.

Zutter, Cynthia (MacEwan University)

[25] Tea, Medicines and Spruce...the role of Wood and Woody plants in Labrador Inuit Economies

The role of wood in Labrador Inuit architecture has provided a multitude of results, including climate reconstructions and site occupation time lines (D’Arrigo, R., B. Buckley, S. Kaplan and J. Woollett 2003) Although this is important, the use of woody plants in Inuit life ways is much more rich and diverse. The following paper will present results from 17th C. Inuit sites along the Northern coast of Labrador that exemplify the variety of uses and ubiquity of wood and woody plants by these Arctic peoples.