

Dysart, John [284] see Lobiondo, Matthew

Dyson, Alexis [120] see Chenvert, ErinMarie

Dziechciarz, Pawel (University of Warsaw) and Dylan Kelly (University of New Hampshire)

[149] *Geophysical Investigations at the Bronze Age Site of Békés 103 in Eastern Hungary*

In archaeological research, both non-invasive and weakly invasive methods are often employed without, or prior to, excavation. Surface collection, geophysical survey, and shovel testing are the methods that have been employed at the site of Békés 103. Despite the difficulty imposed by the soil conditions and the nature of the targets themselves (cremation graves), geophysical measurements employing a variety of techniques (gradiometry, soil resistivity, and electromagnetics) were applied in tandem with surface collection methods to detect potential targets for guiding subsequent excavations. This report merges geophysical data collected in 2015 with the data from the 2011 and 2013 field seasons, comparing the geophysical survey anomalies with the corresponding excavation data. We build a signature archive for cemetery features based on these methods, and through correspondences we isolate potential targets for future excavation. Finally, we tentatively conclude which geophysical prospection methods are optimum for the detection of human burials in this region.

Dziedzic, Erica [71] see Daggett, Adrienne

Eager, Heidi [223] see Prendergast, Mary

Earley, Frank Lee [123] see Huffman, Thomas

Earley-Spadoni, Tiffany (The Johns Hopkins University)

[174] *Light the Beacons! GIS Analysis of Fortress Inter-Visibility in Iron Age Armenia*

GIS analysis can helpfully intervene in highly-theorized debates about archaeological landscapes by allowing archaeologists to empirically evaluate assertions about (inter)visibility. In recent decades, visibility studies have clarified the sociocultural significance of structures such as tombs, settlements, signalling installations, and other landscape markers. However, it is often difficult to evaluate inter-visibility and challenging to distinguish intentionally-constructed inter-visibility from spurious patterns that are the result of chance. This paper evaluates the regional distribution of Early Iron and Urartian fortresses in the environs of Lake Sevan, Armenia, utilizing survey data collected by an Italian-Armenian expedition. The investigation employs Social Network Analysis (SNA) metrics and random simulation to test scenarios regarding chance-versus-intentional placement, concluding that the placement of fortresses was the result of careful planning that ensured inter-visibility. This approach situates GIS analysis within a theory framework that includes landscape archaeology and highlights the potential of geospatial techniques to illuminate human agency in the past.

Earnshaw, Jacob

[148] *Cultural Forests of the southern Nuw-chah-nulth: Indigenous Bark Tending on Vancouver Island*

Culturally Modified Trees are British Columbia, Canada's most common archaeological site type. Data related to these indigenous forest management sites have been collected for a few decades now through CRM work in the area, though little research has incorporated this archive. My M.A. thesis focuses on creating regional chronologies of bark stripping and logging dates for the southwest coast of Vancouver Island, to better understand forest usage and population dynamics around the contact period. In addition to data collected from consultant reports, many dates have been collected from recent old growth clear cuts in the field. This work has shown that roughly half of all dates collected from field contexts can be found within ancient cedar trees that have healed over and hidden their cultural scars, effectively making the oldest age class of CMT's invisible to archaeological consultants and thus unrecorded/protected prior to industrial logging. The dates collected in field contexts are found to be more representative of the full range of cultural modifications on cedars over the tree's full lifetime. The oldest recorded living CMT has also been found on this project, dating to 1,108 years.

Ebert, Claire [237] see Fox, Steve

Ebert, Claire (Pennsylvania State University), Nancy Peniche May (University of California-San Diego), Jaime Awe (Northern Arizona University), Brendan Culleton (The Pennsylvania State University) and Douglas Kennett (The Pennsylvania State University)

[288] *Timing the Development of Household Complexity at Cahal Pech, Belize*

Understanding the settlement and growth of ancient communities into spatially, demographically, and socio-politically complex polities is one of several critical research issues in Maya archaeology. The major polity of Cahal Pech, located in the Belize River Valley, provides a unique case study for understanding the development of complexity because of its long occupational history, from the Early Preclassic (~1200–1000 cal B.C.) until the Terminal Classic Period Maya "collapse" (~cal A.D. 800–900). In this paper, we present the results of high-resolution AMS 14C dating of organic and human remains from several hinterland residential groups associated with the Cahal Pech polity. Our chronology provides a framework for measuring differences in architecture and artifacts between domestic contexts over time, allowing us to identify trends related to changing social status and wealth. We compare our results to similar social and political developments taking place within the Cahal Pech elite monumental core, and at polities elsewhere in the Belize Valley.

Echenique, Ester and Florencia Avila (Instituto Nacional de Antropología y Pensamiento L)

[255] *From Ethnography to Archaeometry: Ceramic Production and Styles in the Río Grande de San Juan Basin, Bolivia*

The Yavi-Chicha phenomenon in the circumpuneño Andes has been extensively discussed; however, little systematic research has focused on systems of ceramic production. Consequently, multiple questions remain unanswered regarding the organizational systems of Chicha communities during the Late Intermediate Period (ca. A.D. 1000–1450). Today, the core region of the Chichas is an exceptional area of ceramic production. Nearly 70 percent of the inhabitants of the town of Chipihuayco are actively producing pottery during the dry season. An ethnographic perspective coupled with archaeometric

analyses of the operational chain of ceramic production of three women potters provide a unique entry point to explore how production practices are intertwined with technological styles at the household level. This work explores the ethnographic record of the entire operational chain of ceramic production, combined with a detailed characterization of raw materials, in order to determine paste recipes and manufacturing processes. The results will provide new insights into the organization of ceramic production, especially regarding how technological choices and styles are dependent on multiple factors. Additionally, a better understanding of the operational chain of contemporary potters will provide the fundamental basis to develop research questions and hypotheses about past production processes.

Echeñique, Ester [57] see Vidal Montero, Estefania

Eckersley, Jaclyn [39] see Lambert, Stephanie

Edgar, Heather (Maxwell Museum of Anthropology) and Christopher Toya (Pueblo of Jemez)

[266] *Context and Collaboration: The Maxwell's Repatriation to Jemez Pueblo*

The Pueblo of Jemez and the Maxwell Museum of Anthropology have been working together since 2007 to document human skeletal remains in preparation for repatriation. Challenges presented in preparing for repatriation included a paucity of field notes and other records, as much of the material came to the Museum from 1930s field schools, and a loss of information about which burial objects were originally with which burials. Despite these challenges, over 700 individual skeletons have been repatriated over the past five years. Coupled with a grant from National NAGPRA, the collaborative relationship developed over this period has allowed for an accurate estimate of the minimum number of individuals represented and a deeper understanding of the demography and health of Jemez' ancestors. Despite reburial, the potential for future learning continues as the Museum curates samples for potential ancient DNA studies. These samples are curated at the Pueblo's request and are owned by Jemez.

This poster will describe the working relationship between the two institutions, present a timeline of the repatriation process, and detail the information provided by the documentation of the human skeletal remains.

Edinburgh, Kevan [132] see Martindale, Andrew

Edinburgh, Kevan [218] see Griffiths, Seren

Edwards, Wendy [6] see Austin, Robert

Edwards, Briece (Confederated Tribes of Grand Ronde)

[29] *New Directions of THPOs: The Perspective from One Tribe*

Tribe's perspective and understanding of practice, place, and context is as unique and diverse as Tribes themselves. The roles of Tribal Historic Preservation Offices (THPOs) are equally diverse between Tribes but all have one consistent thread—they, like states, are charged with the identification, recordation, and protection of cultural resources. Tribes are integral to the 'Section 106' process and are often required to reacquaint individuals with the state and federal laws and procedures that govern the protection of these limited resources. Beyond these legally defined roles, THPOs are actively engaged with other cultural heritage concerns such as research design, management practices, and policy development. Since cultural resources often include materials, actions, and places associated with ongoing and active practices, it is important to develop tools and mechanisms to insure their continued use. This may mean finding ways to maintain place anonymity, or evaluate potential impacts resulting from climatic change and shifting weather patterns. It also involves providing understanding and Tribal perspectives to future generations of professionals.

[203] *Discussant*

Edwards, Erin and Anastasia Poulos

[153] *Dental Health of the Delmarva Adena-Hopewell Native American of Pig Point Site in Lothian, MD*

I examined the dental health of Delmarva Adena-Hopewell Native Americans from a mortuary ossuary pit at the Pig Point Site in Lothian, Maryland, dating to the Middle Woodland Period (300 B.C.–A.D. 900). The Pig Point Site is a site of impressive ritual mortuary features, five distinct secondary burial ossuary pits, indicating that this was an area of significance to local prehistoric populations. Douglas Owsley carefully examined the dental remains of the first burial ossuary pit and I compared Owsley's analyses of the Pit One dental remains with the dental remains of the fourth burial pit. I established the minimum number of individuals (MNI) represented in Pit Four and assessed the dental health of the population through the occurrence of dental diseases, such as dental caries and enamel defect hypoplasia. In most prehistoric forager societies, the frequency of dental caries is low, while the frequency of linear enamel hypoplasia is high. My results concluded that the populations buried at Pig Point Site were in overall good health, with slight variation between Pit One and Pit Four. I hope my research will contribute to an understanding of the subsistence practices and daily life of local Delmarva peoples.

Edwards, Luke [94] see Hitchcock, Robert

Eerkens, Jelmer [13] see Van Gijsegem, Hendrik

Egan, Rachel (University of Colorado at Boulder)

[32] *The Volcano That Went Boom: Payson Sheets' Contributions to Understanding the Tierra Joven Blanca Eruption of the Ilopango Caldera, El Salvador*

Payson Sheets' seminal work on the Tierra Joven Blanca (TBJ) eruption of the Ilopango Caldera, El Salvador, was one of the first projects to address the impact of large-scale disasters in Mesoamerica. The on-going research on this eruption has been important for understanding the event as well as developing method and theory for reconstructing the cultural impact(s) of sudden massive stresses. While originally dated to A.D. 290±110, the TBJ

eruption has been re-dated to the mid fifth–sixth century and its scale increased to a VEI 6+. As a result, Sheets and colleagues propose that the eruption was not simply a local phenomenon but may be casually linked to the world-wide A.D. 536 climatological event. This paper explores the role Dr. Sheets has played in understanding the differential development of resilience and vulnerability both within and between societies specifically related to the TBJ eruption of the Ilopango Caldera.

Egerton, Victoria [183] see Harvey, Virginia

Eichner, Katrina (UC Berkeley)

[251] *Memories of Women's Work: Investigating the 19th Century U.S. Army Laundresses' Quarters at Fort Davis, Texas*

The nineteenth century U.S. army encampment at Fort Davis is commonly remembered for its association with the enlisted men and officers who served the U.S. government. However, the fort also employed and rationed a group of hispanic and black female laundresses, who too often are made invisible in modern interpretations of the site. Using an assemblage of domestic materials collected during the summers of 2013 and 2015, this paper aims to highlight the work—including physical labor, cultural brokering, and domestic family maintenance—that these women contributed to the fort community. Moreover, by focusing on how these women have (not) been represented in the archival and historic record, this paper will ask how, why, and for whom does archaeological investigation help restore memories of the past.

[251] *Chair*

Eigenherr, Gustav (Documento Group) and Lais Müller (Documento Group)

[255] *Cultural Inclusion and the Use of Technology*

The presentation intends to show the work and results achieved with local communities from Brazil. Those communities are culturally related to archaeological work near inhabited areas or in indigenous lands. The presentation intends to show how those communities are included in the archaeological project and what tools are used in order to reach positive outcomes. This paper highlights the technological tools used in order to be more efficient in teaching the communities and making the archaeological research more engaging and tangible to the public audience. Such tools being responsive software, games, virtual and augmented reality, and laser scans. This presentation also wants to show that the success of the archaeological research can be positively affected by the community participation.

Eiselt, B. Sunday [13] see Darling, J Andrew

Eiselt, B. Sunday (Southern Methodist University) and Patrick Livingood (University of Oklahoma)

[69] *Gear Selectivity and Mass Harvested Minnows: Evidence from the Northern Great Basin*

Madsen and Schmitt's seminal 1998 article challenged the assumption that small animals and fish in archaeological assemblages of the Great Basin provides evidence for diminished foraging efficiency. Energetic return rates for density dependent species instead may be a function of harvesting technique. The Northern Paiute of the Great Basin exploited seasonally aggregated tui chub minnows (*Gila bicolor*) using gill nets, seines, and scoops. This study presents a simulated mass harvesting experiment and gear selectivity curves for comparison to prehistoric archaeological fish assemblages. Technological choices are relevant to foraging returns and can be reconstructed to provide insights on the energetics of past fishing and the ritual dimensions of equipment.

Ek, Jerald (Western Washington University)

[256] *Archaeological and Epigraphic Indices of the Political Domination: A View from the Northwestern Periphery of the Kaanu'l Hegemonic State*

The past decade has witnessed a revolution in our understanding of Classic Maya geopolitics, particularly in reconstructing asymmetrical interpolity relationships dominated by expansionist states. Employing variable political strategies, including both direct and indirect rulership, the Kaanu'l Dynasty dominated a large network of kingdoms across the Maya Lowlands. This paper examines the impacts of the expansion and dissolution of the Kaanu'l state in western Campeche, within the northwestern frontier of its vast political network. Implementing a strategy of indirect political control, the powerful Kaanu'l rulers of Calakmul incorporated this region through patronage of the large capital of Edzná as a proxy, facilitating control over the strategic route to the northwest via the Edzná canal system and the Río Champotón waterway. The decline of Calakmul as a major geopolitical power in the mid-eighth century A.D. in turn ushered in a period of political chaos, with emergent groups with strong links to the western Gulf Coast rising to prominence within the ensuing power vacuum. Drawing on both archaeological and epigraphic data, this paper examines the impacts of incorporation into the Kaanu'l state, as well as the major changes that took place within the region following the decline of the Snake Dynasty.

[109] *Discussant*

Eklund, Elizabeth (University of Arizona - School of Anthropology) and Lisa Palacios (University of Arizona - School of Anthropology)

[226] *"Collaborative" Archaeology: A Proposed Rubric-Based Assessment of Archaeological Projects with American Indian Communities*

In *Transforming Archaeology*, Atalay et al. (2013) have identified benefits of collaborative projects for both the discipline and participating communities. A well-designed collaborative project has the potential to both foster the application of standard archaeological research methods to questions of interest to various tribes and apply Indigenous research methods to standard archaeology inquiries. We propose a standardized evaluation scorecard (rubric), to examine outcomes to American Indian communities participating in archaeological projects. Developing a rubric to assess archaeological projects reveals some benefits to American Indian communities participating in archaeological projects, including control of data, how information is understood or interpreted, and building of community capacity to engage in archaeology in the future. Revealing these benefits will demonstrate if the project contributes to strengthening tribal sovereignty and allows members a wider opportunity to engage in archaeology. This project studies collaborative methodologies assessing if the promised outcomes are fulfilled. We apply the rubric we developed to the University of Arizona's Bureau of Applied Research in Anthropology (BARA) research with Blackfeet archaeology, and the School of Anthropology and Arizona State Museum's archaeological project at Mission Guevavi. Our rubric allows us to visualize benefits and identify issues that have yet to be addressed.

[226] *Chair*

el-Behaedi, Raghda [277] see Reber, Eleanora

Elera, Carlos [207] see Hurtubise, Jenna

El-Hajraoui, Mohamed [177] see Steele, Teresa

Ellenberger, Katharine (Binghamton University)

[71] *Satisfying and Reflecting on the Urge to Evaluate in Public Archaeology*

The only way to know if archaeological outreach and community engagement is working is to ask. We need to ask the right questions, to the right people, and incorporate that feedback into our work. Yet evaluation is a fraught pursuit. When directing our projects directly at, and working with, the public, our projects are ever more embedded in the politics of cultural heritage and reverberate throughout the communities where we work. Archaeologists and heritage workers have been struggling with this balance for the past several decades; this session is aimed at bringing a diverse group of these professionals together to discuss what is and should be done. In this paper, I will present concepts of ethically engaged evaluation from archaeological, heritage, museum, and science communication literature. The objective of this paper is to contextualize the topic of the session within the ethics and theory of archaeology broadly, setting the tone for the case studies and methodological suggestions of the rest of the authors.

[71] *Chair*

Elliott, Gail [25] see Halcrow, Sian

Elliott, Daniel

[213] *Get the Lead Out: Towards Identifying Lead on Eighteenth- and Early Nineteenth Century Battlefields and Settlements*

Small arms ammunition in America, throughout the eighteenth and early nineteenth centuries, consisted of round soft-metal balls. These were mostly lead, although archaeologists have documented other metals such as pewter and silver as additives. Available small arms and related ammunition varied by military unit, and included pistols, rifles, trade guns, carbines, fowlers, and large caliber wall guns, as well as American, French, and English muskets. Macroscopic identification of associated bullets alone limits battlefield interpretations. I suggest a formalized regimen of lead ball analyses that combines elemental characterization (portable X-Ray Fluorescence, or pXRF) along with traditional descriptions and quantitative measurements. Traditional analysis documents diameter, weight, firing condition (impact evidence, rifling, worming, ramrod impact, casting evidence), alterations (chewing, cutting, carving), other post-depositional damage (rodent gnawing), and archaeological context. The pXRF information shows promise in identifying ore sources, contaminants introduced, firing condition, age, and military association. If combined with pXRF data from lead ore sources, baseline information can be developed for comparison among battlefields and incorporated into a global dataset with the purpose of better understanding the geographic distribution of military supplies and military strategy at macro global and regional levels, as well as at micro battlefield levels. Get your lead out!

Ellis, Chelsea

[123] *Subadult Mortality at McLemore: An Unexpected Culprit*

This study focuses on the subadult skeletal remains excavated in 1960 from the Late Prehistoric-age McLemore site (34WA5) in southwest Oklahoma. Past analyses of this skeletal collection primarily focused on the adults, and what they could contribute to the overall understanding of the health and lifestyle of the individuals who inhabited McLemore. The goal of this study was to reexamine the skeletal collection in light of new methodologies in diagnosing pathology, focusing on the subadult remains, as little to no information was obtained regarding this age class in past analyses, aside from basic demography. The application of regression equations to determine the developmental age of newborns identified near-term, term, and infant age classes, indicating a varied group of subadults present in the cemetery. The results of this project provide a better understanding of the McLemore site, as well as new information concerning the presence of scurvy and its possible affect on infant mortality on the southern Plains. In addition, this project clearly exposes the necessity of studying every age class of an archaeological population with diligence, as the subadult population truly contributed a wealth of knowledge to the overall understanding of the health and lifestyle of this population.

Ellison, Leigh Anne [9] see Brin, Adam

Ellison, Leigh Anne (The Center for Digital Antiquity) and Adam Brin (The Center for Digital Antiquity)

[261] *tDAR (the Digital Archaeological Record): A Domain Repository for Archaeology*

The Digital Archaeological Record (tDAR) is a domain repository for archaeological information maintained by The Center for Digital Antiquity (DA) at Arizona State University. Our mission is the long-term preservation of documents, data sets, images, geospatial information, 3D scans, and other digital files, to provide access for current and future uses. tDAR provides a secure location for sharing information on the web, enabling the user to protect site location and other sensitive information. tDAR adds value to resources in the repository because the information is more discoverable and accessible in an internet searchable digital format. Robust metadata associated with each piece of digital information in tDAR ensure that files can be effectively managed and easily discovered. In addition, digital files in tDAR are preserved in original formats, and will be forward migrated to new industry standards as they develop so that information remains accessible for future users. As digital tools used to collect and analyze information change quickly, it is critical that tools like tDAR are integrated into archaeological workflows so that archaeological information is available and accessible for widespread current and long-term uses.

Ellyson, Laura (Washington State University), Timothy Kohler (Washington State University) and R. Kyle Bocinsky (Washington State University)

[65] *Evaluation of the Village Ecodynamics Hunting and Domestication Models*

The Village Ecodynamics Project simulation ("Village") incorporates paleoenvironmental and archaeological data to understand the human and

environmental interactions that occurred during the Ancestral Pueblo occupation of portions of the Colorado Plateau of the U.S. southwest. Village predicts the available populations of deer, jackrabbits, and cottontails across the simulated landscape—as well as the sample of those fauna hunted by households—and how these vary with such parameters as household protein requirements and hunting radius. When turkey domestication is implemented, Village predicts protein yield from maize-fed turkey. Previous evaluations of these hunting and domestication models have explored system-level patterns of population density and settlement in the archaeological record. In this study, we evaluate the goodness-of-fit between animal-use predictions from the simulation and zooarchaeological data from sites located on the simulated landscape.

Elquist, Ora (Public Archaeology Laboratory, Inc.)

[42] *Susquetonscut Brook 5 Site: Residential Base Camp in an Upland Interior Setting?*

The Susquetonscut Brook 5 Site located in Lebanon, Connecticut, consists of Archaic to Woodland Period deposits within an upland interior setting. Such upland interior sites are typically associated with small campsites of a temporary nature. Data recovery excavations at the site in 2015 revealed numerous, large, and complex features, such as storage pits, postmolds, and roasting pits, that are more typically associated with larger, more residential campsites located within lower-lying floodplain or coastal settings. The data from the site potentially transforms what is currently known about settlement in upland settings in Connecticut.

Elston, Robert [94] see Gil, Adolfo

Emery, Kitty [134] see Thornton, Erin

Eng, Charlotte [121] see ONeil, Megan

Engelbrecht, William (Buffalo State College) and Bruce Jamieson (McGill University)

[144] *Bone versus Stone Arrows and the Movement of the St. Lawrence Iroquoians*

In the fifteenth and early sixteenth centuries, St. Lawrence Iroquoian populations gradually decline and disappear from their homeland at the same period that the Wendat and Iroquois Confederacies are evolving. One of the most striking differences between St. Lawrence Iroquoian assemblages and those of surrounding groups is the general absence of stone arrow points on the former. This paper considers the advantages and disadvantages of bone or antler versus stone tipped arrows. We argue that long, thin stone Madison points were more effective in warfare than the bone and antler arrows of the St. Lawrence Iroquoians. However, the ultimate cause for the movement of the St. Lawrence Iroquoians was likely their failure to develop a confederacy.

Englehardt, Joshua (El Colegio de Michoacan)

[264] *New Perspectives on Gulf Coast Olmec Iconography and Scripts via the Mesoamerican Corpus of Formative Period Art and Writing*

The rich visual culture of the Formative Period Gulf Coast Olmec has long been recognized as playing a foundational role in the origins and development of subsequent Mesoamerican writing systems and artistic traditions. Nonetheless, Formative Period visual cultures remain relatively understudied, as does their role in and impact on the emergence of regional script systems, the developmental dynamics of which continue to elude adequate explanation. To advance the field's understanding of script development, since 2010, the authors have been constructing a comprehensive database of Middle Formative iconography and scripts. This database builds on the work of colleagues to expand—and expand access to—the known corpus of Formative Period art and writing. Further, the Corpus project is developing a mobile device application and website for visualizing complex relationships among datasets, including multimedia, spatial, and temporal information. Finally, the project has employed new imaging and digitalization techniques on archaeological objects, which has, in some cases, revealed previously undetected iconographic details on monuments such as La Venta's iconic Altar Four. This paper presents examples of ongoing work, project outcomes, and insights gleaned from efforts to date.

[101] *Chair*

Englehardt, Joshua [101] see Sumano, Kimberly

Enk, Jacob (MYcroarray)

[121] *Target Capture for Ancient DNA: Temperature, Time, and Tiling Density*

Bait-target hybridization (a.k.a., "target capture") is rapidly replacing PCR as the enrichment method of choice for ancient DNA sequencing projects. Though very successful in recent years, ancient DNA target capture outcomes vary substantially and could be better understood. Here, we performed a series of experiments to measure how three commonly-varied parameters—temperature, time, and bait tiling density—impact enrichment of short, rare targets embedded in complex DNA backgrounds. We found that specificity (percent on-target) and sensitivity (unique target reads recovered) varied with these parameters, sometimes in unexpected ways. Temperature was particularly impactful across the range typically employed in ancient DNA research (~45-65°C), and should be carefully considered when designing or optimizing an ancient DNA enrichment project.

Enloe, James [94] see Marks, Theodore

Enloe, James (University of Iowa) and James McGrath (University of Iowa)

[121] *A GIS Approach to Stratigraphy in Visually Homogeneous Rockshelter Deposits: Results from Woodpecker Cave*

The sediment stack at Woodpecker Cave (13JH202) does not possess an easily discernable stratigraphic sequence. Woodpecker Cave's deposits are a combination of visually homogeneous colluvium derived from glacial loess mobilized from above the rockshelter and variably-sized tabular roof fall blocks. The lack of visible stratigraphy has necessitated the creation of a digital model from which to analyze the spatial provenience of a variety of mapped objects in order to differentiate between sections of the sediment stack that may have originated from different anthropogenic and geogenic inputs. Of principal interest to this study are the spatial positions, orientations, and densities of plotted finds, two-shot plotted finds, and mapped roof fall. This study suggests that while the matrix composition remains the same throughout the sequence at Woodpecker Cave, patterns of intrusive geogenic and

anthropogenic materials change through time and space and are detectable in GIS.

[121] *Chair*

Enote, Jim [30] see Watson, Adam

Enverova, Deniz [199] see Kaya, Deniz

Epitropou, Anastasia [166] see Giblin, Julia

Eppich, Keith (Collin College)

[26] *Commerce, Autarky, Barter, and Redistribution; The Multi-Tiered Urban Economy of El Perú-Waka', Guatemala*

The ceramic database from El Perú-Waka' contains the record of the production, distribution, consumption, and disposal of some 50,000 sherds and 200 whole vessels. Patterns and fine details of the Classic Maya economy emerge from this expansive dataset. These include, but are not limited to, the marketing distribution of monochrome ceramics and the redistributive gifting of high-quality polychrome vessels. Unexpected patterns appeared as well, such as the apparent autarky of monochrome blacks in the late eighth century and the smattering of irregularly scattered thin-slipped ceramics of the Terminal Classic. In short, the ceramic database of El Perú-Waka' revealed a diverse set of economic relations. These patterns encompass commerce, autarky, barter, and redistribution. All of this hints at a Classic Maya economy of surprising complexity. This paper explores these complexities, especially noting how such patterns change through time as the Maya economy moved from its Late Classic heights to its Terminal Classic demise.

Epstein, Emily (University of Wisconsin -Milwaukee)

[244] *Household Climate: Great Basin Response to Climate Change Reflected by Intrasite Zooarchaeology*

Intrasite spatial analysis reveals zooarchaeological remains indicative of Great Basin hunter-gatherer household behaviors. Results indicate the presence and spatial distribution of activity types. Analytical techniques facilitated evaluation of ethnographic models to find the best match to the zooarchaeological situation. Households associated with disparate climatic regimes, while contextually equivalent, exhibit variable zooarchaeological signatures for subsistence, social, and spiritual life.

Erb-Satullo, Nathaniel (Harvard University)

[87] *Metal Production on Late Bronze-Early Iron Age Fortified Hilltops in the South Caucasus, c. 1500-600 B.C.*

One of the challenges facing the study of technological change and craft production during the Late Bronze and Early Iron Age in the Near East is a lack of information about the spatial and social contexts in which metal production occurred. A new program of survey and excavation aims to explore these issues in an ore-rich transitional zone between lowland and highland areas of the South Caucasus.

Fortified hilltop settlements dot lowland valleys as they narrow and rise towards the highlands. Surface survey identified traces of metal production at several of these hilltop sites. In 2015, excavations began at Mtsvane Gora, where surface survey in 2014 revealed metallurgical slag and Late Bronze–Early Iron ceramics in close proximity to a large wall encircling the site. Test excavations confirmed the associations apparent in surface collections, uncovering metal working implements and debris inside the walled area. These discoveries reveal the site's potential for assessing the relationship between craft production and other segments of society. In addition, the location of Mtsvane Gora on a major interregional route offers the possibility to examine links between technological change and the movement of people and materials through regular patterns of transhumance.

Erdman, Katherine (University of Minnesota - Twin Cities)

[11] *Continuing Heritage Education: Reaching Adult and Senior Learners*

Continuing education and adult enrichment courses offer readily accessible opportunities for archaeologists to engage a non-traditional learning group who are often already curious about archaeology and are relatively informed. Adult and senior students in these settings prefer discussions and debates to strictly information transmission; such an environment is conducive for presenting issues of cultural heritage and preservation. In 2015, these topics were introduced to two such audiences through different courses in the Twin Cities metro. This paper will examine qualitative and quantitative data gathered by the instructor through brief questionnaires given to participants before and after each course. The results will demonstrate what informed adult learners already know about heritage stewardship and what they take away from such courses, what they see are critical issues for preserving the past, and their suggestions for raising awareness of cultural stewardship more broadly. Such information will offer professionals insights for improving stewardship education and creating advocates of the general public.

[11] *Chair*

Erek, Cevdet Merih [184] see Basiran, Alper

Erlandson, Jon [55] see Braje, Todd

Ernenwein, Eileen G. [137] see Shreve, Nathan

Ernenwein, Eileen (East Tennessee State University), Jeremy Menzer (University of Arkansas) and Frederic Surmely (Université Blaise Pascal)

[145] *Ground-penetrating Radar and Photogrammetry in Medieval France: Results from the Auvergne*

The Medieval Period in Europe is well known from archaeological sites and historical records, including England's Domesday Book. The Auvergne of southern France, however, is a poorly studied upland region. This rugged environment of volcanic peaks contains a rich, yet mostly unknown medieval history. A research program is underway that includes archaeological survey, excavation, and geophysical survey at sites across the region. GPR survey in

June 2015 focused on unexcavated portions of Les Yvérats, the only medieval (eleventh–twelfth centuries) hamlet ever studied in the region. Additional test surveys were conducted at a nearby “comb” site, one of many 3-4 room pastoral structures visible in aerial imagery but poorly understood, and the medieval hillfort at Brión. GPR data were topographically corrected using photogrammetrically derived terrain models. Finally, GPR was used to explore a medieval tunnel site approximately 100 km to the south, where tunnel entrances are known but passageways are obstructed by sediment. Medieval tunnels were used as hiding places during times of war and to store cereals. Two previously unknown tunnel passageways were discovered, which will guide preservation efforts and help target excavations to better understand the site. GPR results will be presented in this poster.

Ertsen, Maurits (Water Resources / Delft University of Technology)

[138] *The Good, the Bad, and the Ugly in Ancient Water Systems. Comparative Remarks along the Axes of Small-Large and Dry-Wet*

In Scarborough’s comparative work, when explaining the differences between Old and New World water systems, the differences between small-scale, local and imperial, large systems are important focus points for defining these differences. Furthermore, much of Scarborough’s work suggests that the wetness and dryness of these worlds matter as well. Building on these key notions of the importance of environmental conditions in building understanding of water systems, this paper discusses the growing body of evidence that small, large, wet, and dry, are complex and cannot be easily associated with each other. It includes a critical discussion of the early over-arching models from “archaeology of power,” more specifically Wittfogel’s model of hydraulic civilizations. True, several later ancient states encouraged the spread of irrigation systems by exerting power over vast areas, but new evidence on early water systems in the ancient Near East suggests the importance of smaller-scale community-based systems. A re-appraisal of the Hohokam irrigation sites along the Gila and Salt rivers in the same bi-axial comparison will provide additional material to discuss a fruitful comparative approach to ancient water systems.

Ervin, Kelly (Washington University St Louis) and Cameron Wesson (Lehigh University)

[4] *Spatial Literacy and Geostatistics in Archaeology*

Spatial frameworks of cultural activity can be quantified using a number of geostatistic computations available in Geographic Information Systems (GIS). These, too commonly “deterministic” models identify and display trends within a dataset. Although these results can be compelling, they also pose problems for archaeological interpretation by not including room for the ambiguity and unpredictability of human decisions and actions. Human behavior can be understood by the choices people make, but can human agency be revealed by numerically structured geospatial analyses? Bridging the gap between current GIS methodology and archaeological social theory, this paper discusses geostatistics as a mathematical method for giving meaning to the past, assumptions of the algorithms, and the importance of culture history in such archaeological studies.

Esdale, Julie [217] see Odess, Daniel

Espinosa, Alicia (Université Paris 1 - Panthéon Sorbonne), Nicolas Goepfert (CNRS-Paris1, UMR 8096 Archéologie des Amériques) and Vincent Chamussy (UMR 8096 Archéologie des Amériques)

[45] *Territoriality and Ceramic Distribution of the Virú-Gallinazo Populations on the Northern Coast of Peru: New Insights Using Spatial Analysis*

Since the Virú Project, the use of Castillo Decorated as the principal chrono-cultural element to characterize the Virú-Gallinazo presence laid to a “Gallinazo illusion.” Unfortunately, it appears that our knowledge about the Virú-Gallinazo populations is still limited, and most of the time we define them through the prism of the Mochicas. In order to understand who these groups were, we analyzed the spatial distribution of the following ceramics styles through the northern coast using GIS: Negative (Gallinazo and Carmelo Negative), Castillo Decorated, and Gallinazo White-Red-Orange. These styles compose the Virú-Gallinazo complex as it was defined by Bennett, Ford, and all the member of the Virú project. We registered 476 sites between the Piura and Huarmey valleys. These data allow us to present in this paper the principal results of an intra-site, regional, and macro-regional analyses. With this research, we identified three patterns of site distributions at the regional scale, and specific associations between the ceramic styles and their relation with mochica’s artefacts.

Espinosa-Pesqueira, Manuel E. [179] see Medina-González, Isabel

Esplin, Nathan [207] see Toyne, Jennifer Marla

Estabrook, Virginia Hutton [39] see Sobel, Elizabeth

Estrada-Belli, Francisco (Tulane University) and Alexandre Tokovinine (Peabody Museum, Harvard University)

[256] *Nested Hegemonies in the Holmul Region*

The recent finds at Holmul has opened a narrow window on the hitherto largely unknown dynastic history of this medium-sized kingdom in eastern Peten and on the complexities of Late Classic lowland Maya hegemonic relations. We now have a royal tomb, a palace, and a funerary temple with dedicatory texts that can all be attributed with a certain degree of confidence to a single Late Classic ruler with ties to Naranjo and Kaanul (Snake Kingdom). This set of contextual information allows us to reconstruct in some detail the political situation of this kingdom in the decades before and after the all-important capitulation of Tikal at the hand of the Snake Kingdom in the sixth century. The texts also inform us about how familial ties between rulers were integral to the strategies of assimilation, cajoling and/or conquest favored by the Snake kings. The emerging new pattern of regional ties suggests that nested hegemonies may have been a more common phenomenon in Late Classic political organization than previously thought.

Etnier, Michael [296] see Fitzhugh, Ben

Eubanks, Paul (The University of Alabama)

[98] *Caddo Salt Production in Northwestern Louisiana*

During the late seventeenth and early eighteenth centuries, northwestern Louisiana was known as a major hub of the salt trade. However, recent excavations at the Drake’s Salt Works Site Complex suggest that this reputation may have been earned relatively late. These excavations have also raised

the possibility that many of the salt producers at this saline were non-locals who visited northwestern Louisiana primarily for its salt resources. While the salt makers at Drake's Salt Works would have been able to exploit the European demand for salt and salt-treated commodities, there is little evidence that making salt was more than a seasonal or short-term activity. Thus, it would appear that these salt producers were able to meet and profit from the local demand for salt without the need for full-time economic specialization.

Eusebio, Michelle (University of Florida), Philip Piper (The Australian National University), Fredeliza Campos (The Australian National University), Andrew Zimmerman (University of Florida) and John Krigbaum (University of Florida)

[134] *Using Organic Compound-Specific Stable Isotope Ratios to Identify Animals in Prehistoric Foodways of Southeast Asia*

Recent advances in isotopic analysis have enabled archaeologists to move beyond subsistence and diet toward the full chaîne opératoire of foodways that includes inference of past culinary practices. Together with faunal identification, isotopic analysis of organic residues derived from ancient pottery helps to create linkages between material culture (i.e., pottery) and how animals were prepared and consumed, which, in turn, may be used to infer aspects of identity. Isotopic databases of modern animal fats have been established to differentiate organic residues by faunal category. However, these databases may be area-specific. For example, variations in carbon isotope ratios may result from myriad extrinsic factors. Southeast Asia has modern databases for assessing bulk carbon and nitrogen stable isotope ratios from charred surface residues on pottery, but none for the carbon specific organic molecules from both surface and absorbed residues. Thus, this paper presents compound specific isotopic analysis of palmitic (C16) and stearic (C18) acids of extracted lipid residues from modern pots with known cooking histories and modern faunas from southeast Asia. This database will be compared with others, and its ability to assist in interpreting southeast Asian prehistoric foodways in the region will be discussed.

Eva, Lemonnier [96] see Cyril, Castanet

Evans, Victoria [65] see Lail, Warren

Evans, Adrian (University of Bradford)

[269] *Crowd Sourcing Archaeological and Palaeontological Survey*

Fossilfinder.org is a citizen science project that enables the public to engage directly with palaeo/archaeological research. Data, in the form of images, was collected from research areas to the east of Lake Turkana. The regions studied are those well known as fossil bearing regions dating to periods of interest in human evolution studies (up to 4 million years old in parts). In the first two seasons of research, 1 million images of the ground surface were captured at a resolution of 30 pixels per cm (on the ground). Images were collected using two methods, 1) rectangular areas in predefined locations, and 2) transects cutting across varying geological exposures. This resolution was selected to correspond with normal visual acuity for standing or partially crouched position. The images were presented through an interactive website and users were encouraged to answer a series of questions about each image. These questions were aimed to produce data pertinent to the localised geological variation and specific locations where fossils were eroding. This paper presents the first five months of data collected through this citizen science project and discusses how those findings have influenced our data collection methods and how they can assist with palaeo/archaeological research.

[214] *Discussant*

[214] *Chair*

Evans, Amanda (Tesla Offshore)

[249] *Discussant*

Everhart, Jennifer (Stony Brook University)

[184] *Cracking Concretions: Methods for Removing Carbonate Encrustations from Faunal Remains*

Calcium carbonate encrustations of faunal materials are a problem that limits analysis of faunal materials from a wide variety of regions and time periods. In many locations they are associated with climates with persistent or increased precipitation. This precipitation percolates through the sediments of the stratigraphic column, mixing with calcium carbonate. This mixture is then gradually deposited throughout the stratigraphic column, encasing archaeological materials in hardened carbonate concretions. These accumulations, which may surpass one centimeter in thickness and completely surround remains, often make identification as well as studying surface features such as cut marks virtually impossible. Using a large Terminal Pleistocene faunal assemblage from the Levantine Epipaleolithic Period, this poster reports the results of multiple experiments using a variety of chemical and mechanical techniques to efficiently remove carbonate deposits while avoiding significant osteological degradation.

Evin, Allowen [176] see Linderholm, Anna

Fagan, John L. [155] see Hulse, Eva

Fairley, Helen (US Geological Survey), Joel Sankey (US Geological Survey) and Joshua Caster (US Geological Survey)

[254] *Sustaining Sites in a Sediment-Deprived System: Designing a Monitoring Program to Assess Glen Canyon Dam Effects on Downstream Archaeological Sites in Grand Canyon*

In 1963, construction of Glen Canyon Dam on the Colorado River was completed, profoundly altering the downstream riverine ecosystem in Grand Canyon National Park. One consequence of the dam and its subsequent operations has been an 85 percent reduction in the amount of sediment flowing into the Grand Canyon. The paucity of sediment to re-supply sand bars and replenish sand dunes along the river shoreline has not only altered the bio-physical dynamics of the riverine ecosystem but has also affected the physical settings and geomorphologic stability of numerous archaeological sites. For the past decade, U.S. Geological Survey scientists have been exploring various tools and methods to accurately capture the effects of ongoing dam operations on downstream archaeological resources. We are now in the process of developing a comprehensive monitoring plan based on an ecosystem framework and incorporating diverse measurements and classification procedures to objectively assess how current dam operations impact the physical integrity of archaeological sites. Our approach incorporates measurements of topographic change, sediment flux, vegetation growth, local meteorological conditions, and other parameters to help land managers understand how dam operations have affected the eco-geomorphological resilience of sites and to devise

appropriate methods to mitigate effects from future dam operations.

Fajardo Bernal, Sebastian (Sebastian Fajardo Bernal)

[97] *Prehispanic Settlement Patterns of the Sogamoso Valley*

The results from a settlement pattern study covering 123 square kilometers in the Sogamoso Valley in the northern part of the Muisca area are presented. The survey revealed that sedentary occupation there began during the Herrera Period (400 B.C.–800 A.D.) and consisted only of a few small hamlets and some scattered farmsteads. After 800 A.D., population increased dramatically, reaching a few thousand inhabitants organized in several local communities within the survey area. The largest of these local communities was centered on the settlement at Sogamoso where the major Temple of the Sun described in sixteenth century documents was located, although the total population of this community numbered less than 1,000. After 1200 A.D., regional population diminished. The inhabitants of the valley avoided locations prone to flooding, but there is no indication of major construction efforts to increase production and no sign that chiefs gained wealth through agricultural or other economic activities.

Falabella, Fernanda (Departamento de Antropología, Universidad de Chile), Silvia Alfaro (FONDECYT Proyecto N° 1121097, Santiago, Chile), María Teresa Planella (Sociedad Chilena de Arqueología, FONDECYT Proyecto), Matthew T. Boulanger (University of Missouri Research Reactor Center, Co) and Michael D. Glascock (University of Missouri Research Reactor Center, Co)

[57] *Testing the Social Aggregation Hypothesis for Llolleo Communities in Central Chile with NAA of Ceramic Smoking Pipes and Drinking Jars*

La Granja site in central Chile has been considered a social aggregation site for Llolleo communities based on an unusually large smoking pipe assemblage, ritual features, and an abundance of drinking jars. The hypothesis states that people from a wide region gathered here for group cohesion purposes mediated by rituals involving the smoking of psychoactive substances and drinking of fermented beverages. Based on the potential of NAA to fingerprint ceramic artifacts' raw material sources, we tested if ceramic smoking pipes and pottery found in La Granja showed chemical groupings that support the idea that people traveled from several communities with their utensils to this site. Our results show that smoking pipes and their associated pottery have similar mineralogical characteristics and that the whole sample is organized in only two chemical groups that likely represent the clay production sources for these artifacts. Our conclusion is that, if pipes and pottery are used as a proxy for the circulation of people, social networks might have been more restricted in the Llolleo social system than previously thought. Apparently La Granja, though a primary center for group activities, might not be functioning on a regional and supra-regional basis.

Falk, Emily [90] see Napoleon, Taylor

Fallu, Daniel (Boston University) and Justin Holcomb (Boston University)

[184] *The Role of Bronze Age People in the Post-Bronze Age Landscape: An Integrated Geoarchaeological Approach to Site Formation at Mycenae, Greece*

While human-landscape interaction has been a key question in the archaeology of early complex societies, little research has focused on the effect of occupation on the landscape post-abandonment. At Mycenae, a Late Bronze Age citadel in southern Greece, two distinct deposits, one anthropogenic and one natural, were identified as covering archaeological remains dating to the twelfth century, B.C. Here, we present an integrated method combining micromorphology, Fourier Transform Infrared (FTIR), and X-Ray Fluorescence (XRF) analyses intended to target local environmental change during a period of abandonment associated with the Early Iron Age. Bulk samples and thin sections from 1.3 m of these two deposits were taken at 5 cm intervals and analyzed in order to record changes in microstructure, mineralogy, and elemental proportions resultant from changing environmental conditions and soil formation. Through this approach, we hope to answer two key questions: How did the intensive occupation of Mycenae during the Bronze Age predetermine the eventual site formation during the Early Iron Age, and to what extent did the natural environment dictate change? By investigating multi-scale processes of post-abandonment site formation, we hope to shed light on the long-term impact of human-landscape interaction during a key transition in Greece.

Fankhauser, Amber [245] see Burnett, Katherine

Fargher, Lane F. [27] see Antorcha Pedemonte, Ricardo

Fargher, Lane (CINVESTAV del IPN)

[178] *Power in Middle Range Societies: A Cross-Cultural Perspective*

For most of the second half of the twentieth century, Neoevolutionary theory dominated explanations for the rise of social complexity and inequality. However, beginning about two decades ago, scholars began to problematize this framework. The resulting body of theory, referred to as "alternative pathways to complexity," introduced concepts of structure and agency and moved away from functionalism and systems theory. Despite these improvements in our theoretical toolkit, much scholarship continues to focus only on the agency of the "elite" and ignores the strategic behavior of the subaltern. In this paper, we seek to expand "alternative pathways" by applying collective action theory to the rise of middle-range societies. In the following discussion, we apply collective action theory to a broad cross-cultural sample of middle-range societies drawn from Polynesia, Melanesia, southeast Asia, Africa, south Asia, North America, and South America. The results of our statistical analysis reveal that emergent elites (aggrandizers) were only able to manipulate certain revenue sources when they sought to monopolize power. Apparently, the strategic behavior of the subaltern is a key factor in the emergence of inequality and complexity. Our results indicate that collective action theory provides insights into the development of social complexity.

Faria, Eliane (Eliane Faria)

[263] *Amazonian Landscapes: The Characteristics of Anthropogenic Landscapes in the Middle Xingu River (Pará, Brazil) from Pre-Colonial to Contemporary Times*

Based on a historical ecology approach, this work aims to investigate interactions between indigenous societies and the natural environment expressed in landscape changes through the analyses of their long term occupation of the Middle Xingu River. My goal is to show the specificities of the indigenous settlements in the region considering the multiple aspects of this process in the human settlement of Amazonia. Although not producing great changes in the landscape, small groups of horticulturalists that settled in the Xingu region left their contribution in cultural and historical terms. Those are expressed, for instance, in the management of plants and forest products in anthropogenic dark earth sites. In a long term perspective, I intend to show the alterations in the landscape that result from: (1) the pre-colonial land management; (2) the colonization of the Xingu region by the Portuguese since the seventeenth

century, and (3) the impact of Belo Monte hydroelectric plant over both the indigenous culture and the archaeological heritage.

Farley, William (University of Connecticut)

[61] *A Preliminary Analysis of Calluna Hill (CT 59-73), an Early 17th-Century Pequot Village*

This paper describes the results of four seasons of field research and laboratory analyses at Calluna Hill (CT 59-73), a small Pequot village burned during the English retreat from the battle at Mystic Fort, part of the 1630s Pequot War. The project uses environmental, spatial, and artifactual data from the site to undertake a study of culture change in southern New England's contact period in order to better understand the role of intercultural exchange in colonial settings at the domestic scale. By combining survey, excavation, and laboratory analysis, this research will offer insights into Native American lifeways during the 1630s, a key but understudied period owing to a lack of identified sites. Preliminary results, research questions, and interpretations will be presented as a part of a broader comparative study of native and Euro-American lifeways in the seventeenth century.

[61] *Chair*

Farrell, Mary [8] see Bates, Brian

Farris, Glenn (Farris & Schulz)

[82] *Indian Family Housing at Mission San Juan Bautista: Archaeology and Ethnohistory*

Although the Indian converts resident at Mission San Juan Bautista numbered as high as 1,248 (in 1823), the available adobe housing for families could only accommodate perhaps a fifth of this number. Archaeological testing on the Indian family housing site for this mission was combined with Spanish sacramental records, annual reports, and other documents to suggest individuals and their families most likely have been allotted this scarce housing. The aim of this study is to attempt to bring the Indian presence at the mission to life and thus rectify the unfortunate pattern of seeing missions simply in terms of the priests and soldiers and a few other "gente de razon." In many cases we can follow individual converts from their original native villages and the personal name they had right on through their lives at the mission, including occupations and relations thanks to a valuable online database held at the Huntington Library.

Farstad, Kendra [27] see Russell, Bradley

Fash, William L. [129] see Sugiyama, Nawa

Fash, Barbara (Harvard University), Jorge Ramos (Instituto Hondureño de Antropología e Historia), Marc Wolff and William Fash (Harvard University)

[162] *Sacred Water Mountains of the Copan Valley: A View from Rastrojon*

The temples and stone monuments of Copan are replete with symbols of water and sustenance, both driving forces in the development of complex society throughout the Maya region and greater Mesoamerica. Like other urban environments, Copan harnessed the power and religious nature of water, mountains, maize, ancestors, and the divine ruler, juxtaposed to their dualistic counterparts of fire and drought, to construct their urban landscape, cosmovision, and social structures. Research on ancient water management facilities, settlement patterns, shrines, and water-related imagery associated with both the built environment and sacred places permits us to assess how people were once integrated around these vital elements of the natural and social worlds. In this paper, we will present new data from investigations at the hillside residential site of Rastrojon that enhances understanding of the sacred water mountain concepts and practices we interpret as being celebrated, managed, and deified on the temples and landscapes of ancient Copan, both at the state (Principal Group) and community (outlying residential groups) levels.

Fash, William (Harvard University) and Barbara Fash (Peabody Museum, Harvard University)

[212] *Mythological Markers, Shifting Boundaries and Exchange in the Late Classic Copan Kingdom*

Delimiting the "core" area of the Late Classic Copan kingdom may be enhanced through analysis of its shared mythology, associated with the ballgame. Placed at the geographic and social center of the royal compound, the main ballcourt of Copan established a narrative of mythological macaws, and a Macaw Mountain, that spanned the entire dynasty from the fifth–ninth century C.E. The geographic distribution of archaeological sites with stone macaw head ballcourt markers, all of which had Copador pottery in association, allows us to refine the consensus model of Copan's Late Classic domain. The very large initial territory at the onset of the kingdom's history included Quiriguá and other areas north and west of Copan, much reduced by the late eighth century as various former vassal communities declared their independence in public inscriptions. A southerly distribution of the other sites with macaw head bench markers supports ceramic evidence adduced by ceramicists that the Copan Dynasty favored trading partners (and allies) to the south and east at the end of the Late Classic Period. What became the final 'core' area may have been involved in procuring and trading macaw feathers, ideologically centered on a mythological—or actual—Macaw Mountain in this region.

Faugere, Brigitte (University Paris 1)

[175] *The Scales of the Landscape in Tarascan Rock Art of the Postclassic Period (A.D. 1200–1520): The Petroglyphs of El Paraiso, Zacapu, Michoacan (Mexico)*

As in other regions of the world, the rock art of northern Michoacan (Mexico) has to be seen within a given landscape. But the study of the El Paraiso petroglyphs (Zacapu) shows that there is in reality a complex set of intricate scales of landscapes: since a macro scale that involves the whole surrounding environment to a micro scale where the engraved blocks themselves form a sacred geography. The 3D survey realized recently highlights the subtle dialogue between the location of the blocks, the orientation of the decorated panels, and the iconography. A part of the myths of Tarascan people of the Postclassic Period seems to become accessible.

Faught, Michael (SEARCH, Inc)

[21] *Beringia is Not the Sole Source of People in the New World*

I challenge the belief of biological and archaeological anthropologists that Beringia is the only place people have come into the Americas, even if along the coast. I show how researchers affirm their consequent, don't show direct historical continuity in areas where gene samples are modern, can't find any other than Dyuktai/Denali/Dene cultures archaeologically, nor have evidence of north to south, or west to east propagation after intrusion. In its place, I propose South America as the locus of the genomic stillstand, and that it could result from people displaced by sea level rise from the Sunda Shelf, or other S.E. Asian location, Monte Verde and Paisley Caves are near contemporaneous potential examples of propagation from a more central node, recent and robust genomic studies can be argued as consistent phylogenetically, and plant and animal domestication, settlement, and complex societies have earliest examples in South America. Speculative arguments will be made for an initial equatorial landing point from a full Pacific Ocean crossing. I propose that S.E. Asia is the homeland of the stillstand Amerindians, and they met up with Beringian Amerindians at the end of the last Ice Age, but other Holocene migratory histories are indicated, as well.

[249] Moderator

Faight, Michael [290] see Arbuthnot, Michael

Faulkner, Ivy (University of Minnesota)**[70]** *Why Classics Needs Anthropology*

While it is true that theoretical advancements are slow to cross disciplinary boundaries, when disciplines by necessity overlap, it seems almost willful ignorance that perpetuates old frameworks. For example, it has been over 30 years now that anthropology and colonial studies have come to terms with the complexities of identity in colonial contexts and yet scholars in related disciplines, such as Classics, still argue over which label imposed by colonizers should be used for which indigenous group in particular areas. What is the utility of these types of discussions? Rather, it is essential that more scholars look towards interdisciplinary methods in order to advance our overall understanding of colonial encounters in the past. Therefore, this paper looks to address specifically how anthropological theories on colonialism can and should be applied to the study of culture contact and colonization in the Classical world.

Faulseit, Ronald (The Field Museum), Gary Feinman (The Field Museum) and Linda Nicholas (The Field Museum)**[171]** *Wealth Inequality in the Late Classic Valley of Oaxaca: A Domestic Perspective*

The Late Classic Period in the Valley of Oaxaca is marked by shared practices in residential organization, design, the layout of houses, and domestic artifact assemblages both within and between sites throughout the region. This degree of homogeneity allows for cross-site comparison of excavated residences to examine household wealth inequality on a systemic and regional scale. In this paper, we employ different indices to explore multiple lines of evidence (e.g., patio size and other architectural measures as well as access to portable goods) to quantitatively measure wealth disparity among 15 Late Classic residences spanning five sites in the Valley of Oaxaca. Individual axes of inequality are not entirely consistent, thereby illustrating that wealth may be constituted differently in distinct contexts. Despite challenges of sampling, the overall pattern reveals that the extent of wealth disparity among households (large and small, elaborate and basic) is less extensive than might be expected for an urban society or is found in other contemporaneous Mesoamerican cases.

Faulseit, Ronald k. [231] see Garcia, Dante

Fauvelle, Mikael (University of California, San Diego)**[20]** *Archaeological Reconnaissance at Fracción Mujular: A Small Site with Big Connections*

Located on the Pacific Coast of Chiapas, the site of Fracción Mujular is best known for three carved stela bearing Teotihuacan associated stylistic elements, first identified by Carlos Navarrete in the 1960s. The relatively modest architecture of the site, combined with evidence for long-distance connections, makes Fracción Mujular an interesting place to investigate the impact that inter-regional political and trade relationships during the Early Classic had on the lives of common people. This paper presents the results of preliminary archaeological surveys conducted at Fracción Mujular during the summer of 2015. This work mapped four occupation groups at the site and conducted systematic surface collections from each area. The results of this research have expanded the occupation of Cerro Bernal into the Terminal Classic, and have solidified evidence for material interactions with Central Mexico. Additionally, topographic and architectural maps of the site have helped clarify the nature of the relationship between Fracción Mujular and the nearby regional center of Los Horcones. I argue that the proliferation of Central Mexican stylistic elements and material artifacts into small sites such as Fracción Mujular indicates that coastal Chiapas was closely connected to Central Mexican political and trade networks during the Early Classic.

Fayek, Mostafa, Brooke Milne (Dept. Anthropology, University of Manitoba, Winnip), Ryan Sharpe (Dept. Geological Sci., University of Manitoba, Win), Rachel ten Bruggencate (Dept. Anthropology, University of Manitoba, Winnip) and Lawrence Anovitz (Chemical Sciences Division, MS 6375, P.O. Box 2008)**[214]** *Obsidian Hydration Dating Using SIMS and the LEXT Laser-Microscope*

Obsidian hydration dating (OHD) is based on the premise that when an obsidian artifact is manufactured, the fresh surface exposed immediately begins to hydrate. A state-of-the-art obsidian hydration dating technique utilizes secondary ion mass spectrometry (SIMS) to measure H diffusion profiles in obsidian artifacts and the depths of the resulting sputter pits by a stylus-type profilometer. The pit depths are matched with the SIMS H diffusion profiles, which are compared to diffusion profiles of time-calibrated obsidian standards with similar chemical compositions to the artifacts. The major source of error with this technique is the precise measurement of pit depths because sputter pits often have rough surfaces and the depth resolution is dictated by the width and sharpness of the stylus. Here, we use a Olympus OLS 4000 LEXT 3D laser measuring microscope to image and measure depths of sputter pits on Pachuca obsidian that was exposed to water vapor at temperatures from 30oC to 75oC and from 600 days to 1,400 days. We compare the depths of the sputter pits obtained by traditional stylus-style profilometry and the LEXT microscope. This new 3D imaging approach promises to produce improved depth resolution and consequently much more precise obsidian hydration ages.

Fazioli, K. Patrick (Mercy College)**[161]** *Trade, Technology, and Identity: Current Approaches to Pottery Studies in Late Antique and Early Medieval Europe*

This paper will survey some of the most interesting and innovative recent contributions of pottery studies to our knowledge of late antique and early

medieval central Europe (circa fifth to tenth centuries C.E.). Since an exhaustive review of the many national traditions across this culturally and linguistically diverse region is beyond the scope of this paper, the focus will remain on three broad areas of inquiry. First, what insights can pottery offer into changing patterns of exchange and networks of trade in the late antique and early medieval world? Second, what can pottery reveal about localized and regional modes of production, especially in terms of manufacturing traditions and technological style? Third, what (if anything) can pottery tell us about the expression of individual and collective identities in the post-Roman era? For each of these three themes, we will review how research agendas have evolved over the past several decades, identify key intellectual debates in the contemporary scholarship, and consider the promises and challenges of future research.

Feathers, Valerie (Louisiana State University)

[238] *Dietary Implications from an Inundated Shell Midden at a Classic Maya Salt Work*

During the 2013 field season, an inundated shell midden was excavated at the underwater ancient Maya salt production site of Eleanor Betty, one of the Paynes Creek Salt Works. Excavations revealed that the midden was located 16-30 cm below the sea-floor and extended both inside and outside of an underwater wooden structure. During the spring of 2015, analyses were performed to identify the shell species, assess the nature of the midden (cultural or natural), and evaluate dietary implications of the shell remains. Approximately 4,733 number of individual specimens (NISP) were recovered, with 3,979 fragments identified as *Crassostrea rhizophora* (red mangrove oysters). A total of 264 minimum number of individuals (MNI) of *C. rhizophora* were present. Several lines of evidence are presented to indicate dietary use of the oyster shells by the salt workers: the shell was mixed with charcoal and briquetage, indicating this was a cultural midden. Butcher marks were found on 37 percent of the shells, with a notch being the most abundant break. A narrow range of shell sizes, as shown by Height-Length Ratio (HLR) measurements, indicate the shell was deposited as a single event.

[238] *Chair*

Feathers, James (University of Washington)

[292] *Luminescence Dating at Alice Boer site, Brazil*

The Alice Boer site, in the Rio Claro region of São Paulo state, Brazil, gained some renown in the 1970s as a possible pre-Clovis site. It was excavated in the 1960s by Maria Beltrão and produced a questionable radiocarbon date of 14.2 ± 1.2 B.P. (uncalibrated) drawn from a very small (for conventional dating) charcoal piece near the bottom of an ant-disturbed cultural layer. A TL date on burned chert of 11 kya was also produced. The presence of artifacts in the lower layers and the integrity of the site have been disputed. The University of São Paulo has recently re-investigated the site, because it may represent an early incursion of a bifacial industry into Brazil. This presentation discusses the results of single-grain OSL dating of seven samples, which range in age from 5 to 30 ka, and the relationship of the ages to cultural material. Additional OSL dates from the Rio Claro drainage are also presented to put the dates in geological context.

[292] *Chair*

Fedyaniak, Kristine [190] see Lints, Andrew

Feeley, Frank (CUNY Graduate Center) and Lilja Pálsdóttir (Fornleifastofnun Íslands)

[210] *Sandbagging the Past: Rescue Excavations at a Medieval Icelandic Fishing Station*

Since its discovery in 2008, archaeologists have been performing rescue excavations at the site of Gufuskálar in Western Iceland. During the Medieval Era, this site was home to one of the largest commercial fishing operations in Iceland at that time. Little is known about these early commercial ventures and most of these early fishing stations have been destroyed by later episodes of town-building. Gufuskálar is one of the best preserved examples of a medieval fishing station but, as with many coastal sites around the world, is currently being destroyed by coastal erosion. Attempts have been made to mitigate the damage in between field seasons, but there has been little success.

Fehrenbach, Shawn

[33] *Discussant*

Fehren-Schmitz, Lars (UCSC Anthropology)

[62] *A Paleogenetic Perspective on the Early Population History of the High Altitude Andes*

The peopling of the high altitude Andes marks an important episode in South American population history, eventually leading to the formation of the most complex societies of the late pre-columbian period, namely Wari, Tiwanaku, and Inca. Little is known about how population dynamic processes and genetic adaptation to physical stressors like hypoxia shaped the genetic diversity of the Andean highland populations over the ~10,000 years of human presence in high altitude leading to the emergence of these empires. Paleogenetic investigations in the highlands have been limited to populations not older than ~1,500 years. The molecular evolutionary processes associated with adaptations to hypoxic stress have only been studied in modern populations. Thus, these studies are prone to potential bias resulting from past demographic events. Here, we report on genome wide data from pre-columbian individuals deriving from high altitude sites dating to ~8500–560 B.P. We gain new insights into the ancestry of early Andean highlanders, population relationships, and admixture events that help us to better understand the interaction of Andean groups with low altitude groups. Furthermore, we identify that selection must be considered as one of the driving factors of the adaptation to hypoxia in the central Andean highlands.

Fehren-Schmitz, Lars [117] see Verdugo, Cristina

Fehren-Schmitz, Lars [276] see Washburn, Eden

Feinman, Gary [171] see Faulseit, Ronald

Feldman, Michal [223] see Krause, Johannes

Femenias, Blenda (Catholic University of America)**[172]** *The Colors of the Coya's Robes*

Of the many surviving precolumbian Inka textiles, especially those made in tapestry and featuring tukapu (rectangular design blocks), only a few full-size garments are associated with females. There are, however, many miniature female garments. Inka textiles also tend to follow a limited number of color combinations, although some textiles show a more diverse, even exuberant mixture. Felipe Guaman Poma de Ayala, in his section on the coyas (queens), attributes a specific set of colors to each coya, naming the main color used in her mantle (lliklla), skirt (aksu), and sash (chumbi). He tells us, for example, that Mama Ocllo had a yellow mantle and a dark blue skirt—colors not visible in his line drawings. In the colonial period the situation changes markedly, as many of the most spectacular surviving garments are women's mantles. While there is some literature on the colors associated with the Inkas (e.g., the red puma), the dyes in the textiles, and the colors that Murúa shows for female dress, overall the correlation of colors with people and garment types has not been explored in depth. This paper considers the question of color as closely correlated with high-status Inka female's garments.

Fenn, Mallory, Gabrielle Vail (New College of Florida), Gail Fish and Vail**[92]** *Beyond the Utilitarian: Spindle Whorls from Burials and Caches in the Maya Area*

Technologies for spinning fibers into thread by hand have changed little in Mesoamerica since they were first introduced. Made primarily of perishable materials, however, the wooden spindle and the fibers themselves are generally no longer present in the archaeological record. What does survive, however, are spindle whorls—spherical artifacts used to weigh down the spindle to keep it anchored during the process of spinning. In the Maya area, these artifacts are rarely found in primary contexts; instead, they are encountered most frequently in caches and burials. They are also seen throughout both the Maya area and central Mexico being worn by female deities with associations of fertility and often with water and rain making. This poster examines what this patterning says about the functions and uses of spindle whorls in both the utilitarian and symbolic spheres during the Late Classic Period (c. 600–900 C.E.) in the Maya Lowlands.

Fenn, Thomas (Yale University), Jeffrey Fleischer (Department of Anthropology, Rice University), Stephanie Wynne-Jones (Department of Archaeology, University of York), Edward Pollard (British Institute in Eastern Africa (BIEA)) and Tom Fitton (Department of Archaeology, University of York)**[269]** *Economic Changes through Time along the Tanzanian Swahili Coast, as Seen through the Examination of Non-Ferrous Metals and Metallurgical Technologies*

Historic Swahili towns along the east African coast played prominent roles in the triangular Indian Ocean maritime trade linking east Africa with India and the Persian Gulf/Red Sea, but their impact and the extent of economic changes through time at these towns are still poorly understood. Examining non-ferrous metals, many of which were imported and reworked locally, can serve as a proxy to understand the impact of Indian Ocean trade on local economies, particularly with regard to the consumption of semi-exotic materials and finished goods. Copper-based metals were relatively commonly imported, but they also were locally worked and some even may have been produced locally or regionally. Therefore, studying these metals and their metallurgy from Swahili sites in Tanzania can provide insights into socio-economic aspects such as organization of production and workshops, consumption patterns as well as networks connecting these sites to the hinterland and the Indian Ocean economic community. To that end, copper-based metals were examined from several Swahili archaeological contexts along the Tanzanian coast dating from the seventh cent. C.E. to sixteenth cent. C.E. Results of chemical and isotopic analyses identified imported metals from multiple locations, while discussion of potential indigenous metal production also is presented.

Fennelly, Katherine (University of Sheffield)**[25]** *Dublin's Bedford Asylum and the Material Legacy of the 'Industrious Child'*

This paper will determine the extent to which the concept of 'the child' and 'childhood' was incorporated into the design of public institutions for the reception of children in the early-nineteenth century. The primary case study of this paper will be the Bedford Asylum for Industrious Children, a purpose built institution constructed adjacent to the North Dublin Union House of Industry in Ireland. Particular attention will be given to the frequent mention of the asylum in the records of the House of Industry during the years of the Napoleonic Wars, when young boys deemed old enough were released into the army for service in the conflict. Towards the end of the wars, this practice was suddenly and conspicuously halted. This paper will examine the Bedford Asylum within its wider institutional context, and compare the built environment of the building for the reception of children with the adjacent workhouse and asylum buildings constructed for adults, to determine what material features can be discerned in the architecture of the Bedford that make it specifically suitable for children.

Fenno, Matthew [29] see Freeman, Jessica

Ferguson, Jeffrey (University of Missouri), Barbara Roth (UNLV) and Katelynn DiBenedetto (UNLV)**[64]** *Obsidian Procurement Strategies at the Harris Site*

The Harris Site is a large pithouse village in the Mimbres Valley of southwestern New Mexico. Many of the twenty structures (recently excavated) are organized into five discrete clusters that have been interpreted as the remains of extended family corporate groups. Some of these groups apparently had more wealth and social power, and these differences may be tied to both land tenure and ritual sponsorship. We use obsidian provenance data to explore differences in obsidian procurement strategies between households at the Harris Site. All obsidian artifacts excavated during the eight field seasons of UNLV-sponsored fieldwork at the site have been subjected to X-ray fluorescence analysis at the MURR Archaeometry Laboratory. This assemblage of nearly 2,500 artifacts represents the largest known study from a single site in the southwest. The assemblage includes primarily obsidian from Mule Creek, but it also most other known sources in New Mexico and eastern Arizona and a still unknown minor source. Many of these artifacts are from dated contexts that allow the examination of patterns of obsidian procurement through time as well as within households and household clusters. These data can further illuminate social relationships and access to obsidian by households at the Harris Site.

Ferguson, Jeffrey [66] see Van Keuren, Scott

Fernandez, Andrew [67] see VanPool, Christine

Fernández, Mercedes Grisel [176] see Scheinsohn, Vivian

Fernández, Pablo Marcelo [176] see Scheinsohn, Vivian

Fernández Eraso, Javier [125] see Alonso Eguíluz, Mónica

Fernandez-Gotz, Manuel (University of Edinburgh)

[60] *Hierarchies and Heterarchies in Iron Age Europe*

Traditionally, Iron Age communities have been depicted as hierarchical, triangular societies, with elites at the top of the social pyramid and a strong warrior tradition. However, archaeological evidence reveals very varied patterns of societies during the First Millennium B.C. in Europe, from those that display marked signs of social hierarchy, to others where social differentiation was much less pronounced. This paper aims to contribute to the task of rethinking Iron Age communities from the perspective of diversity, using the concepts of 'economies of power' and 'heterarchy' as starting points. Broadly speaking, it is possible to make a distinction between mechanisms of 'political economies' that develop inequalities and hierarchies, and others of 'moral economies' that emphasise egalitarian values.

Fernández-León, Elisa (Universidad de Costa Rica) and Geoffrey McCafferty (University of Calgary)

[163] *Change and Continuity in the Greater Nicoya Region of Pacific Central America: A Comparison of Two Bagaces to Sapoa Transitional Areas*

Ethnohistorical sources describe migrations of Mesoamerican peoples into the Greater Nicoya region of Pacific Nicaragua and northwestern Costa Rica during the Classic to Postclassic transition, ca. 800 C.E., a period known regionally as the Bagaces and Sapoa periods. Recent research has targeted this transition in order to better understand the material culture dynamics, as a means to further understand historical linguistic and genetic data. This paper contrasts two case studies: one from the Guanacaste sites of Finca Chiva, Villa Aventura, and Los Platanos; and the Nicaraguan sites of Santa Isabel and El Rayo. Consideration of such attributes as mortuary practices, settlement patterns, and decorated ceramics all contribute to an empirical evaluation of the migration claims. Among the conclusions is a critical reconsideration of the 'Greater Nicoya' concept, as well as evidence with other parts of Central America.

Fernandez-Lopez De Pablo, Javier (Institut Català de Paleoeologia Humana i Evolució Social (IPHES))

[72] *Discussant*

Fernández-López de Pablo, Javier [72] see Lozano, Sergi

Fernandez-Perez, Natasha (University of Puerto Rico - Rio Piedras) and Isabel Rivera-Collazo (University of Puerto Rico - Rio Piedras)

[156] *Plants used in the Indigenous Caribbean: A Database of Plants in Reference to the Archaeological Literature*

Archaeological studies have demonstrated that the dynamics between plants and people in the Neotropics are central for the understanding of both forests and human societies. However, in the archaeological literature of the Caribbean, there is no single analysis listing the range of plants used and for what purposes. Upon this situation, we have undergone the task of reviewing the existing paleobotanical literature from a Pan-Caribbean perspective, and assembling a database. It includes each plant identified with details of remain type, use/interpretation, country or island, archaeological site, attributed culture, reported date, calendar years minimum and maximum, and reference. The database was analyzed statistically (taxa most represented), spatially (localities where specific taxons have been identified), and qualitatively (general perspective of the meaning of these assemblages). As the database included both macro and micro remains, the diversity and richness of taxa responds to the variability of human use of different species, their preservation in the archaeological record, and to the recovery methods for each type of remain. The taxonomic richness evidenced in this database illustrates the wide range of plants used in the past and the importance that the forests had to the societies living in the Lowland Neotropics.

Ferone, Troy (US Forest Service-Eastern Region)

[165] *Paying It Forward: Collaborative Heritage Stewardship in the Forest Service's Eastern Region*

The U.S. Forest Service-Eastern Region includes 16 National Forests and one Tallgrass Prairie in 20 states across the Great Lakes, New England, Mid Atlantic, and Midwest. Over 40 percent of the U.S. population lives within the boundaries of the Region. The proximity of these Forests to urban centers, as well as to rural and tribal communities, provides bountiful opportunities for collaboration, partnerships, and volunteer-based heritage stewardship. This short presentation touches on a variety of partner and volunteer-based initiatives led by the Eastern Region's National Forests. In particular, we highlight the creative and exciting initiatives that connect youth, students, veterans, and tribal members with cultural, traditional, and historic properties on National Forest lands. There is no better way to instill a sustainable preservation ethic than to "Pay it Forward" by training the next generation of preservation advocates and professionals.

Ferreira, Teresa [49] see Umbelino, Cláudia

Ferrier, Asa [295] see Haberle, Simon

Ferring, Reid [87] see Coil, Reed

Ferring, Reid and Teona Shelia (Georgian National Museum)

[87] *Technological Variability and Change in the Lithic Assemblages from M5 at Dmanisi, Republic of Georgia*

Recent excavations in the M5 Sector of Dmanisi recovered a series of stratified lithic assemblages dated to the Upper Olduvai subchron (1.85-1.78 Ma) and early Upper Matuyama Chron (1.78-1.76 Ma). These materials from all of Dmanisi's nine major strata provide the most detailed record of lithic acquisition and use from the site. Highly diverse raw materials were acquired and transported to the site from both bedrock and alluvial sources, in contrast to many contemporaneous sites in east Africa, where a high degree of raw material selectivity is frequently reported. The earlier assemblages from Stratum A are dominated by use of alluvial cobbles of tuff, rhyolite, and basalt, and are characterized by quite intensive core reduction, resulting in numerous small flakes and small, exhausted cores. Assemblages from Stratum B indicate shifts in raw material preference, lower degrees of reduction intensity, and production of higher frequencies of retouched tools. Throughout the sequence there is evidence for importation of larger flakes made of high quality material that were produced elsewhere. Overall, these assemblages from Dmanisi provide evidence of technological variability related to occupational intensity, differential raw material preference, and probable functional variability.

Ferrusquía-Villafranca, Ismael [16] see Arroyo-Cabrales, Joaquin

Feseha, Mulugeta [22] see Kappelman, John

Fetterman, Liv (USDA Forest Service) and Rick Anderson (Southern Methodist University)**[208]** *The Heritage Stewardship Enhancement Program and Research Archaeology on the Dakota Prairie Grasslands, U.S. Forest Service*

The ongoing partnership between the Dakota Prairie Grasslands (DPG) and Southern Methodist University, supported by the U.S. Forest Service Region 1 Heritage Stewardship Enhancement (HSE) program, is an investigation of the Paleoindian archaeological record of the Little Missouri National Grasslands. As hoped, this collaboration produced vital information about local Paleoindian prehistory. It has also been fruitful in other ways, including a few tough lessons learned along the way. Liv Fetterman discusses how the HSE program, the partnership, and results of this research provide some solutions to challenges DPG archaeologists face in the midst of an oil and gas boom, while Richard Anderson outlines the benefits of the collaboration for an aspiring archaeologist navigating graduate school. Both also comment on problems encountered through the process of creating and maintaining the partnership, and offer advice for others who may pursue such opportunities.

Fibiger, Linda [25] see Bickle, Penny

Fiedel, Stuart [21] see Morrow, Juliet

Fiedel, Stuart (Louis Berger Group)**[21]** *The Anzick Genome Proves Clovis Is First, After All*

The close relatives who buried the Anzick infant ca. 13,000 cal yr B.P. made classic Clovis tools and were unequivocally the lineal genetic ancestors of all the living Native peoples of southern North America, Central America, and South America. Clovis-derived Fell 1 fishtail points track the rapid southward migration of this ancestral population all the way to Tierra del Fuego. Any hypothesized earlier populations—e.g., the seaweed eaters of Monte Verde or the rock-bashers of Pedra Furada—if they (improbably) ever existed, must have been replaced or genetically swamped by these Clovis descendants.

Field, Michael (Leiden University), Jaime Pagán-Jiménez (Leiden University), Menno Hoogland (Leiden University), Jason Laffoon (Leiden University) and Corrine Hofman (Leiden University)**[223]** *What Plants Existed in the Lesser Antilles just Prior to 1492 and Could They Have Been Exploited by the Island Inhabitants? - New Data from Archaeological Excavations at Anse Trabaud, Martinique*

The exploitation of plants in the tropical belt by Europeans had a major influence on the distributions of many species. The Lesser Antillean islands received their fair share of new arrivals. But what plant species inhabited the Lesser Antillean islands just prior to 1492? Establishing which plant species occurred immediately before colonial times would increase our understanding of the impact of alien introductions, provide information about biogeographical range changes, and, in addition, indicate the botanical resources available to the pre-colonial inhabitants. Archaeological excavations in a mangrove swamp at Anse Trabaud, Martinique, exposed artefact-bearing sediments that were deposited between A.D. 600 and 1250. These sediments have yielded carpological, palynological, and starch fossils. Preservation of this type is rare in the tropics. Each fossil type allows identification to different taxonomic levels. Carpological remains can often be determined to species level and, on occasion, so can fossil starch grains. This allows a detailed palaeoenvironmental reconstruction of the Anse Trabaud site and biogeographical and archaeological conclusions to be made. Existing archaeobotanical data from the period just before the arrival of Europeans will be reviewed and, in combination with the new data, allow regional scale conclusions to be made.

Field Murray, Wendi (State Historical Society of North Dakota) and Meagan Schoenfelder (State Historical Society of North Dakota)**[265]** *From Folsom to the Fur Trade: Harnessing the Research Potential of the State Historical Society of North Dakota's Archaeology Collections*

The State Historical Society of North Dakota curates collections covering 13,000 years of human history in North Dakota. The development of a more comprehensive archaeology collections program in the last five years has been geared toward increasing public access to these collections and communicating the collections' research potential to an academic audience. The spectacular Lake Ilo Paleoindian collection documents thousands of years of continuous land use in North Dakota. Future research could investigate the northern periphery of Folsom technology, the role of Knife River flint in the northern Plains economy, and other questions relating to Paleoindian adaptations in marginal environments. For researchers interested in the Late Prehistoric and Historic periods, the SHSND curates an entire storage room dedicated to Plains Village collections. Further analysis of these extensive collections will elucidate the establishment and trajectory of ancestral Mandan, Hidatsa, and Arikara farming communities situated along the Missouri River and its tributaries between the thirteenth and eighteenth centuries, and their participation in the nineteenth century fur trade. These collections shed light on lithic technology, craft specialization, social and ritual life, and the versatile subsistence strategies that allowed these communities to become flourishing trade centers in a vast intertribal trade network.

Fields, Shawn and Jamie Arjona (University of Illinois Urbana-Champaign)

[221] *A Chained Melody: Queering Ceramic Industries in 19th Century South Carolina*

During the antebellum period, ceramic industries began to sprout up across South Carolina's agricultural landscape. In the Edgefield district, located near the South Carolina-Georgia border, a number of family-owned kilns contracted enslaved laborers from nearby plantations to mass-produce stoneware for sale throughout the southeast. Innovative alkaline glaze technologies became the foundation for experimental ceramic traditions and styles. A long-held local fascination with these ceramic industries, and their products, captured the attention of art historians, contemporary folk potters, and collectors throughout the course of the last several decades. Much of the scholarship pertaining to these ceramics stems from the imprint of an enslaved African-American potter known as Dave Drake. His inscriptions of poetic verses along with his signature on immense pots were a catalyst for the mythification of Drake during, and after, his life. Drawing from queer theory and recent archaeological findings, we reconsider heteronormative discourses related to Dave's life and art. Specifically, we highlight the ways in which queer intimacies and abject bodies worked to queer these ceramic industries. In doing so, we illustrate how clay intimacies afforded maneuverings in industrial environments laden with oppressive forms of racial domination.

Figueiredo, Camila [263] see Rebellato, Lilian

Figueiredo, Camila**[263]** *Different and Complementary Landscapes: A Case of Study in the Flona-Tapajós*

The goal of this presentation is to contribute to the ongoing debate in Amazonian studies to which human societies impacted and reshaped the landscapes. Landscapes are the results of a human action and environmental changes over time, providing a fundamental dataset for understanding social practices in a historically particular manner (Ingold 1993). Ultimately, this presentation sheds light on the formation and significance of settlement patterns within sites located in the Flona-Tapajós and Santarém region. The paper will present results of a survey conducted in six communities of the Flona-Tapajós in 2014. The majority of the 12 sites mapped contained ceramic fragments typical of the Santarém phase. However, ceramic fragments with Konduri style and from the Borda Incisa Tradition were recovered from sites near the Tapajós River. The presence of indigenous paths connecting the plateau to the riverine region suggests that the archaeological sites located on different landscape types were interconnected. In addition, some sites on the plateau are located in strategic positions, affording great visibility, evidence that point to a defensive function. This presentation contributes to archaeological theory because it attempts to unite landscape approaches to historical ecological perspectives.

[263] *Chair*

Figueroa, Alejandro (Southern Methodist University)**[175]** *Mountain Doorways: Caves, Shelters, and Rock Art in Past and Present Southwestern Honduras*

Caves and shelters hold a special place among Mesoamerican cultures. Some of the earliest evidence of human occupation in this region is found inside these natural features, where well-preserved materials attest to the detailed knowledge past populations had of their surrounding landscapes and resources. In later time periods, caves were treated as the portals to the underworld and became an essential part of Mesoamerican ideology. The landscape of the Santa Elena highlands of southwestern Honduras is defined by its numerous shelters and caves, all of which have been used and continue to be used to some degree by its inhabitants. This paper presents the results of a multi-disciplinary research project that demonstrated significant long-term use of sheltered sites in this area, documenting their use as residences, locales for communal gatherings and rituals, and as places of burial. This study and previous work in the area suggest that caves, shelters, and the rock art within have been and continue to be sites charged with meaning and importance for the groups that have visited and inhabited them for the past 10,000 years.

Filini, Agapi (El Colegio de Michoacan)**[46]** *Negative Painted Ceramics in Mesoamerica: Functional Equivalency and Multiple Solutions*

Negative or resist-painted ceramics are present in diverse Mesoamerican ceramic traditions and at different time scales and a millenary functional continuity may be postulated thereof. At the lacustrine region of Michoacán, for example, they were first recorded at the Preclassic El Opeño site (1500 B.C.E.) and manufacturing processes reached a level of technological complexity within the Postclassic Tarascan state. Recent archaeometric studies through SEM/EDX and Raman spectroscopy techniques on sherds of diverse sites in west Mexico revealed technological aspects which have been heretofore poorly understood. Results indicate that potters used several techniques of negative decoration in order to produce highly ritual vessels. Specific questions regarding processes of manufacture, craft specialization, and the use of these vessels are addressed.

Filipovich, Dragan**[88]** *A Simple Fiscal-Demographic Model of the Classic Maya Collapse*

The Classic Maya civilization flourished from approximately 200 A.D. to 800 A.D. in the southern reaches of the Yucatan Peninsula. Population increased throughout the period, accelerating towards the end, finally falling to a small fraction of its former peak level (10 percent or less) in a relatively short span of time (50–100 years). Even though Maya civilization continued in the northern end of Yucatan Peninsula, the holy kings who had been the protagonists of Classic Maya civilization disappeared from the Maya cultural tradition, with their former habitat remaining practically vacant until modern times. In order to explain this 'collapse', I embed a predator-prey model (with an agricultural support population as prey, and a dependent non-agricultural population as predator) within a dynamic model of conflict. With the help of such model it is argued that Classic Maya civilization collapsed because Maya kings could not, under the pressure of warfare, manage (politically) to keep the balance between support and dependent populations upon which the long term sustainability of their kingdoms depended.

Finegold, Andrew (NYU Institute of Fine Arts)**[209]** *Self-Referentiality on Mimbres Painted Bowls*

Drawing on George Kubler's theoretical treatise, *The Shape of Time*, as well as more recent epistemological reflections by art historians such as Georges Didi-Huberman and Alexander Nagel and Christopher Wood, this paper explores the potential for objects to contribute to their own interpretation. The imagery painted on Mimbres vessels often playfully responds to or incorporates their hemispherical shape. There are also instances where the imagery seems to resonate with the holes that were regularly punctured through the bowls' bases at the time of their placement in burials. Rather than "killing" the vessels, this puncturing can be seen as emphasizing their material presence and symbolic value in excess of their functionality as bowls. I will argue that Mimbres artists occasionally chose imagery that, by anticipating this common ritual treatment, highlighted the objects' extension through time while provoking reflection on the nature of the vessels' object-ness and the metaphoric potentials of their perforations.

Finnigan, Patrick (Indiana University South Bend) and James VanderVeen (Indiana University South Bend)**[193]** *Historical and Archaeological Investigation into the "Triangle Land" in South Bend's West Washington District*

All too often, archaeology illuminates the history of "big men." This paper narrates the history through archaeological investigation of one city corner in South Bend, Indiana, and the contribution of the businesses that occupied it in the city's most formative years. Manufacturing successes within South Bend such as the Oliver Plow Works, and Studebaker, are well known and researched. What is less well known are the supporting businesses and businessmen that made up the representative sample of this influential city. This paper illuminates the establishment, growth, and community influence of the businesses it housed, supported by extensive archival research, and recovered artifacts. The humble tinsmith became the proprietor of the area's largest hardware and lumberyards. A German immigrant and his friend established one of the area's largest and longest-running grocery stores that would propel both families into more prosperous circles. Elite families blended interests, forming a neighborhood. The West Washington neighborhood was one of gaslights and trolley cars, nouveau-rich, and the fruits of American industrial expansion in the early 1900s. Contributions from the wealthy helped build opera houses and churches, but it was those of the corner businessmen that formed the heart and soul of South Bend.

Fischer, Anders [214] see Donahue, Randolph

Fish, Gail [92] see Fenn, Mallory

Fisher, Chelsea (University of Michigan)**[27]** *Landscape and Formative Households at Tzacauil and Yaxuná, Yucatán*

A population boom during the Late Formative Period (ca. 250 B.C.E.–250 C.E.) corresponded with the expansion of permanent, aggregated settlements across Mesoamerica. In central Yucatán, Yaxuná was a centralizing focus during the Formative, yet it was not the only place that attracted settlers—so did the nearby, smaller site of Tzacauil. In this dynamic time, what was the relationship between a large center like Yaxuná and its humbler neighbors like Tzacauil? Was Tzacauil an autonomous hamlet, or is it better thought of as a far-flung but culturally integrated segment of Yaxuná? We can approach who these initial permanent settlers were and how they interacted through their houses. Formative houses at both Tzacauil and Yaxuná show patterned preferences for specific landscape features. The influence of bedrock promontories and depressions on initial settlement cannot be understated, as I demonstrate with data from excavations of Formative houses and surface collection. This link between landscape and settlement is not simply one of ecology; rather, it is intrinsic to cultural, economic, and religious patterns that persist for centuries in the northern lowlands. As such, this comparison provides an opportunity for understanding changing relationships between an incipient urban center and its surroundings.

Fishman, Susannah (University of Pennsylvania)**[87]** *In the Orbit of Empires: Ceramics from Urartu to Rome*

Imperial borderlands are drawn into the orbit of their powerful neighbors through a combination of economic interests, cultural affiliations, and martial threat. The site of Oğlanqala, Azerbaijan, has long been positioned at the periphery of empires, making it an excellent case study for dynamics of incorporation and resistance. This research uses ceramic petrography to compare patterns of ceramic production and exchange in the Middle Iron Age (MIA, 800–600 B.C.E.) to the Roman Period (100 B.C.E.–100 C.E.). During the MIA, Oğlanqala lay at the edge of the Urartian Empire. The ceramics from the MIA are primarily local, yet contain a significant proportion of non-local ceramics that indicate wide-spread regional trade. Local and non-local production methods and aesthetics are highly diverse. In contrast, while Oğlanqala was part of Rome's contested periphery, at least half of the ceramics were imported from a single site under Roman control. Moreover, both local and non-local ceramics from the Roman period display a narrow, unified stylistic repertoire. The distinct patterns of economic and stylistic incorporation evident at Oğlanqala during two different regimes, first Urartu and later Rome, demonstrate the diversity and specificity of imperial control.

Fitton, Tom [269] see Fenn, Thomas

Fitzhugh, Ben (University of Washington)**[296]** *Human Ecodynamics of Subarctic Islands of the North Atlantic and North Pacific in Comparative Perspective*

The subarctic islands of the North Atlantic and North Pacific share a number of ecological characteristics, related to common latitudes and similar oceanographic and atmospheric conditions. Both regions were occupied in pre-modern times by subsistence harvesters with varying degrees of dependence on the marine environments for survival, and both areas became incorporated into capitalist, commercial fishing and hunting markets in the past several centuries. We compare the historical ecology of maritime fishing/hunting of these regions and consider the hypothesis that commoditized harvests increased the vulnerability of subsistence communities to environmental perturbations more easily weathered when stocks were less heavily impacted.

[210] *Discussant***Fitzhugh, William****[217]** *Discussant*

Fitzpatrick, Scott [41] see Lawrence, John

Fitzpatrick, Scott (University of Oregon)**[223]** *The Pre-Columbian Exchange: The Anthropogenic Zoogeography of Insular Caribbean Translocations*

The post-Columbian introduction of exotic animals in the West Indies initiated a cascade of ecological changes, resulting in extensive defaunation, reduction, and homogenization of biodiversity, loss of ecosystem services, and extinction of island endemics. Yet, these changes were not without precedent in the Caribbean, one of the world's foremost biodiversity hotspots. Evidence suggests that in the years before 1492, Amerindians in the region

had already profoundly impacted insular ecology, although our understanding of the many aspects of this process varies. For instance, while the archaeological record indicates extensive introductions of South American fauna to the prehistoric Caribbean along with inter-island relocations of endemic animals, the dynamic impacts of these biological invasions remain poorly understood. Taking a diachronic approach, we review the anthropogenic zoogeography and translocation history of exotic species in the insular Caribbean over the last 2,500 years, focusing principally on four wild and domestic mammalian taxa: agouti (*Dasyprocta*), opossum (*Didelphis*), guinea pig (*Cavia porcellus*), and hutia (*Capromyidae*). Drawing on zooarchaeological, isotopic, and genetic data, we contextualize the introduction and insular dispersal of these mammals within the frameworks of historical ecology and human agency, driven by economic, social, and symbolic incentives.

[296] *Discussant*

[160] *Chair*

Fitzsimons, Rodney (Trent University)

[119] *Monuments for the Living, Monuments for the Dead: A Stone-by-Stone Guide to Mycenaean State Formation*

Prior to the appearance of the first palaces at Mycenae in the fifteenth century B.C., the most impressive architectural manifestation of elite authority in the Argolid was not the palace or the house, but rather the tomb, specifically the shaft grave and the tholos tomb. While the funerary data supplied by these burials have long served as the primary means by which the study of Early Mycenaean state formation has been approached, such studies focus almost exclusively on the grave goods themselves, rather than the tombs that housed them. This paper seeks to address this lacuna by applying an energetics approach to the funerary landscape, an approach that posits that the quantity of labour expended upon any particular architectural project correlates with the socio-political complexity of the society that produced it. Since one aspect of socio-political power is defined by differential access to labour resources, the values thus generated serve as quantifiable and easily comparable measures of the power of those groups responsible for their undertaking. This approach injects a new, yet rarely considered dimension to current discussions of “wealth” and “status” and offers new insight into the nature of the socio-political transformations that transpired during the Early Mycenaean Period.

Flad, Rowan (Harvard University)

[106] *Dayatou and Siwashan - Preliminary Report on the 2015 Season of the Tao River Archaeology Project*

In May and June 2015, archaeologists from the Gansu Provincial Institute of Archaeology, Harvard University, Peking University, Yale University, and National Taiwan University, conducted archaeological and geophysical survey at two important sites in the Tao River drainage: Dayatou and Siwashan. Whereas Siwashan is the type site of the Siwa Culture, and has long been known as an important archaeological site, Dayatou has previously not undergone any published systematic research. Furthermore, previous work at Siwashan has not clarified the complicated distribution of material at the site. This recent research lays the foundation for additional focused work, and was also the last fieldwork conducted by Pochan Chen before his untimely death one month later.

[106] *Chair*

Flad, Rowan [180] see Brunson, Katherine

Fladd, Samantha [64] see Barker, Claire

Fladd, Samantha (University of Arizona)

[65] *A Room Remembered: Room Closure through Material Deposition at Homol'ovi I*

Material deposition involves a range of social practices that enact negotiations of identity and interrelationships between people and spaces. Through the deliberate accumulation of artifacts and sediment in certain locations, these negotiations are materialized in the archaeological record. The reciprocal creation and expression of the meaning of spaces and objects can begin to be understood by analyzing the materials deposited in rooms post-occupationally. In this poster, I examine the ways material deposition speaks to the meaning and continued relationships with rooms at the Pueblo IV village of Homol'ovi I. The Homol'ovi Settlement Cluster, located in northeastern Arizona, has been the focus of significant research concerning the range and implications of deposits, particularly in kivas, for the past three decades. Building upon this literature, I investigate three room blocks within the site to understand the social practices involved in the closure of rooms. I pay specific attention to the temporal continuities and discontinuities of depositional assemblages from individual rooms. These patterns should provide insights into the social memories attached to spaces and may speak to the social groups participating in depositional and closure practices at Homol'ovi I.

Fladeboe, Randee (University of Florida)

[239] *Macaw Husbandry in the Ancient Greater Southwest*

The archaeological record of the American southwest and north Mexico contains evidence that for hundreds of years, ancient peoples transported, kept, and possibly bred tropical macaws at several major population centers. Archaeologists are still working to understand exactly how this was accomplished, but the fact that this evidence indicates aspects of macaw husbandry has been underappreciated. Ethological data on human and macaw interactions in similar contexts in the present can help inform the technological practices required of macaw husbandry in the past. Basic interaction sequences of care activities by human keepers are grouped into major “events”—maintenance events, feeding events, etc. This allows assessment of the behavioral properties and capacities of macaws within various interactions and lends insight into past husbandry practices.

[239] *Chair*

Flegenheimer, Nora (CONICET-Área Arqueología y Antropología, Museo de Ciencias Naturales, Necochea), Natalia Mazzia (CONICET, Área Arqueología y Antropología, Museo de) and Celeste Weitzel (CONICET, Área Arqueología y Antropología, Museo de)

[139] *Assessing Fishtail Projectile Point Distribution in the Southern Cone*

This presentation discusses possible causes affecting the distribution of fishtail points in the southern Cone. This distribution is discontinuous, with large territories without diagnostic remains and areas where sites are concentrated. Also, most of the sites with this type of points exhibit few specimens, with remarkable exceptions in Uruguay, the Argentinian Pampa, and Patagonia and southern Chile. We will present thoughts arising from long term research in

a micro region in the Argentinian Pampa. On this ground, the relevance of the following proposals is discussed: 1) sites occupied by early hunter gatherers do not always include materials that are currently diagnostic of early settlers using fishtail points, 2) the practice of depositing broken fishtail points at one place leaves other sites without these diagnostic tools and affects our record of their distribution, 3) certain landscapes and particular resources, such as hills and rocks, were especially attractive for early settlers causing concentrated occupations, 4) some concentrations of sites respond to the history of research and to modern high population areas with good visibility. It is concluded that the discontinuous distribution observed responds both to the behavior of the early occupants and to current research history.

Fleischer, Jeffrey [269] see Fenn, Thomas

Fleming, Arlene (World Bank)

[10] *The World Bank's Approaches To Valuing Cultural Heritage*

The World Bank provides loans, credits, and technical assistance to governments of its client countries. The importance and value of cultural heritage on international, national, and local levels are reflected in the Bank's investment operations as well as in its Operational Policy 4.11—Physical Cultural Resources. Investment for cultural heritage has totaled over four billion U.S. dollars in the past two decades. The Bank's safeguard policy requires that an Environmental Impact Assessment identify cultural heritage that may be impacted by any development project, as well as the stakeholders who assign value to the heritage, and that measures for avoidance or damage mitigation be determined and included in the project's management plan. Archaeology contributes to local, national, and international economic development in numerous respects, a fact that is gaining increasing attention through study and analysis. For years, large-scale multi-year excavations provided seasonal wages to local workers and supported community craft industries, although the revenues were rarely quantified or regarded as local economic development. Archaeological sites, when featured as tourist attractions, can comprise a lucrative source of revenue for their localities, and for provincial and national governments, as well as for foreign private tourism operators. Development institutions, with the intent to alleviate poverty and foster community economic development, have encouraged participation by local inhabitants in maintaining and managing archaeological sites. This emphasis results in efforts to ensure that these populations share in the economic benefits of tourism and requires that such benefits are monitored, recorded, and evaluated. The presentation focuses on several instances where archaeological excavation and site management involve participation by local populations, utilizing their knowledge, cultivating skills, and providing income.

Fleming, Edward (Science Museum of Minnesota)

[58] *From Hero Objects to Foam Blocks: Contextualizing the Archaeological Record in Maya: Hidden Worlds Revealed*

Maya: Hidden Worlds Revealed is a 10,000- to 15,000-square-foot traveling exhibition created through multi-national, multi-institutional partnerships and intended to appeal to museum visitors of all ages. The core of the exhibition is a collection of more than 200 stunning and thought-provoking archaeological artifacts and ethnographic objects from throughout the Maya world. These objects provide visitors opportunities to engage with the authentic Maya past, the Maya today, and the work of dozens of archaeologists. But, equally important, the exhibition also contains hands-on interactive components, immersive environments, large- and small-scale models, and compelling storytelling that, when associated with the objects, help to contextualize both Maya culture and the archaeological process. In this paper, we will explore the development of the exhibition and the methods of display and interpretation used to contextualize the archaeological record of the Maya.

[58] *Chair*

Flemming, Nicholas (National Oceanography Centre UK)

[249] *Discussant*

Fletcher, Roland (University of Sydney)

[138] *Water, Weather and the Fallacy of the Rationalist - Romanticism Dichotomy*

Angkor, in Cambodia, between the seventh and the thirteenth century depended on the largest urban water management infrastructure of the agrarian urban world. The key elements of this infrastructure came into being before the global climate transition of the ninth–tenth century C.E. That infrastructure was vital for coping with the start of the Medieval Warm Phase when other societies around the world experienced severe crises. By the fourteenth century, some parts of Angkor's infrastructure were nearly 500 years old and parts of the network had been modified or gone out of use. When the climate transition to the Little Ice Age began in the thirteenth–fourteenth centuries, the network was hit by repeated extremes of water flow due to mega-monsoons that it was not built to handle. A post-processual/contextualist (Romanticist) viewpoint is essential for trying to understand why the Khmer did what they did. A processual (Rationalist) viewpoint is essential for understanding the outcomes of what they did relative to the circumstances. The theoretical disputes of the previous quarter of century in Archaeology have been a futile misapprehension of the multi-scalar characteristics of cultural evolution.

Flood, John (Department of Anthropology, Indiana University Purdue University Indianapolis), Seth Grooms (Department of Anthropology, University of North Ca), Matthew Pike (Department of Anthropology, Purdue University), Edward Herrmann (Department of Geological Sciences, Indiana University) and Jeremy Wilson (Department of Anthropology, Indiana University Pur)

[111] *Fortifications in the Eastern Woodlands of Pre-Columbian North America: An Examination of Organized Warfare during the Mississippian Period*

The prevalence and ubiquity of warfare have long been recognized by scholars studying the Mississippian Era in the eastern Woodlands. These data point to a culture(s) that often found itself in periods of conflict between competing regional polities, which is reflected in skeletal trauma rates, fortified settlements, and conflagrated villages. Our collective understanding of the geopolitical interactions and causes for this strife is subject to substantial interpretation and debate, rendering the topic suitable for additional exploration. Likewise, archaeologists have infrequently focused on how Mississippian warfare was conducted with relatively unorganized raiding, often invoked as a plausible scenario.

In this study, we examine the protohistoric accounts, ethnographic data on small-scale warfare, geophysical and archaeological data for fortifications, and the prevalence and patterning of warfare-related skeletal trauma to better define the organizational nature of both aggressors and defenders within and around Mississippian period villages. Building upon our research during Indiana University's 2015 NSF REU program at Lawrenz Gun Club (11Cs4), a heavily fortified community in the Illinois Valley, we examine the likelihood that smaller raiding parties could have effectively breached larger palisades with bastions spaced at regular intervals.

Flores, Jodi [10] see McManamon, Francis

Flores, Paola Michel (Benemérita Universidad Autónoma de Puebla)**[136]** *La culpa es de Kirchoff: Un análisis en torno a Mesoamérica como categoría geohistórica*

El concepto "Mesoamérica" ha fungido como una herramienta útil que permite ordenar el amplio corpus de datos y materiales recuperados con suficiente coherencia y bajo un lenguaje común; no obstante, es posible afirmar que la Mesoamérica que definió Kirchoff se ha desbordado en múltiples dimensiones, arrastrando consigo problemáticas en torno a la definición territorial, cronológica y conceptual, que varios autores se han esforzado por subsanar. En ese sentido, es conveniente cuestionarse y repensar desde las pautas epistemológicas bajo las cuales nos está guiando, la clase de conocimientos que generan y la manera en que éstos quedan demarcados en un modelo hasta cierto punto rígido. Se propone pues, hacer un análisis crítico que derive en una propuesta distinta, tanto de la demarcación territorial que hasta ahora ha definido subáreas y trazado líneas fronterizas fluctuantes; como de la cronológica que contempla tres grandes períodos dentro de los cuales se insertan las particularidades regionales; esperando suscitar el debate, formular más preguntas y plantear nuevas críticas en torno al concepto bajo el cual se ha desplegado la Arqueología Mexicana.

Flores-Fernandez, Carola (UCSB), Diego Salazar (Universidad de Chile), Laura Olgún (Universidad Católica del Norte, Chile), Gabriel Vargas (Universidad de Chile) and Camila Arenas (Universidad de Chile)**[139]** *Early Coastal Occupations in Taltal, Southern Atacama Desert, Chile*

In this presentation, we will discuss recent results on the historical trajectory of hunter-gatherer-fishers from the coast of Taltal, southern Atacama Desert, Chile. We will focus on the Early Holocene Period (around ca. 11.500–10.000 cal B.P.) which includes several logistical occupations in rock-shelters and an open-air pigment mine. Our research aims to understand geographical and climatic conditions during the early human occupation of the area and its relation to human mobility and subsistence. As the sea level during the Early Holocene was below present coastline, the understanding of human occupation during this time also included the reconstruction of pale-shorelines and underwater surveys to identify currently submerged residential sites.

Flynn, Erin (PAL) and Dianna Doucette (PAL)**[42]** *An Illustrative Case Study for an Archaic House Structure in Southern New England: Insights from the Halls Swamp Site and Beyond*

The Halls Swamp Site represents an Archaic and Woodland Period multi-component Native American occupation in Kingston, Plymouth County, Massachusetts. Excavation of just 2 percent of the Halls Swamp Site yielded over 24,000 artifacts and 78 cultural features, including evidence of an Archaic Period house structure. Archaic Period dwellings have largely gone unnoticed in southern New England due to poor preservation conditions and the ephemeral nature of these features. However, a concentration of post molds, pit features, and fire hearths uncovered at the Halls Swamp Site characterize attributes associated with the few Native American subterranean dwellings reported from Massachusetts and Connecticut, as well as outside of New England. Spatial distribution analysis and radiocarbon data are used to reconstruct the habitation activity at the Halls Swamp Site and contribute to our recognition and understanding of Archaic Period house structures in southern New England.

Foiás, Antonia [26] see Moriarty, Matthew

Foiás, Antonia (Williams College) and Kitty Emery (Florida Museum of Natural History, University of F)**[291]** *Power and Polity in the Motul de San José Zone: Recent Research at Kantet'u'ul and Chachaklu'um*

Motul de San José dominated a swath of the northern shore of Lake Peten Itza in central Peten, Guatemala, during the Late Classic. Recent excavations at two small sites in the periphery of Motul de San José, Kante't'u'ul (approx. 3km northwest) and Chachacklu'um (approx. 5km east) investigated the relations between these secondary centers and their political overlords at Motul de San José. The divergent cultural histories, settlement patterns, architecture, and material culture of these two minor centers will be compared to reflect on the means of control and strategies of power used by Motul de San José at its apogee during the eighth century A.D.

Folan, William (Univ. Autónoma de Campeche), Joel Gunn (University of North Carolina, Greensboro) and Ma. del Rosario Dominguez (Univ. Autónoma de Campeche)**[179]** *Calakmul, Campeche: Its Comings and Goings in a Market Economy*

This paper covers, in detail, the principal characteristics of Structure II in Calakmul including its architecture, artifacts, and associated activities.

Folan, William J. [179] see Poot, Paulina

Follensbee, Billie (Missouri State University), Allison Robbins (Missouri State University), Sammie Hernandez (Missouri State University), Alexandra Thrower (Missouri State University) and Nicholas Deckard (Missouri State University)**[216]** *Block Busters: What Systematic Replication Studies Reveal about Hypotheses on the Iron Ore Cubes*

Among the most enigmatic artifacts to emerge from Formative Period Gulf Coast deposits are thousands of small, roughly rectangular cubes of iron ore that are perforated in a consistent, t-shaped pattern. Numerous hypotheses have been suggested for the function and meaning of these artifacts, including that they may have served as beads that were strung together as helmet decorations; as objects that were strung together to serve as a sort of armor or mail; as tiny hammers for chipping obsidian; as tokens or as some kind of currency; as an amulet or a charm; as small mirrored pendants; as weights for fishing nets; as caps for bow drills or fire drills; as atlatl weights; as whistles; or as a type of bull-roarer noise maker. Scholars have reached no general consensus, however, on the most sound nor the most probable hypotheses. This presentation will discuss how recent systematic replication studies conducted by my students and I have revealed which of these hypotheses stand up to close scrutiny.

Fonseca Santa Cruz, Javier [198] see Bauer, Brian

Fontes, Lisa (University of New Mexico)**[170]** *Passage through a Palimpsest: Lower Magdalenian Lithic Manufacture and Maintenance Patterns in El Mirón Cave, Cantabria, Spain*

El Mirón cave, a major Upper Paleolithic residential site in Cantabria, Spain, has been the subject of long-term excavations led in part by Lawrence Straus. This presentation focuses on Level 17, a significant Lower Magdalenian deposit excavated in the cave's outer vestibule. Level 17, which is a total of 33 cm thick, was divided into 13 sublevels that were created using correlations made between depth measurements taken during the excavation in each square meter of the 9.5 square meter area. Each sublevel is ~3 cm thick, and allows for heuristic comparisons of spatial changes in activities in the cave. This presentation uses lithic microdebitage to evaluate temporal shifts in Lower Magdalenian lithic manufacture and maintenance areas. These microdebitage, all <1 cm trimming flakes and shatter, were likely compressed in situ during occupations, signaling areas where flintknappers maintained and manufactured lithic artifacts, respectively. Results indicate that during some occupations, manufacture and maintenance were tightly clustered within a single area in the outer vestibule, while during others they were located in distinct zones. These trends may relate to the site being abandoned, reused, and modified as new hunter-gatherer groups entered the site and adjusted its features over the c. 2000 year Lower Magdalenian Period.

[170] *Chair*

Foor, Thomas [171] see Prentiss, Anna

Ford, Anabel (UCSB)

[71] *Archaeological Commitment to Participation: Discovering the Local to International El Pilar Community*

The El Pilar community is dynamic and includes the most proximal villages, the general communities of Cayo and Peten, the nations of Belize and Guatemala, and from there the greater international community interested in the culture and nature of the tropics. From its first archaeological recognition in the 1980s, El Pilar was destined to play a role in the conservation and development of the Maya forest. Large and imposing, with monuments straddling the political line that separates Belize and Guatemala, there is a complex relationship locally linked and nationally divided, yet integrated in the appreciation and value of the Maya forest and ancient culture. Creating challenges and potentials over the past three decades, work at El Pilar is now a local household word with community outreach through primary schools and village organizations, recognized for a unique brand of tourism that unites traditional Maya farmers and ancient Maya settlement patterns, and for the international exploration of solutions past impacting a path to sustainable conservation and development.

Ford, Ben [90] see Napoleon, Taylor

Ford, Ben (Indiana University of Pennsylvania)

[90] *The Lake Oneida Durham Boat: A Previously Unrecorded Vessel Type*

A shipwreck recently discovered in Lake Oneida, NY, and recorded by a team of professional and amateur archaeologists, appears to be the remains of an early nineteenth-century Durham boat. Durham boats plied the inland waters of the Northeast and Mid-Atlantic during the eighteenth and nineteenth centuries, offering an efficient means to transport bulk cargoes during the pre-canal era. While no archaeological example of a Durham boat has been previously identified, this shipwreck closely matches all available historical descriptions. The size, shape, and layout of the vessel all suggest that this is the first archaeologically reported example of a Durham boat. The details of this find offer important information about early Euro-American trade and commerce.

Forde, Jamie [15] see Dupey, Elodie

Forde, Jamie

[135] *Volcanic Glass and Iron Nails: Shifting Networks of Exchange at Postclassic and Colonial Achiutla, Oaxaca, Mexico*

In this paper, I present data from recent excavations at the highland Mixtec site of Achiutla, Oaxaca, Mexico, to shed light on how indigenous residents there negotiated changes and continuities in exchange relationships from the Postclassic (A.D. 900–1521) to Early Colonial (A.D. 1521–1650) periods. Various lines of evidence demonstrate that Achiutla had significant economic ties to both the Basin of Mexico and the Oaxaca Coast, and that the site was an important locus along trade routes between the two regions. The site may not only have attracted travellers due to its geographic location, but also through its status as a center of prehispanic religious pilgrimage.

Ethnohistorical data indicate that residents of Achiutla acquired significant quantities of goods from the coastal lowlands, while excavations have revealed the presence of a large obsidian workshop there, primarily utilizing material imported from Pachuca. I argue that Achiutla utilized its geographic position and political ties to play an important intermediary role in facilitating highland and lowland exchange. Further, this continued into the Colonial Period despite historical rupture, as data from domestic middens show that natives continued to acquire and manufacture Pachuca obsidian, despite also having access to metal cutting tools introduced by the Spanish.

[135] *Chair*

Fornaciari, Antonio [147] see Stewart, Marissa

Forton, Maxwell (Binghamton University)

[268] *Petroglyphs of East Tank Mesa and the Mac Stod Great House: Using Rock Art to Gauge Regional Influences in Petrified Forest National Park*

East Tank Mesa is a prominent landform located within the new expansion lands of Petrified Forest National Park: harboring a high concentration of Pueblo II-Pueblo III petroglyph panels and one of the region's few possible Chacoan outliers. This possible outlier is the Mac Stod site: a seven-room pueblo possessing some of the hallmarks of Chacoan architecture (core veneer masonry, large rooms, long straight walls, and well constructed rectangular doorways). The nature of Mac Stod, and whether it truly is a great house outlier, remains unclear though. This uncertainty was addressed through a survey of East Tank Mesa's rock art panels and comparing the depicted elements to panels found throughout the rest of the park and the greater southwest. By understanding what regional influences are represented in the mesa's rock art, we may begin to gauge whether the Mac Stod site was ingrained within locally focused systems of interaction or may represent an expansion of Chacoan influence. Ultimately this project will contribute new data on the rock art within Petrified Forest National Park, enhance our knowledge of one of the park's few possible Chacoan sites, and advance our understanding of this region's relationship with the peoples of the greater southwest.

Foster, Cheryl

[235] *Garden Soils: Assessing the Viability of Soil Phosphate Analysis in the Archaeological Identification of Ancient Maya Kitchen Gardens*

The study of ancient Maya intensive, intra-site agricultural systems has gained new interest in recent years as a valuable way of interpreting numerous aspects of the ancient Maya's daily life. However, ancient kitchen gardens, specifically, are usually difficult to identify by traditional archaeological techniques because of their lack of architectural structures and other identifying features. To compensate for this, Phosphate analyses are being used to positively identify kitchen gardens that are invisible to standard archaeological techniques. The general archaeological community trusts these methods to be a reliable way of testing soils in archaeological sites for specific agricultural features, even though there has been little research conducted to conclusively prove this assertion. In response to this lack of research, this project investigates the viability of Phosphate analysis. This will be determined by a comprehensive literary review of previous and current research and an analysis of the data presented within them. While Phosphate testing has been used to identify general agricultural features, the chemical signatures produced from these methods only give vague information about the soil and what was done to it, making them unreliable to definitively discern a kitchen garden, which was used for specific agricultural purposes.

Fóthi, Erzsébet [147] see Gugora, Ariana

Fouéré, Pierrick [220] see Bonnissent, Dominique

Fowler, William (Vanderbilt University) and Raquel López Rodríguez (Universidad Tecnológica de El Salvador)

[32] *A Thousand Years after the Volcano Erupted: TBJ Deposits and Use at Ciudad Vieja, El Salvador*

The impact of the eruption of Ilopango Volcano in the early sixth century A.D. has been a focus of Payson Sheets' research for more than four decades. The signature of this eruption is the distinctive "tierra blanca joven" (TBJ) layer found at sites in central and western El Salvador. Our excavations in 2013–15 at Ciudad Vieja, the archaeological remains of the Conquest Period town of San Salvador, have allowed us to identify a hitherto unknown site in the distribution of TBJ tephra. In some parts of the site, construction dating to 1528–1545 rests directly on eroded deposits of TBJ that fell about 1,000 years earlier. In other loci, redeposited TBJ was incorporated as part of the construction fill of architectural deposits, and it was an element in the construction of adobe and rammed earth walls. Modern brick makers in the region use TBJ as tempering material for fired clay bricks.

Fowler, Jeremy and Melissa Vogel (Clemson University)

[207] *Geochemical Evidence for Pigment Sources from El Purgatorio, Peru*

Portable X-ray fluorescence was used to analyze raw pigments as well as paints on ceramics and adobes found at El Purgatorio, the capital city of the Casma state. This analysis showed that, in addition to the common red ochre found in the area, cinnabar was also present. This mercurial compound has a distinctive fluorescence and is not common to the area, supporting Casma participation in long distance exchange networks. Further analyses showed manganese present in black paints and calcium in the white paints. Manganese Dioxide has been used in black pigments for millennia. Calcium was present in all of the white paints on ceramics, supporting visual observations that the coastal polity was probably grinding marine shells into temper to make the paste and paints. Pigment and paint production has not been well-studied and this non-destructive analysis has helped to illuminate more about these processes in the Casma state.

Fowles, Severin (Barnard College, Columbia University)

[18] *Discussant*

Fox, Amy (University of Toronto)

[39] *Stone Tools from the Outside: Correlating Object Mass and Shape*

This poster describes a novel high-resolution 3D geometric morphometric outline method that is able to describe object shape in great detail. Elliptical Fourier spherical harmonics—SPHARM—quantifies the shape of an object by producing values for the elliptical Fourier harmonic formula over multiple iterations of the object's surface. This technique is applied to a series of handaxes from Wonderwerk Cave, South Africa, and the data is correlated with the volumetric research of Riddle and Chazan (2014) to ascertain the relationship between handaxe shape and mass within this particular sample. Their radial point distribution (RPD) method uses 3D point-cloud data placed within a digitized 3D handaxe object and calculates the distribution of points within ever-expanding spherical shells based off the object's centroid. Both SPHARM and RPD are size-invariant metrics and as such they are complimentary methodologies. The results of this study demonstrate that different shapes of object can produce comparable mass distributions, an important revelation when studying typology. This poster describes how non-traditional metrics can explore the various ways that humans and objects can interface, and how these ideas are necessary components of a holistic typology.

Fox, Georgia L. [100] see Wells, E. Christian

Fox, Steve, Claire Ebert and Jaime Awe

[237] *ering the Past: Analysis and Interpretation of a Terminal Classic Deposit at the Cahal Pech Terminus Group*

The Terminal Classic (A.D. 750–900/1000) Maya "collapse" remains one of the least understood and most debated aspects in Maya archaeology. One characteristic feature of Terminal Classic contexts in the Belize Valley are large surficial ceramic deposits and are located in the corners of plazas, in front of stairs, and in the doorways of public architecture. These types of terminal deposits have been attributed to numerous activities including termination rituals, feasting events, refuse disposal in middens, or reoccupation by "squatters." We compare the location, composition, and interpretations of terminal deposits excavated at eight Maya sites in the Belize Valley. We use this comparison to analyze the function of a large terminal deposit excavated at the Zopilote Group, a terminus group connected to major Belize Valley polity of Cahal Pech. Based on the presence of ritually significant artifacts recovered from the deposit, as well as the close proximity to monumental architecture containing elite burials, we suggest that the Zopilote terminal deposit functioned as a place of ancestral worship after the site was abandoned. Comparison to ethnohistoric documentation of ritual acts of ancestor remembrance performed by the Lacandon Maya may provide a modern correlate with this archaeological interpretation.

Frachetti, Michael [134] see Hermes, Taylor

Fradkin, Arlene [7] see Rock, Carolyn

Frahm, Ellery [214] see Monnier, Gilliane

Frampton, Sam (Yale University)

[283] *Stringing it Together: An Examination of Shell and Stone Beads at Panquilha*

The presences of different type of artifacts, especially shell and stone beads, have often been used to discuss these inter-regional trade networks. In this paper, I will discuss and try to identify some of these regional networks and the importance of exchange within these local networks. I examine whether elaborate grave goods are displays of wealth or whether they might represent ritual paraphernalia. I discuss the nature of incipient status inequality.

Franchetti, Fernando F. [207] see Otaola, Clara

Franchetti, Fernando, Clara Otaola (IMHICIHU-CONICET Buenos Aires, Argentina) and Miguel Giardina (Natural History Museum of San Rafael, Argentina. I)

[255] *Human Biogeography in the Diamante Valley, (Central Western Argentina): Integrating Different Data in a New Research Design*

The archaeology from the Diamante River Valley, located in Mendoza, Argentina, has been carried out since the beginning of the seventies. The information generated along these years was oriented in several study programs and was motivated by diverse research questions. Different kinds of surveys were done and very few data was published. Most of the archaeological information we have nowadays from this Valley comes from excavations using old techniques, some modern excavations, and from distributional surveys within cultural resource management projects. The main objective is to improve our knowledge about human biogeography in this ecologically diverse area. We present a random sampling design for the Diamante Valley, where three areas located in the highlands, the piedmont, and the lowlands were selected. The aim is to test differences and variability in the use of the space and resources. In this paper, we will focus on our first challenge of this research program: integrating the background information we compiled from previous archaeological investigations with the methodological approach we developed in our own distributional surveys.

Francisco Curate, Francisco [49] see Umbelino, Cláudia

Franciscus, Robert [181] see Daniel, Chloe

Franco, Nora (CONICET-UBA), Víctor Durán (CONICET - Laboratorio de Paleoeología Humana/UNCu), Valeria Cortegoso (CONICET - Laboratorio de Paleoeología Humana/UNCu) and Gustavo Lucero (Laboratorio de Paleoeología Humana/UNCu)

[139] *Human Ranking of Spaces and the Role of Caches: Case Studies from the South of Patagonia (Argentina)*

Storage of artifacts is a common behavior among hunter-gatherers. Archaeologically, caches have been identified in different places. In this paper, we focus on the discussion of the role of caches recovered in two different environments in southern Patagonia: the southern end of the Deseado Massif and the upper Santa Cruz river basin. In the first case, two caches, attributed to the colonization of this environment have been identified, while in the second case, the cache recovered would correspond to the effective occupation of this area. Cache information is integrated into the known archaeological record of both spaces and the ones located close to them and compared with data on raw material availability. Available paleoenvironmental information, dealing with the existence of arid periods, is also taken into account. This study is framed on GIS least-cost models for human circulation, which are used in order to model and study mobility patterns in heterogeneous landscapes. Information obtained allows us to discuss selection criteria used by hunter-gatherers during different moments of peopling of these environments.

Francozo, Mariana (Leiden University)

[141] *Caribbean Archaeological Collections in European Museums: An Overview*

This presentation will discuss the partial results of the research project "Caribbean Collections at European Museums: Historical Processes and Contemporary Practices," carried out in collaboration with André Delpuech (Musée du quai Branly). The project is part of the ERC-Synergy project NEXUS1492: New World Encounters in a Globalizing World. Although there is a wealth of scientific literature on Caribbean pre-colonial art, so far there is no comprehensive catalogue or inventory of archaeological Caribbean collections in Europe. Therefore, this project aims at identifying such collections and understanding the collecting, spreading, and presentation of Caribbean archaeology in Europe. This presentation will give an overview of such collections located so far in public and private museums in the Netherlands, Belgium, United Kingdom, Germany, Switzerland, Austria, Spain, and Portugal. They include assemblages large and small, from the well-known 'Taino' historical masterpieces to unknown collections excavated by geologists in the Lesser Antilles counting hundreds of shards and fragments. The aim of this presentation is to provide empirical data from which we can derive broader theoretical questions about the history of archaeology as well as the role of museums in the ownership and conservation of archaeological heritage, in particular in regards to the Caribbean.

[141] *Chair*

Franklin, Jay D. [137] see Shreve, Nathan

Franklin, Jay, Jean-Philippe Rigaud (Bordeaux, France), Jan Simek (University of Tennessee), Lucinda Langston (Bureau of Land Management, Elko, Nevada) and Frédéric Surmely (Ministère de la Culture DRAC Auvergne/SRA)

[278] *A Techno-morphological Analysis of Gravettian Stone Tools from La Grotte Seize and La Ferrassie, Dordogne, France*

The Gravettian cultural sequence has become of greater interest to Paleolithic scholars now that the relationships of previous industries have been sorted out. Our focus here is on Gravettian truncated elements. Morpho-typology suggests that this tool type is a recycled, broken Gravette point. We suggest that truncated elements were deliberately produced tools used as different armatures than Gravette points based on techno-morphological differences. We suggest that truncated elements were part of a predetermined composite tool hunting technology. We examine this idea through a series of morphometric measurements and discriminant analysis.

Frankum, Cheryl (Indiana University of Pennsylvania)

[36] *“How Non-Destructive is XRF: Testing Sample Preparation Techniques for Redware”*

Can XRF accurately detect the chemical composition of ceramics using non-destructive sample preparation techniques? This study looks at the reliability of the Innov-X Delta XRF unit in detecting the chemical composition of earthenware ceramics through three different sample preparation methods. While there are growing interests in using XRF analysis for various ceramic studies, this research question examines whether different testing strategies will produce different results. This experiment studies 16 pieces of redware collected from an eighteenth century site, Historic Hanna's Town near Greensburg, Pennsylvania, by first testing the clean surface of the artifact, then with a slightly abraded surface, and lastly, as pressed pellets. The results will be applied to a larger study of redware from the site with the goal of determining if the redware was locally produced.

Frazier, Mechell (Arizona State University)

[66] *Variations in Connectivity: Mapping Long-distance Interaction in the Prehistoric U.S. Southwest*

Changes documented from the pre-Classic to Classic Period (A.D. 475–1450) suggest that a larger social or political movement was occurring within the Hohokam regional system, but the motives behind this change are poorly understood. To fully understand this phenomenon, it is necessary to examine how the change differed within the Hohokam regional system. Researchers can observe this relationship through the study of what Nelson (2006:345) calls “interaction markers,” artifacts, and architectural styles that incorporate a Mesoamerican element (e.g., copper bells, macaws, ballcourts). These markers are present in both the Phoenix and Tucson regions but appear in different proportions, possibly relating to social relationships, the organization of trade networks, or political organization. This research compares the presence of Mesoamerican interaction markers at archaeological sites in the Phoenix and Tucson basins, and estimates the costs of transporting the markers to the respective regions. It is not well understood how interaction and connectivity with other regions, such as north Mexico, changed during this time. Comparing the patterning of interaction markers between the Phoenix and Tucson basins is a useful starting point in understanding the degree of Mesoamerican integration over the Hohokam sequence.

Frederick, Charles [168] see Chavez, Christina

Freedline, Joshua (Brandeis University) and Joanne Baron (University of Pennsylvania)

[88] *La Florida/Namaan: Investigating a Loci of Politico-Economic Influence in the Classic Maya World*

Located on one of the central embankments of El Rio San Pedro Martir, the Classic Maya polity of La Florida (Namaan) is situated between prominent polities of this period (250–909 A.D.). These polities include Piedras Negras, Pomona, and El Peru (Waka), all of which La Florida seems to have had positive trade relations with. During the 2015 field season as part of El Proyecto Arqueológico La Florida, directed by Dr. Joanne Baron, I preliminarily investigated the view sheds between structures along this embankment of the San Pedro. At the summits of five different structures in the 'El Naranjo' central acropolis of La Florida, I was able to view major tracts of land and monuments on the other side of the river. In this presentation, I will use view shed analysis from the tops of structures via arcGIS to portray La Florida as a type of trade loch on El Rio San Pedro Martir. What motivated the residents of La Florida to construct their city in such a manner? Did other polities have economic or political investments at La Florida such that they used this polity as a type of trade checkpoint?

Freeman, Jessica (Seminole Tribe of Florida - Tribal Historic Preservation Office)

[29] *Seminole Cowboys: From Cowkeeper to Today*

Cattle herding is not new to the Seminoles. It is a centuries old way of life that is embedded into their cultural heritage. This tradition began in the 1700s in the Alachua prairies of north Florida under the leader Cowkeeper and has continued into modern day on the Seminole Tribe of Florida (STOF) Reservations. The STOF Tribal Historic Preservation Office (THPO) is currently investigating several early twentieth century sites related to the formation of the Seminole cattle program, including the Charlie Micco Camp, the Morgan Smith Camp, and Marsh Pens. With little archaeological material recovered from these sites, our ability to document them demonstrates how consultation with Tribal members is essential to understanding these sites and their importance.

[29] *Chair*

Freeman, Jessica [29] see Mahoney, Maureen

Freeman, Mark [84] see Dennison, Meagan

Freer-Waters, Rachel [63] see Gearty, Erin

Freidel, David (Washington University in St. Louis)

[138] *Water Mountains and Water Trails: The View from Northwest Peten*

Vernon Scarborough's path-breaking work on lowland Maya water management has focused attention on the way that the Maya conceptualized and utilized landscape and its water sources for political, religious, and economic purposes. Research in northwestern Peten suggests that canoe traffic linked the site of El Achiotal adjacent to the Central Karstic Uplands to the San Pedro Martir River by way of the San Juan River commanded by El Peru-Waka'. The Mirador hill at Waka' was conceived as a water mountain expressing dominion over the surrounding water trails. Control of Waka' and its water trails was contested by regional hegemony during the Classic Period. We review the evidence.

[59] *Discussant*

[26] *Chair*

Freiwald, Carolyn [86] see Patterson, Erin

Freiwald, Carolyn (University of Mississippi) and Timothy Pugh (Queens College-CUNY)

[100] *Strontium Isotope Values for Early Colonial Cows at San Bernabe, A Spanish Mission in the Peten Lakes Region of Guatemala*

The earliest Spanish explorers in the fifteenth century brought ships stocked with European domesticated animals. Yet for nearly two centuries, the Maya living in Guatemala's Peten Lakes region continued to rely on traditional wild animal species. A small number of cow and horse bones have been identified in Contact Period contexts at Zacpeten and Tayasal, but significant changes in animal use are only visible after the Spanish began to build missions in the region during the early 1700s. We explore the introduction of cows, pigs, and horses to the region at the San Bernabe mission near Tayasal. Strontium isotope values provide information on where these animals were acquired, and zooarchaeological analysis provides information on animal rearing and butchery practices, as well as access to the new species by different groups residing at the site. Examination of the San Bernabe faunal assemblage shows a continued reliance on lacustrine resources such as turtles and snails, though other data suggest a marked change in diet. We examine the potential impact of this new lifestyle on land use, farming, and even the health of the regional population.

French, Katherine (New York University)

[161] *A Multiscalar Approach to Medieval Animal Cremains: From Bone Microstructure to Multiregional Trends*

Variability is a defining characteristic of early medieval pagan mortuary practice. Groups may have buried individual decedents in myriad ways, all falling under the definition of 'pagan.' When the variability of a specific ritual practice is compared at the community rather than individual level, however, then local and regional trends emerge. One such ritual practice is the incorporation of animals into human cremations—a practice common in terminal Iron Age and early medieval mortuary contexts across northwestern Europe. This paper examines the prevalence of animal deposits in Early Saxon (450–650 A.D.) cremations, and suggests that “communities of ritual practice” who cremated and buried their dead in this manner can be identified on multiple scales, from the intracemetery to the interregional. Previous studies demonstrated the likelihood of these communities, although geographically limited to East Anglia, Lincolnshire, and Yorkshire. Using advanced cremation analysis techniques, in particular histological methods developed for the identification of small bone fragments, new data suggest that approximately one in five burials contained commingled animal remains in Early Saxon cremation cemeteries across England, suggesting highly structured communities of ritual practice. Future research will expand beyond Britain to identify related “communities of ritual practice” on a broader scale.

French, Kirk (Pennsylvania State University)

[162] *The Flow of Knowledge: Ancient Water Systems and Mentorscapes*

From his initial doctoral work at Cerros in the late 1970s to his most recent investigations in Tikal, Vernon Scarborough's research goals have consistently used water control as an instrument to better understand social complexity. His research has spanned a period of our own history when more sustainable approaches to growth are desperately needed as access to water is of an ever increasing concern. As his student, now colleague, this paper will highlight how Vernon Scarborough and his work has shaped and influenced my own research into water management and sustainability at Palenque, Tikal, and the Teotihuacan Valley.

[250] *Discussant*

French, Kirk [235] see Hermit, Elijah

Freund, Kyle (Indian River State College), Craig Alexander (University of Cambridge), Robert Tykot (University of South Florida), Keri Brown (University of Manchester) and Italo Muntoni (Soprintendenza Archeologia della Puglia)

[146] *A Network-based Approach to the Study of Neolithic Pottery Production in the Tavoliere (Apulia, Italy)*

The Tavoliere has one of the densest concentrations of Neolithic settlement in Europe and is known for its wide repertoire of pottery styles. Using network analysis techniques, this study explores Neolithic pottery production in the region by integrating typological analysis with petrography and elemental characterization using portable X-ray fluorescence (pXRF) spectrometry. In doing so, we reveal sets of choices made at multiple stages of the production processes and in turn shed light on the cultural and socio-economic relationships that underpinned these communities of practice.

During the summers of 2013–2015, our team systematically surveyed 28 sites for cultural resources, which included the collection of ceramic and lithic finds from the surfaces of known Neolithic sites. We also collected 75 geological clay samples from major river valleys throughout the Tavoliere to distinguish possible sources of ancient raw materials.

Using these data, network analysis was undertaken to identify the strengths of inter-site relationships based on comparisons of the relative proportions of ware types and their corresponding geological sources. The results indicate that raw material procurement is patterned in different ways when compared with the distribution of ware types. Moreover, there are distinct differences in the distribution of the major ware types across space.

Friedel, Rebecca

[270] *Ancient Maya Plant Use In the Mopan River Valley, Belize*

The Mopan River Valley was home to a number of prehispanic Maya polities, including both political centers and rural communities. The forests and plant products grown in the region played crucial roles in the lifeways of these Maya, providing food, fuel, construction materials, and medicine. This paper presents preliminary results from the analysis of macrobotanical remains recovered through flotation by the Mopan Valley Archaeological Project and Mopan Valley Preclassic Project. These plant remains come from both monumental centers like Xunantunich and Buenavista del Cayo, and rural settlements like San Lorenzo. They derive from a variety of archaeological contexts, including commoner and elite residences and public ritual areas. Temporally, the samples span various important transformations in the valley's social history including the development of complexity during the Preclassic Period, the political florescence during the Late Classic Period, and the collapse of divine kingship associated with a large-scale depopulation of the area in the Terminal Classic Period. The results will be discussed in terms of what they reveal about elite and commoner lifeways and broader sociopolitical dynamics.

Friedl, Alex [6] see Sherwood, Sarah

Friel, Robert [210] see Bond, Julie

Froese, Tom (Universidad Nacional Autónoma de México) and Linda Manzanilla (Universidad Nacional Autónoma de México)

[129] *A Network Theoretical Analysis of the Emergence of Co-Rulership in Ancient Teotihuacan, Central Mexico*

The political organization of Teotihuacan continues to be unknown. While some researchers see evidence for a powerful centralized hierarchy, others argue for a more collective form of government. We created an abstract computer model of hypothetical social relations among neighborhood-level representatives to show that such a distributed political network could in principle have been sufficient for globally optimal decision making, as long as there are community rituals and sections of the city that are not too independent (Froese, Gershenson and Manzanilla 2014). These conditions were most likely satisfied during the early periods of the city. However, there is evidence that during the final stages, some neighborhood centers become more isolated and independent, and the city as a whole became organized into four districts. Our model suggests that such social fractioning would have undermined a purely horizontally organized collective government. But Manzanilla has hypothesized that four co-rulers governed the city at the district level during this period. We therefore introduced this hierarchical level into our model to verify if such a mixed organization could have addressed some of the issues associated with a fractioning of the underlying social system. We discuss our modeling results in the context of archeological evidence.

Fruhlinger, Jake (Idaho National Guard)

[73] *Moderator*

Fulkerson, Tiffany (Washington State University)

[39] *Engendering the Archaeological Record of the Southern Plateau, Northwestern North America*

Within the last 30 years, researchers have made considerable advances in the effort to engender the archaeological record in areas of northwestern North America. Despite these developments, archaeological considerations of gender in the southern Plateau remain markedly sparse; rather, studies in the region tend to focus on human-environmental interactions and subsistence, settlement, and technological systems. This study aims to address the relative scarcity of explicit and systematic approaches to archaeological inquiries into gender in the Pre-Contact Period of the southern Plateau and, specifically, approaches which center on women. Studies addressing gender and sex in the archaeological record of the Plateau, Great Basin, and Northwest Coast are reviewed in order to assess current theoretical and methodological frameworks that have been published in peer-reviewed and gray literature. Ethnographic records are reviewed in order to identify female-based activities and the material objects, features, and spatial organizations that are associated with these behaviors. For example, digging sticks/digging stick handles, basketry/matting/woven textiles, needles, ground stone tools, menstrual hut features and camas ovens, and macro-and micro-botanical remains offer potential avenues for exploring issues of gender identity and divisions of labor in the southern Plateau.

Fuller, Dorian Q [106] see Qin, Ling

Fulton, Albert and Catherine Yansa (Michigan State University)

[90] *Historic Native American Impacts on a Temperate Forested Ecosystem, Northeastern U.S.A.*

We quantified the nature and extent of Haudenosaunee (Iroquois) disturbance on the forests of the Finger Lakes region, west-central New York, U.S.A., through multivariate statistical analysis of witness trees and survey line vegetation descriptions derived from original late eighteenth century C.E. land survey records and historical documentation in conjunction with archaeological site distributions analyzed in a geographic information system (GIS). Detrended correspondence analysis (DCA) ordinated the regional vegetation along a primary successional gradient associated with proximity to Haudenosaunee agricultural settlements. Furthermore, logistic regression indicated that proximity to aboriginal settlements was the most statistically significant predictor for the distribution of mast, early-successional, and disturbance-related taxa in the pre-Euro-American settlement forests among a variety of climatic and topographic predictors. We hypothesize that sustained anthropogenic vegetation disturbance—primarily in the form of forest clearance, vegetation burning, and selective mast tree cultivation—during and prior to the Historic Period (1600–1800 C.E.) was responsible for the conversion of a portion of the Finger Lakes region's late-successional forests into distinct successional communities associated with agricultural and silvicultural subsistence activities.

Fulton, Kara (University of South Florida)

[120] *Geochemical Analysis of Maya Commoner Houses and the Spaces in between at Actuncan, Belize*

This research considers commoner activity patterns by investigating the results of a geochemical analysis of 500+ samples from earthen surfaces at Actuncan, a prehispanic Maya city located in western Belize. Samples derive from Terminal Classic surfaces of commoner houses as well as the open spaces surrounding them. Archaeological research has often focused on areas that contain visible architecture, since those regions are most easily recognizable as places that contained ancient activity, while neglecting the open spaces between. When ancient use of open spaces is considered, most researchers have focused their investigative efforts towards the exploration of formalized patios and plazas. However, less effort has been devoted to non-formalized space, such as the areas between residences, particularly open areas surrounding commoner houses. With the advent of modern methods, such as soil chemical residue analysis, these open spaces can be investigated in new ways in an attempt to explore how ancient people used architecture-free zones in comparison to architectural areas. Results of this research show that residents of the sample area actively engaged with not only architecturally defined spaces, but also with the interstitial spaces in between. Further, activities conducted in these spaces appear to have been distinct.

Fulton, Kara A. [125] see LeCount, Lisa

Funk, Caroline [124] see Taivalkoski, Ariel

Fusco, Ugo [80] see Moses, Victoria

Fyfe, Ralph [218] see Griffiths, Seren

Gadison, Davette (Tulane University), Brittany Hundman (Georgia State University), Dan Jones (Georgia State University) and Nicola Sharratt (Georgia State University)

[219] *Late Intermediate Period (A.D. 1250-1470) Mortuary Practices at Tumulaca La Chimba: Spatial and Temporal Mortuary Variation in the Moquegua Valley, Peru*

In this paper, we present recent fieldwork focused on Estuquiña mortuary contexts at the site of Tumulaca La Chimba in the Moquegua Valley of Peru. Estuquiña is the local expression of the Late Intermediate Period, and conventionally dated to approximately A.D. 1250–1470. In summer 2015, a total of eight intact circular below ground tombs were excavated at the site. This represents the largest sample of intact Estuquiña burials excavated since fieldwork was conducted by Programa Contisuyo members at the type site of Estuquiña in the 1980s. We discuss tomb construction, as well as the deposition and special distribution of cultural materials and human skeletal remains within the burials, and examine the considerable variation between the excavated tombs, particularly in terms of the treatment of human remains before and during burial. We also compare these new data with pre-existing data on mortuary practices in an earlier occupation at Tumulaca la Chimba, as well as with the literature on funerary contexts at the site of Estuquiña, to examine local variations in funerary patterns across space and time during the Late Intermediate Period.

Gadsby, David

[191] *Using Site Condition Data to Manage Heritage Sites for Climate Change Impacts*

Heritage sites worldwide are threatened by human action and inaction; archaeologists are observers of the era of human-induced global change. We are specially positioned to use our data to examine such change through the material record. Additionally, archaeologists have been recording observations about the condition of sites for many years, even if those observations are not always intended to monitor site condition or integrity. Archaeologists in the National Park Service have, in maintaining the Archeological Sites Management Information System (ASMIS), inadvertently left a record of climate change observations.

As heritage stewards, we must learn to manage sites in the face of continuous changes that we do not fully understand. Recently emerged technologies—including those designed to manipulate increasingly comprehensive and accurate geospatial data—allow archaeologists to examine our data in new ways to understand the causes, directions, and ongoing dynamics of climate change impacts. Our recent study of site condition data from several U.S. National Parks allows us to examine those impacts on National Park Service sites and provide recommendations for future study. We consider how park planners and managers might use these data to prioritize and preserve cultural resources in the face of rising sea levels.

[191] *Chair*

Gadus, Eloise (Prewitt and Associates, Inc.)

[292] *Luminescence Dating of Prehistoric Ceramic Vessel Sherds from the North Central Hills of Mississippi*

Data recovery investigations at site 22CH698, located in Choctaw County, Mississippi, employed luminescence dating of ceramic vessel sherds to complement radiocarbon dates and establish cultural stratigraphy within the site's thick Holocene alluvium. The dating results, along with diagnostic artifacts, indicate that the site components, representing some 2,000 years of occupation, are mixed. Yet the luminescence dates underscore a strong Miller I through Miller III phase occupation (ca. 100 B.C. to A.D. 1100) and demonstrate consistency with dating of the ceramic sequence from the Tombigbee drainage to the east. These results bode well for using luminescence dates to adjust southeastern chronologies.

Gaffney, Vincent [223] see Allaby, Robin

Gaggio, Giacomo (University of California, San Diego.) and Paul Goldstein (University of California, San Diego.)

[122] *Food for the Ayllus: Plants Access and Social Meaning in the lowland Tiwanaku Sites of Omo and Rio Muerto*

Tiwanaku, one of the first Andean states, spread during the Middle Horizon (A.D. 500–1000) from the Bolivian Altiplano into the lowland territories of Cochabamba and Moquegua in order to acquire the resources that were lacking in the highlands, a strategy termed by Murra as the "vertical archipelago." Plants such as maize and coca were among the primary resources that the Tiwanaku sought in these valleys, and different social groups, ayllus or elites, were probably in charge of accessing and redistributing them, as suggested by archaeobotanical research on Tiwanaku domestic contexts (Wright et al. 2003). In this paper, we test this hypothesis with a paleoethnobotanical analysis of Tiwanaku household contexts from the sites of Omo and Rio Muerto, located in the Moquegua Valley. The Moquegua Valley presented a large Tiwanaku occupation from A.D. 600 to A.D. 1000 ca. Two main ceramic styles, representing different Tiwanaku social groups, termed Omo and Chen Chen, have been identified by Goldstein (2005). Our objective in this paper is to assess differences in food access, consumption, and processing between the two groups of colonists through the analysis of the presence and distribution of food plants in the domestic contexts of the Omo and Rio Muerto sites.

Gagnon, Celeste (Wagner College) and Bethany Turner (Georgia State University)

[45] *Those Who Came Before: Investigating Diet, Health and Mobility in the Moche Valley, 1800 B.C.–A.D. 200*

Much sweat and ink has been shed investigating the Moche of north coastal Peru. But what of those who came before? In order to understand the Moche world, we must explore their history. To address this issue, the skeletal remains of over 850 individuals who lived in the Moche Valley during the Guañape, Salinar, or Gallinazo phases were examined. The collected bioarchaeological data including demographic patterns, oral health indicators, light and heavy isotopes, and pathological conditions allow us to investigate the lived experience of these Moche ancestors. Bioarchaeological evidence of individuals lives are integrated within phases and used to examine population-level phenomena. What we find are indications of the development of a regional political economy, changing patterns of population movement, and varying levels of stress. These patterns shed light on people's daily experience of archaeologically identified changing settlement patterns and growth of agricultural infrastructure.

Gakii, Mercy [13] see Ambrose, Stanley

Gakuhari, Takashi [147] see Karsten, Jordan

Gal, Robert [217] see DeAngelo, Rebekah

Galaty, Michael [166] see Parkinson, William

Galaty, Michael (Mississippi State University)

[166] *Collective Memory and the Mycenaeans: The Argolid, Messenia, and the Mani Compared*

The concept of collective memory has received some attention in archaeology, but has not been systematically applied to processes of state formation and sociopolitical change. In this paper, I model the evolution of collective memory systems in Greece from the Neolithic to Iron Age, with a focus on Mycenaean regions. The Argolid, Messenia, and the Mani—using The Diros Project's excavations of a Mycenaean "ossuary" at Ksagounaki as a primary example—vary in terms of how collective memories were created and put to use, as reflected in long-term differences in mortuary practice. A collective memory model can also be employed to help explain differences in Mycenaean versus Minoan state formation.

Gale, Sara, Shawn Patch (New South Associates, Inc.) and Sarah Lowry (New South Associates, Inc.)

[8] *Double Palisades and Double Frequencies: Comparing Single-Channel and Dual-Channel Ground Penetrating RADAR data from Hiwassee Island*

The vast majority of Ground Penetrating RADAR (GPR) surveys have used one ultra-wide band frequency range when examining sites. With this choice come assumptions of the maximum depth and size of potential features as there is always a trade-off in GPR between depth range and maximum resolution. A multi-component site or one with extended occupation may warrant surveys with different GPR antennas in order to reach the earlier occupations and still resolve small features, such as post molds. However, the use of multiple antennas will typically double the survey time. A 2015 survey of Hiwassee Island (40MG31) in the Tennessee River afforded an opportunity to directly compare results from a single-channel, 400 MHz antenna, and dual-channel system, which combines an 800 MHz and 300 MHz into one antenna. Results from this survey show the impact a dual channel system can make when interpreting features of varying sizes and depths while still being budget conscious.

Galke, Laura (George Washington Foundation)

[293] *Is Colonoware an Emblem of Enslavement?*

During the antebellum period the town of Manassas, Virginia, was composed of free whites, and both free and enslaved black people. In this small community material culture played a crucial role in broadcasting status amongst its anxious constituents. They lived in an atmosphere where "whiteness" connoted cleanliness, order, freedom, and privilege. An individual's proximity to, or distance from, whiteness yielded either powerful benefits or humiliating consequences. This was a community in which colonoware pronounced status over ethnicity. Decades of archaeological investigations under the direction of the National Park Service, National Capital Region, have yielded material culture from a variety of antebellum-era domestic sites whose assemblages indicate that the dominant ideology considered colonoware an emblem of enslavement.

Gallaga, Emiliano (EAHNM, University of Arizona), victor ortega (EAHNM) and Tobias García (EAHNM)

[78] *The Petroglyphs of Janos, Chihuahua and its Archaic Community*

In this paper, we will present the preliminary results of the first field season of the El Peñón del Diablo, Janos, Chihuahua Project, focused on an interesting rock art site on the chihuahuan prairie. We like to emphasize that this archaeological project was created under the Janos community initiative, which wanted to know more about the site for its protection and for tourist development in the area. Thanks to the close collaboration between the Janos municipality, the Centro INAH Chihuahua, and the EAHNM, we were able to register the more than 45 petroglyphs sets located on the crag, as well as the surface material collection from the immediate site area (250 x 150 mts). In a first assessment, the rock art site seems to be a single and isolated feature on the valley, but the finding of more than 25 stone ovens, several basin metates, more than 120 stone mortars, and a considerable amount of lithic material, indicate a long occupation that possibly started around the late Paleoindian/early Archaic Period.

[78] *Chair*

Gallaga, Emiliano [179] see Melgar, Emiliano

Gallant, Thomas (University of California, San Diego)

[271] *Landscape Archaeology, Watermills and Hydrotechnology on a Greek Island*

A striking feature of the Greek island of Andros's human landscape is the extremely large number of watermills that operated on the island in the recent past. By one estimate, there were on the island, whose territory is only 380 sq km, more than 270 watermills in operation during the last century. Today, there are none and not a single ravine on the island has sufficient water flow to power even a single mill. To reconstruct the social, economic, and environmental history of mills on the island, we studied one ravine, Fousiai. First, we conducted an intensive pedestrian survey of the ravine and identified 29 water mills. Next, we selected three for more detailed examination, including selective excavation. During the survey, we discovered that an elaborate system of rock-cut channels had been incised into the walls of the ravine in order to channel water to the various mills. Using detailed satellite imaging, we reconstruct the hydrotechnological system in the ravine. The last two sections of the paper focus on, first, the question of climate change and when the island ceased to receive sufficient water to power the mills and, second, the economic history of the mills.

Gallardo, Francisco [57] see Correa Gurrulat, Itaci

Gallareta, Tomas [26] see Gallareta Negron, Tomas

Gallareta Cervera, Tomás (University of North Carolina at Chapel Hill)

[127] *A Model for Interpreting the Royal Court Puuc Tradition*

Throughout 16 years of research at the archaeological site of Kiuic, located in the Puuc zone of the Yucatán Peninsula, explorations have yielded the complete construction sequence of its Late Classic Period royal court and central architectural group, Yaxché. Deep and detailed excavations at the group's central building, Str. N1065E1025, have produced a unique picture of the evolution of architecture, modification of the landscape, and its role in the consolidation of royal power through the use of ritual, domestic, and administration spaces. Moreover, evidence of royal behavior, and the dynamics of the royal court institution at Kiuic suggest a local tradition of highly specialized architecture and ceramic wares which can be seen at large Classic Period Puuc sites such as Uxmal and Labna. In this paper, I use data from detailed stratigraphic analysis, AMS dated contexts, architectural reconstruction, and midden analysis to generate a Royal Court Model to interpret the continuities and transformations of Puuc elite behavior during the Late and Terminal Classic periods.

Gallareta Negron, Tomas (INAH), Tomas Gallareta, William Ringle and Bey George

[26] *Economic Strategies in the Puuc Hills of Yucatan*

Some theorists of the ancient Maya economy argue that the movement of goods served to materialize and aid in the performance of what were essentially political relations of power. Such a perspective emphasizes the rigidity and extreme hierarchy of exchange networks, and their essential focus on the ruler's body and his court. Proponents of market exchange, in contrast, see exchange as serving more quotidian processes of supply and demand, and only tangentially political forces. The Puuc Hills of Yucatan provide an interesting test of these positions, as on the one hand many small sites built extensive palaces suggestive of an elaborate court life. On the other, Puuc society had an extremely broad base of wealthy individuals but relatively little investment in ritual architecture. Imports seem to have been modest. This paper suggests that the particular demands of the karstic landscape fostered the active participation of sub-royal elites in the Puuc domestic economy in ways distinct from the extremes of market and ritual exchange.

Gallareta Negron, Tomas [127] see Kohut, Betsy

Gallareta Negrón, Tomás [127] see Parker, Evan

Galle, Jillian [7] see Bates, Lynsey

Galle, Jillian (The Digital Archaeological Archive of Comparative Slavery, Monticello)

[272] *Chitons and Clams, Cash and Carry: An Archaeological Exploration of the Impact of Enslaved Children's Foraging Strategies on 18th-Century Enslaved Households in Jamaica*

Attempts at understanding the economic and social strategies used by enslaved people in the early modern Atlantic World require sophisticated models of human interaction, models that allow archaeologists to precisely investigate the complex behavioral strategies that underlie artifact patterns. Here, Optimal Foraging Theory provides the framework for identifying the fishing and foraging activities of enslaved children and adults laboring at the Stewart Castle Estate, an eighteenth-century Jamaican sugar plantation. Data from the estate's slave village suggests that a growing reliance on the products of children's labor, in this case low-ranked shellfish, allowed enslaved households to divert high-ranked fish species to the marketplace, where the proceeds from the sale of these high-ranked fish were used to acquire costly, imported goods. Signaling Theory then provides a framework for understanding the relationship between the discard of fauna remains, shellfish, and non-provisioned costly goods within the village, patterns that suggest how and why enslaved households transformed precious labor and food into consumer goods purchased at local and regional markets.

Gallego, Jose Ramon [20] see Casar, Isabel

Gallenstein, Gwenn [63] see Gearty, Erin

Gallivan, Martin (William & Mary) and Jeffrey Hantman (University of Virginia)

[284] *Pilgrimage, Ancestors, and Commemoration in Postcolonial Indigenous Homelands*

In this paper, we consider ritual practices at indigenous places in the Chesapeake that are traditionally described as 'abandoned.' Our study involves four sites in Virginia regarded as sacred by past and contemporary Monacan and Powhatan people. From a strictly non-indigenous perspective each of these places has been viewed as abandoned at or just past the moment of European colonization. Instead, we find evidence that these locations remained active as part of indigenous homelands. The archaeological and ethnohistorical records provide evidence of periodic journeys to towns, mounds, and burial grounds after the residential population had departed. Our research situates us in an ongoing discussion of pilgrimage rituals inferred at precontact centers in North America such as Cahokia and Chaco Canyon. However, monumentality, large gatherings, feasts, and social transformations (communitas) are not apparent in our studies. Instead, we posit that the rituals observed in the Chesapeake are part of postcolonial commemorations of ancestors, homeland, and continuity. This process of postcolonial commemoration within precolonial places has implications for contemporary indigenous connections to ancestors and ancestral homelands.

Galvan, Melissa (Universidad de las Americas) and Betsy Kohut (Millsaps College)

[127] *Acknowledging Anonymous Artists: Examining the Painted Stucco Facade from a Temple at Kiuic, Yucatan*

Excavations in the main plaza of Kiuic in Yucatan, Mexico, revealed the presence of a dismantled stucco façade south of the temple it once adorned. The façade dates to the temple's initial Late Classic construction (600–800 A.D.) and is thought to have been stripped from it during a second construction phase in the Terminal Classic (800–1000 A.D.). Preliminary analysis of the deposit provided insight into the methods used to sculpt the stucco revealing its theme to have been a historic-narrative depicting important characters, a style similar to those found at other Classic lowland Maya sites. To understand the process by which such stucco facades were created, we will conduct analysis of the raw materials and artistic/architectural techniques

used in their production. In this paper, we present the results of chemical analyses used to identify the materials (stucco plasters and pigments) used in the construction. Identification of these materials and the techniques by which they were combined enables us to address questions regarding their availability and selection by the artists operating at Kiuc during this time. The specifics of this artistic tradition with regard to level of specialization and resource investment can be compared to others in ancient Mesoamerica.

Gamble, Lynn (University of California, Santa Barbara)

[110] *Feasting, Ritual Practices, and Persistent Places: New Interpretations of Shellmounds in Southern California*

Intensive archaeological investigations at the largest extant shell mound in the Santa Barbara Channel area and one of the best-preserved Early Period archaeological sites in the region have produced an array of radiocarbon dates within solid stratigraphic contexts. Approximately 50 house depressions situated in rows on several terraces have been mapped on the eight meter high mound that measures 270 by 210 meters, approximately 5 hectares. Analysis of multiple lines of evidence, including stratigraphic profiles of multiple house depressions and features, 76 radiocarbon dates, ground penetrating radar, and mortuary analyses of over 200 previously excavated burials, support my claim that the mound, El Montón, was a persistent place where early visitors feasted on red abalone, urchins, sea mammals, and other marine delicacies, constructed dwellings, buried their dead, and performed ceremonies where select groups of infants, children, and adults were revered. These mortuary rites conveyed the symbolic power of the place and created a history of events that became part of a mythical and real past that was repeatedly visited, modified, and interpreted as social relationships were reinforced. This case study supports the idea of southeastern archaeologists and others that shellmounds are socially constructed landscapes, not just accumulations of refuse.

Gamble, Julia (University of Toronto) and Brooke Milne (University of Manitoba)

[214] *Explorations in LEXT Image and Profile Capture for Dental Enamel Surface Morphology*

The field of bioarchaeology is leading to significant advances in our understanding of the lives of past populations. A particular area of interest in this field lies in the consideration of the early life determinants of later life conditions. The consideration of non-specific skeletal stress markers has been at the forefront of this research. Dental enamel grows incrementally, and because it does not remodel once formed, a permanent record of growth disruption is preserved. Traditionally, enamel surface defects have been observed macroscopically. However, this method does not capture the smaller defects reflecting a disruption in only a few of the growth lines visible on the tooth surface. Previously, SEM has been used to examine these patterns, but this only provides an image of the tooth surface which then needs to be scored through visual examination. Other techniques for trying to produce profile lines for more objective assessment have been explored, such as the use of an engineering measuring microscope and the Alicona 3D InfiniteFocus imaging microscope. This paper presents the preliminary application of the LEXT 3D laser measuring microscope to examine dental enamel. The benefits of the LEXT will be discussed along with the challenges encountered in this examination.

Gamble, Joseph [230] see Pohl, Mary

Gangloff, Deborah

[48] *Discussant*

Gantos, Alex [221] see Harrison-Buck, Eleanor

Gao, Xiaofang [180] see Zhang, Qun

Gao, Qian (University of Barcelona)

[254] *Archaeological Tourism and Social Values, a Case Study in China*

Today the increasing commercialization of cultural heritage draws archaeology and tourism into ever-closer contact. With the fast development of tourism, archaeological sites are utilized for their multiple potentials as revenue generators, public education providers, national identity promoters, and many other roles. It should be noted that these potentials are defined by the various values that a society attributes to its archaeological heritage. That is to say the values of archaeological heritage, once considered to be intrinsic, are now believed to be produced out of the interaction between the heritage itself and its historical, social, and economic contexts. The social values of archaeological sites, firstly recognized in the Burra Charter of 1979, have become increasingly emphasized in legislation and guidelines for the management of archaeological sites at a global level. In China, the social values of archaeological sites are also progressively recognized in recent years. However, there is rarely a full account of the impact of tourism on a society's perception of such values. This paper employs ethnographic approaches to scrutinize the social values attributed by local communities to archaeological sites in China under the influence of tourism development, using the Daming Palace archaeological site as a case study.

Garay, Jose and Isabel Rivera-Collazo (University of Puerto Rico, Río Piedras campus)

[156] *Subsistence and the Resilience of Coastal Habitats in the Longue Durée*

Mollusks recovered from archaeological sites reflect decisions made by individuals in the past, changes in the environment through time, and the interactions between people and landscapes. Therefore, archaeomalacological analyses can help to reconstruct paleoenvironments and to identify changes in consumption practices. Changes should be particularly evident when considered from a deep-time perspective. In this presentation, we will be evaluating samples from three archaeological sites spanning from 4.4kBP to the nineteenth century A.D. within the same hydrological basin (Rio Grande de Manati, Puerto Rico) with the intention of examining culture and environmental change through time. The research question guiding this investigation is what coastal ecosystems are identified in the archaeomalacological component of the subsistence-remains assemblage, and to what extent does this information reflect patterns of resource management and territory exploitation through time? By using taxonomic identification, MNI and NISP counts, we expect to identify similar species in all sites notwithstanding cultural differences because they are all located within the same landscape. Detailed examination of the samples provides specific data of coastal resource exploitation of multiple ecosystems from Archaic, Ceramic Age, and Late Historic periods reflecting changes in habitat distribution along a continuation of socioenvironmental knowledge of subsistence resource acquisition.

Garcia, Lorena (Museu de Arqueologia e Etnologia da Universidade de São Paulo) and Fernando Almeida (Universidade Federal de Sergipe)

[23] *Ceramics and the Indigenous Histories of Southeastern Amazonia*

Ceramics buried in dark earths guard different histories from indigenous groups, including the millenary process of occupation interfluvial and riverine areas of southeastern Amazonia. These histories are often related to the regional settlement of Tupi-Guarani speaking groups, and the relations they established with their Arawak and Carib neighbors. We argue that some ceramic elements can be interpreted as a materialization of short or long time contacts between these groups. The main objective of this presentation is, hence, to discuss which ceramic elements have the potential to reveal interaction processes in the region between the Xingu and Tocantins rivers. We also discuss the importance of this region to help understand the wider archaeological context of the Lower Amazon.

Garcia, Dante and Guillermo De Anda**[46]** *Climatic Changes and Ceramics during the Terminal Classic at Chichén Itzá*

According to the ceramic evidence that came out of the Chichen Itzá sinkholes or "cenotes," it seems the ancient Maya offered into these wells important quantities of pots and very unique ceramic vessels within a very specific period of time, and under very specific situations. The evidence indicates that most of the ritual activity occurred approximately between A.D. 900–1100, a time that coincides chronologically with the end of the Terminal Classic Period, the rise and subsequent abandonment of Chichen Itza, and two of the three strongest droughts in the last 3,500 years at the North side of the Yucatan Peninsula.

This information raises the question whether these ceramics are perhaps the archaeological evidence that shows specific vessels manufactured related to rainwater petition ceremonies. Cenote Holtún of Chichén Itza is probably one the most intact archaeological context at the North Maya Lowlands and can provide important information about climate stress moments that encouraged new ceramic manufacturing behavior.

Garcia, Dante (Zona Arqueologica de Monte Albán), Cesar Dante García Ríos (INAH-Oaxaca) and Ronald k. Faulseit (Museo "Field", Chicago, IL, EE.UU)**[231]** *Gestión arqueológica, estructura base en el redescubrimiento de Dainzú-Macuixochitl*

Durante el proyecto de investigación Arqueológica Dainzú-Macuixochitl 2015, la gestión arqueológica ha permitido conjuntar la ciencia con la tradición. Partiendo de vincular a la comunidad con la investigación se ha logrado la reapropiación y el empoderamiento patrimonial, el fortalecimiento de la identidad, la reapertura del museo comunitario y el redescubrimiento de los zapotecos antiguos por los zapotecos contemporáneos. Los dos ejes de trabajo, mapeo y excavación, revelan algunos elementos urbanísticos y parte de la estructura político, social y religiosa de una ciudad sagrada que aparece desde el periodo formativo y continuo vigente hasta la llegada de los españoles. De hecho, debido a que los habitantes del pueblo moderno son descendiente de la ciudad antigua, el aprendizaje es recíproco porque sus conocimientos sobre la tradición moderna llevan implicaciones para la comprensión de actividades del pasado. La excavación reveló un complejo residencial del clásico tardío que contaba con su propio taller de figurillas, permitiendo conocer acerca de las divinidades y elementos de la ritualidad de la religiosidad zapoteca, misma que con los 5 entierros, 12 ofrendas y diversos materiales como cerámica, lítica y hueso, evidencian en parte, de la compleja dinámica de esta ciudad.

Garcia, Jorge (University of Florida Department of Anthropology)**[254]** *New Perspectives for a Collaborative Community Archaeology in Colombia: Strengthening the Social Fabric through the Mitigation of Violent Pasts and the Re-Appropriation of Heritage Management*

Colombian archaeologists continue to be criticized for instituting nationalistic agendas and ignoring the demands of local communities interested in participating in the research and stewardship of archaeological remains. This criticism of Colombian archaeology has a strong foundation, but it does not generate alternatives on how to mitigate the lack of cooperation between archaeologists and communities. It is necessary to assess processes in which communities have worked along with archaeologists, to improve the discourse and the implementation of community archaeology in Colombia. I will assess the strategies applied in the first community archaeological project in Colombia, the San Jacinto Archaeological Project and Museum, as well as describe other important community projects in other regions in the country to identify factors of the value/costs for the communities participating in these projects to define how strategies and methodologies used in each of the projects can contribute to the future of collaborative community archaeology. Given Colombia's violent history, the regions where the above-mentioned community archaeological projects are conducted have been stricken by armed conflicts and can serve as comparative cases for the implementation of community archaeological projects in other regions of the world as a tool to mitigate violent events and conflictive pasts.

[254] *Chair*

García, Tobias [78] see Gallaga, Emiliano

García Ayala, Gabriela**[169]** *La Terraza 912, un espacio domestico del Cerro Jazmín*

Las recientes investigaciones en el cerro Jazmín, sitio prehispánico de la Mixteca Alta Oaxaqueña, han comprobado que este sitio fue establecido en el periodo formativo, teniendo una ocupación constante del asentamiento hasta la llegada de los españoles. La excavación de una unidad habitacional en la terraza 912 del periodo Natividad da constancia de la continua ocupación del espacio y también un pequeño acercamiento a la forma de vida en esta época. El estudio de unidades habitacionales es fundamental en los estudios arqueológicos, ya que aportan valiosa información sobre la vida cotidiana de la población, así como información económica, política y religiosa, que en conjunto con otros datos ayudan a entender mejor los diversos procesos sociales llevados a cabo en una comunidad. Esta ponencia resume los datos de excavación de este espacio habitacional el cual fue utilizado en las dos principales etapas de esplendor del Cerro Jazmín (Ramos y Natividad). Aunado a esto se dará una visión general de los procesos sociales acontecidos en estas dos épocas en toda la Mixteca Alta.

García Capistrán, Hugo [256] see Vázquez López, Verónica

García de Quevedo Machain, Rafael [101] see Mountjoy, Joseph

García Ríos, Cesar Dante [231] see Garcia, Dante

Garcia-Plotkin, Patricia (Agua Caliente Band of Cahuilla Indians)**[29]** *Stewards of the Land: Agua Caliente Tribal Historic Preservation*

As stewards of the Tribe's heritage, the Agua Caliente Band of Cahuilla Indians has designated the Tribal Historic Preservation Officer (THPO) responsible for the protection, preservation, and management of a wide array of Historic Properties and Cultural Resources such as archaeological sites, historic-period properties, as well as expanses of land which are of traditional or ceremonial importance to Tribal membership. In order to best protect the Tribe's cultural heritage, the THPO has developed a Historic Preservation Management Plan, a Research Design, and a Historic Preservation Policy to provide guidance in regards to Historic Preservation on the Agua Caliente Indian Reservation and Traditional Use Area. This Presentation will provide an overview of the Agua Caliente THPO, its successes, and challenges.

[203] *Discussant***Gardner, A. Dudley (Western Wyoming College) and William Gardner (Yale University)****[155]** *A Comparison of Macro Botanical Materials Recovered from a Multi-Stratified Site in West Central Colorado: Dating from 200–13,000 B.P.*

Over the last 9 summers we have conducted extensive excavations at a rock shelter (Eagle Point) located above the Gunnison River in west central Colorado. The deposits are ladder and the macro botanical fill from the features indicates that from the Paleo Period to the last occupation in 200 B.P. similar plant resources were available and exploited. There are some differences. We want to briefly present the differences and similarities in plant exploitation from the Paleo (13,000 B.P.) through the Formative Period (500 B.P.). This presentation will focus on dominant botanical materials utilized across time and offer some suggestions as to why some plant resources are not evident during certain time periods at this site.

[155] *Chair*

Gardner, William [155] see Gardner, A. Dudley

Gardner, Chelsea (University of British Columbia)**[166]** *Local Identity in the Mani Peninsula in Classical Antiquity*

This paper presents a new approach to studying ancient identity in the Mani peninsula, using a combination of archaeological and epigraphic evidence and existing theoretical paradigms. Mani can be classified as an 'ahistorical historical' region—one that is inhabited within the historical period but which does not itself produce emic written evidence. Regions like Mani are often left out of typical inquiries into ancient Greek identity, which are overwhelmingly divided between studies of a) prehistoric identity through examinations of geography and archaeology; versus b) historic cultural identity through examinations of written records and literature. The result of this divide is that investigations of ancient ethnic and cultural identity tend to centre on areas with either an abundance or a complete absence of written history.

This theoretical methodology applied to this region is used in order to understand ancient identity in this remote peninsula, and the way in which regions like Mani (those which are occupied within the historical period, but which lack primary historical sources) are still able to contribute to the discussion of ancient identity. The results of a pedestrian survey in the Diros Bay region illustrate this 'ahistorical-historical' approach to identity on a hyper-local level.

[166] *Chair*

Garhart, Zachary [265] see Clauter, Jody

Garnett, Justin [40] see Pettigrew, Devin

Garnier, Aline [96] see Purdue, Louise

Garrett, Zenobie (New York University)**[188]** *Dynamic Communities in Early Medieval Aquitaine: A GIS Analysis of Roman and Medieval Landscapes in the Vézère Valley, France*

The transition from Roman to post-Roman Europe represents one of the sharpest breaks in the archaeological sequence of Europe. Over the past two decades, European archaeologists have increasingly argued for the necessity of a regional perspective to this transition. They argue against an interpretation that views the Roman-Medieval transition as a pan-European event, and instead, reframe the break as a series of localized events with independent chronologies and histories.

Although traditionally overlooked, the Vézère Valley in southwestern France occupies a unique environmental and social landscape in which to study this transition. While the topographic variability makes it a key place to test questions concerning the location and placement of communities, it also lies within a space of multiple, contested, and political influences providing a unique insight into the agency of communities in the formation and transformation of states. This paper presents the results of a dissertation project that analyzed the spatial relationships of traditionally and non-traditionally sourced site data with a number of environmental factors. The results provide crucial insights into the changing nature of community organization in the landscape and how this informs our understanding of community response to large-scale socio-political change.

Garrido, Francisco (University of Pittsburgh)**[259]** *The Illusion of Total Control in the Provinces of the Inca Empire*

Despite the interest of the Inca empire in promoting their ideology and establishing a strong political economy in their provinces, the actual result of that process was full set of "trade-offs" that involved the empowerment of local elites, and the independent development of parallel economies of sumptuary goods and household provisioning. This proposition challenges current and dominant "top-down" approaches to the Inca empire, where all economic and political transformations are seen as a direct product of the Inca intervention, without room for local agency. I propose to go beyond simple dichotomies of adaptation and resistance and explore other ways in which local populations may have infiltrated the structure of the empire for their own benefit as a "bottom up" response to imperial control.

Garrison, Thomas [228] see Alcover, Omar

Garrison, Ervan

[249] *Discussant*

Garrone, Florencia [176] see Scheinsohn, Vivian

Garvey, Raven (University of Michigan)

[289] *Cultural Transmission and Artifact Variation in Late Prehistoric New Mexico*

Prehistoric boundary dynamics likely affected aspects of cultural transmission. Several lines of archaeological evidence indicate increased economic importance of bison and related inter-group tensions ca. A.D. 1300 in southeastern New Mexico, a boundary zone between the Pueblos to the west and cultures of the southern High Plains to the east. This paper presents preliminary results of a study centered on artifact variability and designed to test the hypothesis that model-based, biased cultural transmission, or heightened incentive to “advertise” group membership influenced the fidelity of projectile point manufacture in this context.

Garzon-Oechsle, Andres (Department of Anthropology, Florida Atlantic University) and Valentina L. Martínez (Department of Anthropology, Florida Atlantic Univ)

[205] *Results of Survey and Preliminary Analysis of Manteño Archaeological Sites with Stone Structures in the Las Tusas River Valley, Rio Blanco, Ecuador*

This poster presents information on the Manteño occupation (1500 B.P.–1532) of the cloud forest within the Chongón-Colonche Mountains of coastal Ecuador. Survey and data recovered from eight archaeological sites containing stone structures located alongside Las Tusas River drainage suggest a specific mode of adaptation and settlement pattern that left a particular landscape signature. The survey was conducted by the Florida Atlantic University Archaeological Field School in Ecuador during the summer of 2015. The data reveals a pattern of maximized use of restricted living spaces in such rugged terrain. At least one of the investigated sites displays a concentration of 22 structures, indicating a semi-urban settlement design. Previous investigations suggest that the Manteño articulated a diversity of environments characterized by the presence of sustainable human settlements across the region. Therefore, results of this investigation will contribute to a larger discussion of Manteño socio-political organization.

Gasco, Janine (CSU-Dominguez Hills)

[292] *Luminescence Dating at the Postclassic Site of Gonzálo Hernández, Chiapas, Mexico*

In the Soconusco region of Chiapas, Mexico, we are still struggling with refining the Postclassic ceramic chronology. At the site of Gonzálo Hernández, the evidence suggests that the principal occupation of the site was during the Late Postclassic Period (ca. 1300–1520 C.E.), but a small percentage of sherds date to earlier periods. In an effort to approach the local ceramic chronology from a new perspective, a small sample of sherds were dated using luminescence dating. The results have clarified certain issues—namely that many of the ceramics were produced in the Late Postclassic Period. Curiously, however, some dates spilled over into the Colonial Period, an unlikely scenario as no known historic materials (e.g., metal goods, glazed ceramics) were found at the site. In this paper, I discuss how the various dates generated by luminescence dating can be interpreted.

Gates St-Pierre, Christian [84] see McGrath, Krista

Gates St-Pierre, Christian (Université de Montréal), Krista McGrath (BioArCh, University of York), Keri Rowsell (BioArCh, University of York) and Matthew Collins (BioArCh, University of York)

[176] *The Identification of Archaeological Bone through Non-Destructive ZooMS: The Example of Iroquoian Bone Projectile Points*

ZooMS (Zooarchaeology by Mass Spectrometry) is a well-established technique for the identification of archaeological bone. In this study, we apply a refined ZooMS method to worked bone points in order to analyse them in a completely non-destructive fashion. The traditional ZooMS technique requires destructive analysis of a specimen, which is obviously problematic when dealing with intact rare artefacts. The bone points are part of large assemblages of bone tools and manufacturing debris recovered from two pre-contact Iroquoian village sites located in southern Quebec, Canada. White-tailed deer was the most important mammal species identified in the faunal assemblages. This information combined with the approximate size of the original bone suggested the points were likely deer, however, preliminary ZooMS analyses using this new technique revealed the unexpected species identification of bear. The results were subsequently confirmed using traditional ZooMS and DNA analysis. Further testing of additional artefacts from the site using the modified ZooMS method has resulted in several additional species identifications. These surprising results would never have come to light through traditional zooarchaeological methods, highlighting the importance of advancing biomolecular research in this field.

Gatto, Maria [177] see Banks, Kimball

Gaudreau, Mariane (Simon Fraser University) and George Nicholas (Simon Fraser University)

[144] *Tackling Ethnicity from Anthropological, Archaeological, and Indigenous Perspectives: The Case of the St. Lawrence Iroquoians*

Cultural anthropologists’ and archaeologists’ interest in theorizing identity has a long history. Anthropologists have generally focused on emic perspectives to gain insight into contemporary individual and group identity, while archaeologists have relied mainly on material culture to discern identity in the past, with relatively little attention paid to the views of contemporary peoples. When archaeological interpretations conflict with those of contemporary peoples, serious concerns arise. This is the case in Quebec where First Nations groups today claim to be the descendants of certain archaeological cultures that the archaeologists have attributed to someone else, and are thus denied what they consider as their cultural heritage. In this paper, we review ways in which identity has been theorized by cultural anthropologists and archaeologists in the in the last 30 years. We then consider the implications of identity and ethnicity theories in contemporary contexts (e.g., tribal and inter-tribal relations, land claims, heritage management) using the case study of the ethnic identity of the St. Lawrence Iroquoians.

Gauthier, Nicolas (Arizona State University)**[72]** *Agricultural Risk Management in Mediterranean Environments: A Computational Modeling Approach*

Small-scale agriculturalists in the Mediterranean Basin rely on multiple strategies including diversification, intensification, and storage to maintain a stable food supply in the face of environmental uncertainty. Each of these strategies requires farmers to make specific resource allocation decisions in response to environmental risks and is thus sensitive to variability in both the spatiotemporal pattern of risk and the ability of farmers to perceive that pattern. In this talk, I present an agent-based model of a Mediterranean agroecosystem. By driving the model with realistic environmental dynamics derived from simulations of mid-Holocene Mediterranean climate, and by allowing the psychology of risk perception to vary among individual farmers, I explore the hidden vulnerabilities of traditional risk-management strategies to periods of rapid climate change. I show that even when farmers are able to manage risk "optimally" in light of past experience, changes in the spatiotemporal pattern of rainfall can still lead to major food shortfalls.

Gauthier, Rory [210] see Adler, Rachel

Gaylord, Donald (Washington and Lee University)**[284]** *Revisiting a Stratified Random Sample of the 18th-Century Liberty Hall Campus of Washington and Lee University*

Many of us at institutions with long-standing archaeology programs benefit greatly from the collections we inherit. However, these also present certain challenges. One such example is a stratified random sample done by Washington and Lee Archaeology in the 1970s on its eighteenth-century Liberty Hall Campus. Exceptional in historical archaeology at a time when many archaeologists were still stripping the plowzone from sites, a stratified random sample provides the statistical benefits of randomness, while still ensuring systematic coverage of the test area that a simple random sample does not achieve. Spatial analysis of this collection with statistical methods unavailable at the time of its excavation has led us to realize that we needed a larger sample in order to meet new preservation needs and to answer new research questions. Recent excavations have supplemented the sample in our attempt to determine adequate quadrat size and spacing to accomplish our research.

Gearty, Erin (Flagstaff Area National Monuments), Rachel Freer-Waters and Gwenn Gallenstein (Flagstaff Area National Monuments)**[63]** *Wrinkle-free Clothing: Conservation and Rehousing of Prehistoric Cotton Textiles from Navajo, Walnut Canyon, and Wupatki National Monuments, Arizona*

In 2014, the Flagstaff Area National Monuments received funding to conserve and re-house more than 300 non-burial related prehistoric cotton textiles from Navajo, Walnut Canyon, and Wupatki National Monuments housed at the Museum of Northern Arizona (MNA). The textiles were woven in the 1100s A.D. and range from expediently constructed objects to technologically complex clothing with dyes. These prehistoric remnants of cloth were excavated by archaeologists in the 1930s and 1960s, and many remained in the crumpled state in which they were found. Many fragments also still had soil accumulation and other debris from the excavation site, and due to creasing, they could not be adequately studied or fully viewed. The project included conservation treatments, as needed, and designing of storage systems that provide preventive care for the textiles. Conservation was undertaken with care to preserve any potential material that might be valuable during scientific analysis, and balance those interests with the preservation of each piece. In this presentation, we discuss how the project was completed, and provide an analysis of the textiles from Wupatki and Walnut Canyon National Monuments.

Geber, Jonny (University of Otago)**[25]** *"Children in a Ragged State": Seeking a Bioarchaeological Narrative of Childhood in Ireland during the Great Famine (1845–52)*

More than half of all victims of the Great Famine in Ireland from 1845 to 1852 were children, but despite this fact relatively little attention, amongst a vast body of famine research undertaken to date, has been undertaken to explore their experiences and what realities they endured during this period. Following the archaeological discovery and bioarchaeological study of a large famine-period mass burial ground adjacent to the former workhouse in Kilkenny City, the physical experience of this calamity for over 500 children that ultimately succumbed to malnutrition and infectious disease has become evident. The experience of poverty, famine, and institutionalisation can be discerned from skeletal markers in their bones, and when interpreted in their historical and cultural context, they enable a unique insight into the reality of growing up as a child in Ireland during one of the worst subsistence crises in human history.

Geib, Phil (Nebraska State Historical Society)**[63]** *Mesoamerican Grooved Curved Sticks: Short Swords, Fending Sticks, or Other Purpose?*

Curved sticks with longitudinal facial grooves were dredged from the Sacred Cenote at Chichén Itzá at the start of the 1900s. They are also depicted in art there and at other sites such as Tula. These artifacts are similar to specimens recovered from various sites throughout the North American southwest, where one suggested function was for defense against atlatl darts. Accepting this speculative account, Mesoamerican archaeologists have identified these artifacts as fending sticks. Starting in the late 1980s, some started to doubt the fending interpretation, with Hassig (1988:294–295) arguing that the grooved curved sticks were specialized short swords for close fighting. My analysis of the Chichén Itzá sticks along with a consideration of the mural evidence disproves the short sword argument, but does not corroborate the fending role. However, there is a tantalizing bit of ethnographic evidence from Diego de Landa that hints at the possibility of the Yucatan Maya deflecting atlatl darts using short sticks in a ritual designated as a dance. There is also some use-wear support for the fending interpretation from the southwest, where this artifact type dates to at least 8,000 years ago. Fending atlatl darts in ritual fights remains a probable interpretation of these sticks.

Geiger, Crystal (Seminole Tribe of Florida) and Jack Chalfant (Seminole Tribe of Florida)**[29]** *Flipping the Desk: Increasing Tribal Participation in Archaeological Investigations*

Tribal archaeology expands the interpretation of the archaeological record through the incorporation of tribal perspectives. The Seminole Tribe of Florida (STOF) Tribal Historic Preservation Office (THPO) partnered with the sixth grade students of STOF Pemayetv Emahakv ("Our Way") Charter School in 2014 to excavate a little known, historic, Anglo-American home-site on the Seminole Brighton Reservation. The THPO worked with the students to document their observations and participate in the site's excavation. Contrary to traditional archaeological projects, in which non-natives investigate and decipher native sites, this field school focused on Seminole interpretations of a non-Seminole site. This research, in tandem with oral histories gathered from tribal members, allowed for a more expansive view than previously recorded. This project utilizes the active engagement of tribal members and archaeologists in order to yield a more nuanced, complete view of the past.

Geller, Pamela (University of Miami)**[24]** *"The Creation Of Silences": Medical Officers & the Morton Collection*

Official historic documents proclaimed nineteenth-century medical officers as heroic for administering to the inflicted during wars that defined and expanded the United States' national borders. Military doctors were especially welcomed by U.S. soldiers and Euro-American settlers on the Florida frontier where life was precarious. Yet, their activities were often far from benevolent; many advanced necropolitical conditions. Rather than humanitarian crisis, medical officers regarded the epidemiological disasters and forced relocations of Native Americans as a scientific opportunity. Their gathering of data—observations on infectious diseases, collection of crania—worked to further erase, to let die, native peoples and the places they had inhabited. "The production of traces," Michel-Rolph Trouillot reminds us, "is always also the creation of silences." Can a biohistoric study of these traces—archival and skeletal—yield understandings of past events and peoples that counterpoise official histories? Or, does giving voice to those silenced in the past simply reflect researchers' social privileges, thereby reinforcing social inequalities in the present? As an example, I discuss the Samuel G. Morton Crania Collection. I concentrate on the decedents acquired for Morton by medical officers stationed in Florida during the Seminole Wars.

Gentil, Bianca (The Pennsylvania State University)**[234]** *Particularism vs. Broad Strokes: The Application of Political Economic Paradigms of the Elite Classic Maya in Northwestern Belize*

By bringing together theoretical frameworks utilized by scholars to describe the Classic Maya political economy, this work evaluates their applications in the case of the site of La Milpa. Located in northwestern Belize, La Milpa experienced a demographic rise during the Late Classic/Terminal Classic periods, followed by a rapid decline shortly thereafter. This poster explores Maya political economy mechanisms as defined by Kenneth Hirth in his 1996 piece, specifically focusing on aspects of elite craft control and differential access to imported goods. By analyzing ceramic and lithic material excavated during 2008–2015 field seasons from the courtyard of La Milpa's ruling family, we gained a greater understanding of the modes of production (craft specialization and control), consumption (elite communal and private activities), and distribution (access to interregional wares) for the La Milpa elite. From there, we assessed whether or not the operating processes of the La Milpa political economy share similarities from other areas throughout the Maya region during the Late Classic.

Gentry, Jewel (California State University Monterey Bay) and Donna L. Gillette (University California Berkeley)**[175]** *Marking the Sacred: Rock Art Images in an Unusual Context*

Rock art images, generally associated with outdoor landscapes and boulders, occur in an unexpected context and very sacred space in the California Spanish colonial community of Mission San Miguel the Arcángel. The Mission Community consisted primarily of Salinan and Tulare native populations and included neophyte Indians from previously established nearby Missions. It has been suggested that images found etched throughout the sanctified interior are analogous to California Indian rock art with subsequent parallels being drawn from regional archaeological sites. Current research broadens previous studies by relating spatial positions of proposed neophyte etchings within San Miguel to Catholic mandates which directed the use of sacred space. Spatial and liturgical organization of neophytes within the mission church was defined by many factors including; age, gender, musical aptitude, and level of religious training, with access to sacred space being linked to neophyte identity and status. Associated to this, proposed neophyte etchings within the church of San Miguel are found in pronounced form in areas of access corresponding to prominent status within the church. This observation offers many compelling perspectives related to neophyte continuance of rock art traditions and the conflation of indigenous traditions in the continued formation of sacred space.

Georgakopoulou, Myrto [257] see Abell, Natalie

George, Bey [26] see Gallareta Negrón, Tomas

Georgia, Fox [183] see Schoenike, Katelyn

Gerard-Little, Peregrine**[144]** *Seeing the Forest for the Trees: Human-Landscape Interactions Explored through Wood Charcoal Assemblages from Three Seneca Iroquois Settlements (1670–1750 C.E.)*

This paper presents an assessment of archaeologically recovered wood charcoal data from comparable archaeological contexts at three eastern Seneca sites: Ganondagan (1670–1687 C.E.), White Springs (1688–1715 C.E.), and Townley-Read (1715–1750 C.E.). These sites were successively occupied by the same community through periods of both residential upheaval and relative peace, as well as interaction with a number of non-Seneca cultural traditions and colonial entanglements. This project's use of archaeological materials to understand human-landscape interactions at a site-level and site sequence scale contributes to modeling dynamism in these systems, particularly in an area dominated by indigenous processes, at the 'periphery' of colonial control. Inter- and intra-site differences in wood species occurrence in domestic features are interpreted within a framework that places Seneca landscape practices in the context of ongoing modification of local environments, culturally specific landscape practices, and political and economic variability across the occupation of these three sites.

Gerdau-Radonic, Karina (Bournemouth University) and Jelle DeFrancq (Bournemouth University)**[206]** *Tooth Tales from Lima: Pre-Columbian Dental Health along the Central Coast of Peru*

Changes in political, economic, and social organisation may affect diet and access to resources, and consequently dental health. This study aimed to assess the dental health of two populations from Peru and to establish differences over time. Caries, Linear Enamel Hypoplasia (LEH), ante-mortem tooth loss (AMTL), and calculus were recorded for Tablada de Lurín (TL; 1 A.D.–200 A.D.) and for Pueblo Viejo (PV; 1476 A.D.–1534 A.D.). Frequencies were examined in order to assess sex and inter-population differences. The data was compared to earlier research. Seventy-three individuals from TL and 39 individuals from PV were selected. Results show no significant inter-sex or inter-population differences in LEH and calculus frequencies. Significantly higher caries frequencies in PV can be attributed to higher female frequencies. Female AMTL rates were higher than males' for both series. AMTL was lower in PV. Differences in caries and AMTL between the sexes of both series can be attributed to differences in foodstuff consumption and to biological differences. The caries frequencies in PV are consistent with maize availability under Inca rule. Results show that socio-political change can impact on dental health over time. However, this impact can be variable between contemporaneous populations.

Ghezzi, Ivan, Alan Hogg (Radiocarbon Dating Laboratory, University of Waika), Rodolfo Rodriguez (Laboratorio de Dendrocronología, Universidad de Pi), Antonio Mabres (Laboratorio de Dendrocronología, Universidad de Pi) and Gretel Boswijk (Tree-Ring Laboratory, University of Auckland, New)

[56] *Building a Dendrochronology for the Coast Of Peru: High-Precision 14C Dating Results from Chankillo, Casma*

We present preliminary results from our project to create dendrochronological sequences for the coast of Peru, from the earliest monumental constructions to the present. Our first results come from Chankillo (400–200 B.C.), in coastal Ancash, which has numerous in situ lintels made from algarrobo wood. Our study of living algarrobos shows high correlation between ring-widths and climate records of the past century. The principle of uniformitarianism dictates the same was true at the time of Chankillo. Our dendrochronological (tree-ring width, wood density) measurements from Chankillo have produced the first dendroarchaeological series from the Central Andes. It is a “floating” sequence that illustrates the chronology of construction of the site, without the ability yet to give absolute dendrochronological dates. However, wiggle-matched radiocarbon dates on wood from these series give us a highly precise approximation of its calendar date range. Improved dating of this site helps fine tune archaeoastronomical analyses of its solar observatory, and throws light on the possible contemporaneity between the rise of Chankillo and the decline of Chavin de Huantar. Finally, ring variability shows the annual climatic variations at the time, in particular possible El Niño events on the north coast of Peru.

Ghezzi, Iván [57] see Makowski, Krzysztof

Giardina, Miguel [204] see Neme, Gustavo

Gibb, James (Smithsonian Environmental Research Center)

[159] *Archaeological Considerations in the Study of the Anthropocene*

The Anthropocene epoch, garnering the interest of geologists and environmental scientists for the past decade, has now entered the archaeological lexicon. As in other disciplines, questions remain about what Anthropocene means and when it began, as well as how it differs from the Holocene. This presentation explores some of these issues and offers a ground-up approach by which conventional approaches in archaeology might be adapted to a reassessment of the human experience and the role of humanity in this newly defined geological epoch.

Gibbons, Kevin [191] see Hambrecht, George

Giblin, Julia [149] see Duffy, Paul

Giblin, Julia (Quinnipiac University)

[166] *Human Mobility during the Greek Neolithic: A Multi-Isotope Analysis of the Burials from Alepotrypa Cave*

This study measures strontium ($87\text{Sr}/86\text{Sr}$), oxygen ($\delta^{18}\text{O}$), and carbon ($\delta^{13}\text{C}$) isotope ratios in human and domesticated animal teeth from Alepotrypa Cave, a cave that was used for both shelter and burial of the dead from the Early to the Final Neolithic Period (6000–3200 B.C.) in southern Greece. Previous radiogenic isotope research on archaeological material in Greece indicates that there are significant differences in $87\text{Sr}/86\text{Sr}$ ranges in the Aegean due to the complex geology (Nafplioti 2011; Richards et al. 2008). This established isotopic baseline is compared to enamel samples from Alepotrypa Cave to evaluate whether the individuals in the cave grew up in the surrounding geological (tectonic) zone. Preliminary strontium results indicate that the people buried in the cave originated from both “local” and “non-local” geological contexts. These data are also compared to $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ values from the same samples to determine whether these independent measures of location and diet corroborate the strontium results.

[149] *Chair*

Gibson, Terry [190] see Coons, Aaron

Gidusko, Kevin, Rachael Kangas (Florida Public Archaeology Network), Kassie Kemp (Florida Public Archaeology Network) and Nigel Rudolph (Florida Public Archaeology Network)

[260] *CLAASP: A Public Archaeology Initiative to Preserve Archaeological Information in Central Florida*

The Communities of Lake Apopka Artifact Survey Project (CLAASP) is an attempt by several regions within the Florida Public Archaeological Network (FPAN) to preserve information about the many unprovenienced collections of artifacts hailing from this area in Central Florida. Relative to several other areas in the state, the Lake Apopka region is under-represented in the archaeological record. This is in part due to the long term use of much of this area for agriculture prior to the creation of laws requiring cultural resource surveys and the collection of many artifacts by avocational archaeologists. Many of these unprovenienced collections have found their way into local museums around the Lake and throughout the region. CLAASP seeks to create a basic database of these collections by creating partnerships with local cultural institutions and avocational archaeologists. This project will allow FPAN to engage the public via open lab days, educational opportunities, and the creation of interpretive material.

Giesso, Martin (Northeastern Illinois University, Department of Anthropology), Andrés Laguens (Instituto de Antropología de Córdoba, CONICET, Uni), Silvana Bertolino (Facultad de Matemática, Astronomía y Física, Unive), Michael Glascock (Missouri University Research Reactor, University o) and Mathew Boulanger (Missouri University Research Reactor, University o)

[91] *NAA Analysis of Ambato Ceramics from the Southern Andes (Eastern Valleys of Catamarca and Tucuman, Argentina)*

We analyze the provenience of clays used in the manufacture of Aguada ceramics, mainly black incised, characteristic of the Ambato valley of southeastern Catamarca (Argentina). This ceramic style is also present in lesser quantities in sites of other neighboring valleys/regions, most of it manufactured with the same clay. The research is part of a broader project to study economic organization and the emergence of complex societies in northwestern Argentina. Research that took place in the Ambato Valley since the early 1990s has explored lifestyles characterized by institutional differences created and maintained between Aguada subgroups approximately between 500–1000 A.D.

Gifford, John A. [290] see Koski, Steven

Gil, Adolfo (CONICET-IANIGLA Grupo Vinculado San Rafael), Gustavo Neme (CONICET-IANIGLA Grupo Vinculado San Rafael), Amber Johnson (Truman State University), David Zeanah (California State University Sacramento) and Robert Elston (University of Nevada, Reno)
[94] *Human Response to Environmental Change during the Early/Mid Holocene in Central Western Argentina: Frame of Reference in Comparative Perspective*

Early/Middle Holocene human strategies are an archaeological topic of debate in arid central western Argentina. Among the controversies are whether population decreased and what were human responses to increased aridity. In this presentation, we use Binford's environmental frames of reference to model regional Early and Middle Holocene subsistence. Radiocarbon trends are used as paleodemography proxy, archaeofaunal, archaeobotanical, lithic assemblages, and isotopes on human bone are used to approach to the human strategies during this time period. Based on human behavioral ecology, the results are compared with the Great Basin region.

Gil, Adolfo [204] see Neme, Gustavo

Gil, Adolfo [94] see Zeanah, David

Giles, Brett [115] see Koerner, Shannon

Giles, Bretton (CEMML, Colorado State University), Shannon Koerner (CEMML, Colorado State University) and Eric Skov (CEMML, Colorado State University)
[155] *Two Paleoarchaic Sites along Wind Creek in Riley County, Kansas*

CEMML archaeologists recently identified and tested two closely related Paleoarchaic sites, 14RY8129 and 14RY8130, on the Fort Riley Installation. These sites are positioned on the south side of Wind Creek, which is a minor perennial tributary of Wildcat Creek, and part of the larger Kansas River watershed. Survey and testing at the two sites recovered several fragmentary projectile points diagnostic of the Paleoindian and Early Archaic periods, including a uniaxially fluted Clovis point; a possible Hell Gap variant or Milnesand stemmed point; and a side-notched Logan Creek point from the Early Archaic Period. Other artifacts include debitage, biface fragments, and other tools that were recovered from surface and subsurface testing. We explore variability in the proportion and breadth of lithic reduction activities performed at these two sites. We also discuss the relationship between 14RY8129 and 8130 and other Paleoarchaic sites in Kansas and the eastern Plains, as well as why certain locales could have been preferentially selected, based on Late Quaternary and Early Holocene environments, and early hunter-gatherers' subsistence strategies.

Gilhooly, William [285] see Wilson, Jeremy

Gill, Kristina [55] see Braje, Todd

Gill, Lucy (Columbia University) and Dorothy Peteet (Lamont-Doherty Earth Observatory/NASA Goddard Inst)

[85] *A Sediment Story: Anthropological and Environmental Continuity and Change along the Hudson River Estuary*

Wetlands have a long history of anthropogenic influence due to their proximity to watersheds, traditionally optimal localities for human settlement. Sediment stratigraphy from these ecosystems is an important source of paleoecological data, as they experience high depositional rates and, due to their anoxic environments, preserve organic material. Humans have acted upon one such watershed, the Hudson River Estuary, since the Paleo-Indian Period (10,500–8000 B.C.E.) and have been a keystone species for much if not all of that time. To what extent have the cultural landscapes created by pre- and post-contact peoples resulted in change at the ecosystem scale? This study presents the results of a recent analysis of multiple soil cores extracted from Haverstraw tidal marshlands, adjacent to the widest part of the Hudson River. It utilizes loss-on-ignition, macrofossil analysis and X-Ray Fluorescence spectroscopy, in combination with Accelerator Mass Spectrometry radiocarbon dating, to construct a high-resolution paleoenvironmental record that complements ongoing archaeological investigations. Biotic composition indicates that despite the introduction of invasive species following European settlement in 1666 C.E., key native species persist, evidencing sustainability of the ecosystem. Sediment chemistry, similarly, has been influenced by humans throughout the history of the tidal marsh but demonstrates the ecosystem's long-term resilience.

Gillam, Christopher (University of South Carolina (SRARP-SCIAA)), Andrei Tabarev (Institute of Archaeology and Ethnography) and Masami Izuho (Tokyo Metropolitan University)

[21] *Continental Roots and Coastal Routes? Merging Archaeological, Bio-Geographic and Genomic Evidence of the Peopling of the Americas*

Genetic evidence suggests that the Amerind haplogroups A-D coalesce in north-central East Asia (CEA), around Mongolia. How, then, do we have a late Pleistocene coastal migration to the Americas when ancestral populations are centrally-located in the heart of the continent? One answer is offered by bio-geographic and archaeological evidence and an (in)convenient gap in our genetic knowledge of Upper Paleolithic Japan. Japan's mainland, Honshu, is proposed as the genetic refugia of the first Americans, in contrast to the Beringia hypothesis. These populations, established by a southeastern migration (ca. 40k–35k B.P.) from CEA/Mongolia to Kyushu/Honshu, via China/Korea, were themselves subsequently displaced, physically and genetically, by a southern migration (ca. 18k–16k B.P.) of northern Siberian hunters from Sakhalin/Hokkaido, progenitors of the later Jomon. Genetic isolation and subsequent displacement/migration are more likely from a large island setting with low population density, nearly 20,000 years of prior occupation and diverse cultural adaptations, than a continental-linked landmass with little archaeological evidence dating prior to 15,000 – A southeastern migration around 35,000 B.P. from CEA to Japan set the stage, with northern Siberian migrants around 16,000 B.P. displacing Honshu's established Paleolithic cultures, driving some maritime-adapted populations northward along the opening coastline and onward to the Americas.

Gillam, Christopher [132] see Uchiyama, Junzo

Gillette, Donna L. [175] see Gentry, Jewel

Gilmore, Zackary (University of Florida) and Kenneth Sassaman (University of Florida)

[41] *From Distributed to Place-Based Communities: The Ceramic Social Geography of Late Archaic Stallings Societies*

North America's oldest pottery-making societies belonged to the Late Archaic Stallings culture of Georgia and South Carolina. The basic culture history of Stallings archaeology is relatively well-known; however, the types and scales of communities constructed by Stallings people, along with the nature of the connections between them, remain poorly understood. This poster presents preliminary results of research that uses compositional data from Stallings fiber-tempered pottery to investigate the transition from the loosely bounded "distributed communities" of Early Stallings (5150–4100 cal B.P.) times to the more fixed and formalized "place-based communities" characteristic of Classic Stallings (4100–3800 cal B.P.). To this end, more than 400 pottery samples from 13 sites along the Savannah and Ogeechee Rivers were subjected to neutron activation analysis (NAA), while half of those were also thin-sectioned and examined petrographically. These pottery data were then compared to that from a series of clay reference samples to infer patterns of mobility and interaction over the course of the Late Archaic Period. The primary goal of these analyses was to evaluate the extent to which Classic Stallings social formations were constrained and/or enabled by the Early Stallings arrangements that preceded them.

Gilmour, Danny (Willamette Cultural Resources Associates, Ltd.), Thomas Brown (Portland State University), Paul Solimano (Willamette Cultural Resources Associates, Ltd.) and Kenneth Ames (Portland State University)

[114] *Radiocarbon Chronology of the Western Stemmed Tradition on the Columbia Plateau*

The Western Stemmed Tradition (WST) is an early cultural phase on the Columbia Plateau of western North America. Much of the seminal work establishing the timeframe of WST is now decades old and suffers from imprecise dating. In this poster, we review previously compiled data, update stratigraphic interpretations, and model existing radiocarbon assays within a Bayesian framework. Preliminary results indicate that WST on the Columbia Plateau is at least coeval with Clovis and spanned at least 1,900 calendar years, but possibly 2,800 years. A population model based on date frequency suggests WST groups peaked between 12,100 and 11,200 cal B.P. WST thrived during the Younger Dryas, a period long considered a possible cause for the collapse of Clovis and the extinction of roughly 35 genera of animals.

Gilstrap, William (University of Missouri, Columbia), Vassilis Kilikoglou (Laboratory of Archaeological Materials, N.C.S.R. ") and Peter Day (Department of Archaeology, University of Sheffield)

[257] *Painting and Firing Technology in the Late Bronze Age Saronic Gulf: A Study of Ceramic Microstructures by SEM*

The end of the Bronze Age in the Saronic Gulf boasts at least three pottery production centers, at Kontopigado, Attica, on the north part of the island of Aegina, and in northeast Corinthia. All three produce a similar range of goods and although each has a different set of production practices, certain technological information was shared.

Focusing on the painted fineware pottery, it is evident that all three centers decorated pots with dark-on-light motifs using either red or black paint. Analysis by SEM-EDS demonstrates that both red and black paints were manufactured using iron-rich raw materials indicating that each center used a three stage firing sequence. Macroscopic and microstructural evidence indicate that all three centers shared this highly technical knowledge, but not all had the right locally available raw materials to produce high quality black paints.

This paper focuses on the analysis of both black and red paints by SEM-EDS. Through this analysis, we have reconstructed certain surface decoration and firing technology in the production of Mycenaean fineware pottery. The results of this study present new insight into the different practices of neighboring production centers, the sharing of technological knowledge, and how it was applied using locally source raw materials.

Gilstrap, William D. [180] see Luo, Wugan

Gingerich, Joseph [218] see Kitchel, Nathaniel

Gingerich, Joseph (Smithsonian Institution/NC State University)

[218] *Terminal Pleistocene Depositional Patterns and their Hypothesized Impact on Human Populations in the Middle Atlantic Region, USA*

Depositional regimes determine the burial and preservation of archaeological sites. Before, during, and after the Younger Dryas interval, we see differences in depositional patterns throughout the Middle Atlantic Region of the United States. In this paper, we explore both differences and similarities in alluvial and eolian deposition within the Middle Atlantic Coastal Plain, Piedmont, and Ridge and Valley physiographic provinces of eastern North America. Using select case studies, we explore what role, if any, varying landscape stability played in the settlement or use of river valleys by human populations during the Late Pleistocene and Early Holocene.

[218] *Chair*

Gioni, Evan (University of Arizona) and Matt Peeples (Arizona State University)

[17] *Pueblo Bonito as a Material and Spatial Network*

While formal network analyses (and traditional statistical analyses) can be used to understand the network relationships between archaeological sites, they can also be geared towards understanding relationships within sites, both between architectural units and between different classes of artifacts. Using these techniques on a network of general material categories (like turquoise or shell) from different room contexts within Pueblo Bonito potentially reveals different "sets" of material classes grouped either through common use or deposition together. Similar "sets" can be derived from a network of room assemblages by using cluster analysis. Comparison between the room assemblage network and the material class network helps confirm the validity of the material sets. Mapping these sets of associated material types onto an architectural plan of Pueblo Bonito reveals differences both between construction sequences and across the east-west divide of the building, reinforcing an interpretation of a dual division in the architecture.

Giovannetti, Marco Antonio [259] see Lynch, Julieta

Giovas, Christina (University of Queensland)

[222] *Caribbean Anthropogenic Paleozoogeography: Cultural and Ecological Significance of Animal Introductions in the Lesser Antilles*

Studies of exotic animal introductions in the insular Caribbean have focused on the paleozoogeography, origin, and dispersal patterns of these taxa, but have yet to resolve a number of important, related issues. Among these are the critical problems of distinguishing live introductions from the import of

animal parts and assessing the degree of animal management practiced by Amerindians. These questions are fundamental to understanding the broader cultural and ecological significance of faunal translocations in the Caribbean, particularly the long-term impact of exotic species on Antillean ecosystems, but require a multi-evidentiary approach to address. Taking a theoretically informed perspective, here I review data provided by heavy isotope analyses, ethnohistory, zooarchaeology, and ecology to understand the anthropogenic dispersal, cultural role, and environmental impact of exotic species in the prehistoric Lesser Antilles, focusing on opossum (*Didelphis marsupialis*) and agouti (*Dasyprocta* sp.), with consideration given for rarer taxa such as deer (*Cervidae*) and peccary (*Tayassu/Pecari*).

[222] Chair

Giovas, Christina [223] see Fitzpatrick, Scott

Giraldo Tenorio, Hernando (Universidad del Cauca), Robert Speakman (University of Georgia) and Michael Glascock (University of Missouri)

[57] *Pottery Production and Consumption in the Andean-Amazonian Frontier in Southwestern Colombia (2500–500 B.P.)*

The circulation of goods and knowledge between Amazonian and Andean societies from southwestern Colombia has been understood as pivotal for the development of political hierarchies in the region since 2500 B.P. However, such circulation has not been supported by solid empirical evidence. By using neutron activation data, we document pottery production, distribution, and consumption in a frontier region between Andean and Amazonian groups. Ceramic samples were obtained from a systematic regional survey in four valleys in the Caquetá River Basin: Valle de las Papas, Santa Rosa, Descanse, and Yunguillo. The compositional analysis of clay provides evidence of intra and interregional exchange of utilitarian and prestige pottery goods. Even though pottery production was mainly local, there was some movement between the valleys. There is no strong evidence for the consumption of foreign pottery; therefore, the long established idea emphasizing a solid interaction sphere between Andean and Amazonian groups must be reconsidered for this region.

Giron-Abrego, Mario [294] see Saldana, Melanie

Gísladóttir, Guðrún [95] see Adderley, Paul

Glascock, Michael [57] see Makowski, Krzysztof

Glascock, Michael (University of Missouri)

[91] *A Database of Neutron Activation Analysis Characterizing Indigenous Ceramics from South America*

The earliest ceramics in South America were made by the indigenous peoples at least 7,500 years B.P. Ceramics were used for a variety of purposes, including cooking and storage vessels, funerary urns, toys, ceremonial items, sculptures, and other art forms. Over the past 25 years, the Archaeometry Laboratory at the University of Missouri Research Reactor has performed neutron activation analysis on more than 7,000 ceramics and clays from locations throughout South America to establish a comprehensive geochemical and descriptive database. The ceramics database has facilitated a wide range of investigations concerning both local production and exchange over long distances. This poster will describe the database and provide an overview of recent research along with suggestions for future research.

[57] Chair

Glascock, Michael D. [180] see Luo, Wugan

Glascock, Ph.D, Michael D. [93] see Orozco, Joseph

Glassburn, Crystal (Anthropology Department, University of Alaska Fairbanks), Ben A. Potter (Anthropology Department, University of Alaska Fair), Joshua D. Reuther (University of Alaska Museum of the North, Fairbank) and Matthew J. Wooller (Alaska Stable Isotope Facility, University of Alas)

[124] *Steppes Across the Land: Reconstructions of Steppe Bison Mobility Patterns in East-Central Alaska through Isotopic Analyses and Implications for Prehistoric Human Behavior*

Steppe bison (*Bison priscus*) were an important species for interior Alaskan subsistence economies during the late Pleistocene and early Holocene, but the locations of preferred bison habitat areas, seasonal movement patterns, responses to environmental change, and other behavioral factors remain largely unexplored in Alaskan archaeology. This study applies strontium, oxygen, and carbon isotopic analyses to 14 sequentially-sampled and AMS radiocarbon dated steppe bison teeth from two locales in the Yukon-Tanana Uplands in order to reconstruct steppe bison behavior on a seasonal basis. This study is the first of its kind for a prehistoric species in Alaska, and the dataset encompasses both glacial and interglacial periods, which has allowed for behavioral comparisons between different climatic periods. The results suggest that bison behavioral ecology changed as climates warmed during the Pleistocene-Holocene transition, and climate change may have been the driving force behind the eventual extinction of steppe bison. These results are discussed with regards to how bison seasonal movement patterns, as well as longer-term behavioral changes, may have affected human settlement and subsistence patterns during the late Pleistocene and early Holocene in Alaska.

[124] Chair

Glasscock, Mike [91] see Myers, Emlen

Glatz, Claudia [12] see Casana, Jesse

Gleason, Matthew (Worcester Polytechnic Institute) and Adam Watson (Worcester Polytechnic Institute)

[214] *Deciphering Bone Tool Production and Use: A Comparative Assessment of Quantitative Approaches to Microwear Analysis*

Recent research in the precolumbian Pueblo southwest has demonstrated the importance of understanding trends in bone industries that closely track other, related economic sectors such as perishable craft production. A vital next step in this line of inquiry is the identification the specific types of production activities in which bone tools are employed and variation across time and space. As illustrated by the results of this pilot study, texture analysis methods, developed within the mechanical engineering discipline, show great promise for advancing the study of bone tool manufacture and use. This paper attempts to locate the most promising locations on the tool for measurement and analysis of use wear, while exploring the differences between traditional roughness measures, and multi-scale geometric analysis using area-scale fractal techniques for characterizing and discriminating microtopographic differences as a function of tool use. The scales of the use-wear and the tool Multi-scale analyses provide characterizations with greater potential for useful and confident discrimination than the traditional methods.

Glover, Jeffrey [20] see Vaughan, Andrew

Glowacki, Mary**[99]** *The Head as the Seat of the Soul: A Medium for Spiritual Reciprocity in the Early Andes*

There are many visual representations spanning the different time periods of the ancient Andes, and corroborated by historic accounts, that point to man's spiritual essence as residing in the head, and more specifically, head hair. These examples suggest that this power was transferable and maintained the reciprocal balance between men, and the earthly and supernatural realm. This presentation briefly discusses the human head and hair in Andean belief as a conduit for the flow of spiritual power as documented in the archaeological, ethnographic, and historic record. The data suggest that such movement of energy was fundamental to maintaining the equilibrium in life—a balance in social ties and relations, resources, political control, and supernatural interactions, as broadly conveyed in metaphor. In recognizing this concept, scholars may better interpret what is found in the archaeological record tied to this basic Andean principal.

Gnivecki, Perry L. [222] see Berman, Mary Jane

Goar, Toni [66] see Kerr, R. Stanley

Goebel, Ted [69] see Keene, Joshua

Goebel, Ted (Texa A&M University) and Joshua Lynch (Texas A&M University)**[242]** *Late Glacial Climate Change and the Dispersal of Humans to Beringia: An Ecological Model*

New studies of ancient as well as modern human genomes suggest that the immediate ancestors of Native Americans began to disperse from greater northeast Asia to Beringia after the last glacial maximum, roughly 20,000 cal B.P. These new data require us to reconsider the lengthy incubation period predicted by the Beringian standstill model as well as the place of the Yana RHS site in our understanding of the peopling of Alaska. In this paper, we review the climatic, paleoenvironmental, genomic (human as well as other important mammal species), and archaeological records of eastern Siberia and Beringia to develop an ecological model of human dispersal. Did climate and environmental change during the early part of the late glacial encourage rapid northward expansion of human populations? How did human adaptations 20,000–13,000 cal B.P. further condition dispersal across the Bering land bridge to Alaska?

Goepfert, Nicolas [45] see Espinosa, Alicia

Goff, Sheila [289] see Santarelli, Brunella

Gokee, Cameron [17] see Wright, Alice

Gokee, Cameron and Matthew Kroot (Skidmore College)**[177]** *Relocate, Aggregate, or Fortify?: Exploring Local Responses to Atlantic Era Entanglement in Southeastern Senegal*

The sixteenth–nineteenth centuries in west Africa marked a period of dramatic social and cultural change fueled, in part, by the opening of Atlantic markets and the rise of predatory states. The responses of societies peripheral to these political economic processes often involved strategic shifts in the production of space—including relocation to highland refuge areas, aggregation into larger villages, increases in residential mobility, and fortification of elite houses and/or entire settlements. In this paper, we compare historical and archaeological evidence to model the ways in which physical and social dimensions of landscape shaped, and were shaped by, these strategies in the Senegambia and elsewhere across west Africa. In so doing, we also consider the interplay between these spatial strategies and local constellations of power and authority. Applying this model to preliminary data from our archaeological research in southeastern Senegal, we offer some hypotheses about the origins of socio-spatial relations among the Bedik, Peul, and Malinke communities living today in this region.

Gold, Claire [187] see Mires, Ann Marie

Gold, Jacob**[262]** *One Foot in the Field and the Other in the Forest: Indigenous "State Hedging" in Cambodia and Beyond*

This essay uses a comparative approach to investigate the practice of "state hedging" deployed by various peoples moving in and out of the margins of large-scale historical states. Among these peoples are the Kuy ethnic group whose communities in north-central Cambodia have invited me to study them

as their traditional forests rapidly disappear. Kuy methods of "state hedging" and the outcomes of pursuing this practice will be compared with the use of similar tactics by peoples in Africa and the Americas. Investigation of "state hedging," I believe, can shed light on under-appreciated facets of both early and more recent complex tropical states, including the advantages of tactical pluralism on the part of those states. It can also reframe the debate over the meaning of "agency" and "marginality" on the part of less-complex indigenous state-hedgers.

Golden, Charles (Brandeis University), Andrew Scherer (Brown University), Whittaker Schroder (University of Pennsylvania) and Clive Vella (Brown University)

[59] *Decentralizing the Economies of the Maya West*

Many reconstructions of precolumbian Maya economies are based on a centralized model of exchange, in which major capitals acted as import and export hubs and centers of production, while royal courts provided some form of management for long-distance trade networks. Research in the western Maya Lowlands, and particularly the Usumacinta River Valley, suggests that although during the Classic period (A.D. 250–810) powerful dynastic centers like Piedras Negras, Yaxchilan, and their neighbors functioned as significant nodes in trade networks, the networks themselves were maintained by hinterland elites. These elites functioned as critical allies for the royal courts and must have provided goods and services to those courts. But hinterland sites were also centers of production in their own right, with exchange networks that did not always intersect with those of the royal center. Hinterland elites pursued their own ambitions and sought local economic benefits that sometimes diverged from the best interests of the courts. In this paper, we present the results of research in the hinterlands of Yaxchilan and Piedras Negras, and consider these data in light of a decentered model of Classic Maya economies.

Golden, Patrick [261] see Rabinowitz, Adam

Goldfield, Anna (Boston University), Ross Booton (University of Sheffield) and Teresa Steele (University of California, Davis)

[80] *Cost Thresholds and Differential Resource Exploitation Behavior during the Middle and Upper Paleolithic in Southwest France*

"Specialization" and "generalization" are used as descriptors for Paleolithic subsistence behavior, particularly when differentiating the Middle and Upper Paleolithic. These terms, however, dichotomize and obscure the complexity of subsistence decision-making. Instead, it is more productive to investigate whether Neanderthals and anatomically modern humans (AMH) differed in their perception of thresholds of cost versus gain in processing food. These thresholds are points beyond which the investment of further time or energy is wasted. I highlight two subsistence thresholds relevant to both AMH and Neanderthals: bone fat extraction and the use of fire. Exploiting a carcass for marrow and grease yields rapidly diminishing returns. Fire is a costly resource to acquire and maintain. Higher cost thresholds for AMH may have been an adaptive advantage in glacial periods of the Paleolithic. I present methodology for exploring differences in bone fat exploitation by Neanderthals and AMH, using a case study that applies this methodology to faunal assemblages from the Quina Mousterian (Chez Pinaud Jonzac) and the Aurignacian (La Ferrassie) from southwest France. I then present a modeling approach to fire use in the Paleolithic that predicts implications of different intensities of fire use for cooking on the competitiveness of Neanderthal and AMH populations.

Goldstein, Lynne [30] see Steponaitis, Vincas

Goldstein, Lynne (Michigan State University)

[48] *Discussant*

Goldstein, Paul (UC San Diego)

[219] *Tiwanaku Colonization in Historical Context—Directed, Diasporic or Daisy Chain? Evidence from Moquegua, Locumba, Azapa*

The expansion of Tiwanaku civilization is the earliest example of large-scale demographic colonization under an Andean state. Between the seventh to eleventh centuries C.E., household, mortuary, and settlement archaeology attest to large migrant populations of altiplano Tiwanaku cultural affiliation who established permanent residence and governance in the western oasis valleys of Moquegua, Locumba, Sama, Caplina, and Azapa. However, the regional historical context of this demographic colonization is not resolved. What does the dating, diversity, and distribution of Tiwanaku settlement tell us about the timing, point(s) of origin and direction of Tiwanaku expansion? Was there "state colonization," socially engineered and mobilized through the intervention of one mediating center, as with Inca mitmaquna? Was the process entirely diasporic, with each Tiwanaku colonial stream the direct enclave of a distinct source community? Or did Tiwanaku colonization "daisy chain" over time, from initial provinces like that of Moquegua to secondary and tertiary colonies in a peripatetic refugee resettlement process that outlasted the state itself? New systematic survey data from the key intermediate Locumba Valley (2015–16) are compared with settlement patterns from full coverage pedestrian surveys of the Moquegua (1993–98) and Azapa (1991–92) valleys to shed new light on the regional history of Tiwanaku colonization.

[74] *Discussant*

Golitsko, Mark [149] see Cercone, Ashley

Golitsko, Mark (University of Notre Dame), Ethan Cochran (University of Auckland) and James Goff (University of New South Wales)

[296] *Coastal Development and Palaeoenvironment on the North Coast of Papua New Guinea: The Paniri Creek Sequence*

Pleistocene-Holocene environmental variance in the southwestern Pacific plays a critical role in explaining the human settlement potential of islands, and their respective settlement histories. In particular, prevalence of viable ecological niches for human settlement on the northern coast of New Guinea has likely fluctuated due to a combination of eustatic and tectonic factors that may have constrained the size of human populations living there as well as its potential as a route of movement between ISEA and the remote Pacific islands at times. We examine a long-term record of coastal development at Paniri Creek, a location now 14 km inland from which near-coastal deposits and human remains were recovered during the 1920s. Our new analysis of the Paniri sequence indicates a complex sequence of environmental change spanning the late Pleistocene to mid-Holocene, including potential palaeo-shore deposits. Implications of observed changes in coastal morphology and environment are discussed in relation to the regional archaeological record as currently understood.

Gomani-Chindebvu, Elizabeth [211] see Nightingale, Sheila

Gomez, Sergio [129] see Mejia Ramon, Andres

Gómez, Emmanuel [154] see Grave, Alfonso

Gómez García, Yajaira (UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO)

[136] *Indicadores arqueológicos de talleres de cerámica en las unidades habitacionales de Cacaxtla-Xochitecatl*

En las excavaciones realizadas en el 2011-2012 de las unidades habitacionales del periodo Formativo en la terraza VII el Proyecto Arqueológico El hombre y sus recursos en el Valle Puebla-Tlaxcala registraron 42 formaciones circulares, 9 hornos y 3 concentraciones de materiales diversos en un área de 802 m².

En esta ponencia se van a exponer el análisis de los materiales encontrados en el área y en el interior de dichas formaciones para explicar sus funciones y su relación con los hornos.

Con el análisis del material y del contexto se propone la posible producción artesanal alfarera en donde las formaciones circulares se utilizan como espacios para almacenar cerámica. Las unidades habitacionales del periodo formativo, excavadas en temporadas anteriores han presentado diferentes áreas de actividad lo que ha permitido reconstruir la vida cotidiana de sus pobladores, en esta ocasión la posible producción de cerámica forma parte de estas actividades cotidianas.

Gomez-Gastelum, Luis (Universidad de Guadalajara)

[154] *Cerámica atoyac inciso de la cuenca de sayula, jalisco. Aproximaciones a su iconografía*

En esta ponencia se describe y analiza la cerámica denominada Atoyac inciso, propia de la cuenca de Sayula, ubicada en la región sur del estado mexicano de Jalisco. Se trata de una manifestación propia de la fase epónima de la región, misma que se ubica entre los años 500 y 1100 d.C. La intención es observarla no sólo como un producto cerámico, sino como un fenómeno social de importancia en la época. Así, se discuten sus contextos, con la finalidad de ubicarla como un producto asociado con las élites de la localidad. Luego se hace una descripción de sus motivos decorativos, buscando encontrar los patrones que pudieran tener. Por último, se efectúa un primer acercamiento iconográfico de los mismos, para prefigurar los mensajes que existieron en esta cerámica como parte de un sistema de comunicación entre élites regionales y al interior de la sociedad sayulteca del periodo en cuestión.

[154] *Discussant*

[154] *Chair*

Gómez-Puche, Magdalena [72] see Lozano, Sergi

Gonciar, Andre [24] see Bethard, Jonathan

Goni, Rafael (Instituto Nacional de Antropología/UBA)

[94] *Extensification in Archaeology*

The concept of extensification was used in an ethnographical sense, particularly by L. Binford (2001). It was deeply related with the new organization of American hunter-gatherers when horses were introduced in the continent by European people. The main examples to introduce this concept were the Great Plains societies in North America and the Tehuelche society in Patagonia, South America.

However, the use of the concept of extensification in an archaeological perspective is not very usual. Furthermore, its definition is not very clear; more related with its opposition, the concept of intensification; a term more well defined and used in Archaeology.

In this presentation, the main purpose is to clarify this concept in terms of its use in an archaeological example of southern Patagonia. Also, the example takes into account a case of European precontact, previous to the introduction of horses in the Tehuelche society. The use of Binford's frame of references, like environmental information and Effective Temperatures (ET), were a useful tool to identify cases of the process of extensification in the study area.

Gonlin, Nan (Bellevue College)

[107] *Midnight Madness in Mesoamerica: Dark Doings in the Ancient World*

After the sun went down, the world of ancient Mesoamerica was transformed into a dark landscape. Some sought sleep while others came alive for nocturnal naughtiness. Ancient Mesoamericans simultaneously embraced and respected the dark. Are nightly practices destined to remain obscured from our view, or can we illuminate such dark doings by expanding our focus from daily practices to include those of the night? A fundamental question explored in this paper is the extent to which there is material evidence for what ancient humans did at night using ancient Mesoamerica as a case study. Nighttime has left its mark on the archaeological record and we hope to shed light on this auspicious time of day through the exploration of several different types of evidence and various cultures. Tasks of nightly living differed from those of the day. Ritual activities permeated the darkness and cosmological beliefs constructed ancient conceptions of night and day. The nightly practices of ancient Mesoamericans were rich with meaning and transcended time and space.

[32] *Discussant*

[107] *Chair*

Gonlin, Nancy [40] see Williams, Justin

Gonzales, Cristina [93] see Hankins, Sharon

Gonzalez, Albert (Cal State University - East Bay), Heather Atherton (Environmental Science Associates) and Javier Hernandez (Dudek Environmental and Engineering Consulting)

[110] *Beyond Missions: Documenting Mexican and Mexican-American Adobes in California*

In the foreword to their 1931 review of nineteenth-century adobe houses in California, historical architects Donald Hannaford and Revel Edwards express despair at the state of such research in their time, noting that "printed material on the subject" could only be generated via discovery in the field. Eighty-five years later, research is still lacking. California's famed colonial missions tend to draw the bulk of archaeological attention while research associated with Mexican- and Gold Rush-era adobes sits largely in the hands of conservation specialists, amateur historians, and national, state, and local parks personnel. To be fair, much work has been accomplished in the hands of the latter. However, the problem statement as presented by Hannaford and Edwards still holds: since the level of study and publication remains largely local and avocational, data associated with Mexican- and Gold Rush-era adobes is not readily available in all or even most cases, making comparative study difficult. We aim to remedy the situation, facilitating the comparative study of nineteenth-century California adobes by developing a comprehensive database documenting their condition, comparable attributes, and associated research. This poster presents the preliminary results of that effort, highlighting several emerging comparative studies in the process.

Gonzalez, Juan [200] see Skowronek, Russell

Gonzalez, Sara (University of Washington, Seattle)

[266] *Field Methods in Indigenous Archaeology: Building Capacity through Community-Based Research and Education*

There are few formal field schools in the United States where students can receive formal training in tribal historic preservation, community-based collaboration, and archaeological field methods. Given the increasing role of consultation and collaboration in disciplinary practice, learning to effectively communicate and build relationships with a Tribal Historic Preservation Office (THPO) and/or tribal community is a critical skill. The Confederated Tribes of Grand Ronde Community of Oregon's THPO and the University of Washington have thus partnered to develop Field Methods in Indigenous Archaeology, a summer field school that offers both Grand Ronde community members and undergraduate students hands-on training in tribal historic preservation and archaeological field methods. This program is an example of the ways in which community-based, indigenized approaches to archaeological research and undergraduate education contributes to the capacity of the Grand Ronde THPO: 1) to care for tribal heritage on reservation and trust lands, and 2) to educate the next generation of heritage managers and archaeologists—tribal and non-tribal—about what it means to care for tribal cultural resources.

[203] *Moderator*

Gonzalez, Juan (The University of Texas Rio Grande Valley) and James Hinthorne (The University of Texas Rio Grande Valley)

[279] *Polished Edge Stone Tools from the Gulf of Morrosquillo, Caribbean Coast of Colombia, Evidence of an Advanced Lithic Industry*

Highly polished edge stone tools occur in large numbers all along the Gulf of Morrosquillo's coastal plain on the Caribbean Coast of Colombia. Despite the remarkably large quantities of stone tools and the impressive craftsmanship they display, they have gone unnoticed by archaeological surveys. In an area where the geology is dominated by a thick sequence of marine sedimentary rocks, the presence of stone tools made from high grade metamorphic and igneous rocks suggest that these were likely imported as finished products. This study reports on an assemblage of over 200 edge stone tools found by farmers at or close to the ground surface and as such lack chronological and cultural contexts. A combination of mineralogical analysis of a representative suite of tools using non-destructive XRD, an assessment of the degree of surface weathering and comparisons with museum collections, are used to argue that the majority of these elaborate tools were made by the Tairona people. The Tairona inhabited the southern and western flanks of the Santa Marta Massif, 250 km to the north between 800 and 1600 A.D. Production at a large scale and a well-organized distribution system are required to rationalize the large volume of lithic tools.

González, Sergio [97] see Romano, Francisco

Gonzalez Lauck, Rebecca

[178] *On the Question of Olmec Architecture and Sculpture Beyond the Gulf Coast*

For over half a century, the ancient city located in La Venta, Tabasco, has served as a standard in defining what is commonly referred to as Olmec in the time period between ca. 1000–400 B.C. This paper will examine the architectural and sculptural vestiges in sites that have been defined as Olmec outside the Gulf Coast heartland, in order to define the component(s) that define it as "Olmec," as well as to explain the differences observed.

Gonzalez-Macqueen, Felipe (University of Toronto), Giles Spence-Morrow (University of Toronto), Peter Bikoulis (University of Toronto), Willy Yépez Álvarez (Royal Ontario Museum) and Justin Jennings (Royal Ontario Museum)

[205] *A New Methodology for Geoglyph Research: The Drone and Satellite Imagery Survey of the Sihuas Valley, Peru*

Throughout the twentieth century, archaeologists have used aerial photography to record and study geoglyphs and other large features. This method, however, has its limitations like expense, flying time, and image resolution. With the addition of satellite imagery and drone photography into the archaeological toolbox, we can now obtain higher resolution images of variable landscapes. We conducted a preliminary survey of a section of the Sihuas Valley, Peru, in order to better understand the landscape surrounding the Middle Horizon–Late Intermediate site of Quicapampa (A.D. 600–1400). To identify and map geoglyphs and other anthropogenic features scattered across this area of desert pampa, we used a combination of satellite and drone imagery that were then integrated into a GIS setting. Initial satellite image reconnaissance allowed us to locate some of the most visible geoglyphs, providing target areas for subsequent field study using drone photography and pedestrian survey. The results of this preliminary survey showed that each drone pass revealed a significant amount of information neither visible solely by satellite imagery nor easily comprehensible by observers on the ground. While not an exhausting survey, this study demonstrates how a combined satellite/drone/pedestrian survey methodology can provide accurate, detailed imagery of past landscapes.

Gonzalez-Morales, Manuel

[170] *Lawrence Straus on Palaeolithic Art: How to Marry Art and Adaptation?*

As a great specialist in Palaeolithic Archaeology of the Old World, and also a superb connoisseur of the painted and engraved caves of France and Spain, Professor Straus had to deal with the problem of fitting the evidence of Palaeolithic “art” in the general adaptive framework of the processual Archaeology he was practicing along his professional career. In this presentation, I want to analyze the evolution of his thinking about this topic, as a reflection on the general theoretical problems involved in the relationship between symbolic representations and the everyday life of prehistoric social groups.

González-Sobrino, Blanca [236] see Aguirre-Samudio, Ana

Gonzalez-Tennant, Edward (University of Florida)

[221] *Cyberfeminism, Virtual Worlds, and Resisting the Feminization of Digital Archaeology*

In feminist technoscience, feminist technologies are those which are good for the oppressed. Cyberfeminists view online worlds as one such technology; although many question how they can support social transformation. The answer to this dilemma for many cyberfeminists requires that we resist embedding new technologies with entrenched hierarchies of power. After a brief review of how hierarchical thinking is embedded in some familiar technologies, I examine the possibilities virtual technologies hold for creating experiences and narratives which challenge dichotomous and hierarchical views of the past. New technologies allow us to interact with past landscapes, inhabit the bodies of others, and even explore the surface of new worlds. Will these technologies support hierarchical tendencies, or can we affect a new paradigm? What is archaeology’s role? Digital archaeology can help shape the use of these technologies as they relate to heritage, community, and identity. In order to realize this goal, our discipline needs to resist the feminization of digital archaeology. I end the paper with a frank discussion of how our discipline can avoid maligning technological methodologists. This includes drawing inspiration from potentially surprising places, including the intersection of video games and popular culture.

Goodman, Steve [223] see Boivin, Nicole

Goodman Elgar, Melissa (Washington State University) and Amanda Logan (Northwestern University)

[177] *Earthen Dwellings from Banda, Ghana: Geoarchaeological Analyses of Archaeological and Modern Structures*

West African earthen architecture is among the most elaborated in the world as recognized by the World Heritage site status of Asante buildings at Kumasi. However, its history is poorly known. This study begins to redress this gap by employing bulk sediment analyses and soil micromorphology to characterize building remains recovered at the Ngre Kataa site, in Banda, Ghana, and a contemporary earthen compound in the region. The study was conducted in tandem with archaeological and paleoethnobotanical studies in the region which included excavation of superimposed fifteenth to seventeenth century occupations and regional ethnoarchaeological studies. Here, we consider the technical choices revealed by construction material properties. We found a broad range of material practices identified in the archaeological materials, which appear to be dramatically simplified over time. We consider reasons for continuity and change in these technical practices with reference to socioeconomic and political shifts over the last five centuries.

Goodmaster, Christopher (Versar, Inc.) and Erin Helton (Resource Data, Inc.)

[168] *Paleolandscape Reconstruction and Modeling in the Lower Pecos River Valley*

The Lower Pecos River valley in southwestern Texas provides an ideal location for the development of a three-dimensional landscape reconstruction using modern geospatial methods, including LiDAR and digital photogrammetry. The goal of this project is to create a scientifically accurate, high resolution, prehistoric landscape model of a portion of the Lower Pecos Valley, an archaeologically-rich region that has experienced widespread modifications to the natural landscape during the historic period. The development of such a model will provide an accurate context for the myriad of prehistoric sites in the area and contribute to landscape-scale analyses of the social, economic, and ritual aspects of prehistoric life in the region.

Goodwin, Whitney [27] see Kovacevich, Brigitte

Goodwin, Whitney (Southern Methodist University), Kacy L. Hollenback (Southern Methodist University), Fern Swenson (State Historical Society of North Dakota) and William C. Hockaday (Baylor University)

[115] *Changing Foodways in Culture Contact Contexts on the Northern Great Plains: Lipid Residue Analysis at the Double Ditch Site, North Dakota*

Disentangling drivers of technological change and continuity in culture contact situations is complex. In the northern Great Plains, earthlodge village groups are reported to have abandoned traditional ceramic containers for certain tasks by the early nineteenth century. The veracity of these observations is confounded by other contact situation processes, such as epidemics, which also impacted ceramic production and use. Ethnoarchaeology has documented the use of particular vessel types exclusively for particular food types when new materials, such as metal containers, are introduced. But these changes occur based on assessments of performance characteristics of new and old objects and preferences of the people who use them. Did Mandan groups stop cooking meat in ceramic containers as reported in historic texts? If so, how widespread was this change across space and time? What other driving processes need to be considered? To track changes in cooking practices of earthlodge village groups in culture contact contexts, this pilot research analyzes ceramics and their associated sediments from the Double Ditch site, North Dakota, for lipid signatures, with the goal of developing a protocol for a broader study examining changes in ceramic use in protohistoric and historic period Mandan villages.

Goodwin, Joshua (University of Florida)

[133] *From Pots to Pits: Ritual Use of Waterbirds on the Northern Gulf Coast of Florida*

The archaeological record of Hopewell cultures of the eastern Woodlands demonstrates the ritual importance of birds in the form of effigy pipes, copper and mica cutouts, and mortuary vessels. Bird motifs continue to be prevalent beyond the Hopewell period in peninsular Florida, during Weeden Island times (A.D. 200–900), when representations of waterbirds, among other avian taxa, appear on pottery, often in the form of effigy vessels. Because of their ability to traverse worlds—air, land, and sea—waterbirds may have been accorded special significance in Weeden Island cosmology. In this paper, I consider the extent to which cosmology goes beyond material representations of birds to involve ritual protocols for the handling and deposition of the skeletal remains of waterbirds. Recent excavations at Shell Mound (8LV42), on the northern Gulf Coast of Florida, yielded hundreds of skeletal elements identified to several species of waterbirds from a single silo-shaped pit feature. Given the spatial and temporal relationship of Shell Mound with a Weeden Island mortuary facility (Palmetto Mound) and the relationship of the faunal contents with recurring iconographic characters of this time period, this paper proposes that the presence of waterbird elements in the context of such pit features represents ritualized deposition.

Goodyear, Albert C. [8] see Meer, Kelsey

Goodyear, Albert (SC Institute of Archaeology & Anthropology), I. Randolph Daniel, Jr., Christopher Moore and David Anderson

[159] *Paleoindian Responses at the Younger Dryas Boundary: A Case Study from the Carolinas*

The onset of the Younger Dryas stadial is thought to have occurred during the Clovis Period. The cause of the Younger Dryas and the near simultaneous disappearance of the Clovis techno-culture in North America continues to be a set of events that are not well understood. Debates exist regarding the cause of the Younger Dryas and its possible effects on climate, plants, and animals, as well as humans. The archaeological record stands apart from these disciplines as an independent source of data and possible insights. Archaeological studies in the Carolinas are providing compelling evidence regarding Clovis settlement systems and demography and the immediately succeeding post-Clovis fluted point period. During Clovis times, two geographically separate but adjacent macro bands are thought to have existed in North and South Carolina, respectively. In the immediately following time period defined by instrument-assisted fluted points (Redstones), projectile point frequency drops dramatically and territorial ranges contract. Significant technological change also exists between Clovis and Redstone points. During this period, a possible travel way running along the Fall Line from near Raleigh, North Carolina, to the Savannah River suggests that some cultural connections between the former Clovis macro bands still existed.

Gopnik, Hilary (Emory University)

[87] *Grounded: A Late Bronze Age Fortress on the Şerur Valley floor, Naxçivan*

The Middle to Late Bronze Age transition in the South Caucasus is generally characterized by a shift from small settlements and elaborate kurgan burials to hilltop fortresses and smaller burials grouped in cemeteries. It has been argued that the hilltop fortresses with their broad view over the landscape served as anchors to the mobile populations that surrounded them, and ultimately to the development of increased social hierarchies at these fortresses. This pattern has been identified primarily in Armenia and Georgia while evidence from the south in Naxçivan has been largely absent. In 2014 and 2015, the Naxçivan Archaeological Project undertook excavations on the Şerur Valley floor in an area that had been deeply cut into by an earlier Soviet bulldozing operation. These excavations revealed a sequence of Middle Bronze burials and ritual deposits directly topped and cut into by a Late Bronze elite building with large rooms and a buttressed cyclopean fortification wall—essentially a ground-level citadel. This presentation will present the results of these excavations and will suggest that this sequence will force a reconsideration of the processes that created the fortress based polities of the Late Bronze to Early Iron Ages.

[87] *Chair*

Goralski, Craig (Cypress College) and Alexis Gray (Norco College)

[187] *Can We All Get Along? Bridging the Divide between Forensic Anthropologists, Forensic Archaeologists, and Law Enforcement Personnel*

Despite being stakeholders with many shared goals, the working relationships between forensic anthropologists, forensic archaeologists, and their colleagues in law enforcement are often strained. The authors argue that cultural differences among the groups have contributed to the underuse and misuse of forensic anthropologists and archaeologists both in the United States and elsewhere, resulting in investigations that are neither as anthropological nor as scientific as juries and the public are led to believe. In the fall and winter of 2015, an anonymous online survey was given to forensic anthropologists, forensic archaeologists, and law enforcement personnel. Respondents were asked to assess levels of anthropologist/archaeologist/law enforcement cooperation based on their own personal experience and asked to identify common ways that disparate backgrounds, training, culture, and communication have impacted this cooperation. They were asked how each stakeholder group contributed to forensic cases and whether that contribution was adequate, appropriate, and effective. This paper will summarize the survey responses and highlight trends in the data. It will assess why and to what extent strain exists among forensic anthropologists, forensic archaeologists, and law enforcement personnel. Finally, we'll discuss the extent to which these issues can be resolved and suggest directions for the future.

Gorczyk, John

[80] *Key Human-Animal Interactions in Neolithic Southeastern Europe: New Faunal Evidence from Bulgaria*

Southeastern Europe has always played an important role in the story of the spread of Neolithic lifeways from the Near East into Europe. At times, it has been seen as a bridge, barrier, or mosaic (Tringham 2000). As essential components of the "Neolithic Package," animals have been critical to the telling of this story. The availability of zooarchaeological data for the Neolithic in southeastern Europe has been uneven over the years, with some countries enjoying more coverage than others. Bulgaria lies at the heart of the Balkan Peninsula and is home to some of the more spectacular developments related to the spread of Neolithic lifeways. This paper presents new faunal evidence from several early and late Neolithic sites in Bulgaria and examines how our current understanding of the animal bone data stands in relation to some of the long-standing research questions in Bulgarian prehistory. In so doing, it reevaluates these issues within a social zooarchaeological framework, arguing that animals are constituents of Neolithic society, and that viewing them as such will have fundamental implications for the way zooarchaeology is practiced in the future.

[80] *Chair*

Gordon, Gwyneth [135] see Marsteller, Sara

Gore, Kathy [195] see Snow, Meradeth

Goring-Morris, Nigel (Hebrew University) and Anna Belfer-Cohen (Hebrew University)

[52] *"Off with Their Heads": Skull Removal in the Prehistoric Near East*

While there is a huge difference in every aspect of existence between simple human societies, i.e., hunter-gatherers and complex ones, i.e., industrial groups, the head is always considered as the residing place of the essential part of what defines 'us' as rational human beings at the individual level. One may thus assume that this was the case also in prehistoric times, which at least partially explains the special treatment of heads that one can observe through millennia, from the pre-agricultural societies of the Natufian (beginning ca. 15,000 years cal B.P.) through the end of the Neolithic period (ca. 7,000

years cal B.P.) in the Near East. Indeed, this custom is one of the few clear-cut examples bridging between the prehistoric pre-agricultural, early agricultural, and even pastoral societies throughout the region. We shall attempt to place this practice within a broader perspective, trying to see how and why it continued through the turbulent times of changing lifeways occurring at the Paleolithic–Neolithic transformation.

Gosner, Linda [147] see Smith, Alexander

Goudge, Charlotte (University of Bristol)

[280] *Discoveries in Hatteras: European and Native American Cultural Contact and Assimilation*

Excavations at the early contact Native American site on Hatteras Island, Outer Banks, North Carolina, has yielded an incredibly varied material culture that displays all aspects of early Native/European contact in the area. Our collection of newly discovered early European expansion period artefacts, found at the Cape Creek site, a major Croatoan town and trade hub, hints at intense contact between the natives and the first European settlers. This paper is the first academic release of results from the Dig: Hatteras excavation on Buxton Island in the Outer Banks, pointing to the spread of colonists influence some 50 miles southeast of the settlement on Roanoke and strongly hinting at not only contact but possible cultural assimilation with the Natives. This paper will discuss our data as well as methodological approaches to a complicated site of great cultural importance.

Gould, Peter

[71] *On the Case: Methodology in Public Archaeology*

Public engagement by archaeologists has become well-entrenched in the ethics codes and practice of the profession. Specialized journals now present reports on public and community archaeology projects, usually in the form of individual case studies. However, the growing number of public archaeology projects been accompanied neither by the development of standard practice methodologies nor by a tradition of assessment of project outcomes against defined objectives. As a result, the self-reflective project and program evaluation common in other social science fields is largely absent in public archaeology. While it is true that public engagement with archaeology is contingent on the local context, the same is true in disciplines such as political science or education, where methodology and outcome evaluation are priorities. This paper draws upon an analysis of the papers published since inception in the journal *Public Archaeology* to illustrate the issues. It then proposes a case-study methodology derived from the international relations field as an alternative approach to evaluating and reporting the results of public archaeology projects. Finally, the author's application of this methodology to research in communities in three countries provide a working example of the value of taking a more structured, hypothesis-driven approach to public engagement projects.

Gourichon, Lionel [146] see Rendu, William

Graff, Emily Elizabeth (School of Anthropology, University of Arizona)

[103] *Troia's Three Roman Ladies: The Analysis of Three Cases of Trepanation at Necrópolis de Calderia (Setúbal, Portugal)*

The Necrópolis de Calderia contains nearly 200 burials spanning from the first through fifth centuries A.D. The cemetery is located on the western edge of the ancient Roman site of Troia, which is considered the largest fish salting, garum production, and distribution center in the Roman world. Among the inhumations, three cases of trepanation have been identified. The three individuals are adult women. Trepanation, also known as trephination or craniectomy, is the surgical practice in which a portion(s) of the cranial vault is permanently removed from the skull of a living individual. This form of medical intervention was often used to treat headaches, cranial trauma, and neurological disorders such as epilepsy according to several ancient sources. Trepanation also has been associated with ritual and magical practices, however, the cultural and social purposes of trepanation are difficult to archaeologically discern. The three individuals appear to have not only survived the procedure but also endured multiple episodes of trepanation. This paper discusses the analysis of Calderia's trepanned individuals and medical practices of the western Roman Empire.

Grafft-Weiss, Amber J. [260] see Bennett, Sarah

Graham, Elizabeth (Institute of Archaeology)

[26] *Exchange and the Economy over Time*

Exchange drove Maya economy at many levels, yet the political landscape changed dramatically from the Preclassic to early Colonial Period. How did exchange networks respond to these changes? Or, we might ask instead if political change or upheaval was instigated by fluctuations or upsets in what might be called the market economy and those who sought to manage or control networks of supply? Did the ability to exact tax/tribute provide rulers and nobles with the economic power to invest and benefit from markets and trade, or did the tax system become unmanageable and problematic in terms of the economic power wielded by tax receivers? These questions clearly cannot be answered in full, but hypotheses will be suggested and avenues explored with particular attention to the Classic to Postclassic transition.

Graham, Martha (SRI Foundation)

[30] *Seeking Balance: The Role of the Review Committee in NAGPRA Implementation*

As part of the Native American Graves Protection and Repatriation Act (NAGPRA), Congress established the NAGPRA Review Committee, and gave it formal responsibilities covering various critical aspects of NAGPRA's implementations. In establishing the Review Committee, Congress sought to "ensure a balance between differing viewpoints among Native Americans, museums, and scientific organizations." This paper considers the Review Committee's involvement in NAGPRA and the important roles that the Society for American Archaeology played in support of fulfilling Congress's mandates and intent for NAGPRA and the Review Committee.

Graham, Elizabeth [262] see Isendahl, Christian

Grant, David [185] see Burchell, Meghan

Grávalos, M. Elizabeth [219] see Hubert, Erell

Grávalos, M. Elizabeth (University of Illinois at Chicago), Patrick Ryan Williams (The Field Museum), Lauren Monz (Northwestern University) and Erell Hubert (University of Toronto)

[219] *An Obsidian Stone Tool Workshop at Cerro Baúl?: Wari Provincial Craft Production and Political Economy*

Here, we present a preliminary chaîne opératoire analysis of obsidian stone tools and associated debitage recovered from a single architectural compound at the site of Cerro Baúl. As the only known direct interaction sphere of the prehispanic Wari and Tiwanaku empires, research at Cerro Baúl in the Moquegua Valley, Peru, offers a rare perspective of colonial encounters and intertwined political economies. During the 2015 excavation season, we exposed a dense midden context consisting of various obsidian lithics, including large bifaces in the typical Wari style, projectile points, retouch flakes, and cores. Although previous researchers have recovered obsidian stone tools at Cerro Baúl, these have largely consisted of finished ritual objects bearing little sign of wear. This discovery is the first evidence of on-site obsidian lithic production. Our chaîne opératoire approach permits a closer look at elite production practices within the context of a potential Wari provincial obsidian workshop. Through this analysis, we highlight the trade networks and local craft specialization of an expansive prehispanic state situated in a colonial frontier.

Grave, Alfonso (INAH Sinaloa) and Emmanuel Gómez (INAH Sinaloa)

[154] *La cerámica Aztatlán de Sinaloa y Nayarit*

Desde la excavación de Gordon Ekholm en Guasave en 1941, se consideró a la cerámica Aztatlán como una importación del centro de México. Algunos como el propio Ekholm y Hasso Von Winning mencionaron la posibilidad de que artesanos Mixteco-Poblanos hayan venido a enseñar su arte a los primitivos habitantes de la costa nayarita y sinaloense. Otros, más medidos como Clement Meighan; Charles Kelley; Helmut Publ, Beatriz Braniff y John Pohl hablan de sistemas mercantiles de largo alcance e incluso se ha mencionado la palabra pochteca. Para la mayoría ha quedado en una influencia directa y unidireccional del Centro de México ó Oaxaca, hacia la zona nuclear Aztatlán.

Sin embargo, para quienes hemos trabajado en la llanura costera de Sinaloa y Nayarit en los últimos veinte años, nos parece claro que la cerámica Aztatlán es el resultado del propio desarrollo político y económico de los grupos que habitaron estos lares e incluso en la cerámica de la fase Baluarte del sur de Sinaloa se encuentran ya varios de los diseños que serán comunes en la cerámica Aztatlán; incluyendo algunos motivos iconográficos. ¿Cómo fue el proceso que propició la cerámica Aztatlán en el Posclásico?

Gravel-Miguel, Claudine (Arizona State University)

[72] *Analyzing Magdalenian Social Networks in their Environmental Context*

This research argues for a refocus of the study of prehistoric social networks that involves contextualizing the inter-site links often interpreted as indicators of social interactions between different groups. It focuses on the social networks created during the 3 sub-periods of the Magdalenian in the Cantabrian region, and visible through similarities of portable art representations. It uses Species Distribution Modeling and Maximum Classification Likelihood on faunal presence data to reconstruct prehistoric biomes and to contextualize the networks reconstructed through the art analysis. It demonstrates the potential of mapping the recreated networks onto the reconstructed biomes and of identifying the linked sites' foraging and minimal band territories to distinguish between a single group's local mobility and inter-group social alliances. Looking at the differences in contextualized networks over time also allows understanding human-environment interactions, and how these affected human social organization in the Upper Paleolithic.

Graves, Tim [55] see Miller, Myles

Gravlin Beman, Ashley (Florida Atlantic University)

[163] *Ceramics, Migrations and Ethnic Identity at the site of Cosmapa Oriental, Department of Chinandega, Nicaragua*

In the summer of 2015, we analyzed ceramics recovered from the site of Cosmapa Oriental in the municipality of Chichigalpa, Department of Chinandega, Nicaragua. The research design calls for the investigation of ethnic identity and migratory processes through the identification, description, and sequencing of the ceramics. Ceramics were recovered from one 1 x 2 m pit, eight stratigraphically excavated shovel tests, and various surface collections. The pottery was analyzed using the Type: Variety-Mode system, with attention paid to chronologically sensitive modes, such as forms. Two occupations were identified: an earlier Late Preclassic one containing Usulután groups and types; Santa Tecla Red; and Pinos Black-brown. This occupation is closely linked to the Uapala and Verbena-Arenal ceramic spheres in nearby El Salvador. The later component, which dates from the Terminal Classic to the Early Postclassic period, includes Ulúa polychrome (Santana Class, Bilbao subclass), Las Vegas Polychrome, and one or two sherds of Plumbate. The local pottery associated with the later occupation is brown to buff, soft, friable, and tempered with local volcanic grit. Red and black slips are common. Because of its location, we believe the site represents the Colonial Period settlement of Mazatega, and therefore was a Maribio settlement.

Gray, Jena (College of William & Mary)

[19] *The People Behind the Practice: An Ethnological Encounter with a Maya Forest Gardener*

In recent years, alternative subsistence strategies have been explored by archaeoethnobotanists and others to describe ways in which the ancient Maya managed their land. Through a contextualized analysis of contemporary Maya interaction with their environment, ethnobotanists hope to gain insight into the past. Forest gardening, a sustainable, agroforestry system similar to permaculture practices, offers a glance into how the Maya cooperate with the land. This paper seeks not to provide an interpretation or comparison of contemporary to ancient Maya peoples but rather to illuminate an experience with Maya forest gardening within the jungles of western Belize.

Through pairing a recent personal account with the academic field of archaeoethnobotany, this paper will entertain the intrinsic link between plants and the people who cultivate and use them. Explored within this text are the cultivation, medicinal uses, and food usages of cacao, life-everlasting plant, and the breadnut tree. Additionally, this presentation offers a brief portrayal of specific Maya ideologies and philosophies that lie behind their land management practices in order to better and more adequately understand the people behind their practice.

Gray, Nadine [93] see Hyde, David M.

Greaves, Russell (Peabody Museum, Harvard) and Karen Kramer (Department of Anthropology, University of Utah)**[279]** *Ethnoarchaeology of Residential Mobility among Savanna Foragers and Archaeological Site Formation*

Ethnoarchaeological observations of residential mobility provide crucial links between subsistence activities, landscape use, social behaviors, and archaeological visibility of occupations. Pumé foragers of the Venezuela llanos move their camps up to six times a year. They occupy separate wet and dry season main camps that are the hubs of central place foraging for different seasonal resources. Pumé hunter-gatherers also make temporary camps for fishing, raw material acquisition, and to cultivate small amounts of manioc that complement foraging for wild tubers. Shifting between wet and dry season camps follows changing groundwater levels, and movement to a main seasonal camp can involve up to three temporary moves determined by water availability. Architectural differences between each of the main seasonal camps are dramatic, and social re-organization occurs during each camp occupation event. Wet season camps are re-used up to three sequential years, but dry season camps shift every year. Observations based on 30 months of ethnoarchaeological research among mobile Pumé foragers in a hyperseasonal savanna provide a longitudinal view of residential dynamics. These are examined in relation to characteristics of the archaeological record to develop methods for integrating distinct kinds of residential sites representing diverse hunting and gathering seasonal activities.

Greco, Catriel [259] see Cremonte, Maria

Green, Jennifer (Florida Atlantic University) and Nicole Pezzotti (Florida Atlantic University)**[6]** *Using Species Richness To Examine Paleoenvironmental Conditions Of The Northern Everglades: A Preliminary Faunal Analysis Of Wedgworth Midden (8PB16175) And The Bryant Site (8PB46)*

The Wedgworth Midden Site (8PB16175) is a newly identified pop-up tree island site southeast of Lake Okeechobee, in Belle Glade, Florida. It is the last stratified muck site to be excavated in Palm Beach County since Belle Glade Mound in 1977. The site presents with cultural occupations from the Late Archaic into the Woodland Period and is considered a part of the Belle Glade Culture.

We compared Wedgworth to the nearby Bryant Site (8PB46) specifically because the ceramic types present at the sites indicate that they were occupied or used contemporaneously. The ceramics also indicate that these people had closer ties to cultural groups from the northeast than other groups throughout the state.

Analysis of the invertebrate remains show both apple snails and the Florida Spike were present at Bryant but not nearly in the numbers found at Wedgworth. Wedgworth even contained apple snail pits, which have only been encountered at five sites throughout south Florida. The vertebrate species assemblage was similar at both sites. However, at Bryant there was a larger presence of brackish and saltwater species. Additionally, the level of fragmentation of the vertebrate remains was extensive compared to those at Wedgworth.

Green, Kelly (University of Sheffield)**[25]** *Children and the ceramic Industry in Medieval England*

This paper discusses the role of children in the ceramic industry in medieval England, using the work of medieval ceramics specialists Maureen Mellor and Stephen Moorhouse as a starting point from which new evidence relating to this subject can be assessed. Children's involvement in pottery production manifests itself in a variety of ways, including fingerprints on ceramic sherds, decorative qualities on pots and tiles, and documentary references. Similar studies relating to pottery production in Roman, post-medieval, and contemporary European societies provide context through which the evidence for medieval England can be analysed. As such, this paper draws on a range of ethnographic and documentary evidence to inform our understanding of the archaeology of child labour in the sphere of pottery production in the English Middle Ages, with a particular focus on the later part of this period. It will be shown that children formed a significant (if not always highly visible) part of the work force in many domestic-based industries, and that play formed an important component through which children learned various tasks relating to ceramic production.

Green, Debra (Metcalf Archaeological Consultants, Inc.)**[50]** *Landscape Change at the Ceremonial Center of Tibes in Puerto Rico: A Late Holocene Hurricane Flood Event?*

This paper presents the results of a geoarchaeological study of the depositional history at the Ceremonial Center of Tibes in Puerto Rico.

Geoarchaeological study of the sediment and soil relationship at Tibes reveals evidence of Holocene paleoflooding that occurred between A.D. 800 and A.D. 900. This flood event caused significant changes to the cultural landscape at Tibes. These site formation processes include river migration farther west and south of the paleochannel, deposition of reworked fluvial fine-grained sediments, cobbly gravel deposits, and cultural material across the western portions of the site; and destruction of older cultural deposits and ceremonial features. The results of this study offer a comparative analysis of flood events recorded at other archaeological sites in Puerto Rico and the Caribbean.

Green, William (Logan Museum of Anthropology, Beloit College) and Roland Rodell (University of Wisconsin-Rock County)**[258]** *"The Wisconsin Idea" and the Production of Archaeological Knowledge during the Progressive Era, ca. 1900-1930*

The social and political ferment of the Progressive Era (1890s–1920s) was associated with a golden age in Wisconsin archaeology for avocationalists and professionals alike. In 1901, a group of archaeological enthusiasts led by Charles E. Brown founded the Archeological Section of the Wisconsin Natural History Society. The Section soon became the independent Wisconsin Archeological Society (WAS). Its promotion of the "scientific and educational value" of archaeology was meant to engage "scientists, educators and students everywhere"—"students" denoting anyone interested in archaeology. As curator of the State Historical Society of Wisconsin (SHSW) museum, Brown brought archaeology to the forefront of the SHSW's statewide historic preservation and public education programs. Simultaneously, professional anthropology came to the Milwaukee Public Museum (MPM) when Samuel A. Barrett was hired in 1909, and MPM archaeological fieldwork flourished through the 1920s with an ambitious excavation program directed by Will C. McKern. The MPM program, and especially Brown's leadership in the WAS and SHSW and his association with the University of Wisconsin Extension Division, engaged both professionals and avocational archaeologists in the Wisconsin Idea, a concept born of the Progressive Era in which academic research addresses societal needs and reaches citizens throughout the state.

Green, Kirsten (University of Montana), Ashley H. McKeown (Texas State University) and Roseanne Bongiovanni (University of Southern Florida)**[288]** *Tracing Mortuary Trends at Cahal Pech using Stable Isotope Data*

Recent research focusing on environmental change in the Belize River Valley during the Classic Period provides clear evidence for deteriorating conditions during the Late Classic Period. These findings help explain shifts in socio-political and religious systems, as well as fluctuations in population distributions of the Late Classic and Terminal Classic Maya. Some archaeological research suggests complete abandonment of ceremonial sites occupied by the Maya elite. Mortuary practices can be used to identify changes in the socio-political and religious systems of the living population, and this paper employs archaeological and biological data from burials at Cahal Pech, a medium-sized ceremonial site in San Ignacio, Belize. Specifically, stable isotope values from bone and teeth will identify geographic origin and diet/status of burials from the Late Preclassic to Terminal Classic periods, including intrusive burials that occurred after central ceremonial structures were abandoned. Integrated with other biological data and burial context, these data will be employed to discern whether Cahal Pech was occupied during the Terminal Classic, albeit by a much smaller population, or was used primarily as a ceremonial burial site during this time.

Greene, James (Cardno, Inc.), Veronica Parsell (Cardno, Inc.), Kaye Grobe (Cardno, Inc.) and Kathleen Settle (Cardno, Inc.)

[111] *Kankakee Marsh Lifeways, Phase III Data Recovery, Northwest Indiana*

Site 12LA0091 represents a unique archaeological setting in northwest Indiana. Located south of Lake Michigan on a sandy dune remnant situated topographically above the historic Kankakee Marsh, this prehistoric site has yielded invaluable information in understanding regional prehistoric subsistence activities from the Late Archaic to Upper Mississippian periods. A recent Phase III data recovery effort has provided data that can help refine the prehistoric chronological framework for northwest Indiana, as well as provide information on prehistoric seasonal activities within the Kankakee Marsh region over time. Through lithic, ceramic, faunal, and flora analysis, this investigation provides greater insight into the temporal sequencing of the region. Additionally, the presence of intact human remains provides insight into burial practices specific to the Kankakee Marsh area. This investigation has not only generated additional information important for understanding the prehistory of the region, but also represents a successful example of the positive outcomes that can be achieved through the Section 106 process.

Greene, James [287] see Parsell, Veronica

Greenfield, Haskel [112] see Redmond, Brian

Greenlee, Diana (U of Louisiana - Monroe) and Stephanie Perrault (Poverty Point World Heritage Site)

[265] *Collections-Based Research at Poverty Point World Heritage Site*

The Poverty Point World Heritage Site is a state-owned and -managed archaeological park in northeastern Louisiana. Named for the nineteenth-century Poverty Point Plantation, the site's cultural significance derives from its monumental earthen complex constructed 3,700–3,100 B.P. The complex includes five mounds; six enormous, concentric, semi-elliptical ridges; and a large interior plaza. A sixth mound was built 1,700–2,000 years after the initial construction. This culturally created landscape, the largest and most elaborate Archaic Period settlement in North America, was built by hunter-fisher-gatherers.

The Poverty Point Archaeological Curatorial Facility has an immense collection of artifacts, numbering in the hundreds of thousands, associated with the Late Archaic occupation of the site. The remarkably diverse cultural material available for study includes (but is not limited to) PPOs, decorative earthen objects, figurines, pottery, spear points, microliths, atlatl weights, gorgets, plummets, stone vessels, and beads. Much of the lithic raw material was imported from sources hundreds of miles away. The artifacts are the products of a vast surface collection and numerous excavation units that were placed in the major earthen features across the site. There is an on-site dormitory for researchers and the location is ideal for those who seek a workplace with few distractions.

Greer, John [115] see Greer, Mavis

Greer, Mavis (Greer Services, Archeological Consulting) and John Greer (Greer Services, Archeological Consulting)

[115] *Use of Old Photos in Rock Art Recording and Analysis: The Adams Collection of Central Wyoming*

Historic photographs are particularly useful in rock art studies for assessing early and changing site conditions that show effects, rates, and chronology of natural weathering and vandalism. This includes such alterations as removed and added figures, altered figures, entire affected panels, chalking, latex recording, and deleterious effects of well-intentioned physical conservation. Such changes indicate not only physical changes in the art but also influence on possible direct dating and modern conservation measures. Care should be taken to evaluate available data relative to use of old photos for a variety of information.

Grier, Colin [124] see Dolan, Patrick

Grier, Colin (Washington State University)

[132] *Terraforming, Monumentality and Long Term Practice in the Coast Salish World*

The archaeological record of the southern Gulf Islands of coastal British Columbia provides evidence of deliberate and long-term construction of coastal landforms over the last 4,500 years. Local landscapes were altered, modified, and managed in the service of production, but the implications of such practices for the construction of place, of inequality, and of political networks are profound. I document the magnitude and extent of landscape construction spatially, focusing on quantifying investments in coastal spit sites from the southern Gulf Islands. I also address the temporal scale of this landscape construction process, which, while fundamentally long term, also appears to have been punctuated by shorter term moment of contestation and reorganization. My overarching objective is to better establish how material production, social inequalities, and political autonomy played out over deep time, and refine notions of how ownership systems can emerge from the construction of built places.

[132] *Chair*

Griffith, Cameron (Hanover College) and Nikolai Grube (Universität Bonn)

[294] *Subterranean Sculptural Narratives of Ancient Maya Mythological Beliefs*

In this paper, we present recent analyses conducted on the elaborate artwork in Actun Halal, an important ancient Maya cave site in western Belize. Actun Halal contains a wide variety of art forms, ranging from monumental modified speleothem sculptures 4 meters in height to small, detailed bas-relief sculptural works executed in layers of travertine only millimeters thick. Akin to the elegant scenes rendered in murals and on polychrome pottery vessels, the sculptural works in Actun Halal tell a vibrant story with prominent actors in ancient Maya mythology such as the Fire God and the Jester God. The research presented here details our most recent insights into this complex sculptural narrative.

Griffiths, Seren (University of Southampton), Erick Robinson (University of Wyoming, USA), Philip Buckland (Umeå University, Sweden), Ralph Fyfe (Plymouth University, UK) and Kevan Edinborough (University College London, UK)

[218] *The 8.2ka Event Evidence for Human-Environment Interaction in North-West Atlantic Europe*

The 8.2ka 'event' is represented by significant cooling in multi-proxy palaeoenvironmental records (e.g., Alley et al. 1997; Kobashi et al. 2007; Thomas et al. 2007; cf. Wiersma 2008). This temperature drop, and its related consequences, has been presented as factors in human social changes across Europe and the Near East (e.g., Roberts et al. 2011; van der Plicht et al. 2011). However, given the complexity of regional and local ecosystems, the impacts across broad geographical scales were likely variable, and possibly, time transgressive. Moreover, the time range of the signal in Dye3/GRIP/GISP2 records have been estimated by Rohling and Palike (2005) as indicating long-term cooling over 400–600 years. In order to address influences of climate change on human societies, archaeological case studies need to address the temporal and spatial context of environmental changes over the span of the 'event,' but for several hundred years either side to better understand possible leads and lags in responses. This case-study presents one approach, assessing the evidence for human activity, and pollen and beetle records either side of the 8.2ka 'event' in northwest Atlantic Europe. Specific attention is paid to problems of chronological resolution in archaeological and palaeoenvironmental data, and chronological data treatment.

Grimes, Vaughan [85] see Harris, Alison

Grimes, Vaughan (Memorial University), Rui Boaventura (University of Lisbon), Ana Maria Silva (University of Coimbra), Maria Hillier and António Carlos Valera (NIA - ERA Arqueologia S.A.)

[103] *Strontium Isotope Evidence for Late Neolithic Mobility in South-Central Portugal*

During the end of the fourth and third millennia B.C.E. (Late Neolithic/Chalcolithic) in South-Central Portugal significant movement of people has been assumed due to the widespread distribution of 'foreign' artefacts found at coastal and inland archaeological sites. Counter to this, other archaeological evidence from the region seems to suggest a more sedentary lifestyle among these people at that time. Here, we will present human strontium isotope data from three Late Neolithic tombs, namely the dolmens of Estria and Carcavelos (n=14) near Lisbon (Estremadura), and the tholos tomb 1 at Perdigoões (n=27) in Alentejo, to directly address the scale of mobility vs sedentary behavior during the Late Neolithic. Our initial results suggest that in comparison to measured isotopic baselines using contemporary archaeological fauna, over 20 percent, of humans from all three sites investigated could be considered non-local, which may indicate a greater level of inter-regional mobility during the Late Neolithic than previously anticipated.

Grimstead, Deanna (The Ohio State University) and Barnet Pavao-Zuckerman (University of Maryland)

[176] *Historical Continuity in Southern Arizona Free Range Ranching Practices: Carbon, Oxygen, and Strontium Isotope Evidence from two 18th Century Missions*

Carbon ($\delta^{13}C$), oxygen ($\delta^{18}O$), and strontium ($87Sr/86Sr$) isotopes from cattle, caprine, and small mammal teeth from two historic-period Spanish missions and modern cattle were assayed with the goal of reconstructing historic ranching practices in the Sonoran Desert of southwestern North America. Carbon isotope ratios from modern cattle indicate that it is possible to distinguish cattle free ranged within upper elevations desert habitats compared to lower elevation free ranged or possibly foddered animals. It is not possible to distinguish maize-foddering versus low elevation free-ranging of livestock in the Sonoran Desert using $\delta^{13}C$. Historic-period livestock indicate they were free ranged at upper elevations, lower elevations, and/or foddered, and several specimens show evidence of a mixed strategy. Oxygen isotope ratios ($\delta^{18}O$) suggest that missions managed water resources for livestock use, and were, for the most part, kept away from riparian zones. $87Sr/86Sr$ results demonstrate trade was an important part of Mission ranching practices, as several specimens are non-local; coming from a minimum distance of 40 km, but more likely greater than 150 km. Taken together, the $\delta^{13}C$, $\delta^{18}O$, and $87Sr/86Sr$ results are consistent with continuity in free-ranged herd management practices from the historic Mission era to present day within the Sonoran desert.

Grinnan, Nicole [260] see Scott-Ireton, Della

Grinnan, Nicole (Florida Public Archaeology Network)

[260] *Submerging the Public: Perspectives on Developing Guided Archaeological Shipwreck Tours*

Community interest in archaeological shipwreck sites is increasingly profound in Florida. Though laws protecting these submerged cultural resources in state waters have been in place for nearly 30 years, many people are still unaware of the importance of these resources as heritage tourism destinations, foci of archaeological research, and representatives of community identity. After award of a grant to explore the sixteenth-century Spanish Emanuel Point II shipwreck in 2014, the University of West Florida (UWF) Division of Anthropology and Archaeology began considering new avenues for providing public engagement built around a preservation message. This paper explores the recent development of the "PAST (Public Archaeological Shipwreck Tours)" diving program. PAST allows FPAN and UWF archaeologists to offer local recreational divers an opportunity to learn more about shipwreck sites (like the Emanuel Point shipwrecks) and participate in guided dive tours. Reflections on the program include a discussion of the successes of initial PAST events, participant feedback, and plans for the future.

Grobe, Kaye [111] see Greene, James

Groff, Amanda (University of Central Florida) and Tosha Dupras (University of Central Florida)

[24] *Leprosy, Segregation, & Burial Context: Remote Desert Living in the Dakhleh Oasis, Egypt*

Stable oxygen isotope analysis of tooth enamel and bone apatite from adults afflicted with leprosy from the Kellis 2 cemetery (50–450 A.D.) in the Dakhleh Oasis provides insight into social perceptions of disease stigma during the Roman-Christian era in Egypt. Because there are no grave markers found in Kellis 2, this research focuses on the spatial analysis of stable isotope results to develop an interpretation of the burial location of leprosy cases. In

particular, stable oxygen isotopes, which have been used to interpret migration and/or place of origin, are utilized to address the segregation of leprosy cases in a burial context. Two primary questions are addressed in this study: 1. Did the physical manifestations of leprosy cause the afflicted to be segregated from the general public?; and 2. Was the Dakhleh Oasis used as a safe haven or place of banishment for the ill? Results of this study indicate that foreign individuals with leprosy were primarily confined to one location in the cemetery, indicating segregation did likely occur. However, we argue that while the ill may have been segregated, their appearance in the cemetery is likely related to the naturally occurring alum mineral used for healing.

Gronenborn, Detlef (Roemisch-Germanisches Zentralmuseum), Hans-Christoph Strien (Johannes Gutenberg University Mainz), Christian Lohr (Roemisch-Germanisches Zentralmuseum) and Johanna Ritter (Johannes Gutenberg University Mainz) (Helmholtz-Centre Geesthacht for Materials and Coas)

[95] *Adaptive Cycles and Resilience as Explanatory Templates for the Formulation of Coupled Climate-Culture Models*

Simplistic scenarios of the role of climate on the dynamics of socio-political trajectories are increasingly being replaced by coupled models in which climate and societies undergo mutually influential interactions. The concepts of adaptive cycles and resilience have been particularly helpful in understanding these interrelations.

Based on an extensive body of data from Early to Upper (Young) Neolithic sites in western central Germany and adjacent regions, a model is proposed, which takes into account both the potentially beneficial as well as the adverse influences of climate. These parameters are then set against markers of social resilience, which at times forms independently, at times dependently, from climate fluctuations. The result is a complex basic module for a coupled climate-culture interaction model which may eventually be taken as a template for mathematical modelling.

[95] *Chair*

Gronniger, Grace

[111] *Setting the Table in Victorian Age St. Louis: The Utility of Glass Tableware Analysis in the Archaeology of Domesticity and Consumerism*

The historical archaeology of domesticity and consumption rests heavily on the analysis of ceramic tableware artifacts. Few archaeologists have seriously incorporated analyses of glass tableware into this body of research, even though glass tableware was a common, durable, and heavily marketed domestic artifact class. My research addresses this problem through a study of glass tableware from Victorian Age (1830s–1900s) residential sites in St. Louis, Missouri. This is done, in part, by adapting methods of historic ceramic artifact analysis to the analysis of historic glassware. The utility of this method is assessed by applying it in a historical archaeological study of household consumption in relation to domesticity in Victorian age St. Louis, Missouri. The results indicate that whether it is used independently or in conjunction with ceramic analysis, glass tableware analysis can contribute significantly to the historical archaeology of domesticity and consumerism. Archaeologists can do this painlessly by using the method developed and applied in this study, rather than continue to miss out on the potential contributions of this artifact class.

Grooms, Seth [111] see Flood, John

Grouard, Sandrine (Muséum National Histoire Naturelle Paris)

[222] *Island Extinctions and Invasions: Archaeozoological Advance in the French West Indies*

Although island faunas are relatively well studied, there are few clear examples on faunal replacement, over periods of several centuries or a few millennia. This paper brings together results from 10 years of zooarchaeological studies in three different Caribbean islands: Saint-Martin, Guadeloupe, and Martinique. It presents data on presence (and absence) of terrestrial vertebrates (amphibians, reptiles, birds, and mammals), in relation to human activities in insular environments during the Holocene. Examples illustrate mechanisms of biodiversity evolution under human pressure and through several waves of human migration since 5,000 years B.P. These include natural colonisations, intentional or chance introductions, extinctions or disappearances (often of endemic species) due to human activities (hunting and gathering, but also deforestation and other anthropogenic effects on the environment). Beginning with the large original diversity, there is a partial turnover of the taxa within each human colonisation. Everywhere, human intervention causes an over-saturation of the specific richness curve in regard to the MacArthur and Wilson Model, because of the numerous species introduced during each migration; but in parallel, there is extinction of numerous indigenous and endemic species.

[14] *Discussant*

Grouard, Sandrine [100] see Perdikaris, Sophia

Groucutt, Huw [22] see Brandt, Steven

Groucutt, Huw (University of Oxford)

[22] *Arabian Late Pleistocene Lithic Variability and Its Implications for Hominin Behavior and Demography*

The last five years have seen a rapid acceleration in research on Late Pleistocene Arabia. A growing number of Late Pleistocene archaeological sites have now been identified. While Pleistocene hominin fossil remains are currently unknown in Arabia, a fast expanding corpus of faunal remains and paleoenvironmental archives provide important contextual information for hominin occupations. Claims have been made for close similarities between Arabian and broadly contemporary east and northeast African lithic assemblages. Such analyses have, however, lacked chronological resolution and little consideration has been given to the different environmental and landscape contexts of sites. In this paper, I focus on lithic assemblages from open air sites in Arabia, as both surface scatters and excavated material, and seek to differentiate the various sources of variability influencing the morphological and technological features of the assemblages. Identified sites fall into two major types: raw material procurement localities, and scatters associated with paleohydrological features (particularly lakes). While the emerging picture suggests significant roles for autochthonous Arabian developments and 'pragmatic' influences such as differential reduction intensity, it also seems clear that several dispersals into Arabia occurred. Understanding the sources and routes of these dispersals is proving an exciting, but challenging, area of research.

[22] *Chair*

Grube, Nikolai [294] see Griffith, Cameron

Gruber, Janna [140] see Bowman, R Doyle

Grund, Brigid (University of Wyoming), Todd Surovell (University of Wyoming) and Spencer Pelton (University of Wyoming)

[115] *Where the Buffalo Groan: Topographic Variables Governing the Placement and Spatial Organization of Wold Bison Jump, Wyoming*

The Wold Bison Jump in Johnson County, Wyoming, is one of many prehistoric, mass kill sites scattered across the Plains. At Wold, a foraging basin of prime ungulate grazing habitat abuts the gently sloping backside of a bluff. Funnel-shaped drivelines of cairns extend across the top of the bluff towards a treacherous cliff. The drive was configured to constrain stampeding bison (*Bison* sp.) as prehistoric hunters communally drove them from the foraging basin to the precipice. Previous GIS analyses of bison jumps inductively analyze surrounding landscapes by classifying jump locations as known, unvarying focal points of analysis. While this approach can be informative, at Wold we attempt to obtain a more general understanding of how bison jumps operate. Using iterative models of least cost paths, topographic cross-sections, and visibility analysis, we test which landscape-embedded variables are optimized at Wold as compared to other potential localities across the study area. We find that this site's placement is primarily explained by minimizing the distance at which the cliff face is visible and secondarily by minimizing the cost of slope and curvature routes ascending into the drivelines. Our procedure could hypothetically be used to predict optimal jump locations on similar landscapes.

Grundtisch, Katie [171] see Kohler, Tim

Grupe, Gisela [52] see Schulting, Rick

Guderjan, Thomas [130] see Krause, Samantha

Guderjan, Thomas (University of Texas at Tyler)

[130] *Did Restructuring at the End of the Maya Classic Period Include the Beginnings of Private Land Tenure?*

The archaeological study of land tenure in non-literate societies is methodologically complex. However, by examining situations before, during, and after transitions, insight can be gained. At the end of the Maya Classic Period, complexes of field walls were built, especially in coastal locations. These appear to not have water control or land management functions but instead delineate space similarly to house lots in contemporary, but traditional, Maya villages. Land tenure at the center of Blue Creek in Belize, specifically the Chan Cahal residential group, coastal field wall complexes and the use of house perimeter walls in the Yucatec village of Yaxunah are compared to better understand the purposes and importance of the development of field walls in understanding changing patterns of Maya land tenure.

Gudino, Alejandra [57] see Lippi, Ronald

Guengerich, Anna (Vanderbilt University)

[105] *The View from Above: Changing Experiences of the Built Environment during the Andean Late Intermediate Period*

The highland Andes underwent major transformations in settlement organization between A.D. 1000–1300, in the first half of the Late Intermediate Period. Settlement patterning shifted to higher altitudes, and in some areas, new sites were accompanied by defensive features. Most research has focused on the structural pressures that led to these changes, such as an increase of violence in the wake of Middle Horizon polity collapse, or a shift to pastoralism as a result of climate change. This paper focuses instead on how these changes in the built environment were experienced after their construction. Settlements in many regions shared newly developed attributes such as stone masonry, freestanding domestic architecture, and communal ritual spaces that were relatively small in scale and often ancestor-focused. Focusing on architectural changes developed in the Chachapoyas region during this time, I suggest that these new built environments generated fundamentally different forms of habitus for their residents and radically altered the relationships that communities sustained with each other and with the powers that inhabited the landscape. Stone-built, mountaintop villages of the LIP may have originated as adaptive responses, but their spatial and material attributes also shaped new understandings of their inhabitants' place in society and in the animate cosmos.

Guenter, Stanley [59] see Hansen, Richard

Guerra, Rafael (Institute of Archaeology), Claire Ebert (The Pennsylvania State University) and Jaime Awe (Northern Arizona University)

[288] *Architectural Planning and Shared Political Traditions in the Belize River Valley*

The presence of shared architectural elements and configurations between major ancient Maya centers has often been attributed to socio-political affiliation and/or emulation of influential centers by their neighbors. In this paper, we examine the site plans and settlement systems for the monumental centers of Cahal Pech and Lower Dover in the Belize Valley to identify parallel trends of the growth of monumental architecture through time. Cahal Pech is one of the earliest permanently settled sites in the region (1200 cal B.C.), and experienced continual growth of monumental architecture and settlement until the Terminal Classic Maya "collapse" (~cal A.D. 800). The site core of Lower Dover, established later during the Late Classic Period (~cal A.D. 500), exhibits similar configuration of architectural elements as Cahal Pech, including an east-west spatial orientation. While the location of residential settlements at each site may have been ecologically dependent, similarities in the placement of public and private spaces at the elite centers of each site suggest that Lower Dover was closely tied to Cahal Pech, perhaps sharing a common socio-political lineage.

Gugora, Ariana (Department of Anthropology, University of Central Florida, Orlando, FL 32816), Tosha Dupras (Department of Anthropology, University of Central) and Erzsébet Fóthi (Department of Anthropology, Hungarian Natural Hist)

[147] *Childhood and Adulthood Mobility at Medieval (1240s A.D.) Solt-Tételhegy, Hungary Reconstructed from Stable Oxygen Isotope Analysis*

Between 2005 and 2009, archaeologists excavated more than 100 skeletons from the medieval (1240s A.D.) Hungarian site of Solt-Tételhegy. Little has been published about this archaeological settlement, and although previous stable isotopic research has described the migration patterns of medieval European peoples, here we present the first such study performed on a medieval Hungarian population. Stable oxygen isotope analysis was conducted on dental enamel from 23 individuals and on bone apatite from 21 individuals in an attempt to reconstruct origins and mobility from a life history perspective. The enamel and bone $\delta^{18}\text{O}$ values suggest that several of these individuals migrated to Hungary during their childhood. While the majority appear to have traveled from central and eastern Europe, a few originated from more distant places, such as Italy, Spain, the Middle-East, or even north Africa. This research adds to the understanding of the dynamic population movement throughout this time period in medieval Europe.

Guiducci, Dario (Université de Montréal)

[72] *Reading the Landscape: A Model of Environmental Legibility for Assessing Hominid Dispersals during the Late Pleistocene.*

The ability of Anatomically Modern Humans (AMH) to successfully navigate complex topographies and variable environments is hypothesized to have been a key adaptation for the long term success of our species, in comparison to other hominid groups. Additionally, the structure of the environment through which human dispersals occurred is arguably important to our understanding of the speed and scale at which population movements occurred. This paper demonstrates a new methodology for quantifying and modelling landscape legibility, an untested aspect of environmental structure adapted from landscape studies. With the aid of case studies from north-eastern Spain, this paper illustrates the logic of a legibility metric based on two dimensions; 1) landscape coherence, which affects the ability to single out significant landmarks useful for guiding navigation; and 2) ease of dispersability, measured by means of a circuitscape model. The paper concludes with a discussion of what the patterns and differences between the study areas mean for Late Pleistocene dispersals in the Western Mediterranean, and how an assessment of legibility fits in with other lines of evidence regarding hominid dispersals more generally.

Guinard, Adam [265] see Clauter, Jody

Guiry, Eric and Michael Richards (University of British Columbia)

[223] *Using Stable Isotope Analyses to Assess the Geographical Origins of Pork and Beef Products in a Historical New World Population Center*

This presentation explores the utility of stable carbon and nitrogen isotope analyses as a method for tracing the geographical origins of meat products from major livestock species. Samples ($n=250$) from pigs and cattle consumed in the historical city of York, later renamed Toronto, in Canada are compared with animals raised in other areas, in both local as well as distant regions. Results show how cultural as well as environmental isotopic variables can be used to distinguish between animals raised in the city, the local region, or imported from the U.S. In particular, differences between the prevailing agricultural regimes in southern Ontario versus the eastern U.S. appear to provide a robust isotopic contrast in regional livestock and may be a useful marker of animals raised in and/or moved between different political and economic regions during the nineteenth century. We also use these data to reconstruct consumption patterns between different social and economic groups within the urban settings of Toronto and discuss these findings in the context of human translocation of animals and reshaping of ecosystems.

Gumerman, III, George J. [168] see Warren, Amy

Gunn, Joel D. [59] see Volta, Beniamino

Gunn, Christopher (University of Kentucky)

[127] *Seeding the Clouds: A Model of Late Classic Puuc Political Process*

This paper synthesizes the growing body of chronological, settlement, economic, epigraphic, and iconographic data generated from recent research to critically examine traditional models of a short Terminal Classic occupation for the Puuc. The Late Classic Period (600–800 A.D.) was the period in which the political and economic systems of Puuc states crystallized. Settlement patterns suggest that land was a widely available resource during the seventh century, but that the rapid infilling of the region over this century resulted in increased economic and political competition. Importantly, responses to this tension were regionalized, with western Puuc settlements choosing to minimize tensions through the formation of inter-elite confederacies, while eastern Puuc elites escalated inter-polity competition through increasing deployment of individualizing iconographic programs. In this way, the Puuc becomes a microcosm for broader political processes sweeping the Maya Lowlands in the decades leading to the Terminal Classic 'collapse.'

Gunn, Joel (University of North Carolina-Greensboro)

[162] *Three Tropical Thoughts: Vern Scarborough and the Migration to Tropical Ecology*

Vern's collaborative research fosters a number of insights both across investigators and disciplines. My top-three picks are tropical ecology, water cities, and Gulf Coast origin of Lowlands occupation. (1) Vern focuses on understanding implications of tropical ecology, central to which is high diversity and therefore low density. Working through the implications of this for human settlements has perhaps been his most important accomplishment. (2) Maya water cities are obvious attempts to break the bondage of tropical ecology. They mark both the strength of Classical Maya culture creating one of the great world civilizations, and a fatal vulnerability in their social engineering. While building dense, urban, commercial networks, they exposed themselves to extremes of climate typical of the boundary between the tropics and subtropics, among them long-term drought. (3) Finally, the first thing in Vern's writings that caught my attention was that Maya probably started conquest of the Lowlands from the Gulf Coast. Understanding this has been an objective since the 1990s. With the help of coastal ecologist John Day and William J. Folan, our study of the origins of civilizations with Sea Level Stabilization has brought the Gulf Coast hypothesis to fruition in the context of world-wide, low-density urbanism.

Gunter, Madeleine (College of William and Mary) and Christopher Stevenson (Virginia Commonwealth University)

[36] *Copper Exchange in Precontact Virginia: An LA-ICP-MS Study*

Research into broad patterns of trade and exchange in prehistoric North America suggests that from A.D. 800–1700, objects made from copper featured prominently in Native American exchange networks. Native polities saw copper as an insignia of social and economic power and sought to control its flow and distribution. Scholars have long hypothesized that prior to European contact in the Middle Atlantic region (A.D. 1607), Native polities in Virginia predominantly traded copper acquired from the Blue Ridge Mountains. This study tests this hypothesis, using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) to compare the composition of copper artifacts and source material from a number of late prehistoric sites in Virginia.

Results of this analysis suggest that native copper likely came from sources well outside the Middle Atlantic region.

Gupta, Neha (Memorial University)

[4] *Chair*

Gurevitz, Anna (University of California, Merced) and Danielle Kurin (University of California, Santa Barbara)

[207] *Chanka Demographics and Diet: A Case Study in Commingled Remains from the South-Central Peruvian Andes*

Burial sites in the Peruvian Andes, especially around Andahuaylas, Peru, frequently consist of many commingled individuals. Most date from ca. A.D. 1000–1400, placing the individuals in a time of much turmoil as the Wari Empire collapsed and environmental constraints affected the region. This unrest resulted in an eruption of violence and a fight for resources, forcing individuals to restructure their identity. However, despite the plethora of human remains from this area, no ranges for sexing the commingled long bones exists for modern or prehistoric populations in Andean South America, which creates considerable challenges as we explore larger questions concerning identity and gender roles among the Chanka. Here, Chanka remains from Sonhuayo, a short distance outside of Andahuaylas, Peru, are examined to fill this lacuna. In addressing this gap, we initiate an investigation of how identity was restructured during a time of insecurity. Stable isotope analyses of bone collagen and tooth enamel as well as metric analysis of long bones, have allowed us to construct a demographic profile of the Chanka from Sonhuayo and correlate behavior to ideas of gender and identity as manifests in diet.

Gurstelle, Andrew (Wake Forest University)

[265] *Archaeological Collections at the Museum of Anthropology, Wake Forest University*

The Museum of Anthropology at Wake Forest University has several collections that are of great interest to archaeologists. Three of our collections are presented: the Rights collection, the Lam collection, and the West Mexican collection. The Rights collection consists of nearly 20,000 artifacts collected by the Rev. Douglas Rights in the first half of the twentieth century from archaeological sites near Winston-Salem and in the western Piedmont of North Carolina. The Lam collection consists of over 500 Chinese ceramics made during the Tang Dynasty (A.D. 618–907) at the Changsha kilns, including bowls, ewers, cups, teapots, small toys, and other pieces. The west Mexican collection consists of 1,040 artifacts, most dating to the Late Formative Period (approximately 300 B.C.–A.D. 400), and includes 162 complete ceramic vessels, ceramic figurines, greenstone beads and necklaces, obsidian projectile points, knives, and grinding stones. Though each of these collections were made outside of controlled, systematic archaeological investigations, they still hold great potential for contributing to new research.

Gusick, Amy (California State University, San Bernardino)

[249] *Discussant*

Gust, John [130] see Mathews, Jennifer

Gustafson, Martha [195] see Snow, Meradeth

Gustas, Robert (University of Alberta), Kisha Supernant (University of Alberta), Andrew Martindale (University of British Columbia), Bryn Letham (University of British Columbia) and Kenneth Ames (Portland State University)

[174] *Least Cost Analysis of Movement Events during the Early Holocene/Late Pleistocene on the Northwest Coast*

Spatial modeling of early prehistoric maritime movements on the Pacific Northwest Coast is important in contemporary archaeology as a site prospection tool in a landscape which has radically changed over the last 16,000 years. GIS analysis can model ancient site locations now hidden by changing sea levels. We present findings from a project which developed a new method for modeling maritime movement using least cost path analysis (LCA) of both behavioral and cultural constraints to determine the areas most likely to have been traveled by Paleoamericans between 10,000 and 16,000 cal. yr B.P. Using multiple cost weighting scenarios, spatial resolutions, and different considerations of overland travel movement, routes through five areas of northwest British Columbia and southeast Alaska were predicted. The resulting movement paths were systemically analyzed and locations with high probabilities of containing new sites identified. Additionally, a sub-model was run to test and check the methodology's predictiveness by comparing travel routes through Prince Rupert Harbour over the last 5,000 years to known site locations. This work is the first to apply LCA to seascapes and marine movement and the results have the potential to lead to a better understanding of Early Holocene and Late Pleistocene travel.

Guthrie, James [236] see Renson, Virginia

Gutierrez, Maria (CONICET, INCUAPA)

[16] *Integrating Bones, Soils and Dates: Late Pleistocene-Holocene Settings and Human Occupations in the Pampas of Argentina*

A great increase of archaeological knowledge from the Pampean region of Argentina occurred in the last 20 years. Three main approaches were explored in detail by means of archaeological research that contributed to broadening our understanding of hunter-gatherers in the past: interdisciplinary studies, geochronology, and taphonomy. These perspectives were either initiated or reinforced in our projects by Eileen Johnson. The aim of this presentation is to highlight the main contributions that these approaches have done to the archaeology of the region. Specifically, we will discuss the impact of her work on topics such as early human peopling, Pleistocene faunal extinctions and Holocene survival, and paleoenvironmental reconstruction.

[16] *Chair*

Gutiérrez-Zugasti, Igor [49] see Duarte, Carlos

Guyah, Timothy

[5] *Discussant*

Guzmán, Eulogio (School of the Museum of Fine Arts, Boston)

[172] *Discussant*

Gyucha, Attila [166] see Riebe, Danielle

H O'Rourke, Dennis [160] see Tackney, Justin

Haak, Wolfgang [276] see Llamas, Bastien

Haberle, Simon [223] see Clarke, Geoff

Haberle, Simon (Australian National University), Richard Cosgrove (La Trobe University), Asa Ferrier (La Trobe University), Patrick Moss (The University of Queensland) and Peter Kershaw (Monash University)

[295] *Light Islands in a Sea of Dark Rainforest: Human Influence on Fire, Climate and Biodiversity in the Australian Tropics*

The use of fire in Australian Aboriginal society has been well documented and has been pivotal to arguments about human impact on the Australian biota. Continuous and well-dated palaeoecological sequences from the humid rainforests of NE Queensland are beginning to reveal detailed records of vegetation transformation and shifting fire regimes within rainforest environments. The archaeological record is also providing new insights into plant exploitation and adaptation strategies to enable people to live within a rainforest environment. In this presentation, we combine archaeological and palaeoecological approaches to investigate the interaction between Aboriginal people, rainforest, and fire. The relationship between the intensity of human occupation, climate variability, and the onset of burning builds a better understanding of the primacy of natural and anthropogenic firing events and the Aboriginal maintenance of economically important plants within fire managed mosaics. It has also provided a greater understanding of the role of fire in the maintenance of biodiversity.

Habicht, Michael [224] see Bouwman, Abigail

Hackenberger, Steven [113] see Davis, John

Hadden, Carla (University of Georgia)

[28] *Building on the Vertebrate Data: Invertebrate Analysis Offers New Insights on Southeast Coastal Subsistence-Settlement Systems*

Mollusc shell is often the most conspicuous component of coastal archaeological sites in southeastern North America. The sheer abundance and bulk of the material presents logistical challenges during all stages of investigation, from excavation and recovery to analysis and curation. These challenges, combined with the assumption that molluscs were low-ranked resources, result in the tendency for zooarchaeological analyses of the coastal southeast to focus on vertebrate remains, and to exclude invertebrates. We argue that the benefits of systematic analyses of invertebrate fauna far outweigh the costs, and should be a routine component of zooarchaeological investigations, despite the challenges involved. We present data demonstrating how the analysis of shellfish remains has informed our understanding of coastal economies, site function, seasonality of site use, and procurement locations and catchment areas in the coastal southeast. These new insights significantly add to the models of resource use which are primarily drawn from vertebrate remains. Finally, we also offer some thoughts on mitigating the logistical challenges bulky shellfishes generate.

[28] *Chair*

Hadden, Carla [133] see Colaninno, Carol

Haddow, Scott D. [215] see Milella, Marco

Hadley, Dawn (University of Sheffield)

[25] *Growing Up on the Move: Childhood Experience in the Viking Age*

The involvement of children in the Viking Age migrations, and their experiences upon settlement in new regions, has been afforded little attention by archaeologists. In part this derives from the perceived paucity of evidence for children and their lives. It is also arguably because migration is generally overlooked as a facet of childhood because of an assumption that 'the home' is the environment in which childhood is experienced and thus this is where analytical attention is often focused. This paper will explore how we might begin to examine children in the context of Viking-Age migration, and will argue that a focus on children prompts some fundamental questions of the broad social processes that are central to the scholarly literature on migration, including acculturation, ethnogenesis, and conversion, which are routinely discussed purely with reference to adults. As Jane Eva Baxter has recently observed, 'culture is learned and not inherited, making studies of children and childhood among the most natural areas of interest for all anthropologists'; nowhere is this more relevant than to a period characterized by migration, in which the everyday lives of so many children were marked by mobility and instability, and a frequent need to renegotiate social norms.

[25] *Chair*

Haeusler, Werner [145] see Wagner, Ursel

Hageman, Jon (Northeastern Illinois U)

[270] *Making the MED: Building an Online Ethnobotanical Database*

Construction of the Mesoamerican Ethnobotanical Database (MED) began in 2010 and is wrapping up in 2016. The MED began as an informal collection of images for the use of one archaeological project and became an NSF-supported online reference for public use. Based on the collections of the Searle Herbarium and hosted by the Field Museum, this online searchable database contains images of over 2,500 plant vouchers, close-ups of reproductive plant parts, and seeds where available. Images are linked to basic botanical information for each voucher, and a review of over 40 ethnobotanical sources has yielded uses and common names. Creating the database involved considerations regarding sampling, equipment, time and labor, personnel, institutional, and data issues that were not obvious at the outset of the project nor (in some cases) as the project evolved. This paper describes many of the expected and unexpected hurdles that were overcome during the construction of the MED, and may be of interest to those constructing publicly available online databases in the future.

[270] *Chair*

Halbirt, Carl [8] see Taylor, Sarah

Halcrow, Sian (University of Otago, New Zealand), Nancy Tayles (University of Otago, New Zealand) and Gail Elliott (University of Otago, New Zealand)

[25] *The Bioarchaeology of Fetuses*

Until relatively recently, fetuses, along with infants and children, were largely overlooked in bioarchaeological research. Over the past 20 years there has been increasing recognition of the importance of research on immature individuals in the archaeological context. However, although fetuses are now sometimes included in analyses of population health and isotopic studies of infant weaning and diet in the past, most research focuses on postnatal individuals. This paper reviews some of the bioarchaeological research that has been undertaken in this area and starts to build a theoretical framework to conceptualize fetuses from an archaeological context and to identify areas for future research potential. We explore how the fetus is defined in the field, including discerning whether the fetus is in-utero or not, and terminological issues. We outline the contribution that the bioarchaeology of fetuses can make to understanding fertility and other demographic information of a population, epidemiology of disease, maternal and infant stress and the consequences of early stress on later life experience, and cultural or social aspects of personhood.

Hale, Nathan [164] see Cook, Jessica

Hallett-Desguez, Emily [177] see Steele, Teresa

Halley, Claire (University of Cambridge)

[47] *Hand in Hand: the Physical and Symbolic Representation of Social Bonding in the Prehistoric American Southwest*

A key theme of archaeological research in the American southwest has been understanding the diverse ways people came together to form communities. This paper examines the physical and symbolic practice of forming social bonds through the practice of hand-holding in communal performance. Iconographic representations of hand-holding figures (on ceramic vessels and rock art) from the prehistoric period (A.D. 500–900) will be presented. These images provide an exceptional opportunity to explore the issue of community formation by considering the sensuous experience and symbolism encoded in these depictions. I review the physical properties of hand-holding. Bodily space boundaries are overcome when an individual takes the hand of another. Trust, confidence, and bonding are implied by this simple act. When the practice is extended to include additional individuals, participants must coordinate their bodily action with others. Individuals gain a feeling of inclusion and belonging to something bigger than themselves. I develop this interpretation by proposing that the concepts of community and integration are symbolically represented through characteristic stylistic tenets which underpin the depiction of hand-holding figures. In this interpretative framework, hands are generative and socially productive media through which concepts such as identity, integration, and social bonding are embodied and communicated.

Hallgren, Fredrik (Uppsala University, Sweden)

[52] *On the Ritual Display and Deposition of Human Skulls at Kanaljorden, Motala, Sweden, 8000 cal B.P.*

This paper discusses the ritual display and deposition of human skulls among hunter-gatherers in Scandinavia during the Mesolithic. The discussion focuses on the recently excavated site Kanaljorden, at Motala, Sweden, where select human bones—mostly skulls—from a dozen individuals have been deposited on a stone-packing on the bottom of a small lake. Two of the skulls were mounted on wooden stakes still embedded in the crania. Beside human bones, the finds also include artefacts of bone, antler, stone, and wood, as well as animal bones and botanical remains. The human and animal bones display a distinct spatial pattern, with different species deposited in different parts of the stone-packing. The context have been 14C-dated to c. 7800 cal. B.P.

Halligan, Jessi (Florida State University) and Michael Waters (CSFA, Texas A&M University)

[218] *Flooding, Drought, Fires and Extinctions: How Did Florida's Foragers Respond to the Pleistocene-Holocene Transition?*

While directly-dated sites are somewhat rare, northern Florida contains an extremely rich archaeological record of diagnostic artifacts from the Paleoindian and Early Archaic periods. Very commonly, Early Archaic diagnostics are discovered at the same sites as Paleoindian diagnostics. The Paleoindian components are presumed to be Pleistocene in age, while the Early Archaic is generally but not universally associated with early Holocene ages. Recent research we have been conducting in northwestern Florida has refined archaeological and paleoenvironmental records for the period 15,500–8,000 cal B.P. at several multicomponent archaeological sites through improved radiocarbon records and numerous proxy records. We therefore can discuss local system response to global climate change with increasing resolution. This also allows us to refine our discussion of human activity on this changing landscape.

[249] *Discussant*

Halling, Christine (Louisiana Department of Justice) and Ryan Seidemann (Louisiana Department of Justice)

[6] *Differential Diagnosis of an Unidentified Skeletal Anomaly: a Case Study of Mandibular Resorption from the Smith Creek Site, Mississippi*
 The Smith Creek Site (22WK526), located in Wilkinson County, Mississippi, is principally a Coles Creek Period site (A.D. 700–1400). Human remains were recovered from this site in the 1960s by avocational archaeologists. Although the Smith Creek human remains are fragmentary and commingled, and the records related to their collection are nonexistent, these remains still present a significant data source for this region and time period. Of particular interest is an isolated adult mandible that exhibits an unidentified anomaly. This anomaly, predominantly characterized by resorption, is located on the buccal surface of the mandibular body near the second molar, and is unilateral. A review of the current clinical and archaeological literature resulted in no similar examples of this skeletal anomaly reported. A differential diagnosis performed suggests that the resulting lytic pitting may be due to soft tissue involvement such as possible circulatory disorders or musculoskeletal involvement. A discussion of the potential causes of the pathology, including a summary of the observed pathologies in the collection, serves as comparative material for the analysis of the resorption.

Halling, Christine [187] see Seidemann, Ryan

Halperin, Christina (Princeton University)

[108] *Intertwined Histories and Relational Personhood: Maya Co-essences (Spirit or Way Companions) Past and Present*
 It is widely recognized that co-essences or spirit companions (wayob) were a part of ancient Maya understandings of personhood. Partly because ethnographic analogies are used to understand ancient practices, it is easy to assume that beliefs and experiences surrounding Maya co-essences were static over many hundreds of years. In examining archaeological, epigraphic, ethnohistoric, and ethnographic data, this paper investigates the history of co-essences and, in turn, the way in which co-essences made history. Such human-spiritual relations were intertwined with shifting social identities of gender, class, and culture. As such, this paper considers relationality from a pluralistic perspective.

Halstad McGuire, Erin (Department of Anthropology, University of Victoria)

[25] *Making Medieval Toys: Using Experimental Archaeology to Engage Students in Academic Enquiry*
 The early medieval period is often thought of as a grim, violent era, characterized by conflict and social inequality. It is typically dominated by adult male narratives, albeit with a growing body of work centred on women's lives. Children have remained in the shadows, sometimes seen but rarely heard. There is limited archaeological evidence for children's activities and even less appears in textual sources from the Middle Ages. This paper explores the ways in which medieval children's toys and games can be used to engage learners in thinking critically about archaeology, children, and the past. It will examine the use of experimental archaeology projects with undergraduate students, involving the production of toys and games. In particular, this project aims to assess the character of research questions, hypotheses, and experiments developed by students tasked with researching medieval children through material culture and actualistic experiments.

Hambly, Joanna (University of St Andrews)

[35] *Wemyss Caves 4D: A Review of a Community 3D Digital Documentation Project at a Challenging Heritage Site in Scotland*
 Former sea caves at East Wemyss in Scotland are unique because of the carvings within them. These include around 40 surviving Pictish (fifth–ninth century A.D.) symbols and animal representations; a possible Viking boat; early Christian crosses; and nineteenth-century monograms and graffiti related to local New Year rituals.
 Located in a former coal mining area, today you are far more likely to read bad news stories about the impact of vandalism, structural instability, and coastal erosion upon this unique Scottish site than about the heritage itself.
 Between 2013 and 2016, a collaborative project between the local community and archaeologists applied a suite of non-intrusive range-based and image-based 3D digital techniques to the caves and carvings. The purpose was threefold:
 • preserve the landscape, caves, and carvings by 3D digital record;
 • create digital tools for improved understanding, monitoring, and management;
 • communicate the unique heritage of the Wemyss Caves to both local and global audiences in an innovative and engaging 3D medium.
 We will review the contribution that this community 3D digital documentation project has made at a difficult, complex, and politically-charged heritage site, and consider the challenges of meeting the expectations of the diverse stakeholders involved.

Hambrecht, George (University of Maryland College Park), Ennis Barbery (Museum of Chincoteague Island), Elizabeth van Dolah (University of Maryland) and Kevin Gibbons (University of Maryland)

[191] *International Efforts to Engage with Climate Based Threats to Cultural Heritage*
 As climate change threats to cultural heritage become more apparent, a range of responses is emerging across the globe. This session will discuss examples of different approaches to this problem in areas outside of the United States. While white papers and policy statements will be discussed, the main focus will be on 'on the ground' programs that are monitoring, and/or implementing mitigation and adaptation actions to protect cultural heritage around the world. Examples from Europe, South America, and the Arctic and Asia will be included. This paper aims to put actions taking place in the U.S. and in Europe in a larger global context. The content of this paper arises out of an ongoing survey of international efforts to combat climate change threats to cultural heritage taking place within the Climate Change Response Program of the U.S. National Parks Service.

Hambrecht, George [296] see Fitzhugh, Ben

Hamdan, Leila [83] see Damour, Melanie

Hamden, Leila [39] see Warren, Daniel

Hamilton, Marcus (Santa Fe Institute) and Briggs Buchanan (University of Tulsa)

[16] *The Archaeology of Clovis Landscape Use at the Mockingbird Gap Site, New Mexico and Surrounding Regions*

In this paper, we discuss recent work at the Mockingbird Gap Clovis site, New Mexico, and the surrounding region, designed to understand how Clovis hunter-gatherers utilized and adapted to the regional landscape and its available resources. Focusing on lithic raw material use, we show that the Clovis occupants of Mockingbird Gap had access to a wide diversity of high quality raw materials from a large area of the southwest. Moreover, Clovis raw material network analysis across the continent suggests that Mockingbird Gap was an important link between the southwest and southern High Plains. This work shows that Clovis people in this region of the southwest had an extensive and specific knowledge of the landscapes around them, and may well have had connections to other Clovis peoples in neighboring regions. Further, this pattern of landscape use and regional adaptation is more consistent with models that suggest Clovis hunter-gatherers used established regional home ranges rather than those that suggest Clovis populations swept across North America rapidly and non-redundantly.

Hamilton, Derek (Scottish Universities Environmental Research Centre), Kerry Sayle (Scottish Universities Environmental Research Centre), Colin Haselgrove (University of Leicester) and Gordon Cook (Scottish Universities Environmental Research Centre)

[103] *What Did You Have for Dinner Last Night? Revealing Diet, Mobility, and Movement of People within Middle Iron Age British Society through Multi-Isotopic Analysis*

The Middle Iron Age in southern central Britain (c. 300–150 cal B.C.) is a period that is often seen as becoming regionally inward-looking. A primary focus of the mixed agriculturalists is on building and maintaining massive hillforts. There is very little long-distance exchange or trade noted in the archaeological record, and the metalwork at the time takes on insular forms (e.g., involuted brooches) that separate it from the Continental connections observable in both the Early and Late Iron Age.

This paper will present the results of recent multi-isotopic work ($\delta^{13}C$, $\delta^{15}N$, and $\delta^{34}S$) on human and animal bone collagen undertaken at the Scottish Universities Environmental Research Centre (SUERC) that have produced results that alter this narrative. We argue that the variability observed within the animal populations may likely be the result of the movement of animals across large distances, in this case a minimum of 20 km, but potentially much further. Also, this research has identified incomers to the human population that were interred within the Middle Iron Age burial ground, spawning questions pertaining to identity, community, mobility, and trade.

[103] *Chair*

Hamilton-Brehm, Scott (So. Illinois Univ. Carbondale), Lidia Hristova (University of Nevada Las Vegas), Susan Edwards (Desert Research Institute), Jeffrey Wedding (Desert Research Institute) and Duane Moser (Desert Research Institute)

[63] *Parallel Analysis of Ancient Human mtDNA Sequences and Radiocarbon Ages of Quids from the Mule Springs Rockshelter, Nevada, USA*

Ancient DNA research is revealing unprecedented information about past human migrations and residency. During the late Holocene, people exploited food and material resources near Mule Spring Rockshelter in the Spring Mountains of southern Nevada. In the 1960s, hundreds of chewed plant remains (quids) were recovered from the shelter deposits. To better constrain patterns of human residency, mitochondrial DNA (mtDNA) was extracted and partially sequenced from 20 representative quids that have sat unstudied in a museum collection for decades. We report on the detailed analysis of mtDNA sequences and time-resolved patterns of single nucleotide polymorphisms (SNPs) from paleopeople who occupied this site.

Hammerstedt, Scott (University of Oklahoma), Amanda Regnier (University of Oklahoma) and Sheila Savage (University of Oklahoma)

[240] *Litter Burials from Spiro's Great Mortuary Reconsidered*

Artifact color has both chronological and symbolic significance at Spiroan burial sites in the Arkansas River drainage of eastern Oklahoma. In this paper, we examine litter burials from the Great Mortuary and the Brown mound at Spiro. Ethnohistoric descriptions are used to suggest color symbolism in Spiroan ritual displays. These data are compared with color usage in earlier burials at Spiro and mounds elsewhere in the drainage. We wish to determine whether the Great Mortuary was the culmination of a long-standing burial program or if there was a distinctive change in symbolic ritual compared with earlier Arkansas Valley grave periods.

Hampson, Jamie (Stanford University)

[10] *Contested Images: Rock Art Heritage on and off the Rocks*

In many countries, cultural and socio-political identity is still shaped, manipulated, and presented through rock art. Both on and off the rocks, pictographs and petroglyphs are powerful tools. In this poster, I present results from 10 years of fieldwork in southern Africa, northern Australia, and west Texas. I focus on re-contextualised rock art images, in commercial settings, in academic publications, and as integral components of national symbols. I also consider innovative new visitor centres concerned with conservation, job creation, promoting community archaeology, and—above all—challenging visitors' preconceptions of rock art and of the Indigenous peoples who made it.

Hampton, Ashley (FAU)

[245] *Healers Also Gather Acorns: Examining the Division of Labor and Power Dynamics among California Hunter-Gatherers*

Previous theories concerning women's access to roles of power within Native American hunter-gatherer societies have focused on linking such access to socially proscribed gender identities, role flexibility, and/or kinship systems. My work seeks to validate such models within the context of women's access to the role of healer among California hunter-gatherer groups by looking to written records from the 1800s and ethnographies from the early 1900s. Through quantitative and qualitative analysis, I examine if cultures with multiple gender-linked innate qualities restrict women's access to the role of healer and/or if women having greater access to circumstantial labor roles equating to greater access to power.

My research tests notions about the strict binary division of labor via statistical reassessment of correlations between subsistence labor-roles and gender. By seeking to highlight how social roles were (or were not) seen as concordant with gender-identity, I posit that a more nuanced view of labor and gender is necessary. My research provides a better analytical framework from which archaeologists can interpret past distributions of power by showing the usefulness of ethnographic analogies that are more inclusive of engendered methodologies.

Han, Tao [180] see Zhang, Qun

Haney, Jennifer [176] see Welker, Martin

Hankins, Sharon, Yarely Meza (University of Texas at Austin) and Cristina Gonzales (University of Texas at Austin)**[93]** *Experimental Ceramic Technology Studies: Programme for Belize Archaeology Project*

This is a multifaceted approach utilizing environmental, ethnographical, and ceramic studies from various instructors with feedback from students, faculty, and experienced potters. Incorporating this project in our field school, generates more knowledge and curiosity in the observation of materials in the field pertaining to this technology. The environment and its contribution to our needs such as clay, water, temper, fuel, and firing methods are some of the most important aspects of research. These components are interactive. I regard pottery manufacture as a continuum. If any component is lacking or unavailable, adjustment or adaptation must be initiated. The major component is the environment. This is an interactive economy. Manipulation of clay, temper, water, slips (pigments), and fire must be adjustable. This project has become a working lab in the field. Visual observation and participation of students, and our local community of Belize, may inspire more discussion and knowledge of pottery manufacture. We utilize only materials from our local surroundings. We are grateful to Dr. Fred Valdez, Programme for Belize, and my students (from 2000–present) for their participation. This poster includes participation of students: Cristina Gonzalez, and Yarely Meza. This poster will include examples of components, tools, and results of manufacture.

Hann, Don [165] see Walker, Jeff

Hanna, Jonathan and Michael Jessamy (Ministry of Tourism, Government of Grenada)**[183]** *Community Archaeology at the St. John's River Site, Grenada*

The St. John's River site is an early Late Ceramic Age settlement on Grenada's west coast, largely destroyed by the expansion of a public cemetery, stadium, and bridge. The St. George's Community Archaeology Project (SGCAP) was a summer program developed to engage young people and community members in the investigation and preservation of the remaining areas of the site. During the summers of 2011 and 2012, surface collection, shovel testing, and four excavation pits were implemented. The artifacts recovered fit mostly within the Troumassoid Period typology (A.D. 600–900), though local pastes, tempers, and paint combinations were observed for the ceramics. This paper summarizes the work of SGCAP and presents a template for a community-based approach that is now being applied to the heavily looted site of Pearls, Grenada.

Hanowell, Ben [38] see Brown, William

Hanratty, Colleen (Maya Research Program)**[292]** *Dating Maya Classic Ceramics in Northwestern Belize via OSL*

Twenty-four years of investigations conducted by the Maya Research Program at numerous Maya archaeological sites in northwestern Belize offers special opportunities for the investigation of the social and political dynamics at the end of the Classic Period in this region. In this paper, we discuss the Late Classic time period, including rapidly increasing populations, political reorganization, declining soil quality, and expansion of agricultural systems. We discuss the specific responses that are documented in the Terminal Classic Period and how the remnant populations of the Early Postclassic made use of the Classic Period agricultural infrastructure. Key to these insights are a precise understanding of the temporal dynamics of the Classic Period. The IIRMES OSL analysis of Terminal Classic Maya ceramics from this area has provided a great deal of insight into bounding this time period. In addition, the IIRMES study laid the groundwork for a larger OSL analysis of Classic Maya ceramics in conjunction with the University of Glasgow and Australia Catholic University. This research illustrates the utility of OSL dating techniques in archaeological contexts.

Hansen, Richard, Edgar Suyuc (FARES Foundation; Mirador Basin Project), Stanley Guenter (FARES Foundation; Mirador Basin Project), Beatriz Balcarcel (UNAM, Mexico City) and Carlos Morales (Universite Paris 1, Pantheon-Sorbonne)**[59]** *Economic Interaction and the Rise of Socio-Political Complexity in the Maya Lowlands: The Case from the Mirador Basin*

Investigations in 51 ancient cities of varying sizes in the Mirador Basin of northern Guatemala have revealed a variety of data relevant to the economic catalysts that were involved in the rise of social, political, and economic sophistication among the Preclassic Maya. The real "business" of the early Maya dealt with agricultural productivity and a powerful distribution mechanism to distribute and facilitate unification among a web of sites in the Mirador Basin. However, a variety of other economic indicators such as the importation of exotic shells, domestic fauna, obsidian, jade, basalt, granite, coral, ceramics, and other lithic tools demonstrate the varying degrees of social and economic power that provided the foundations of rank, status, and functional requirements during the rise of Maya civilization. While religious, political, and social ideology provided the foundations for a homogeneous society throughout the Maya Lowlands by the Middle and Late Preclassic periods, the economic manifestations of this ideology are well represented in the archaeological record, and provide additional understanding of the role of economic interactions in the rise of cultural complexity in the Maya Lowlands.

Hansen, Linda**[117]** *The Myth of the Willing Human Sacrificial Victim in Ancient Mesoamerica: Transformation of the Symbolic Complex of Ritual Sacrifice in Ancient Oaxaca and Teotihuacan*

Past scholarship concerning human sacrifice in ancient Mesoamerica has suffered from oversimplification and misuse of traditional theoretical models of sacrifice. In addition, many scholars are still suffering a hangover from a twentieth century Western scholarly binge that romanticized notions of an iconic, peaceful Maya civilization (a type for all Mesoamerica) with exceptional interactions with nature. As a result, pan-Mesoamerican cosmological principles are still endorsed as the ubiquitous causal force behind all ritual sacrificial symbolic systems and practices. This theoretical miscarriage involves several shortcomings: 1) It disregards the multifaceted and shifting nature of ritual activity and varied expressions at different levels of social strata, 2) it solemnizes the participants in the sacrificial act, the sacrifice, and the sacrificial victim, as equal participants in a communal operation of reciprocity with the gods, and 3) it ignores the issues of power relations. In this paper, I will exhibit a more complex arena of sacrificial rites and reveal dialectical ideological constructions of sacrifice on different echelons of society in both ancient Oaxaca and Teotihuacan. In both case studies, increased urbanization and social complexity introduced new symbolic complexes which included human sacrifice increasingly aligned with warfare, domination of foreigners, and unwilling sacrificial victims.

[117] *Chair*

Hansen, Brooke [227] see Rossen, Jack

Hanson, Sydney, Jade d'Alpoim Guedes (Washington State University), Steve Weber (Washington State University) and Thanik Lertcharnrit (Silpakorn University)**[19]** *An Archaeobotanical Analysis of Four Prehistoric Central Thai Sites: the Preliminary Results*

Thailand is a relatively new frontier for archaeobotanists, having suffered in the past from a shortage of archaeobotanical research. While archaeologists in southeast Asia have begun to chart when and how rice and millet agriculture developed and spread, a clear picture of prehistoric agriculture in central Thailand has yet to emerge. This paper describes some preliminary results from a series of sites that have been occupied from ca. 2500 B.C.E. to 500 C.E. These are Non Pa Wai, Non Mak La, and Nil Kham Haeng, as well as data from a new site, Phromthin Tai. Climate has been implicated as a factor behind differential patterns in plant use across the time period and area examined. We examine these patterns in the light of new archaeobotanical data as well as an improved understanding of ecological and climatic boundaries.

Hantman, Jeffrey [284] see Gallivan, Martin

Hara, Kristyn**[252]** *Urbanizing Forests: Paleoethnobotanical Research at the Royal Capital of Angkor, Cambodia*

Upon his ascension to the throne, King Yaśovarman I (r. 889–910 A.D.) founded a new capital at Angkor in northwestern Cambodia that was to become the major center of the Khmer Empire and a dynamic religio-political landscape marked by extensive urbanization and environmental change. Religious institutions played a particularly important role in localized human-environment engagements while contributing to broader processes of polity-building. Drawing on historical ecology, this paper underscores the importance of forests in particular as sites of material and symbolic resources in understanding the production and transformation of the Angkorian landscape. Paleoethnobotanical data collected from archaeological excavations at the Yaśodharāśramas—monastic institutions founded by King Yaśovarman I as part of his building campaign—provide insights into vegetation change, resource use, and social practices as a step towards understanding forest histories and management within the context of urban development at Angkor.

Hard, Robert (Univ of Texas at San Antonio), John R. Roney (Colinas Cultural Resource Consulting), A.C. MacWilliams (University of Calgary), Mary Whisenhunt (University of Texas at San Antonio) and Mark Willis (Blanton and Associates)**[168]** *Early Agricultural Period Cerros de Trincheras on the Upper Gila River, Arizona*

Early Agricultural Period (EAP) occupations in the Upper Gila River in southeastern Arizona indicate that EAP cerros de trincheras are more widespread than previously thought. Recent fieldwork evaluates evidence from these sites to address issues related to chronology, agriculture, and warfare. Sites include both cerros de trincheras (hilltop sites) as well as valley sites. The site of Round Mountain contains 1.9 km of berm walls and terraces, 16 rock rings, and was built on a 640 foot hill during the Cienega phase (ca. 800 B.C.–A.D. 100). The DotMon site is situated on a 400 foot ridge above the Gila River and includes 250 m of walls and six rock rings. The Duncan Doughnut site is in a valley setting containing a midden, evidence of maize use, and at least two pithouses and lies below Round Mountain. Recently acquired drone, surface, and test excavation data will be evaluated in light of questions related to chronology, maize use, and warfare.

Harding, Gregg (University of West Florida), Jason Wenzel (University of Florida) and Alita Huff Mikiten (University of Central Florida)**[7]** *Beyond the Theme Parks: Community Archaeology in Greater Orlando*

From 2006 to 2012, an extensive community-based archaeology program operated throughout the Greater Orlando area that was comprised of a team of researchers associated with regional colleges. In conjunction with local governmental agencies, nonprofit organizations, and private property owners, the efforts of the team led to the documentation and study of new and existing archaeological sites and the development of local museum exhibits. The poster will visually convey the scope and success of these efforts, as well as illustrate heightened public awareness and community outreach efforts. The effects of this work are still being felt, resulting in continued study of archaeological and historic resources throughout Greater Orlando.

Hardy, Thomas [206] see Hoover, Corey

Hardy, Meredith (National Park Service) and David Morgan (National Park Service)**[229]** *The NHPA and the Southeast Archeological Center at 50: Reflections on Learning, Inclusion, and Stewardship*

Sharing a birth year with the National Historic Preservation Act, the National Park Service's Southeast Archeological Center has served as steward to the cultural resources and archeological heritage for the national park units across the southeastern United States. For 50 years, SEAC has overseen and conducted the majority of NHPA-related activities in these parks, provided training and education to both NPS staff and the public. This paper examines the roles SEAC has played in resource stewardship, protection, and education and how these roles have changed over time, reflecting a continuing maturation of understanding of significance, inclusion, and diversity of our nation's heritage.

Hardy, Thomas (University of Pennsylvania)**[233]** *Colonial Practices in the Imperial Heartland: The Inca Conquest and Transformation of the Lucre Basin, Cuzco, Peru*

This paper will present data from the author's dissertation research at the site of Minaspatha, located in the Lucre Basin at the eastern end of the Cuzco Valley, Peru. Minaspatha has a long history of occupation, dating to the Early Horizon to the end of the Late Horizon, but was conquered as the final component of the Inca heartland immediately prior to the early imperial excursions by the Inca.

The results of recent excavations at Minaspatha and the different phases of occupation and material culture will be discussed, as well as the implications for the cultural history of the Cuzco area and the Andean area more generally. I will focus primarily on various aspects of the Late Intermediate Period (A.D. 1000–1400) and Late Horizon (A.D. 1400–1532) occupations, particularly the transformation of Minaspatha and the Lucre Basin as well as changes in local material culture, and the appearance of Inca state-controlled material culture under Inca rule. I will close by exploring the implications of these changes for social and cultural transformations in the local populations through the lens of colonialism, and for Inca imperial practices more broadly—especially close to the heartland, which is rarely interpreted in this manner.

Hare, Timothy [26] see Masson, Marilyn

Hare, Timothy (Morehead State University)

[121] *Mapping Mayapán's Archaeological Remains and Environmental Characteristics Using UAVs and Photogrammetric Software*

The integration of unmanned aerial vehicles (UAVs) and photogrammetric data processing into existing field techniques simplifies and accelerates mapping and environmental reconstruction. Ongoing investigations in and around Mayapán face the common challenge of mapping archaeological and environmental features and attributes in the context of difficult terrain and dense surface cover. The 2015 field season depended on UAV photography and photogrammetric processing for site and excavation photos as well as production of 3D modeling of archaeological remains and excavation units. In this presentation, I outline the technology used, the data processing workflow, and the resulting products including oblique photos, orthorectified aerial photos, digital elevation models, 3D models, and data layers for use in geographical information systems. I conclude with a discussion of extending and modifying the new technologies, including integrating LiDAR, to better serve archaeological research.

[158] *Discussant*

Harkleroad, Eric

[70] *Colonizing Yourself: The British Colonization of Britain*

Often discussing Colonialism means discussing the colonized and the impact of the colonizers on them highlighting indigenous responses to the situation as well as looking at methods of resistance and signs of the agency of the colonized. All too often we overlook the impact of this process on the colonizer. I argue that during the rise of the British Empire, the role of colonizer became such a part of national identity that it colored interpretations of British prehistory. This is most evident when looking at the conquest of Britain by Rome. The coming of Rome is often seen as unproblematic, an all too familiar encounter of an indigenous population with a colonizing power, the British identifying as the colonizer rather than as the indigenous population. I highlight how our understanding of this period is still largely based on Britain's experience of those it encountered during its role as a colonizer. I examine the extent to which Roman involvement in Britain can be looked at as an example of colonialism. Evidence from the end of the Iron Age and the beginning of the Romano-British period will be analyzed in light of this discussion, showing more evidence of continuity than change.

Harland, Jen [210] see Mainland, Ingrid

Harman, Robert [214] see Macdonald, Danielle

Harmon, Brian [268] see Dalpra, Cody

Harper, Charlie (Florida State University) and Daniel M. Seinfeld (Florida Bureau of Archaeological Research)

[7] *Woodland Period Settlement Patterns at Letchworth Mounds (8JE337), Jefferson County, Florida*

The Letchworth Mounds site (8JE337), located near Tallahassee in Jefferson County, Florida, is a predominately Woodland period site that encompasses the largest earth mound in Florida. In addition to this monumental earthwork, a number of smaller mounds survive and it is thought that as many as 20 mounds may have been lost to modern land use. During the summer of 2014, the Florida Bureau of Archaeological Research and the Florida State University conducted a field school at the Letchworth Mounds site. This poster discusses the use of GIS to correlate the results of the 2014 fieldwork with the patchwork of controlled excavation, shovel testing, and surface collection that has occurred on the site since 1995. Through the study of artifact distributions, the assembled GIS data is used to explore both the overall chronology of the site and the nature of discrete activity areas in relation to the surviving earthen architecture. The results of this analysis provide a diachronic picture of activity and settlement patterns at the Letchworth Mounds site, which is compared to patterns visible at other Woodland period sites in the southeastern United States.

Harper, Thomas (SUNY at Buffalo)

[95] *Population Dynamics and the 5.9 ka Event: A Methodology for Relating Climate Change and Demography in Eneolithic Romania, Moldova, and Ukraine*

For over a decade, it has been suggested that several events of the fourth millennium B.C. in Romania, Moldova, and Ukraine—the rise and fall of the giant-settlements of the Tripolye culture in central Ukraine, the abandonment of Gumelnița tell settlements in the Danube Valley, and the dissolution of the “Old European” complex and advent of the Bronze Age—were influenced by climatic factors, notably the 5.9 ka event and the beginning of the Subboreal Period. However, the simple synchronicity of these events with changes in super-regional climate proxies, taken alone, constitutes a poor argument for climatic causality. In order to make such an assertion, it is necessary to reconstruct the entire chain of events through interrelated climatic, environmental, and cultural systems. In the context of my study region, this takes the form of quantitative reconstruction of ca. 3,300 years of demographic development, modeling spatially variegated environmental time series using pollen core data, and performing GIS-based site suitability analyses at multiple time references. In this way, the super-regional scale may be linked to the regional and local scales, and the revealed detail may provide more coherent and specific arguments for the effects of climatic variability on cultural systems.

Harrenstein, Tristan (Florida Public Archaeology Network)

[260] *What Have We Here?: Demonstrating the Opportunities for Heritage Preservation to Local Governments*

Part of the Florida Public Archaeology Network's mission is to work with local governments to both protect archaeological sites and to ensure that these communities receive the benefits related to their preservation. However, many of the smaller communities in Florida are unaware of the opportunities available for state and federal assistance in preserving their heritage. This paper details a new project designed to educate local governments and historical societies about the benefits and legal pitfalls associated with archaeological and historic resources.

Harrington, Katherine (Brown University) and Eve Dewan (Brown University)

[90] *Curricular Collaboration: Exploring Strategies for Sustainability in Educational Outreach in Providence, RI*

University-based educational outreach programs face various challenges in sustainability from year to year. As student leaders graduate and professors or museum professionals change positions, programs can lose momentum. Similarly, programs designed without clear input from the communities they serve are less likely to succeed. Here, we present some of the strategies for sustainability explored by the "Think Like an Archaeologist" program, a collaboration between the Joukowsky Institute and the Haffenreffer Museum of Anthropology at Brown University and the RISD Museum, which has provided archaeological programming for local 6th grade social studies classrooms in Providence since 2010. Recently, we explored modifications to the program which would align it even more with the Common Core State Standards, which Rhode Island adopted in 2013. By slightly tweaking our presentations and activities, we could ensure that we were providing more useful programming for area teachers. We also discuss the integration of the program into the graduate and undergraduate curriculum at Brown in a course called "Community Archaeology in Providence and Beyond." This course not only trained an interdisciplinary group of additional instructors for the outreach program, but also prompted students to think critically about issues in community archaeology more widely.

Harrington, Victoria

[158] *Discussant*

Harris, Alison (Dept. of Archaeology, Memorial University of Newfoundland), Ana T. Duggan (McMaster University), Stephanie Marciniak (McMaster University), Hendrik Poinar (McMaster University) and Vaughan Grimes (Memorial University of Newfoundland and Max Plank)

[85] *Stable Isotope Evidence for Precontact Amerindian Diet in Newfoundland, Canada*

For a millennium, the island of Newfoundland was home to two cultures: the Palaeoeskimo, and the Amerindians who later became known historically as the Beothuk. Evidence from site distribution patterns suggests that each culture negotiated the shared space by utilizing different resources. However, after 1,500 years B.P., the cultural dynamics of the island began to shift as a period of climate warming altered the resources that were available on the outer coast. While the Palaeoeskimo may have been forced to retreat to mainland Canada, the generalized marine-terrestrial economy of the Amerindians is credited with their successful sustained occupation of insular Newfoundland. Biomolecular research undertaken as part of an interdisciplinary research project investigating Amerindian origins, diet, and mobility patterns in Newfoundland has allowed us to test these hypotheses, yielding new evidence for subsistence patterns. This paper considers agency and subsistence adaptability in light of stable isotope data from Amerindian (n = 21) and faunal skeletal remains spanning over 1,000 years of Newfoundland history. We model the dietary strategies enacted by the Amerindians that enabled them to successfully cope with the demands of the island environment.

Harris, Khadene (Northwestern University)

[126] *Postemancipation Bois Cotelette: An Update on Current Fieldwork*

This paper is a summary of the ongoing analysis of artifacts and spatial data recovered from postemancipation house sites on the Bois Cotelette Estate in Dominica. This project began as an examination of the social and economic impact of emancipation on the lives of the formerly enslaved. The project's goal is to explore how a shift in labor conditions altered the physical layout of postemancipation settlements and determined the kinds of access individual households had to local and regional markets. Preliminary findings of three summers of fieldwork reveal very little diversity in artifact assemblages. Smaller assemblages can be explained by shorter occupation periods, natural erosion processes, or that freedom did not necessarily provide laborers with greater opportunities to accumulate wealth. The lack of material culture, however, does beg a reconsideration of the methodological and theoretical associations that drive an interpretation of postemancipation social life. With this paper, I emphasize how artifacts on their own cannot answer fundamental questions we have of this time period. I point to the results of a mapping exercise used alongside the collection of oral histories from present-day residents and laborers to illustrate alternative interpretations of the impact of emancipation on the Bois Cotelette Estate.

Harris, JWK [177] see Hlubik, Sarah

Harris, Matthew (AECOM Technologies)

[247] *In Defense of Data: Realigning Archaeological Modeling Theory with Modern Statistical Learning Approaches*

The acceptance of statistical modeling as common practice in archaeological studies is highly varied across applications and methodological focus. As a field, we lack a unified body of model building theory, best practices, and examples that demonstrate the successes and failures of various techniques applied specifically to archaeological data. The literature on archaeological predictive modeling (APM) provides a notable example in the form of the "Inductive" vs. "Deductive" debate. This false dichotomy unduly influences the general perception and approachability of these methods. Though there is a recent uptick in model-based analysis in archaeology, progress has been hampered by the APM tumult and anemic publication rate for quantitative methods research following the post-processual critique. Quantitative approaches in archaeology have lagged behind the trends in neighboring fields such as social sciences, ecology, and economics. Recent advances in statistical methods, analytical software, and the open science initiative present an opportunity for the construction of a framework for model based archaeology from which the evaluation of techniques and findings can be more accessible to the entire field. This presentation will discuss the motivations for such an approach, explore the theory of APM through examples, and offer potential routes for constructing such a framework.

Harris, Michael (Florida Atlantic University)

[253] *A Generous Spirit*

This paper offers a reflection on Jerry Kennedy's manifold contributions to the Department of Anthropology at Florida Atlantic University and their continuing influence a decade past his retirement. These contributions include his work on the archaeology of south Florida and elsewhere, the training of students at both undergraduate and graduate levels, the creation of programs, and the lending of his administrative acumen to department causes. Jerry's work as an archaeologist has been conditioned by his generous spirit, putting student and program achievement above that of his individual career. As a result, his legacy endures not just in archaeology, but in the students and colleagues with whom he has partnered.

Harrison, James (Spokane Tribe)

[29] *Preserving Cultural Landscapes beyond the Reservation Boundary*

The Spokane Tribe of Indians Preservation Program conducts a range of projects within the Tribe's ceded areas in northeast Washington State. The goal of this work is to increase tribal sovereignty and to help preserve intact portions of the Tribe's traditional landscape and resource patches in order to secure

long-term access for tribal members to a mosaic of traditional cultural sites beyond the reservation boundary. The program competes with private CRM firms for archaeology consultation projects, particularly those located in high probability landforms. We work to document and protect traditional places such as hunting/fishing/gathering localities. Cemeteries and other cultural sites located are periodically monitored to ensure they remain undisturbed. In summary, this paper describes how indigenous archaeology can serve as a much needed new paradigm in the field of cultural resources management.

Harrison, Jessica [238] see Rosado Ramirez, Roberto

Harrison, Ramona (University of Bergen, Norway), Thomas H. McGovern (City University of New York) and George Hambrecht (University of Maryland)

[296] *Comparative Ecodynamics of North Atlantic Islands: A Progress Report*

Support from U.S., Canadian, Scandinavian, and U.K. funding bodies 2007–16 has made possible a sustained multi-investigator multi-regional interdisciplinary series of investigations of the offshore islands of the North Atlantic (Faroes, Iceland, Greenland) coordinated by the NABO research cooperative. These islands were connected by Viking Age migrations from mainland Scandinavia and the British Isles, and the diverse fates of their human populations during the Middle Ages and Early Modern periods have become iconic examples of human impact on island ecosystems, unintended consequences of introductions, and disastrous impact of climate change. The case of Norse Greenland has become a controversial but influential example of a society that “chose to fail.” This presentation provides an overview of the new work in field and laboratory that is both expanding our understanding of the Norse North Atlantic and offering major challenges to established scenarios of resilience, human impact, and social collapse. “Island laboratories” in the North Atlantic continue to provide new perspectives on long term human ecodynamics.

Harrison-Buck, Eleanor (University of New Hampshire)

[221] *Male-Female Sexuality in the “Fruit Bearing” Maya New Year Celebrations: Understanding the Past and Present Heritage through Participatory and Archaeological Studies*

Among contemporary Tz’utujil Maya, the Mam are the “Year Bearers” of an ancient 260-day ritual calendar still used today in highland Guatemala, celebrated annually when the seasons change from dry to wet. This spring celebration corresponds with Semana Santa (Holy Week) and is when the maize is planted and cacao and other fruits are harvested. Preceding Easter, young male initiates travel on foot down from the highlands to the cacao groves that have existed in the coastal lowlands since ancient times. For the Maya, maize and cacao are personified male and female, respectively. These gendered goods are paired as regenerative beings and reflect the life cycles of plants and humans that are planted (born) and harvested (sacrificed) in hopes of being reborn again. Male-female exchange partners are historically linked to sacrificial rites, even today, despite heavy Christianization. Following Strathern (1988), we suggest male-female pairings are simultaneous expressions of movement and regenerative powers, where same-sex and cross-sex relations constitute a mutual interdependency. For the Maya, this distinct way of knowing the world emphasizes one’s reciprocal relationship with it. Our understanding of this gendered relational ontology comes from our own archaeological work and participation in contemporary Tz’utujil rituals and pilgrimage events.

[158] *Discussant*

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

[24] *A Line in the Sand: Bioarchaeological Interpretations of Life along the Borders of the Great Basin and Southwest*

Prior to A.D. 1300, several archaeologically defined cultures were identified at the intersection of the American Great Basin and southwest. Human skeletal remains were analyzed from sites that represent the borders and the heartlands of the Fremont, the Virgin Branch Puebloan, and the northern San Juan Puebloan cultural areas. The goal was to examine how life in the crossroads of these regions affected the experiences of individuals and groups. The following indicators were used to reconstruct morbidity and mortality profiles: age-at-death and biological sex, markers of stress and pathological conditions, and scars of traumatic injury. In addition to these reconstructions, health and demography was contextualized using analyses of material culture from key sites in their respective regions. By considering both human remains and material culture, distinct and blended cultural traits were delineated in an attempt to better understand how borders structure inter-social relations. The value of an interdisciplinary approach is that it provides a more integrated understanding of each culture that considers not only how bodies record an individual’s experience in life, but the way that groups interacted with one another.

Harrod, Ryan [104] see Woods, Aaron

Harrower, Michael (Johns Hopkins University)

[138] *Comparative Water Histories: An Outline of Contrastive Juxtaposition as Method in Anthropological Archaeology*

Anthropology has long been marked by tension between emphasis on commonalities among histories and cultures on one hand, alongside emphasis on histories and cultures as unique, contingent, and exceptional on the other. Vernon Scarborough is one of few who have pioneered new understanding of water among ancient societies through both focused study of particular regions, as well as broad, synthetic comparison of water among ancient societies worldwide. In an era marked by a daily increasing plethora of information, global syntheses conducted by individuals become less and less feasible, and comparison as an addendum to research such as in edited volumes is a helpful but insufficient mode of analysis. I describe and argue for contrastive juxtaposition of two or a few cases, which can thus be examined in greater detail. Although comparison of two or three cases in analysis is not new, as exemplified in the work of Margaret Mead, Clifford Geertz, Marshall Sahlins, Robert Mc. Adams, and Timothy Earle, this mode of comparison remains underutilized. We need not seek to prove cases are the same or closely similar; but rather, contrasting cases that are very different also yields critical insights with regard to inconspicuous similarities, differences, and foundational dynamics.

Harry, Karen (University of Nevada-Las Vegas)

[292] *Early Puebloan, Late Puebloan, or Paiute? Using Luminescence Dating to Address Issues with the Virgin Branch Ceramic Chronology*

The Virgin Branch ceramic typology is poorly defined. Definitions and chronologies of most types were established more than half a century ago, when little work had been conducted in the region. Further, because of an absence of tree-ring dates, the placement of most types has relied on cross-dating with Kayenta pottery styles. These situations can create problems when using ceramics to date archaeological contexts, as illustrated by recent excavations at the Pete’s Pocket site. This site, located on the Arizona Strip, contains Puebloan architecture and gray ware pottery. Unexpectedly, however, it also contained numerous ceramics with brown pastes, some tempered with olivine and some with sand. Traditionally, brown olivine-tempered sherds are considered associated with Basketmaker or early Puebloan occupations, and brown sand-tempered sherds with early historic Paiute

occupations. Because the site is multicomponent and many of the rooms are filled with trash from earlier occupations, the temporal placement of these ceramics cannot be resolved using traditional dating methods. To determine the temporal and cultural association of these ceramics, therefore, we relied on luminescence dating of selected sherds. The implications of the results for understanding both Virgin Branch ceramic typologies and the occupation of the Pete's Pocket site are discussed.

[68] *Chair*

Harry, Karen [68] see Horton, Shannon

Hart, Siobhan (Binghamton University)

[221] *Gender, Masculinity, and Professional-Avocational Heritage Collaborations*

Relationships among professional and avocational archaeologists have changed in the last few decades with the increase in collaborative heritage projects worldwide. Professionals and avocationalists often work side-by-side on archaeological sites, collaborate on research, and engage in mutual knowledge sharing. However, little attention has been paid to the gendered dimensions of these relationships. Feminist critiques of research and practices within professional archaeology, along with demographic shifts in the field, have transformed practice in many ways, but little attention has been given to the way gender structures our social relationships with contemporary partners in archaeological projects, including descendant communities, local residents, and avocationalists. In this paper, I consider the gendered dimensions of avocational-professional relationships, drawing from experiences with a multistakeholder collaborative project in New England. Masculinist notions of archaeology and authority pervade avocational-professional relationships and can create tensions in all phases of community-based projects. This paper examines avocational-professional relationships as a step towards: (1) discerning how gender structures and intervenes in the social relationships of archaeologists and avocationalists; and (2) exploring the implications of engendering professionals and avocationalists for collaborative efforts.

Hart, Kelsie [286] see Cox, Maria

Hartford, Alexis (Harvard University)

[236] *Classifying Classic Period Ceramics from Azcapotzalco: A Comparison of INAA and Petrography*

This pilot project used petrographic analysis to examine 15 Classic Period sherds from the site of Azcapotzalco, Distrito Federal, Mexico. These sherds had already undergone instrumental neutron activation analysis (INAA), which separated the sherds into two chemical groups—Azcapotzalco-B and Tenochtitlan—and left one-third of the sherds unassigned. This project aimed to compare the INAA results with results obtained through the visual analysis of the microstructure of the sherds and determine how the two methods relate to each other. Additionally, the project attempted to determine whether these large chemical groups could be segmented into subgroups using visual analysis and to attempt to connect the fabric of the unassigned sherds with the fabric of sherds that had been assigned to a chemical group. Three fabric groups, two with variants, were created through a visual analysis of the microstructure of the sherds, only one of which corresponded fully with its chemical group assignments. This project has broader implications for pottery production at Classic Period Azcapotzalco and trade throughout the Basin of Mexico in the Classic Period.

Harvey, Virginia (University of Manchester), Mike Buckley (University of Manchester), Phillip Manning (University of Manchester/College of Charleston), Victoria Egerton (University of Manchester/College of Charleston) and Andrew Chamberlain (University of Manchester)

[183] *Mammal Species Diversity on Cayman Brac (Cayman Islands) via Collagen Fingerprinting*

The endemic terrestrial mammals of the Cayman Islands in the western Caribbean Sea all appear to have become extinct since the start of human colonisation 500 years ago. Extinct fauna include two species of the soricomorph Nesophontes and three species of Capromyid rodent. Introduced rodents and domesticated species now exclusively represent the terrestrial mammal fauna of the Cayman Islands. The Cayman Islands are carbonate-dominated successions typified by karst limestone that includes numerous caves and rock fissures. The sedimentary deposits within the caves preserve sub-fossil remains documenting island biodiversity through time in a tropical environment that would not usually conserve organic remains. We have used collagen fingerprinting, Zooarchaeology by Mass Spectrometry (ZooMS), to rapidly mass-identify fragmentary skeletal samples from the caves of Cayman Brac and screen for those amenable to radiocarbon dating, potentially utilised to reveal extinction chronologies. ZooMS and 14C dating in combination enable us to establish a biodiversity 'catalogue' to showcase species presence and abundance throughout the zooarchaeological record—spanning human colonisation. Such knowledge can improve our understanding of anthropogenic impacts in this locality and can easily be transposed to other comparable biomes.

Harvey, Amanda R. [230] see Schmitz, Kirk

Haselgrove, Colin [103] see Hamilton, Derek

Haslam, Michael (University of Oxford)

[167] *Wild Capuchin Monkey Archaeology*

The known record of tool use in the human lineage now extends back 3.3 million years. For other animals, however, we have very few clues as to how and when their tool use behaviors evolved. Study of tool use among extant primates, in particular, offers an opportunity to develop comparative models and analogies for human technologies. Here, I present the results of recent archaeological investigations into stone pounding behavior by wild bearded capuchin monkeys (*Sapajus libidinosus*) in Brazil. These monkeys leave a distinctive pattern of tools on the landscape, including accumulation of selected, transported, use-worn stones. Our excavation and dating of capuchin sites demonstrates that their tool use extends at least to the Brazilian precolumbian era, making these the oldest known non-hominin tools outside Africa.

Hastorf, Christine (University of California-Berkeley)

[122] *Discussant*

Hauser, Mark [100] see Oas, Sarah

Haussner, Elizabeth [64] see Carr, Christopher

Haviser, Jay (St. Maarten Archaeological Center), Menno Hoogland (Leiden University), Joost Morsink (Leiden University), Ruud Stelten (Terramar Museum) and Corinne Hofman (Leiden University)

[220] *Early Human Occupation on Bonaire and Curacao, Dutch Caribbean*

In January 2016, Leiden University initiated a project on Bonaire, Dutch Caribbean. Through a multidisciplinary perspective, and in comparison with earlier Leiden research on Curacao, the goal of this project is to examine how people utilized the landscape during the earliest occupation of the islands. Archaeological investigations focus on two locations: Wanapa II site and caves. Located behind Lac Bay, the Wanapa II site will yield data on settlement dynamics and house structures on Bonaire. The caves will provide proxies on how people envisioned their ritual landscape and utilized the caves within their daily routines. Wanapa II's unique setting, at the edge of a tidal flat, protected by the bay and mangroves, also warrant a paleo-ecological and coastal dynamics study to reconstruct the environmental setting in which people settled these locations. Through a detailed reconstruction of settlement and environmental proxies, it is possible to determine Bonaire and Curacao's roles in larger pan-Caribbean networks of exchange and interaction.

Haviser, Jay [222] see Morsink, Joost

Hawkins, Shaunna (White Mountain Apache Tribe)

[203] *Discussant*

Haws, Jonathan [146] see Holst, Melissa

Haws, Jonathan (University of Louisville)

[170] *Human Occupation of Lapa do Picareiro (Portugal) during the Last Glacial Maximum*

During the Last Glacial Maximum, abrupt climate changes created highly variable paleoenvironments inhabited by human populations across the Iberian Peninsula. Pollen and sedimentary analyses from deep-sea cores off Portugal provide records of regional-scale paleoenvironmental responses to the climate shifts that punctuated the LGM. Archaeological assemblages from caves and rockshelters offer a more local-scale understanding of human-environment interactions during this period. One site in particular, Lapa do Picareiro, has yielded a continuous, stratified sedimentary sequence that provides a diachronic record for MIS 2 human occupation and environmental change. Here, I present archaeological data from the Late Gravettian and Solutrean (Levels U-O). The taphonomic study of the faunal remains informs on local paleoenvironments and human diet choice during the LGM. Sedimentological analyses including magnetic susceptibility link the cave deposits with global scale records of LGM climate from the Greenland ice cores. The results are used here to understand human responses to long-term environmental change in central Portugal. The spatial distribution of artifacts, animal bones, and charcoal concentrations suggest sporadic, short-term visits to the cave prior to and during the LGM.

Hawthorne, Paige (Washington State University) and Lori Phillips (Washington State University)

[148] *Reaching Out: Public Archaeology at Washington State University*

Cougar Quest is an academic summer camp for students on the Washington State University campus and is designed to meet the educational and social needs of college-bound students entering grades 7-13. By attending three workshops of their choosing, students are immersed in a variety of fields and subjects that are taught by WSU professors and graduate students. This past summer, a workshop focused on archaeology was conducted by graduate students to show students the processes of archaeological methods and ideas. By including hands-on programs and activities, students were able to experience the technological processes of artifact creation as well as their own archaeological "excavation." This poster highlights the programs initiated at this past summer's Cougar Quest camp, the benefits of community outreach and public education, and future approaches to communicating appreciation for archaeology and heritage resources.

Hayashida, Frances [259] see Salazar, Diego

Hayashida, Frances (University of New Mexico)

[259] *Chair*

Hayes, Katherine (University of Minnesota, Twin Cities)

[18] *The Spiritual Economy of Shell in Native North America: Still Circulating*

Shell material, particularly marine shell, has long been recognized in the archaeology of precolonial America as a "prestige" good of complex meaning. Particularly in the Mississippian world, shell traveled great distances and appeared in richly meaningful contexts of use. Even in areas abundant in shellfish, however, it played a complex role: food, adornment, pottery temper, landscape alteration. After colonization shell use did not disappear, and oral traditions indicate some of the ways in which its spiritual significance demanded continued circulation. Yet the spiritual economy and value of shell in the more recent past has not been widely explored as a continued (even if altered) circulation. In this paper, I explore some of the material properties of shell, its contexts of use in deep and recent history, and its movement among and between people. I propose a sense of "spiritual economy" which implies the mutual and ongoing influence of materiality, spirituality, and sociality. The movement of shell parallels a circulation of interpretation and memory between past and present, when we consider the conditions of possibility for interpreting the past and present.

[70] *Discussant*

Haynes, Gary [177] see Wriston, Teresa

Hays-Gilpin, Kelley (Northern Arizona Univ) and Peter J. Pilles, Jr (Coconino National Forest)**[258]** *Amateur and Professional Archaeologists: Who's Who?*

Archaeology in the state of Arizona has been a partnership between professionals and "amateurs," or avocationalists, for more than a century. From an early focus on collecting "antiquities" for display, both professionals and avocationalists have followed a parallel course in the development of method and theory and the specialization of skills and interests that today has blurred the distinction between "professionals" and "amateurs." This paper will discuss the growth of avocational involvement and the concerns, as well as encouragements, expressed by professionals, institutions, and bureaucrats during this time. Examples will be presented to demonstrate some of the important contributions "amateurs" have made and continue to make in advancing our understanding and appreciation of Arizona's prehistory.

Hayward, Michele (Panamerican Consultants), Frank Schieppati (Panamerican Consultants) and Michael Cinquino (Panamerican Consultants)**[131]** *Zoomorphs in Caribbean Rock Art*

While Caribbean rock art is characterized by its high percentage of human-like facial and body images, realistically-depicted and stylized zoomorphic motifs are also present. Fish, turtles, birds, and marine mammals are among the animals found amidst anthropomorphic, geometric, and abstract designs. We identify a number of zoomorphic forms and describe their distributional patterns from our current set of rock art sites, particularly Puerto Rico. We also discuss the roles or functions these particular animal representations may have had in prehispanic native societies.

Headrick, Annabeth (University of Denver)**[117]** *Discussant***Heath, Barbara****[293]** *Characterizing Colonowares from Three Sites in the Central Virginia Piedmont*

First described in the literature in 1962, colonowares were initially interpreted by Ivor Noël Hume as low-cost provisions to enslaved people that substituted for more costly colonial ceramics. Later, archaeologists argued that they were the products of enslaved potters or represent a creolized folk pottery that mixed Native American, African, and European potting traditions. Whoever made them, a growing body of evidence indicates that they were used by enslaved and free people across racial boundaries. While significant research has been undertaken on assemblages recovered from the tidewater and northern piedmont regions of the state, comparatively little is known about the manufacture, distribution, and use of colonoware in the central Virginia piedmont during the eighteenth and early nineteenth centuries. Drawing on small assemblages from two sites in Bedford County and one in Powhatan County, this paper describes variability in paste, surface treatments, and rim, handle, and base forms within each assemblage, explores the distribution of colonowares across each site, and places them within the context of the historic communities within which they operated.

Hechler, Ryan [196] see Pratt, William

Hechler, Ryan (Tulane University), William Pratt (Texas State University) and David Brown (University of Texas at Austin)**[279]** *Beyond the Cultural Pale?: Contextualizing El Morro de Tulcán within Regional Earthen Mound Development in the Northern Andes*

El Morro de Tulcán is a massive earthen mound located near Popayán in southern Colombia. This structure towers over the surrounding landscape with a height of 50 meters at its highest point. This pyramid is an anomaly within the surrounding cultural vicinity, where tolas (i.e., earthen mounds) are a rare form of construction throughout much of Colombia. The closest region of tola development is in high concentrations in northern Ecuador, amongst the Caranquis and Yumbos. Research at El Morro de Tulcán has revealed some peculiar similarities in construction style, building materials, burial methods, and even grave goods with tolas from northern Ecuador; however, unlike northern Ecuador, this Colombian earthen mound was characterized by adobe brick construction. The aim of this paper is to contextualize El Morro de Tulcán within the northern Ecuadorian-southern Colombian region and to better understand the nature of this cultural isolate.

[279] *Chair***Heckel, Claire (CNRS 5608-TRACES)****[278]** *The Slow Revolution: Chronological and Geographic Variability in Ornament Assemblages of the Early Upper Paleolithic in France*

The gradual, mosaic nature of the development of symbolic material culture has become increasingly apparent due to discoveries outside of the Eurasian Upper Paleolithic. Even so, much remains unclear about the mechanisms and circumstances surrounding the production and use of personal ornaments in early societies. The idea that the intensification of symbolic behavior was the result of some sudden cognitive/behavioral shift is not well supported by current evidence, and finding more complex explanations requires a close re-examination of objects of adornment and the contexts (social, environmental, economic) of their production and use. Such examination reveals that, even in the Early Upper Paleolithic, artifacts of personal adornment (ranging from perforated teeth and shells to meticulously-carved beads in ivory and soapstone) are not universal, but subject to substantial chronological and geographic variation and to a more gradual and mosaic trajectory of development than is often acknowledged. Drawing on data from Protoaurignacian and Early Aurignacian sites in France, this paper presents patterns of chronological and geographic variation in the intensity and nature of ornament-production in these contexts and examines their implications for explanations of the emergence and intensification of systems of personal adornment on a broader scale.

Heckenberger, Michael (University of Florida)**[295]** *Pre-Columbian Agro-forestry, Production Cycles and Forest-to-forest Conversion in Southern Amazon Garden Cities*

This paper considers landscape domestication in the Upper Xingu region in the southern Amazonian transitional forests of Brazil. Archaeological research provides detailed information on major late pre-columbian settlements, ca. 1000–500 B.P., within an environmental history to >30,000 B.P. and cultural history extending over the past two millennia. Late pre-columbian agricultural systems involved forest farming and agro-forestry, including forest conversion within patchy, mosaic forests, including garden plots, grass fields, orchards, and successional forest rather than in clear-cutting in long-standing field areas. These high productivity systems maintained high biodiversity of tree species, including industrial plants managed in forest and wetland settings. Specific hypotheses consider alternative agro-forestry systems within long-term sustainable cycles emerging from a Garden City model of a multi-centric urbanism.

These results are considered with respect to current debate on the composition of Amazonian forests and sustainable contemporary land-use, as well as indigenous cultural heritage and land rights.

[23] *Discussant*

Heckenberger, Michael [263] see Cronos, Charles

Hedenstierna-Jonson, Charlotte (Stockholm University, Sweden) and Torun Zachrisson (Stockholm University, Sweden)

[192] *Back and Forth Along the Eastern Slave Route. Archaeological Traces of Long-Distance Trafficking*

With the expansion of the Eastern trade route during the ninth and tenth centuries, a regular contact with the markets of the Muslim world was established. Long-distance trafficking of slaves became an important commodity. It was a high risk venture that required a new level of organisation, control, and logistics. The full extent of the trafficking is not known but it included moving people and goods in both ways along a route that offered little infrastructure and difficult terrain. Trafficking of this kind would inevitably have left its mark along the route. Focusing on the trade route from eastern Scandinavia to the slave markets of the Volga Bulgar region, this paper poses the question if it is possible to distinguish the archaeology of the slave trade?

Heffter, Eric (The University of Arizona) and Dušan Mihailovic (The University of Belgrade)

[146] *The Role of Artifact Surface Scatters from the Western Morava Valley, Serbia in Understanding Human Population Movements during the Early Upper Paleolithic*

There is strong evidence for the spread of anatomically modern humans (AMH) 45,000 to 35,000 years ago in Europe using two major migration routes: a northern one along the Danube River, and a southern one leading through Bulgaria and Greece. Despite being situated between these routes and near some of the earliest AMH sites in Europe, most of Serbia and the Central Balkans seem to lack evidence of these occupations. Part of the reason for this absence of evidence may be due to limited research on this time period in Serbia. This is especially the case with open air localities and artifact surface scatters. However, in areas such as Serbia and the Central Balkans, certain lithic artifacts from these scatters can serve as indirect evidence for early AMH occupations. In the last few years, the Western Morava River Valley in central Serbia has been the focus of systematic survey and documentation of surface scatters. Survey data show that this region, while plentiful in Middle Paleolithic artifacts, lacks artifacts characteristic of early AMH. This poster discusses possible reasons for such a disjunction in the early AMH archaeological record of central Serbia and the surrounding region.

Heilen, Michael (Statistical Research, Inc) and Monica Murrell (Statistical Research, Inc)

[64] *An Experimental Project to Conduct Digital Survey for Ring Midden Features using Aerial Lidar Data*

This poster presents an experimental research project performed for the U.S. Bureau of Land Management's Permian Basin Mitigation Program exploring the use of aerial lidar data to identify and document ring midden features. The project was carried out in three study areas in southeastern New Mexico situated along the eastern foothills of the Guadalupe and Sacramento Mountains. Previous archaeological surveys indicate that ring middens are common along rocky escarpments in the piedmont zone and suggest that thousands of these features may be located within the study areas and adjacent areas. The unique shape and prominence of ring middens suggested these features could be identified and analyzed using remote sensing techniques. Aerial lidar data were obtained and processed to create high-resolution topographic models and visualization datasets for each of the three study areas. A sample of each study area was digitally-surveyed using GIS to identify ring midden features. A subsample of these were ground-truthed and thoroughly documented during field verification efforts. The results of this study provided a better understanding of the distribution and morphology of ring midden features in southeastern New Mexico and showed that many, but not all, could be reliably identified using digital survey methods.

Heilen, Michael [180] see Ciolek-Torello, Richard

Heiser, Kasey (Binghamton University)

[90] *Ritual Apprenticeship? A Case Study from The Eastern Finger Lakes of New York State*

The Early Woodland Period in New York state is a unique time period with many changes from the preceding Late Archaic and Transitional periods. Many of the western Finger Lakes were not only used for their abundant resources, but were integral parts of the landscape used as ceremonial spaces. We know much less about the role of the eastern Finger Lakes, but the Canadarago Lake I site can shed new light on the role they played. Excavations conducted as part of a Cultural Resource Management project produced a unique lithic assemblage that suggests the lake or the specific site itself played a greater role than just subsistence. Caches of bifacial blades in mortuary contexts became highly standardized and distributed during this time period. Based on preliminary analysis, The Canadarago Lake I site appears to be a cache blade production site where a mastercraftsmen worked alongside one or more apprentices. Skill differences are reflected in the vast amount of debitage and less abundant bifaces recovered at the site. In one distinct area, over 5,500 flakes and dozens of bifaces were recovered. Apparent in the debitage is a skill level not seen in the discarded bifaces.

Heitman, Carrie (University of Nebraska-Lincoln), Worthy Martin (University of Virginia) and Stephen Plog (University of Virginia)

[261] *Legacy Records and Digital Innovation: The Chaco Research Archive and Beyond*

Over the last 12 years, the authors of this paper have been involved in a range of digital curation activities pertaining to legacy records and the integration and manipulation of those data to create new knowledge about the past. Primarily, we have worked together to create the Chaco Research Archive (CRA) and a variety of complementary projects including a mobile application and, more recently, the Salmon Pueblo Archaeological Research Collection (SPARC). In this paper, we describe the creation, maintenance, and preservation aspects of the CRA and SPARC; outline nascent efforts focused on the digital curation of Ohio Hopewell legacy collections; and review our involvement in discussions of digital heritage ethics. In sum, we outline how these projects have and continue to add value to existing collections and review the challenges that lie yet ahead.

Heller, Eric (University of California Riverside)

[209] *Power, Placemaking, and the Production of Sacred and Political Landscapes at La Milpa North, Northwestern Belize*

Although ethnographic and ethnohistoric sources offer insights into the practices of producing political and sacred landscapes among contemporary and colonial era Maya, the scarcity and separation in time and space of written sources from most Classic Period contexts complicates the examination of

placemaking strategies in more ancient settings. In the near absence of written sources, landscapes, which are inscribed by built environments and the material remains of inhabitation, may be read as texts to discern ancient practices used to produce meaning and make places. Integrating traditional archaeological methods with digital reconstructions and phenomenological approaches, this paper explores the deliberate efforts of ancient Maya elites to control processes of placemaking at the site of La Milpa North, northwestern Belize. La Milpa North, a Late to Terminal Classic hinterland palatial compound, functioned as an important node within sacred and political landscapes of the La Milpa polity. Through analyses of avenues of movement, arrangements of buildings and monuments on the landscape, and the placement of features within structures, La Milpa North can be read as a text, or perhaps multiple texts, each designed to craft embodied experiences of place and convey subtly divergent meanings to a diverse array of interactants.

Helmer, Matthew (SWCA Environmental Consultants)

[56] *Early Horizon Foodways and Settlement Nucleation: Preliminary Insights From Samanco, a Maritime Center in the Nepeña Valley, North-Central Peru*

This paper examines the relationship between foodways and settlement nucleation at Samanco, a maritime center located in the Nepeña Valley littoral. Samanco comprises hundreds of orthogonal stone structures agglutinated into compounds spanning over 40 hectares. The site is similar to several other contemporary settlements in Nepeña, interpreted to be part of an integrated peer network. Excavations at Samanco yielded extraordinary amounts of food refuse, including mollusk, fish, faunal, and plant remains, all of which have been preliminarily analyzed. Results indicate that rather than being a specialized maritime community, Samanco residents relied on intensive exploitation of a variety of plants and animals. Excavations documented plant cultivation along stone terraces just below the site, on-site rearing of animal domesticates including camelids, net-based fishing focused on large-scale harvesting of smaller fish species, and shellfish exploitation along rocky and sandy outcrops of Samanco Bay. Preliminary results suggest that Early Horizon maritime centers were able to live with considerable autonomy as related to foodways, and that trade was more localized within lower-middle valley pockets. More broadly, the results bring important insights into the ways in which non-state complex societies were able to develop early urban life forms through the production and distribution of food.

Helmke, Christophe (University of Copenhagen) and Ismael Arturo Montero García (Universidad del Tepeyac)

[294] *A la sombra del Gólgota: Observancias rituales en el Cerro de la Estrella del Periodo Clásico hasta hoy*

El ritual calendárico conocido como la ceremonia del Fuego Nuevo era en muchos sentidos el rito fundamental de las culturas del altiplano central de México. Aquí, examinamos este ritual y su conexión a las cuevas, como se manifiesta en el Cerro de la Estrella, donde la última ceremonia del Fuego Nuevo fue celebrada por los mexicas en el año 1507. Sobre la base de las continuidades en el arte rupestre y las evidencias arqueológicas sugerimos que ceremonias del Fuego Nuevo ya se celebraban en el Cerro de la Estrella durante el Epiclásico (c. 750–950 d.C.), si no durante los últimos siglos del Clásico Temprano. Se presentan los resultados de las investigaciones y se contextualizan nuestras conclusiones en relación con las fuentes etnohistóricas que pertenecen a la ceremonia del Fuego Nuevo.

Helton, Erin [168] see Goodmaster, Christopher

Hemmings, C. (Mercyhurst Archaeological Institute MAI), J. M. Adovasio (Mercyhurst Archaeological Institute MAI), A. E. Marjenin (Mercyhurst Archaeological Institute MAI), F. J. Vento (Mercyhurst Archaeological Institute MAI) and A. Vega (Clarion University of Pennsylvania)

[159] *The Old Vero Man Site (8IR009): Current Investigations Indicate a Late Pleistocene Human Occupation*

Recent work near Sellards's 1916 excavation demonstrates that the 8IR009 stratigraphy is more complex, and better preserved, than previously described. The modern excavations in 2014 and 2015 have recovered thermally altered bone and sediments along with charcoal from anthropogenic surfaces that range 14,000–11,100 cal yr B.P. in age. To date, 50 m² have been excavated to mid-Holocene-age horizons, and Pleistocene-age thermally modified materials have been recovered in a ca. 28 m² area adjacent to a probable hearth. Continued archival research has relocated specimens and documents (including Sellards's original notebooks) from the 1913–1917 project, permitting spatial correlations between existing landmarks and the original excavations. All of the available evidence indicates that Sellards was correct about the co-occurrence of extinct Pleistocene fauna with evidence of an anthropogenic presence at the Old Vero Man Site.

[159] *Chair*

Henderson, John [47] see Hudson, Kathryn

Hendrix, Jillian [120] see Chenvert, ErinMarie

Henebry-DeLeon, Lourdes

[266] *NAGPRA Human Remains Inventory: Making Our Work More Visible*

In 2008, Central Washington University NAGPRA Program and the Columbia Plateau Tribes created a more visible, participatory osteobiography process. CWU let go of the "culture of secrecy" around our NAGPRA human remains documentation process and found the benefits outweigh fears. The change showed the tribes what we really do and generated research questions from Tribal representatives.

Henrikson, Suzann [113] see Byers, David

Henry, Edward (Washington University in St. Louis)

[17] *Interaction Spheres or Networks of Participation? Organizing Institutional Complexity in Adena-Hopewell Societies of Kentucky's Bluegrass Region*

Since the 1960s, Joseph Caldwell's notion of the interaction sphere has endured as a global framework through which archaeologists interpret regional systems of trade and exchange. However, a tension exists in this framework between the homogeneous and heterogeneous nature of exchanges within overlapping territories. Implied in the Interaction Sphere approach is that, through their interactions, autonomous social groups engage in homogeneous religious, economic, and sociopolitical institutional profiles. More recently, archaeologists working in areas of the world where the Interaction Sphere concept has been applied are discovering that societies are often organized in a multitude of non-uniform ways. I employ recent studies of institutions from

archaeology, sociocultural anthropology, and sociology to explore a notion of Participation as an alternative to Interaction Spheres. Understanding the heterogeneous ways in which humans coordinate institutional participation allows us to consider the nuances of regional trade and exchange relationships, elucidating shared and divergent principles in the organization of society. I draw upon new data from excavations at several Adena-Hopewell ditch-and-embankment enclosures in Central Kentucky to assess how collective labor events help delineate the creation of, and involvement in, networks of participation in Middle Woodland institutions across the Eastern Woodlands of North America.

Henry, Jamie (University of Wisconsin-Milwaukee)

[63] *The Orphaned Archaeological Collections and its Place in the Modern Museum: A Case Study from Tell Hadidi, Syria*

Destruction of ancient sites along the Euphrates River in northern Syria due to the construction of the Tabqa Dam and the formation of Lake Assad led to salvage excavations conducted between 1974 and 1978 by the Milwaukee Public Museum (MPM) at the site of Tell Hadidi, Syria, under the direction of Dr. Rudolph Dornemann. The 300,000 artifacts collected by the project are now housed at the MPM but this material has never been completely published. In 1991, with the retirement of Dr. Dornemann, the collection began a gradual fall into obscurity often experienced by material not intended for extensive use in programs or exhibits. Such collections present particular problems for new museum staff members who have no expertise in the geographic area from which the material was excavated. For over 35 years the collection languished in storage while institutional memory of its significance gradually faded. More recently, through collections management and programming, as well as graduate thesis projects, it has become a valuable resource for a new generation of museum professionals. This paper will present both the biography of this collection, from exciting new project to orphan collection, and will suggest strategies for rehabilitation of similar material in the process.

Henry, Edward [132] see Kidder, Tristram

Hepp, Guy (University of Colorado)

[135] *Movement of Goods and Ideas in Early Formative Western and Central Mesoamerica: New Evidence from Coastal Oaxaca, Mexico*

For decades, scholars have discussed Mesoamerica as a land characterized by two ancient linguistic and cultural traditions: Mixe-Zoque to the southeast, and Otomanguan to the west. Recent evidence from the initial Early Formative (2000–1500 cal B.C.) village site of La Consentida in coastal Oaxaca suggests that early “Red-on-Buff horizon” ceramics of Otomanguan-speaking peoples compete temporally with the earliest southern pottery traditions, such as that of the Soconusco region’s Barra phase (1900–1700 cal B.C.). In this paper, I discuss the movement of goods and ideas between the people of La Consentida and its interaction partners, both near and distant. With particular attention to ceramic and lithic evidence, I suggest that La Consentida was a village of the Otomanguan tradition, and that the site’s Tlacuache phase (1950–1500 cal B.C.) ceramics exemplify early Red-on-Buff pottery. While pottery forms, iconography, and obsidian exchange evidence indicate extensive interaction with peoples of western and central Mesoamerica, La Consentida was also in contact with communities to the southeast. I thus conclude that the aforementioned linguistic and cultural “boundary” was a porous one. I therefore agree with other scholars who have suggested that Mesoamerica was a land defined in part by far-reaching interaction, exchange, and mobility.

Herbig, Alexander [223] see Bos, Kirsten

Herckis, Lauren (Carnegie Mellon University)

[77] *Marine Fossils and Domestic Ritual in Maya Commoner Households: Two Neighborhoods in the Classic Maya City of Palenque*

Marine fossils carried an important symbolic load for elites in the Classic Maya city of Palenque. Recent excavations demonstrate that marine fossils were intentionally employed in a variety of ways by commoners in hinterland domestic contexts, as well. Despite a shared symbology, such use varied across the landscape: inhabitants of different neighborhoods had different practices surrounding these materials. The special significance of marine fossils in commoner households is particularly evident in the preparation of riverine resources for consumption and in domestic ritual. It is particularly notable during the Late Classic, a time when marine fossils were being incorporated into monumental architecture and ritually significant contexts in the city center. The current paper presents a discussion of the functional and ritual uses of these objects. It additionally explores marine fossils as a lens through which to reveal the role of the city in hinterland identity and vice versa, as commoners in the hinterland of Palenque simultaneously performed their affiliation with the city and with the sacred, and elites in the center performed their affiliation with the people of the broader region.

Heredia, Verence [169] see Martínez Rojo, Izziar

Heredia Espinoza, Verence Y. [27] see Antorcha Pedemonte, Ricardo

Heredia Espinoza, Verence (El Colegio de Michoacan)

[101] *What the "Teuchitlan Tradition" is, and What the "Teuchitlan Tradition" is Not*

Recent full coverage systematic surveys in the Tequila region have produced new and significant data to understand the nature of the well-known Teuchitlán tradition which has been variously described as a state-like society, a segmentary state, and a chiefdom. The evidence presented for these various models remains shaky and speculative. Here, I evaluate and test the current evidence, including the published literature, while providing empirical data from the region. Then, I interpret these data in light of a processual model on the character of this complex society and its political economy.

[101] *Chair*

Hermes, Taylor (University of Kiel), Michael Frchetti (Washington University in St. Louis), Farhod Maksudov (Uzbekistan Academy of Sciences), Alexei Mar'yashev (Kazakhstan Academy of Sciences) and Paula Doumani Dupuy (University of Kiel)

[134] *Tethered, Ad Hoc, Resilient, or Structured? An Isotopic Investigation of Pastoral Strategies in Montane Ecosystems of Central Asia*

This paper focuses on tracking the mobility and diets of domesticated animals using isotopic analysis. We present two archaeological contexts from mountain regions of central Asia: 1) A ninth–tenth century (medieval) iron smelting town located at 2,000 masl in the Zaamin Mtns. of Uzbekistan, and 2) a series of Bronze Age (2500–1200 B.C.E.) pastoral settlements located between 900 and 1500 masl in the Dzhungar Mtns. of eastern Kazakhstan. We are curious about pastoral productivity as it relates to social organization and cultural traditions across ecological gradients. We expect the case of Bronze Age

pastoralists will show a diffuse and highly variable pastoral industry which may have provided more resilience to socio-ecological changes, resulting in a high degree of variability in social interaction. For the medieval case, we expect that a centrally organized economy, like iron metallurgy, would result in a greater demand for pastoral foodstuffs and likewise would structure pastoral management, resulting in more rigidity in socio-ecological adaptation and more environmental degradation. The differences between these two examples are important for understanding the interface of herd management and economic organisation across agricultural landscapes of high socio-ecological dynamism.

Hermitt, Elijah (Pennsylvania State University) and Kirk French (Pennsylvania State University)

[235] *The Palenque Pool Project: Preliminary Investigations into Monumental Construction Costs*

The Palenque Pool Project began excavations of the largest pool of the Picota Group in the Classic Maya site of Palenque in 2014. This group is located 1 kilometer from the Palace on the western edge of the site. Although the function of the pool is still unknown, its placement adjacent to one of Palenque's two stelae and its similarity to modern Maya examples suggests ceremonial use. As a part of the 2015 field season, samples were taken from two regions that appear to have been limestone quarries. The first possible source of stone is situated roughly 275 meters southwest of the Main Picota Pool. The second, which can be found about 350 meters to the southeast, lies directly uphill from the Templo Olvidado in the Piedras Bolas Group. These samples have been comparatively analyzed using X-ray diffraction (XRD) testing with sections extracted from cut stone found in and around the pool. This is the first of many steps in developing a comprehensive analysis of the monumental construction cost of the pool and the connected aqueduct system.

Hernandez, Javier [110] see Gonzalez, Albert

Hernández Álvarez, Héctor [100] see Alexander, Rani

Hernandez Sarinana, Daniela (Department of Archaeology, Boston University), Gina Buckley (The Pennsylvania State University), Doug Kennett (The Pennsylvania State University), Brendan Culleton (The Pennsylvania State University) and David Carballo (Department of Archaeology, Boston University)

[129] *New Research on Ceramics and Chronology from the Tlajinga District*

The Proyecto Arqueológico Tlajinga Teotihuacan (PATT) undertook two excavation seasons in the southern district of the city known as Tlajinga. These have provided new information concerning the growth of the city southward and life in residential apartment complexes. Tlajinga comprises a group of residential neighborhoods where commoners lived and engaged in both local and city-wide interactions. Analysis of ceramics from the project provides an understanding of the temporality of household practices and the city's extension processes.

By examining the ceramic artifacts obtained from compounds 17:S3E1 and 18:S3E1, as well as the southern extension of the Street of the Dead, we discuss new insights into the ceramic sequence and other chronological considerations. Using high precision Accelerator Mass Spectrometry (AMS), we evaluate the radiocarbon (¹⁴C) assays provided by wood charcoal and bone samples to establish dates and occupation phases. We correlate these lines of evidence to provide preliminary conclusions regarding urbanization of the south of the city and the household practices that took place in Tlajinga.

Hernández Venegas, Maryam (Maryam Hernández)

[14] *Spatial Analysis of Anthropogenic Landscapes, A Research Tool for Natural and Cultural Heritage Protection: San Jorge River Valley as a Study Case*

The archaeological research on San Jorge has focused on the identification and characterization of the various structures comprising hydraulic adjustment systems such as canals, ditches, ridges, and mounds. Such identification has been accompanied by the spatialization of their features most significant and the interpretation of historical and cultural processes that have accompanied the construction, use, and abandonment of such structures. However, this work has also neglected the study of the current state of these structures and there is a need for clear guidelines for using and preserving this cultural heritage. Therefore, this research is an attempt to understand how current ecosystems reflect different historical processes of appropriation of territory. Sustainable development is coupled with the recognition of historic forms of construction and appropriation of territory from ancient times to the present, only the recognition and analysis of these dynamics allow us a real understanding of the possibilities of utilization of diverse ecosystems whose current use is far from preservation.

Herr, Sarah (Desert Archaeology, Inc.) and J. Scott Wood (Tonto National Forest (retired))

[66] *Recent Research on Western Apache Roasting Pits*

Hundreds of western Apache roasting pits have been documented by archaeological surveys in central Arizona, but prior to A.D. 2000 few had been excavated. These large, visible, accumulations of fire-cracked rock and dark soil are essentially the only enduring western Apache modifications of the physical landscape and the best candidates for planned research on past western Apache experience, as pre-reservation sites and features in the region are often far more subtle. Two large roasting pits, similar in their surface appearance, were excavated as part of the on-going State Route 260-Payson to Heber project, substantially augmenting available information. We present the results of the new and previous fieldwork and analyses, compare those with investigations of earlier Hohokam roasting features in the same region, and draw on ethnographic and historical documentation to explore the potential of these features to answer questions about chronology, land use, foodways, and cultural persistence from the pre-reservation to post-reservation period.

Herrmann, Nicholas [7] see Zaleski, Sarah

Herrmann, Edward (Indiana University Department of Geological Sciences) and Rebecca Nathan (Indiana University Anthropology; Crow THPO office)

[123] *Where Men Get Their Meat: Predicting Jump Locations at the Grapevine Creek Buffalo Jump Complex*

Buffalo jumps have long been part of Crow oral histories. In 1962, at Grapevine Creek in Montana, Joseph Medicine Crow recounted oral histories to identify two buffalo jumps and associated drive lines above cliffs overlooking the floodplain. In 2015, a team of archaeologists and Crow tribal monitors from the Tribal Historic Preservation Office employed geoarchaeological methods to investigate whether bison bones might be preserved in primary context in the drainage. We focused on recorded oral histories of land use at Grapevine Creek, and incorporated GIS mapping to visualize topographic landscape features and prehistoric site distributions in order to predict where additional buffalo jumps might be found. The resulting model uses oral history documents, digital elevation models, geologic and soil maps, site distributions, chert extraction locales, and prehistoric trail locations to predict buffalo jump

site locales. In a relatively small portion of the drainage, our team identified two additional buffalo jumps and drive lines spanning 2,000 years. Both the oral histories and predictive model suggest that other jumps may be present in the Grapevine Creek drainage.

Herrmann, Corey (Colorado State University)

[279] *Culture at an Andean Crossroads: New Analysis of Chorrera Ceramics from the Jama River Valley, Manabi, Ecuador*

The archaeology of Late Formative Ecuador (ca. 2800–2000 B.C.E.) remains only partially explored and understood, especially when compared to studies of contemporary cultures in the Andes of Peru and Bolivia. However, ceramics looted from these contexts suggest a vibrant and complex array of cultures in this region. Excavations in the Jama River Valley of northern Manabí, performed in the early 1990s but largely unpublished, explored multiple sites pertaining to the Chorrera style, one of Ecuador's most stunning and poorly understood cultures.

This paper synthesizes results of recent modal ceramic analysis of the materials recovered from these excavations, with the intent of comparing results from northern Manabí to prior modal analyses of Chorrera ceramics from the Guayas region. This research will motivate future study in the Jama River Valley, as it begins a renewed effort to understand the nature of Chorrera's cultural hegemony and its connections to coastal Colombian and Peruvian contemporaries. Bringing more archaeological contexts into discussions of Late Formative Ecuador also serves to better inform and unite the narrative of Ecuadorian museum collections with the region's archaeological studies.

Hertfelder, Paula (Binghamton University)

[66] *A Spatial and Predictive Model for Archaeological Sites in the Lincoln National Forest, New Mexico*

The Lincoln National Forest has produced a wealth of GIS data on archaeological sites in southeastern New Mexico. This data has not yet been analyzed. This poster presents a predictive spatial model of archaeological sites on the Lincoln National Forest. In this project, I have developed a predictive model of archaeological sites based on a statistical analysis of environmental variables and test it by withholding a sample of sites. I also examined the distribution and density of archaeological sites relative to geographic and environmental factors, site distribution, and density over time, as well as the changing use of the landscape of the Lincoln National Forest. As southeast New Mexico is a region often overlooked in archaeological research, this project represents an important preliminary exploration of spatial data in the region.

Herzog, Irmela [282] see Yopez, Alden

Hicks, Keri (USDA Forest Service Alaska Region)

[165] *Fish Traps, Kayak Surveys, Culture Camps—NHPA in Alaska National Forests*

In an effort to meet the spirit of the NHPA, USDA Forest Service Alaska Region has a long history of collaboration and partnering with a wide variety of tribal, state, federal, not-for-profit, and educational entities, institutions, agencies, and volunteers throughout the state and beyond. The Alaska Region consists of the two largest national forests in the system, totaling 21.9 million acres. Over the last 18 years, the Ketchikan-Misty Fiords Ranger District (KMRD), located on the Tongass National Forest in southeast Alaska, has been conducting annual Windows on the Past sea-kayaking expeditions and a cooperative educational program with the University of Alaska Southeast-Ketchikan. Through this program, volunteers and students have helped to locate and document 59 new pictograph sites, bringing the total number of rock paintings to 65 on the KMRD and representing 58 percent percent of the state's known pictographs. A current example from the Chugach National Forest located in southcentral Alaska includes an annual culture camp with the Sovereign Nation of the Kenaitze and Applied Archaeology International; Kenaitze youth and elders, and representatives from traditional owner groups from western Australia participate in projects to mitigate damage to village sites as part of an ongoing exchange program to share cultural knowledge.

Hicks, John (Univ. of Illinois at Chicago/The Field Museum)

[219] *Ampare y Perjuicios: Land and Legality in a Colesuyo Village during the Colonial Period*

Land tenure is a prominent theme in the study of political and economic transition during the Spanish Colonial Period (A.D. 1550–1824) in Peru. Previous investigations have tended to focus on the concentration of land ownership into the hands of the ethnically Spanish elite minority, first through *encomienda* and later through the evolution of *haciendas*. However, native Andean communities were just as active in engaging the legal system to delineate their holdings and defend them from encroachment. My presentation outlines an early eighteenth century case brought by the citizens of the Village of Estique, located in the precordillera of modern-day Tacna, seeking legal protection and damages from squatters and trespassers, primarily from the nearby Village of Tarata. I discuss this case within the context of land use and rights in the Colesuyo region during the Colonial Period.

Hicks, Katherine

[284] *Using GIS to Investigate Mortuary Practice and Identity at the Historic Spring Street Presbyterian Church, Manhattan*

This paper focuses on the use of a geographical information system (GIS) as a tool to identify the distribution and association of mortuary artifacts and skeletal remains within the Spring Street Presbyterian Church burial vaults (ca.1820–1846). The GIS study presented here is one component of a microhistorical approach to exploring a nineteenth century neighborhood in New York City's 8th Ward during a period of rapidly changing urban, social, and economic landscapes. Viewing the city through the lens of this radical abolitionist church congregation provides an avenue of inquiry that considers these changing landscapes with regard to the social, religious, and mortuary ideologies espoused by the Spring Street Presbyterian Church. By spatially reconstructing the Spring Street burial vaults, this GIS assists in the identification of patterns associated with the demographics of the interred congregants, both in the distribution of the interments and artifacts within the vaults, as well as how those spatial relationships reflect identity and mortuary custom as practiced by the Spring Street congregation.

Higelin Ponce De Leon, Ricardo (Indiana University Bloomington)

[169] *Cultural Modification of Human Remains at Cerro Jazmín, Mixteca Alta*

Bone modification in human remains is a common practice among ancient civilizations. In Mesoamerica, important cultural modifications on human bone have been reported, such as cranial deformation, dental modification, groves in long bones, and mandibles used as ornaments. In Oaxaca, within the Valley of Oaxaca, some of these cultural modifications of human remains have been dated to the middle Formative Period in the Rosario Phase (B.C. 700/500). Meanwhile, cultural modifications, such as cranial deformation in the Mixteca Alta, have been reported since the Late/Terminal Formative (B.C. 250/A.D. 250). This study explores the diversity of bone modification at the Cerro Jazmín, Mixteca Alta, in the Late/Terminal Formative and Early Postclassic periods, and sees how these modified human remains could be related to social status from the context that were found. In addition, in the

process of integrating these data, it will be necessary to identify the techniques used to modify the bones, hypothesizing the possible tools that were used. Evidence of bone modification at this site is based on recovered remains that display different types of cranial deformation, dental modification, and groves in long bones, cremation, and fragments of the cranium used as ornaments.

Higelín Ponce de León, Ricardo [236] see Bellomia, Valeria

Hilbert, Lautaro Maximilian (University of Exeter), José Iriarte (University of Exeter), Eduardo Góes Neves (Universidade de São Paulo) and Francisco Pugliese (Universidade de São Paulo)

[49] *Investigating Plant Management in the Tucumã (Pará-Brazil) and Monte Castelo (Rondônia- Brazil) Shell Midden using Phytoliths Analysis*

This paper will address and evaluate the micro botanical remains of the Monte Castelo (9343 cal B.P.) shell mound in southwestern lowland Amazonia (state of Rondonia) and the sambaqui do Tucumã (7,000–4,000 B.P) located on the southeast lower Amazon River (state of Para). The focus is identifying and evaluating the floral dietary peculiarities of these specific precolombian settlements from the principle that the south and southeast Brazilian shell mound occupants are known to have had a broad-spectrum diet based on the exploration of their environment. The mound inhabitants are referred to within modern dietary studies as fisher-hunter, mollusc and plant gatherer societies. However, the presence of plant processing tools collected in the previously mentioned sites (Monte Castelo and Tucumã) leads to the main question that guides this research: is it possible to comprehend the mound inhabitants of Monte Castelo and Tucumã as part of an agricultural sustainable society?

Hilditch, Jill [214] see Knappett, Carl

Hill, David (Metropolitan State University of Denver)

[41] *Using Petrographic Analysis to Identify Pottery Production: Shoshone Pottery Making at the Ravens Nest (48SU3871) Southwestern Wyoming*

Petrographic analysis has been commonly used to identify trade in ceramics and stone tools. At the Raven's Nest site petrographic analysis was used to characterize the compositional variation in the ceramic assemblage recovered during excavation. The homogeneous nature of the ceramic pastes of the assemblage prompted additional petrographic study of local soils and geologic outcrops. Comparison of the local resources with the ceramics indicated the possibility for the local production of pottery at the site. A high concentration of kiln wasters and the recovery of a unique ceramic vessel support the identification of Ravens Nest as a location for the production of pottery by the Shoshone.

Hill, Erica (University of Alaska Southeast)

[108] *A Relational Geography of Humans and Animals in the Bering Sea Region*

New approaches to animal geography have rapidly emerged over the last 20 years and have challenged accepted views of human–animal relations in a variety of contexts. While archaeologists studying past relational ontologies have explored the spatial components of human interactions with animals, so far archaeology has not explicitly engaged with animal geography. This paper investigates how the “new” or “third wave” animal geography (Urbanik 2012) might inform our understanding of the human past. Using archaeological, ethnohistoric, and ethnographic data from the Bering Sea region, I explore how Yup'ik and Inupiaq Eskimo constructed, traversed, and maintained boundaries between human and animal worlds, focusing on the definition of human spaces relative to those of animals and on liminal spaces where land met water and ice.

Hill, David [123] see Trabert, Sarah

Hill, Rebecca (Tulane University)

[127] *Over the Hills: Decline and Abandonment of the Bolonchén District*

This paper examines the final decades of the Terminal Classic and the beginning of the Postclassic in the Bolonchén district of the Puuc region of the northern Maya Lowlands. Archaeological evidence for the decline and abandonment of the Bolonchén district at the close of the Terminal Classic Period is presented. Particular attention is given to the material remains of a late Terminal Classic population at Huntichmul, an example of a Puuc center in decline and most likely abandoned by the close of the Terminal Classic, with a comparative analysis of select archaeological contexts investigated by the Bolonchén Regional Archaeological Project (BRAP).

Hill, Allison (California State University, Northridge)

[245] *Social and Economic Implications for Identifying Basketry Production in the Californian Archaeological Record: A Case Study from the Interior Chumash Region*

Poor preservation of fiber technologies in the archaeological record has caused the importance of basketry in precolonial California society to be often overlooked. Subsequently, studies of the social and economic elements of basketry manufacture, primarily done by women in precolonial California communities, have been impacted. Despite preservation issues, the archaeological record can be used to study the socioeconomic contexts of this engendered craft production by identifying the tools used to make baskets. Through the use of experimental replication and comparative microwear analysis, it is possible to identify stone tools used to process plants for weaving material. Further, locating these tools at specific places in the enculturated landscape may indicate where people were making baskets, thus informing us about the social settings in which these crafts were produced. Here, I explore these themes in the form of a case study and present the results from a lithic microwear analysis of multiple sites in the Emigdiano Chumash territory. Situating the intangible process of engendered craft production in the archaeological record allows us to explore new questions about the socioeconomic status of basketry and basket makers in precolonial California society.

[245] *Chair*

Hill, Mark (Ball State University), Kevin Nolan (Ball State University), Mark Seeman (Kent State University) and Laure Dussubieux (The Field Museum)

[285] *Elemental Analysis of Scioto Valley Hopewell Copper*

Artifacts of copper occupy a position of prominence in the Hopewell societies of Ohio's Scioto Valley. Earspools, repousse plaques, effigy cutouts, celts, and a wide variety of other forms represent a technological and artistic mastery of the medium. These artifacts also represent the social contacts and long

distance interactions that brought copper to the Scioto Valley and yet our understanding of copper acquisition for Ohio Hopewell, and the movement of copper artifacts within the social networks of the Scioto Valley and beyond, is limited and often contentiously speculative due to the limited availability of geochemical data concerning provenance and variability. This project begins to develop the foundation for our understanding of these important social issues by examining the elemental variability of Hopewell copper through the use of laser-ablation inductively coupled plasma mass spectrometry (LA-ICP-MS). Dozens of samples from several prominent sites in the Scioto Valley have been analyzed using the elemental analysis laboratory at the Field Museum in Chicago. We explore the elemental variability in Hopewell copper across this region, enhancing our knowledge of both acquisition methods and the social processes through which copper represented important meanings and identities.

Hillier, Maria [103] see Grimes, Vaughan

Hills, Kendall (University of Illinois at Chicago)

[262] *Investigating Integrative Mechanisms among Early Tropical States*

Early archaeological discourse depicts tropical environments as unsuitable loci for the emergence of the world's "great" civilizations. Scholars now know this to be demonstrably untrue, as evidence of early complex societies with state level organization has been identified in tropical environments throughout the world. Like their counterparts of the more arid zones, amalgamation and increased integration would have been of great importance to early tropical states. In general, states seek to increase economic, socio-political, and ideological integration, which is simultaneously achieved through both vertical power relationships of inequality, and horizontal group affiliation. This paper explores early tropical state use of integrative mechanism, archaeologically expressed in the form of monumental public structures and spaces of the anthropogenic landscape. Informed through case studies from the latter part of the "Charter Era" (C.E. 800–1400) in South And Southeast Asia, this analysis explores an avenue for comparative studies of integrative mechanisms of early tropical states. Monumentality emerges as a dominant integrative mechanism, and provides an interesting stage for exploring integration from a dialectic perspective between state power and localized identity.

Hilton, Michael (Black Hills National Forest)

[165] *Preserving Our Heritage and History: Maximizing Partnerships to Professionally Archive and Manage a Sizable Forest Service Historical Collection*

The Black Hills National Forest (South Dakota and Wyoming) created the Historical Collections Archival Project (Project) to grapple with an issue that practically every U.S. Forest Service unit will eventually encounter: the proper long-term archiving of their unit's historical collections. The Project objective is to digitize all images and selected print documents from the Forest's extant historical collection. The materials are professionally archived under agreement at the Leland D. Case Library for Western Historical Studies on the campus of Black Hills State University, Spearfish, South Dakota. The collection includes an estimated 166 cubic feet of materials (64,000 items) that document the history and heritage of the Black Hills National Forest. The majority of the collection has been inventoried and properly processed. The ultimate objective is to provide free and easy access to the collections by researchers, students, U.S. Forest Service personnel, and other interested members of the American public and beyond. This paper cites notable Project achievements and stresses that Project success would not have been possible without developing multiple partnerships with local cooperators.

Himes, Sarah (Department of Anthropology, Texas State University), Maryse Beirnat (Department of Biology, Stockton University, 101 Ve), Fikremariam Sissay (Paleoanthropology and Paleoenvironment Program, Ad), David Patterson (Hominid Paleobiology Doctoral Program & Center for) and David Braun (Center for the Advanced Study of Human Paleobiology)

[181] *Landscape Stability and Paleocology at East Turkana, Northern Kenya: A Spatial and Temporal Analysis of Paleosol Gross Morphology and Stable Carbon Isotopes during the Upper Burgi, KBS, and Okote Members (2-1.4 Ma)*

The Upper Burgi, KBS, and Okote Members of the Koobi Fora Fm. in northern Kenya span the period between 2 and 1.4 million years ago and document some of the most important events in hominin evolution. Although previous archaeological and paleoecological investigations suggest hominins occupied specific niches within this ecosystem, we understand little about relationships between landscape variability and hominin adaptation. In this study, we combine stable carbon isotope data from fossil soils and enamel with a high-resolution reconstruction of landscape variability from the gross characterization of paleosols from 30 localities. These data assess hominin resource use and landscape dynamics through time and across space. More specifically, we focus on fossil- and artifact-rich areas of Ileret and the Karari Escarpment and find that the landscape within these two regions was extremely diverse across space, yet relatively static temporally as supported by statistically significant differences in soil morphology. Emerging patterns are mirrored in enamel isotopic ratios between these regions with taxa, particularly suids, reflecting differing dietary adaptations across space. Finally, our analyses suggest that the East Turkana landscape was highly variable in terms of landscape stability and vegetation structure, which would have resulted in a distinct adaptive scenario for Pleistocene hominins.

Hinthore, James [200] see Skowronek, Russell

Hinthorne, James [279] see Gonzalez, Juan

Hinton, Peter (Chartered Institute for Archaeologists)

[89] *Moderator*

[89] *Discussant*

Hinz, Martin [95] see Weinelt, Mara

Hiquet, Julien (Université de Paris 1 Panthéon-Sorbonne), Eva Lemonnier (Université Paris 1 Panthéon-Sorbonne) and Julio Cotom (Universidad San Carlos de Guatemala)

[96] *Time and Space at Naachtun: The Chronological Sequence, Settlement, and Land Use Patterns.*

Since 2011, a program of surveying and mapping together with a series of more than 80 test pits have been conducted during four field seasons around the monumental epicenter of Naachtun, over a large residential area covering approximately 175 ha. These programs resulted in an accurate map of constructed and empty spaces, and in a relatively complete sequence of the site's occupation, from the very onset of the Early Classic to the Terminal

Classic. The first objective of these investigations is directly related to archaeological issues, since it aims to reconstruct spatial layout of this area through time. The second objective deals with agriculture and subsistence questions: it intends to document land use pattern by identifying and characterizing the different land management features, in connection with residential units. This paper offers a diachronic presentation of the different components of the site, be they social or environmental. The idea is to reconstruct the dynamics of population according to the place where resources were managed, particularly soils and water supplies.

Hirth, Kenneth G. [129] see Buckley, Gina

Hirth, Kenneth (Penn State University), Mark Dennison (Tulane University), Sean Carr (Penn State University), Sarah Imfeld (Penn State University) and Casana Popp (Penn State University)

[129] *Obsidian Craft Production at Teotihuacan: A View from Tlajinga 17*

In 1986, John Clark published a seminal article that questioned the scale of obsidian craft production at Teotihuacan as reconstructed by the Teotihuacan Mapping Project (TMP). Clark argued that many of the areas identified as obsidian workshops from surface materials were concentrations of production refuse deposited as fill and eroding out of residential and public architecture. Excavations by the Proyecto Arqueológico Teotihuacan-Tlajinga (PATT) in 2013 explored the stratigraphic relationships in Tlajinga 17, a domestic apartment compound in the southern portion of the city where the TMP had identified the presence of a small obsidian workshop. This paper evaluates the subsurface contextual associations of obsidian production debris with the residential architecture to determine if surface indications of obsidian production represent in situ craft activity. The excavations provide the first empirical attempt to evaluate the accuracy of TMP model of obsidian craft production and what it implies about the organization of the city's ancient urban economy.

Hirx, John [121] see ONeil, Megan

Hitchcock, Robert, Amber Johnson (Truman State University) and Luke Edwards (Truman State University)

[94] *Macroecological Analysis of Recent Kalahari Site Structure*

In the 1980s, Lewis Binford (1931–2011) started an analysis of hunter-gatherer site structure that was later put on hold in order to organize ethnographic and environmental data to use in the analysis (Binford 2001). Although the frames of reference were constructed, Binford never completed his analysis of site structure. This poster represents an initial attempt to realize Binford's vision of a controlled analysis of site structure at a large regional scale using data he organized for this project and data organized more recently by Robert Hitchcock. Site structure data comes from the Kalahari Desert Region of Botswana, collected over a period from August 1976 to July 2014 during a total of 17 years of work in the field. Variables include site area, distances among huts in and between clusters, numbers of occupants, duration of occupation, seasonality, facilities, and presence of domesticated animals. Key variables in the Kalahari include location, temperature, rainfall, and the presence of surface water, ground water, wild animals, plants, and domestic animals. Activities taking place in each site were recorded. Seventy maps were produced, analyzed, and compared to the findings of other archaeologists and anthropologists including John Yellen (1977), Lawrence Bartram (1993), and George Silberbauer (1981).

Hitchens, Gail (University of York)

[25] *Transformations in the Palaeolithic: Searching for the Social and Cultural Role of Neanderthal Children*

Early prehistory presents a particular challenge for investigating children, and consequently previous work has almost exclusively consisted of biological accounts of health and growth. However, as traditional views of Neanderthals are becoming increasingly overturned, it has become clear that the social and cultural role of children could be crucial in furthering our understanding of Neanderthal society, and in turn the interactions and differences with modern humans. Through investigating treatment at death (both burial and the previously unexplored role of disarticulated remains) and treatment in life (such as material evidence of cultural learning), the emerging picture contrasts sharply with the traditional view of a particularly harsh and difficult upbringing. Evidence may even suggest that Neanderthal children were central to symbolic and cultural practices at this time, and may have had an important role to play in the major transformations taking place in Europe 40–50,000 years ago.

Hlad, Tucker [149] see Capece, Matthew

Hlubik, Sarah (Rutgers University), Francesco Berna (Simon Fraser University), Russel Cutts (University of Georgia - Athens), David Braun (The George Washington University) and JWK Harris (Rutgers University)

[177] *Identifying Fire in Early Stone Age: A Study of Site FxJ20 AB, Koobi Fora, Kenya*

Fire use by human ancestors may explain changes seen in *Homo erectus* and be responsible for the development of later human species. Anthropogenic fire claims in the Early Stone Age (ESA) are disputed because many of these sites are in secondary deposits and contain no association between human behavior and fire evidence. Careful excavation producing high-resolution spatial data, detailed micromorphological analysis, Fourier transform infrared spectrometry (FTIR), and high-resolution spatial analysis can provide more information about the nature of fire evidence in the ESA. FxJ20 AB, Koobi Fora Formation, Marsabit County, Kenya, a locality dated to 1.5 million years ago, is in proximity to FxJ20 East and Main which claim to have the earliest evidence of anthropogenic fire. Here, we document new excavations utilizing multiple lines of evidence to clarify the nature of fire at FxJ20 AB. Micromorphological analysis indicates that the archaeological material at FxJ20 AB is in primary depositional context. FTIR analysis documents that there are in situ archaeological and sedimentary samples that have been exposed to fire. Spatial analysis documents the relationship between burned specimens and human activity. This research was supported by USNSF IRES grant 1358178, DDRIG Grant # BCS-1443339, Wenner Gren Gr 8984, and SSHRC #430-2013-000546.

Hlubik, Sarah [269] see Cutts, Russell

Hockaday, William C. [115] see Goodwin, Whitney

Hockett, Bryan (Bureau of Land Management) and Evan Pellegrini (Nevada State Museum)

[69] *Continuing the Search for Pre-Clovis Aged Cutmarked Bones in the Great Basin: Recent Results*

Hockett and Jenkins (2013) suggested that two bones directly AMS dated prior to the Clovis era (ca. > 13,100 calendar years ago) recovered from the Paisley Caves, Oregon, displayed stone tool cutmarks. Since this publication, additional bones were identified as possibly exhibiting cutmarks from Paisley Cave #2. In addition, in the 1950s, Phil Orr recovered a number of burned large mammal bones from Pleistocene-aged deposits in several caves flanking the eastern margins of the Winnemucca Lake Basin, northwestern Nevada, including Fishbone Cave. Bones exhibiting possible cutmarks from both Paisley and Fishbone Caves were directly AMS dated, utilizing the same methodology described in Hockett and Jenkins (2013). The results are reported for the first time in this presentation.

Hodge, Christina [215] see Nystrom, Kenneth

Hodge, Christina (Stanford University) and Camilla Mazzucato (Stanford University)**[265]** *Visualizing with GIS at Stanford University Archaeology Collections: Open for Interpretation*

GIS-based data visualization offers a dynamic, compelling tool not only for promoting on-campus collections, but also for studying and managing these resources within frameworks of engagement, openness, and reflexivity. The Stanford University Archaeology Collections (SUAC) cares for over 30,000 archaeological and ethnographic artifacts from campus lands and around the world. These items manifest a range of complex histories and present-day significances. The collections were recently re-installed on campus in an active learning/curation space. To connect collections successfully with stakeholders, SUAC must raise awareness of its existence, accessibility, and scope. SUAC also strives to engage theoretical and ethical positions within broader practices of anthropology and heritage. To these ends, this poster uses GIS data to illustrate the composition, origins, and activities of SUAC's diverse collection. GIS also permits querying and arranging collection data according to different attributes with the opportunity to focus on singular objects or aggregates, blending qualitative and quantitative content. Thus, this technology responsively illustrates the interconnected and ever-changing nature of SUAC as a living collection, highlighting spatial/cultural components and development through time. This digital humanities project provides a useful product for SUAC outreach efforts and, for curators, managers, and users alike, reveals new insights about the collection itself.

Hodgkins, Jamie [278] see Meyer, Dominique

Hoffecker, John (INSTAAR) and Vance Holliday (University of Arizona)**[16]** *Early Upper Paleolithic Horse Hunting on the East European Plain*

Between 40,000 and 30,000 cal B.P., small herds of horses were hunted in Europe. Much of the evidence is derived from the central plain of eastern Europe, including multiple sites at Kostenki-Borshchevo on the Middle Don River (Russia) and Mira on the Lower Dnepr River (southern Ukraine). These sites contain large bone beds analogous to the bison bone beds of the Great Plains, and the analysis of their depositional context and taphonomic characteristics yields information on how horse mare-bands were killed and butchered in an open landscape during early Upper Paleolithic times.

Hoffman, Brian [124] see Taivalkoski, Ariel

Hoffmeister, Kristin (Texas A&M University) and Lori Wright (Texas A&M University)**[86]** *The Origins and Identities of the Colha Skull Pit Skeletal Remains*

The lithic production center of Colha in northern Belize provides skeletal evidence relevant to ongoing debates about the role of violence among the Maya of Central America. The Colha Skull Pit (Op. 2011) dates to the Terminal Classic Period and consists of 30 individuals, represented only by cranial remains. The skeletal remains include both males and females and range in age from children to old adults. Cranial and dental modifications are prevalent in this feature and many of the skulls exhibit cut marks. This unique mortuary deposit has been interpreted in a variety of ways, ranging from sacrifice, to a reverential, ceremonial treatment of elites and planned abandonment of the site, to the systematic, violent destruction of the ruling class. We examine the origins and identities of these individuals directly using strontium ($^{87}\text{Sr}/^{86}\text{Sr}$), carbon ($\delta^{13}\text{C}$), and oxygen ($\delta^{18}\text{O}$) isotopic ratios of human tooth enamel. We evaluate variability in diet and mobility patterns during the lifetimes of the Skull Pit individuals in order to better understand the Skull Pit feature and the cultural behavior that produced it.

Höfle, Bernhard [188] see Pattee, Aaron

Hofman, Courtney [110] see Shirazi, Sabrina

Hofman, Courtney (University of Oklahoma), Torben Rick (Smithsonian Institution), Sabrina Shirazi (Smithsonian Institution/ University of Maryland) and Jesus Maldonado (Smithsonian Institution)**[160]** *Archaeogenomics and the Mammals of California's Channel Islands*

As many recent genetic and archaeological studies have shown, humans have intentionally and unintentionally moved plants and animals around the world. The California Channel Islands provide a unique environment to explore ancient translocations due to their close proximity to the California mainland, long human occupation (~13,000 years) and limited terrestrial diversity. Here, we present our interdisciplinary approach to investigating the origins of California Channel Island terrestrial mammals integrating archaeological, isotopic, genomic, and radiometric datasets to explore the role of human agency in island biogeography. We propose a number of possibilities for why ancient peoples might have introduced these taxa.

Hofman, Corinne**[220]** *Archaic Age Voyaging, Networks and Resource Mobility Around the Caribbean Sea*

This paper builds on the idea that Caribbean Archaic Age communities were highly mobile and connected. Study of fisher-collector sites in the northeastern and southern Caribbean has shown that Archaic Age communities managed extensive subsistence/resource/activity systems, involving intra-archipelagic and mainland-island voyaging. The connectivity patterns and resource landscapes of these two regions will be discussed. We see a set of vital resources, which would remain important for later Ceramic Age communities, which guided the formation of early procurement and, by extension, social networks. For

the northern Lesser Antilles, one important node is the flint sources on Long Island (Antigua). This is well evidenced at the Plum Piece campsite in the tropical forest of Saba, which record suggest a yearly cycle of archipelagic resource mobility of which the flint sources on Long Island were a crucial part. For the southern Caribbean islands, the rich marine shell resources may have fulfilled a similar role. The *Lobatus gigas* heaps at Spanish Water Curaçao evidence intensive exploitation of shellfish and preparation potentially for transport to the mainland. Using computer models of reciprocal voyaging and archaeological network exploration, new insights are put forward into the early formation of social networks around the Caribbean Sea.

[220] Chair

Hofmann, Dani [52] see Schulting, Rick

Hogg, Alan [56] see Ghezzi, Ivan

Hoggarth, Julie (Baylor University) and Laurent Cases (The Pennsylvania State University)

[288] *Climate, Chronology, and Collapse: Comparing the Classic Maya and the Roman Empire*

Increasing literature has focused on the role of climate change in the collapse of complex societies. These studies suggest that abrupt shifts in climate can exacerbate existing political, social, and economic issues by affecting the basic subsistence systems on which populations depend. Here, we compare archaeological, historic, and climate proxy data from two state-level societies: the Classic Maya and the Roman Empire. A strong focus on the impact of multi-decadal droughts from the ninth to eleventh centuries has emerged in the investigation of the 'Classic Maya collapse.' Archaeological and historic investigations on the collapse of the Roman Empire have focused less on the climatic context for the breakdown of the expansive empire in the fourth and fifth centuries. Here, we present comparative methods to identify chronological correlations between climatic change and the breakdown of political systems. We focus on compiling multiple climate proxy records and compare these data with the available archaeological and historic record to enrich our understanding of the role of climate in the political collapse of both cases.

Holcomb, Justin [184] see Fallu, Daniel

Hollenback, Kacy L. [115] see Goodwin, Whitney

Hollesen, Jørgen (National Museum of Denmark) and Henning Matthiesen (National Museum of Denmark)

[210] *Climate Change and the Preservation of Archaeological Sites in Greenland*

Archaeological sites in Greenland represent an irreplaceable record of extraordinarily well-preserved material remains covering more than 4,000 years of human history. Out of the more than 6,000 registered sites, very few have been excavated and it is anticipated that thousands of sites are still to be discovered in the many unexplored parts of the country. However, the climate is changing rapidly in Greenland leading to accelerated degradation of the archaeological sites. Since 2009, the National Museum of Denmark and Greenland and the University of Copenhagen have been collaborating in order to obtain an improved understanding of the link between climate change and the preservation of archaeological sites in Greenland.

In this presentation, we will give examples of how permafrost thaw, coastal erosion, increased vegetation, and farming are threatening to destroy archaeological sites in Greenland. We will show the results from our decay studies where we have investigated how different organic materials respond to environmental changes. Finally, we will present our future research plans and elaborate on how we aim to develop new methods for locating sites at risk.

Holliday, Vance [16] see Hoffecker, John

Holliday, Vance (University of Arizona)

[16] *Discussant*

Hollinger, Eric (Smithsonian Institution), Edwell John Jr. (Tlingit Dakh'weidi Clan) and Robert Starbard (Hoonah Indian Association)

[266] *Repatriation Collaborations Using 3D Technology: The Smithsonian-Tlingit Experience*

Smithsonian repatriation efforts have resulted in close consultation and collaboration with tribes and Alaskan Native communities that have enabled exploration of museum resources and shared interests taking the communities and the Institution far beyond what was envisioned by most when the repatriation legislation was first enacted. In particular, the Tlingit Dakh'weidi clan and the Hoonah Indian Association have worked with the National Museum of Natural History to pilot collaborations using 3D digitization and replication of repatriated objects. In these cases, already repatriated items are digitized by the museum and in close consultation, replicated using 3D printing and milling technology. These collaborations show that the replication capabilities are not exclusive to museums and institutions and will rapidly be integrated into community cultural preservation/perpetuation programs. The replicas serve as important educational media for both the community and the museum and bring parties closer together, enhancing relationships, and understanding between the museums and tribes.

Holloway, Caitlin (University of Alaska Fairbanks)

[148] *An Archaeobotanical Analysis of the Upward Sun River Site, Central Alaska*

Vegetation and plant resources can impact forager mobility and subsistence strategies. However, misconceptions about the preservation of organics in subarctic archaeological contexts and underestimations of the importance of plant resources to foraging societies limit paleoethnobotanical research in high-latitude environments. This research addresses these issues with analyses of archaeobotanical remains found in hearth features from multiple components (approximately 13,300 through 8,000 cal B.P.) at the Upward Sun River site in the Tanana River Basin, central Alaska. Final results from macrobotanical and charcoal identification suggest the presence of several key taxa on the landscape while the site was occupied, including birch, willow,

Populus sp., and bearberry. This research contributes to our understanding of plant resource use among foraging populations and broadens our understanding of human-environment interaction in subarctic regions.

Holmes, Charles [21] see Potter, Ben

Holst, Melissa (University of Louisville) and Jonathan Haws (University of Louisville)

[146] *New Data on Late Magdalenian Lithic Technological Organization at Lapa do Picareiro*

Few Paleolithic sites in Portugal possess enough data to provide for a comprehensive analysis of Upper Paleolithic site function. However, Lapa do Picareiro, a cave site in the Estremadura region of Portugal, is exceptional in that it possesses continuous chronology and is continuing to produce high resolution data sets pertaining to site function, lithic technological organization, and subsistence. This poster compares and contrasts old and new lithic data sets from the late Magdalenian at Lapa do Picareiro. The comparison will focus particularly on changes in raw material use, tool function, and reduction sequence. This project contextualizes the observed patterns found in the lithic technological assemblage in the broader context of site function at Lapa do Picareiro during the late Magdalenian.

Holt, Emily (University at Buffalo) and Anke Marsh (University College London)

[257] *Water Management, Ritual Ideology, and Environmental Change in Bronze Age Sardinia*

The Nuragic culture of Bronze Age Sardinia (c. 1700–900 B.C.E.) is known for building thousands of monumental stone towers called nuraghi throughout the island. However, toward the end of the Bronze Age, Nuragic leaders stopped building nuraghi and instead constructed underground temples over naturally occurring springs. Previous research assumes that this architectural shift took place rapidly in the Final Bronze Age (c. 1175–1020 B.C.E.), representing a sudden rise in the importance of water ritual. Hypotheses accounting for the shift include an increase in the power of Nuragic leaders or a revolution in which religious leaders successfully challenged a military elite. The Pran'e Siddi Landscape Project, which investigates environment and society at a Nuragic settlement system in south-central Sardinia, has uncovered new evidence that water was ideologically important from the beginnings of the Nuragic culture, challenging the assumptions that underlie narratives of late Nuragic social upheaval. Recent fieldwork suggests that water ritual became increasingly linked to ideologies of power from the Middle through the Late Bronze Age. Rather than socio-political change, the developing political potency of water in the Siddi region may have been linked to hydrological changes that altered the locations of water sources and made water's availability appear unpredictable.

Holyoke, Kenneth (Stantec Consulting Ltd.), Susan Blair (Department of Anthropology, University of New Brun) and M. Gabriel Hrynick (Department of Anthropology, Bates College)

[85] *Hunter-Gatherer Watercraft during New Brunswick's Woodland Period: Social Implications*

For many hunter-gatherers, watercraft are crucial technologies for the transportation of humans and things, and may have had great social import. In this paper, we discuss ways in which hunter-gatherer watercraft may have been a key way by which people constituted, and in turn were constituted by, their interactions with interior waterways in present-day New Brunswick. We suggest that watercraft in this region may be one way to approach the complex question of pre-European identity on the Maritime Peninsula. The ethnographic record provides a rich record of watercraft use in the region and its importance to identity during that time. We draw on that record and archaeological data to posit the same for human interactions with watercraft during the Woodland Period.

Homburg, Jeffrey [180] see Ciolek-Torello, Richard

Hoogland, Menno L.P. [160] see Ziesemer, Kirsten

Hoopes, John (University of Kansas)

[178] *Absolute Chronology of the Early Formative Revisited: Bayesian Analysis, Radiocarbon Chronology, and the Emergence of Pottery in the Americas*

In 1987, the author's doctoral dissertation featured a comprehensive analysis of calibrated radiocarbon dates associated with the earliest ceramic complexes in the Americas towards a model for the emergence of sedentary lifeways. This resulted in a critical evaluation of James Ford's posthumously published model for the Early Formative diffusion of pottery as well as other cultural features in a region extending from the southeastern U.S. through Mesoamerica and the Isthmo-Colombian Area to the central Andes. This paper provides a detailed update on the current absolute chronology for initial ceramic technology in the Americas, applying revised radiocarbon date calibration standards and Bayesian statistical analysis to evaluate how three decades of additional, accumulated data have contributed to our models for the invention and diffusion of Formative ceramic technology, patterns of cultural interaction, and their relationship to emergent social complexity.

Hoover, Corey (University of Wisconsin - Milwaukee) and Thomas Hardy (University of Pennsylvania)

[206] *Food Consumption and Animal Exploitation at Minaspata, Cuzco, Peru*

Minaspata, a site located in the Cuzco Valley of the south-central Peruvian Andes, contains evidence of occupation spanning continuously from the Early Horizon through the end of the Inca Empire. In 2013, several units were excavated in order to better understand the social transformations which occurred in local populations due to colonial practices, focusing primarily on the early consolidation of the Inca heartland during the early Late Horizon (A.D. 1400–1532). Analysis of the faunal remains can shed light on the shifting patterns of food consumption, butchery, and bone tool manufacture which occurred during the various phases of occupation. The results of the securely dated faunal remains from the 2013 excavations will be presented, focusing on the changing patterns of food exploitation and increasing concentration of certain animals over time, and will be placed within a larger cultural and regional context related to the cultural trajectory of the Cuzco region from the late Early Horizon to the Late Horizon.

Hopkins, Maren [267] see Coleman, Julie

Hoppa, Kristin (University of California, Santa Barbara) and Sherri Andrews (ASM Affiliates)

[110] *Charmstones, Pendants, and other Special Objects from San Clemente Island, CA*

This poster presents information on charmstones, pendants, and other specially curated objects recovered during a recent site-recording project undertaken by ASM Affiliates for the U.S. Navy on San Clemente Island, California. I report on several rare artifacts, including four pendants (two stone and two abalone), steatite effigies, a ceramic object, and several marine mammal ear bones. These finds represent rare or previously un-recorded artifact types on San Clemente Island. I discuss the significance of these findings in relation to ethnographic and archaeological evidence from other sites on the southern Channel Islands and within coastal southern California. In particular, I examine evidence for how these artifacts may have functioned as magico-religious objects.

Horn, Sherman (Tulane University)**[288]** *Artifact Distributions, Interaction Networks, and Social Complexity: Middle Preclassic Development at Cahal Pech from a Small-World Perspective*

The temporal position of the Middle Preclassic (c. 900–350 B.C.), situated between the earliest permanent settlements and hierarchically organized Late Preclassic polities, makes it a critical period for understanding the development of complex societies in the Belize Valley and the Maya Lowlands. From 2004–2009, the Belize Valley Archaeological Project's excavations produced a trove of information on the Middle Preclassic occupation beneath Plaza B in the epicenter of Cahal Pech. Variability in platform architecture, construction sequences, caching patterns, and the consumption of local and exotic materials suggest this early community was structured in ways not easily explained by current conceptions of early ranked societies. This paper presents a synthesis of the Plaza B excavations and proposes a new model for understanding the development of complex social organization from a network perspective. Analyses of architectural investment and artifact distribution patterns suggest the Middle Preclassic inhabitants of Cahal Pech differentially participated in socioeconomic networks that integrated the early community and connected it to others within and beyond the Belize Valley. Dynamic interactions within Middle Preclassic small-world networks, which linked lowland communities within and between regions, were crucial to the development of the institutionalized hierarchy that characterized later Maya civilization.

Horn III, Sherman [237] see Howie, Linda

Horowitz, Rachel (Tulane University) and Marcello Canuto (Tulane University)**[26]** *When is Chert More Than Just Chert? Case Studies of Elite Distribution of Utilitarian Goods in Northwestern Peten, Guatemala and Western Belize*

At a basic level, the lowland Classic Maya economy was a complex web of prestige exchange, centralized distribution, and local market economies. In fact, while it is important not to consider the lowland Classic Maya economic system as monolithic, it is also as critical to understand how it articulated with the different levels of social hierarchy. Beyond this, we should also make a point of understanding the roles these specific economic systems played in the distribution of utilitarian goods among the ancient Maya.

In this paper, we will address the role of centralized distribution of utilitarian goods in the ancient Maya economy. In other words, did elites mediate resource scarcity through centralized distribution when raw materials for utilitarian goods were absent? We compare cases of differentially distributed chert resources in northwestern Peten and western Belize to understand the impact of local availability and abundance of raw materials on elites' role in resource distribution. We will address whether elites are less involved in the acquisition and distribution of utilitarian goods when raw materials are locally abundant than in cases where local raw materials are scarce.

Horton, Shannon (University of Nevada, Las Vegas) and Karen Harry (University of Nevada, Las Vegas)**[68]** *A Comparison of Ceramic Function between the Virgin Branch and Kayenta Ancestral Puebloan Cultures*

The Virgin Branch culture is the least understood of the Ancestral Puebloan branches. It is considered most similar to the Kayenta branch; however, there are significant differences between the two, particularly for the Virgin Branch settlements located in the lowland region of southern Nevada. Compared to the Kayenta people, who lived primarily in small settlements and relied on dry farming techniques, the lowland Virgin people occupied more aggregated settlements and relied on irrigation farming. In this poster, we compare data obtained from whole vessels recovered from both the lowland Virgin and Kayenta regions, to explore how these differences in settlement and subsistence patterns are reflected in the ceramic assemblages, and what the ceramic data can tell us about how these differences impacted their social organizations.

Horton, Mark (University of Bristol)**[280]** *The Hatteras Project: Late Woodland Settlement and Assimilation on the Outer Banks NC*

Hatteras Island is one of the few stable landforms on the Outer Banks of North Carolina, and archaeological survey and excavation over many years has located numerous sites particularly from the Middle and Late Woodland. Our research which commenced in 2009, and has continued annually since then, has added to this archaeological record, though a community based approach, that has enabled us to work on private property and conduct over 80 test pits and excavations. The results show that Hatteras Island had a long term and stable population, exploiting an exceptionally rich environment that was offered by the island's ecology and adjacent Sound. Most famously, Hatteras is well known for the destination of the 'Lost Colonists' of the 1587 expedition. The seventeenth–eighteenth century archaeology of the island is of particular importance in trying to understand when there was assimilation of the English colonists into this community, and whether it was able to display distinctive features through the fusion of Native American and European technologies, within an isolated community.

Hoskins, Andrew**[200]** *A Point of Order on Great Basin Projectile Typologies and Chronologies*

Archaeological sites in the Desert West are primarily open-air lithic scatters lacking organic preservation. Often, the only way these sites can be dated is via typological cross-dating using projectile points. This method of dating assumes that morphological types represent discrete and uniform time periods across large geographic areas; these time periods are based on the ages of point types at a handful of well-dated sites. Although typological cross-dating remains common, research has shown that morphologically similar points can date to very different time periods in different places. My research highlights morphological characteristics useful for distinguishing two dart point types in the eastern Great Basin (Elko and Large Side-notched), which have discrepancies in their associated age ranges across the region. Additionally, I present results from AMS radiocarbon dating organic hafting materials on dart and arrow points found across the Great Basin. These dates may be used as sub-regional reference ages for projectile types.

Houk, Brett (Texas Tech University)**[158]** *Discussant*

Hovers, Erella [22] see Leplongeon, Alice

Howard, Joshua (SUNY University at Buffalo), Caroline Funk (SUNY University at Buffalo), Debra G. Corbett (Nanutset Heritage) and Brian W. Hoffman (Hamline University)**[124]** *Bone Tools of the Rat Islands: Aleut Identity, Subsistence, and Interaction with Landscape and Seascape*

Aleut bone tools offer a unique opportunity to study Aleut identity, relational ecology, interaction with seascape, tool technology, materiality, and subsistence strategies. A study of the Rat Islands was conducted in 2003 and 2009 by the Rat Islands Research Project to examine the Aleut sites found in the area in order to better understand the subsistence strategies, use of the environment, and the importance of landscape and seascape to the Aleut culture. During this study, due to the excellent preservation of bone at the RAT-081 site, over 6,000 faunal remains were recovered including 500 bone tools. The bone tools date from 2,500 to 250 years ago and are made of fish, sea mammal, and bird species. The recovery of bone tools allows for an examination of the everyday lives of the coastal Aleut through perishable artifacts that are under most conditions lost in the archaeological record. Aleut bone tools in particular are under-represented in scholarly literature. The paper will discuss Aleut identity, use of bone tools, relational ecology, bone tool technology, seascape, human-animal interaction, Aleut role on the landscape, and subsistence strategies using the Rat Islands bone tool assemblage.

Howard, Jerry**[258]** *Changing Attitudes and Perspectives on Public Participation in Archaeology: The Case of the Southwest Archaeology Team*

In the early 1980s, the Southwest Archaeology Team was formed under what is now the Arizona Museum of Natural History. Reacting to a need for an emergency response team to preserve information from archaeological sites, not protected by state or federal regulations, but being destroyed by development. While initially considered as outsiders and non-professionals, the acceptance of the public working on archaeological excavations quickly changed. This paper focuses on the changing attitudes and perspectives on public archaeology by both the professional community and avocational archaeologists themselves. After over three decades of work, both the strengths and weaknesses of this experiment in public archaeology are examined.

Howe, David**[200]** *Projectile Dysfunction*

There is an undeniable trend of a gradual decrease in projectile point size over time. About 1,000 years ago, these points significantly change in size. Most archaeologists today posit that this sudden change has to do with the invention or adoption of the bow and arrow; however, without a large sample of preserved wooden bows, arrows, or darts, there is no way to say for certain that this notion is correct. Via a controlled archery experiment, projectile point performance and function will be tested in order to determine if there is a variable threshold at which large projectile points are no longer functional when fired from a bow, or small projectile points are no longer functional when thrown from an atlatl. Or simply: is there a specific point size or weight that can tell us the difference between these point types? Through use of a crossbow, arrows, high-speed cameras, and ballistics gel targets, these performance characteristics were tested.

Howey, Meghan (University of New Hampshire)**[174]** *GIS Let Me See It: Building More Robust Models of Past Movement with Geospatial Modeling*

Geospatial technologies allow archaeologists to study past social processes at a spatial scale previously unimaginable. Here, I ask how we may realize more fully the potential created by this fact, namely that these tools let us ask questions we have never asked, nor could think of asking, before we had access to them. I explore this by focusing on one area of study with a notable amount of untapped potential: movement. Archaeologists recover material items which show people moved themselves, their goods, and even other people, constantly and over tremendous distances in the past. Archaeologists have well-developed methodological and theoretical approaches for examining the static material phenomena resulting from movement. However, geospatial technologies present us new opportunities to model movement not just based on its static remains but in its dynamic context. I propose a combination of circuit-based modeling and least cost path analysis as a means of creating a broadly adaptable analytic framework that allows for more robust modeling of movement by accounting for its duality, for both its intension and extension, within past landscapes. I illustrate this analytic approach using one case study, Late Precontact (ca. A.D. 1200–1600) earthen enclosures in the Great Lakes.

[174] *Chair*

Howie, Linda [90] see Striker, Sarah

Howie, Linda (The University of Western Ontario), Sheldon Skaggs (Bronx Community College), Terry Powis (Kennesaw State University) and Sherman Horn III (Tulane University)**[237]** *Greenstone from Where? Petrographic and Microprobe Analyses of Greenstone Triangulates from Middle Preclassic Pacbitun, Belize*

Artifacts made from green-colored rocks, including but not limited to jadeites, circulated widely in Mesoamerica during the Middle Preclassic (c. 900–350) and were imbued with cosmological significance and social value from early times. "Greenstone triangulates" form a distinct subset of these artifacts that have only been recovered from Middle Preclassic settlements in the Belize Valley. These roughly triangular objects are typically made from green-colored rocks that are visibly differentiable from jadeites and are thought to originate outside the Belize Valley. Jadeite sourcing studies have identified geologic deposits of green-colored stones in the Motagua Valley of Guatemala, and non-jadeite green-stone artifacts from the Maya Lowlands are often presumed to derive from this area, although few studies have focused on accurately characterizing these materials through microscopic and/or geochemical analysis. This poster presents preliminary results from a study of eight greenstone triangulates from Pacbitun, Belize, which combined petrographic and electron microprobe analyses to characterize the rocks they were made from. Accurate identification of rock types was used to investigate potential sources for the triangulate materials through comparison with published geological studies. The results of this study suggest that green-colored stones circulated widely across Mesoamerica through complex networks of interaction and exchange.

Hranicky, Jack [274] see Hranicky, William

Hranicky, William and Jack Hranicky (Virginia Rockart Survey)**[274]** *Portable Rockart in Late Pleistocene Virginia*

This illustrated paper presents an overview of moveable artforms from the late Pleistocene era of Virginia. While fixed rockart is the major form in analytical archaeology, portable rockart is also found. This paper includes stone and clay objects that represent effigies and abstract forms. These artifacts are a survey of the several hundred recorded specimens, such as an ivory vulture head, camel image, numerous other animal forms, as well as geometric forms, and engraved and incised pieces. Several illustrated objects have excavated contexts. These artifacts can be classified as monochromatic, single object or focus, realistic/abstract forms, and portraying animalistic forms. Several illustrated specimens have ochre or bitumen coating on them. The most impressive specimen discussed is what is called the Baby Mammoth of Clarke County, Virginia.

Hristova, Lidia [63] see Hamilton-Brehm, Scott

Hruby, Zachary (Northern Kentucky University)**[212]** *When the Cat's Away: Obsidian at Rio Amarillo Before and After the Collapse of Copan, Honduras*

The architecturally diminutive, but economically robust, Classic Maya polity of Copan must have had an integral role in the production and exchange of Ixtepeque goods; perhaps even control of portions of the source itself. Indeed, after the collapse of the Copan state, Ixtepeque becomes one of the most heavily traded obsidians in the Maya world. This proverbial opening of the floodgates suggests that Copan used Ixtepeque materials primarily for local and regional exchanges, increasing its value interregionally by fixing supply. Recent obsidian analysis at Rio Amarillo, a major subsidiary site of Copan, reveals how smaller local players continued to use Ixtepeque obsidian after the collapse and integrate themselves in the burgeoning international coastal trade in the Terminal and likely the Early Postclassic periods.

Hrynck, M. Gabriel [85] see Holyoke, Kenneth

Hsieh, Ellen (Cotsen Institute of Archaeology, UCLA)**[106]** *The Chinese Trade Diasporas in Spanish Manila*

The Chinese has conducted trading activities with people who live in the Manila area before the Spanish arrived in 1571. However, the establishment of the Spanish Manila changed the regional networks and attracted much more Chinese merchants and immigrants. The Spanish colonists assigned them to live in a separated area called "Parián," which became the oldest Chinatown in world history. In this paper, the author will use the concept of trade diaspora to examine the early history of Parián. The paper will discuss how Parián and the overseas Chinese in the Philippines have been discussed by different agents and how archaeological evidences can shed light on these discussions. The author argues that although Chinese trade diasporas in southeast Asia are usually considered as the same category in relating discussions, it is necessary to contextualize each case study.

Huang, Yongsong (Brown University), James Dillon (Brown University), Samantha Lash (Brown University) and Kevin Smith (Brown University)**[217]** *Taking the Temperature of the Arctic Past: Extracting Temperature and Precipitation Information from Bacterial Lipids Deposited in Faunal Remains from Cape Krusenstern, Alaska*

Throughout his career, J. Louis Giddings explored the roles of climate on maritime and terrestrial resources and human ingenuity in adapting technologies and social strategies to exploit those resources under changing conditions. At Cape Krusenstern, Alaska, Giddings' teams identified sequential occupations based on changing maritime adaptations but had no analytical tools for directly inferring key climatic parameters during periods of the Cape's occupation. Recently, our research group discovered that a widely used class of climate-sensitive bacterial lipid compounds—glycerol dialkyl glycerol tetraethers (GDGTs)—is well preserved in ancient bones. Research has demonstrated that these bacteria-derived GDGTs faithfully record mean annual air temperature (MAAT), soil pH, and, in relatively dry regions, precipitation. Direct reconstruction of climate conditions from archaeological materials, in this case non-human biological samples, with age control provided by archaeological contexts, has the potential to allow direct inference of key climatic and environmental parameters at the time individual sites were occupied, conditions to which those sites' occupants were adapting, and changes through time. This paper examines current research on bone-derived GDGTs using archived faunal collections from Giddings' excavations of Ipiutak through late prehistoric Inupiat settlements at Cape Krusenstern to reconstruct changing climate conditions at the time of those occupations.

Hubbard, Eric (College of Wooster), Olivia Navarro-Farr (College of Wooster) and Aaron Burke (University of California, Los Angeles)**[184]** *Empire and Rebellion: Egyptian Imperialism and Insurgency in the Late Bronze Age Levant*

The wide-ranging research focused on the turbulence of the Late Bronze Age in the Mediterranean and the Levant has not yet yielded a unified narrative of how this period was experienced across the region. While some sites exhibit no sign of the infamous collapse or 'crisis,' many others exhibit rapid abandonment or destruction layers. The narrative surrounding these destructions tends to be viewed as relating to either the imperial Egyptian invasion, Israel's rising kingdom, or all manner of so-named 'Sea Peoples.' This macro-causal approach leaves fewer considerations of micro-scale incidents of local resistance/agency. Recent evidence from a New Kingdom outpost in Jaffa (Tel Yafo), excavated by the Jaffa Cultural Heritage Project (JCHP), sheds light on just such a possibility. Specifically, evidence suggests a local Canaanite resistance against Egyptian domination. In this poster, I reconsider a number of Late Bronze Age New Kingdom outposts (e.g., Beit She'an) to better gauge the intensity of Egyptian influence in the Levant and to posit the probability of local efforts to collectively resist.

Hubbe, Mark [207] see Kuzminsky, Susan

Hubert, Erell, Patrick R. Williams (The Field Museum), Lauren Monz (Northwestern University) and M. Elizabeth Grávalos (University of Illinois at Chicago)**[219]** *Ritual Practices and the Negotiation of Wari-Tiwanaku Relations at Cerro Baúl*

The presence of both Wari and Tiwanaku colonies in the Moquegua Valley (southern Peru) offers a unique opportunity to study the colonial strategies of these empires and their interactions during the first millennium A.D. Here, we more specifically explore the role of ritual practices in mediating relations between the Wari and Tiwanaku empires. We focus on a Titicaca basin inspired platform and court complex located outside of the main Wari administrative

sector of the site of Cerro Baúl, denominated Temple of Arundane. This sector, most likely devoted to religious activities, appears to be the only purely Tiwanaku context within the site. We argue that the presence of this Tiwanaku ritual complex within such an important Wari colony contributed to establishing social ties among Wari and Tiwanaku representatives and may have helped negotiate relations among various socio-political groups in this frontier area. Wari colonial strategies therefore appear to have included the incorporation of elite diversity through the coexistence of various ritual practices in particular places in the landscape.

Hubert, Erell [219] see Grávalos, M. Elizabeth

Huckell, Bruce (University of New Mexico), Timothy Rowe (Dept. of Geological Sciences, University of Texas-), Leslie McFadden (Dept. of Earth and Planetary Sciences, University), Grant Meyer (Dept. of Earth and Planetary Sciences, University) and Christopher Merriman (Dept. of Anthropology, University of New Mexico)

[65] *The Hartley Mammoth, North-Central New Mexico*

A scatter of large mammal bone scrap along a shallow rill led to discovery of the Hartley Mammoth site in north-central New Mexico. Informal testing revealed a shallowly buried partial skull and a group of three rib fragments some 2 m apart. On the surface 9 m away was a small, impact-damaged Clovis point, suggesting the possibility that the mammoth had been the victim of Clovis predation. Excavations in 2015 revealed the remains of a juvenile mammoth, consisting of rib fragments, portions of the skull (including both tusks), part of the pelvis, vertebral fragments, and abundant bone scrap. The remains are contained within a remnant of a buried ephemeral stream channel, perched on an elongated slump block of Triassic sedimentary rock, 20 m below the broad Piedra Lumbre basin surface and 60 m above the Rio Puerco, a tributary of the Rio Chama. The matrix is fine sediment and at least one debris-flow deposit. Although no stone artifacts were found, more than a dozen mammoth bone "flakes" were recovered. The "flakes" are generally large and most appear to have been detached from limb bones. Studies of these specimens, the mammoth remains, plus taphonomic, chronometric, and paleoenvironmental analyses, are on-going.

Huckert, Chantal (Universidad Veracruzana)

[241] *Representaciones de la Muerte y del Sacrificio en las Figurillas del Centro de Veracruz*

Con base a la cerámica que resguarda el Museo de Antropología de Xalapa, correspondiente a las culturas del Golfo en el Clásico Tardío, se propone una lectura iconográfica sobre la representación de la muerte asociada al sacrificio.

La muestra de piezas se caracteriza por estar constituida por cuerpos completos y fragmentados, además de cabezas que son una unidad en sí, y tuvieron probablemente la función de cabeza trofeo.

Se reconocen dos complejos iconográficos que configuran una narrativa visual en torno a la muerte y las maneras sacrificiales que caracterizan manifestaciones divinas.

El primer complejo es identificado por tener los ojos cerrados, sean piezas en bulto, o representaciones en bajo relieve en la vestimenta; ilustran la muerte y la sangre preciosa. El segundo da cuenta de piezas con rasgos diagnósticos que denotan el desollamiento, entre éstos los párpados caídos y la boca abierta, propios del culto a un "dios desollado", antecedente de Xipe Tótec del Posclásico.

La presentación constituye un avance del estudio iconográfico de las figurillas cerámicas del Golfo, en el MAX. Con ello se comprobará la continuidad temática

que impera en su imaginaria, apreciando e identificando la singularidad y la generalidad de sus expresiones, en un marco mesoamericano.

Huddelstan, Stephanie [124] see Marshall, Amanda

Hudson, Kathryn (University at Buffalo) and John Henderson (Cornell University)

[47] *Gesture, Identity, and Meaning in Southeastern Mesoamerica*

Hand imagery carried conventionalized meanings across ancient Mesoamerica and represented an embodied semantics that was central to ancient constructions of meaning. Precolumbian ceramic imagery from northwestern Honduras reflects of this generalization and features a set of highly stylized compositions that conveyed an array of specific meanings. Figures and, by extension, the gestures made by them feature prominently in this corpus, but little attention has been paid to how these motifs function vis-à-vis broader constructions of meaning. This paper considers the place of hand forms and gestures within the imagery of the region's cultural traditions and examines the range of contexts—both corporeal and extra-corporeal—in which they occurred. Particular attention will be given to the range of gestures attested within ceramic compositions from within and around the Ulúa Valley, and to how these forms function as independent constituents that contribute to the construction and extraction of compositional meaning. Similarities with the ways that hands were treated in other Mesoamerican traditions of graphic representation, both local and foreign, will also be considered in terms of their implications for cultural interaction.

Hudson, Jean (U Wisconsin- Milwaukee)

[244] *Impacts of Behavioral Contexts on Intrasite Zooarchaeological Sampling*

Intrasite spatial analysis is nothing new, however, its application to zooarchaeological remains continues to be relatively rare. A critical aspect of any archaeological analysis is an understanding of where our samples come from in terms of human behavioral contexts. Animal remains end up in many places—where daily meals are prepared and eaten, where trash is dumped, where tools and ornaments are made and used, where special events bring people together, where sacrifices and offerings are placed. How often, when the site is the desired analytic unit, are various constituent behavioral contexts collapsed? How does this merging of contexts impact interpretation? Two case studies are evaluated. In the process some of the common assumptions about critical variables of "trash rules" are reviewed.

[244] *Chair*

Huertas Sánchez, Geraldine

[151] *¿Quiénes son los Huarco? Análisis de la cerámica tardía del valle de Cañete*

Según los relatos etnohistóricos, los incas tras una ardua lucha de 4 años aproximadamente, dominaron al fuerte señorío Huarco, consolidando su poder con la construcción de una fortaleza. Otras fuentes hablan de Huarco como un señorío menos independiente, que integraba una confederación política conformada por los diversos grupos de la costa central que fueron conquistados.

En el presente trabajo, analizaremos la cerámica recuperada por el Proyecto Qhapaq Ñan, en el sitio conocido como “El Huarco,” ubicado en el valle de Cañete, Lima. Caracterizaremos la sociedad local ocupante, antes y durante la conquista Inca, con el fin de evaluar hasta qué punto la cultura material nos muestra una sociedad fuertemente centralizada o un grupo de limitada independencia y relaciones fuertes con sus vecinos. Nuestro estudio morfofuncional inicial, así como la revisión del material publicado, nos permiten plantear de manera inicial una ocupación tardía de dos estilos foráneos, característicos de las sociedades próximas al sur y al norte, Chíncha e Ychsma, respectivamente, y pocos tuestos que podríamos caracterizar como locales. Estos estilos aparecen interactuando en los mismos contextos, sugiriendo una imagen de fuertes interacciones regionales, más que el de una sociedad cerrada.

Huff, Jenn [252] see Lape, Peter

Huff Mikiten, Alita [7] see Harding, Gregg

Huffer, Donelle

[65] *An Assessment of Archaeological Bison Remains in the American Southwest and the Wildlife Management Implications for the Grand Canyon National Park Bison Herd*

The historically introduced House Rock Valley bison herd in northern Arizona has, in recent years, migrated from the eastern Arizona Strip onto the Kaibab Plateau within Grand Canyon National Park. Bison are considered a nonnative species to the southern Colorado Plateau, and the animals adversely impact sensitive ecosystems prompting National Park Service wildlife managers to pursue their removal. Archaeofaunal evidence of bison in the Grand Canyon and neighboring regions, however, raises concern that bison may in fact be a native species. Yet this evidence had never been assessed within a zooarchaeological interpretive framework, which is critical since mere presence/absence lists of bison remains do not address the potentially complex cultural processes involved in the formation of archaeofaunal assemblages. When evaluated through inter-assemblage comparisons, a dramatic decline in relative abundance and skeletal completeness correlated to distance from traditionally understood historical bison distribution is apparent. Although the archaeofaunal evidence does not rule out the possibility that bison were present in the southwest, it does suggest that the species likely entered the region only rarely as small, dispersed herds, which is corroborated in historic manuscripts and ethnohistoric accounts.

Huffman, Thomas (University of the Witwatersrand) and Frank Lee Earley (University of the Witwatersrand)

[123] *Upper Republican and Apishapa Interaction on the High Plains*

On the High Plains of North America, geographical separation and cultural isolation were not the same phenomena. Upper Republican and Apishapa archaeological units, for example, represented separate ethno-linguistic groups, but they were not isolated. Apishapa pottery at the Wallace site (Upper Republican) and Upper Republican pottery at Cramer (Apishapa) demonstrate reciprocal interaction. We argue that the calumet ceremony facilitated this interaction, rather than residential mobility. Furthermore, the calumet network provided a foundation for multicultural residences in settlements such as Cramer that served both defensive and economic purposes. Among other things, multi-colored lithics, Black Forest silicified wood, and Upper Republican-derived Barnes pottery mark summer (Barnes) and winter (Buick) hunting camps attached to semi-permanent residences in the Arkansas River Valley.

Huggins, Kathleen (University of California, Berkeley), Paul Goldstein (University of California, San Diego) and Matthew Sitek (University of California, San Diego)

[255] *Looking for Invisible Makers Marks: The Distribution of Formative Period Sherds in Adobes at the Omo M10A Tiwanaku Temple*

This paper expands on previous work which concluded that the Omo M10A Tiwanaku temple in Moquegua, Peru, was constructed using, in some amount, adobes containing cultural materials from antecedent Huaracane populations. Exploring this data further may reveal social and ecological conditions during construction of the Tiwanaku temple at Omo M10A. Analyses will include spatial distribution of Huaracane sherds within architectural collapse, and associating these architectural collapse areas with discrete architectural features and areas. Using this evidence, we now test two working hypotheses: whether sherd inclusions indicate a preference in raw material source, possibly indicative of differential labor groups at the temple structure, or whether sherd inclusions are merely an inadvertent inclusion during adobe processing.

Hughes, Daniel

[253] *Circulating Ceramics in the Eighteenth Century*

The purpose of this paper is to examine our ability to model trade connections through the use of ceramics and quantitative methods. Ceramic collections from various eighteenth Caribbean sites will be examined through a statistical model for inter-island trade. I shall argue that consumptive patterns are knowable and testable through the archaeological record. Finally, the connections developed from the importation of various goods, such as ceramics, provide opportunities to test ideas about contested peripheries which can be seen by a means of historical data and statistical inference to understand the past relationship between global events and local acts of consumption within the Caribbean.

Hull, Kerry (Brigham Young University)

[86] *The Smoking of Bones: An Ethnographic Examination of the Maya's Use of Tobacco and Tobacco Substitutes*

Epigraphic studies have confirmed what Classic Period iconography has long shown—the Ancient Maya cultivated and smoked tobacco. Ethnographic studies among various Maya groups have brought to light a wide range of uses for tobacco, from pleasure, to healing, to witchcraft. In this paper, I will address several lesser discussed topics related to tobacco. First, I will discuss ethnographic data relating to the use of other plants that are mixed with tobacco to alter its effects or tastes. Second, I investigate tobacco substitute plants that were or are smoked by different Maya groups in place of tobacco and trace the ritual or practical motivations for each. In addition, drawing upon my own fieldwork with the Ch'orti' Maya, I detail the ritual smoking of a peculiar non-plant substance: human bones. I described this rare ritual and contextualize the practice by offering evidence for a Classic Period antecedent to this rite. Thus, I argue that while the importance of *Nicotiana tabacum* is clear among the ancient Maya, substitute materials may also have been used on specific occasions.

Hulme-Beaman, Arden [176] see Linderholm, Anna

Hulse, Eva (Archaeological Investigations Northwest), John L. Fagan (Archaeological Investigations Northwest) and Jason Cowan (Archaeological Investigations Northwest)**[155]** *Settlement and the Environment in the Northwestern Great Basin*

The Holocene in the northwest Great Basin is characterized by episodes of severe drought punctuated by abundant rainfall. Prehistoric people settled widely across the area against this variable ecological backdrop. Excavations for the Ruby Pipeline project have produced a wealth of data on prehistoric settlement patterns and chronologies in the northwestern Great Basin. In this paper, multiple lines of evidence are used to reconstruct chronologies of occupation that have been obscured by post-depositional erosion and bioturbation.

Hulse, Eva [243] see Norton, Holly

Hulse, Brannon [111] see West, Frankie

Hundman, Brittany (Georgia State), Nicola Sharratt (Georgia State University) and Beth Turner (Georgia State University)**[204]** *Eating in Transition: Diet at Cerro Del Oro*

Subsistence practices during the transition from Early Intermediate Period (200 B.C.–A.D. 600) to the Middle Horizon Period (A.D. 600–A.D. 1000) are crucial to understanding prehispanic life on the southern coast of Peru. As the Nasca polity waned and the Wari state began to expand, life in the coastal valleys was changing. Through bioarchaeological reconstruction of diet and health at the site of Cerro Del Oro, in the Canete Valley, the effects of demographic and subsistence changes can be examined. This poster presents osteological and isotopic data from a cemetery sample (N=58) from the site. Excavated in 1926 by Alfred Kroeber, the Cerro Del Oro material has been unstudied at the Field Museum for almost 90 years. Carbon and oxygen isotopic values from tooth enamel are compared to bone carbonate values to reconstruct diet through the lifetime of each individual. This, in combination with carbon and nitrogen from bone collagen, provide data on dietary variability. Preliminary results indicate variation in dietary composition; possibly linked to the transition between political influences.

Hundman, Brittany [219] see Gadison, Davette

Hung, Ling-yu (Indiana University)**[106]** *A GIS-Investigation of the Yangshan Cemetery, Qinghai, NW China*

This paper focuses on the use of GIS (geographic information systems) to examine mortuary practice in the Yangshan cemetery (ca. 4300–4000 B.P.), Qinghai Province, northwestern China. The abundant graves unearthed in the Yangshan cemetery are valuable sources for investigating local social and economic organization. However, mortuary practice at Yangshan appears to be complicated, including graves containing single or multiple individuals, individuals deposited in extended or flexed position, burials furnished with different types of grave goods, and etc. GIS provides a powerful tool to investigate spatial and statistic relationships between graves with these different variables. This study reveals new knowledge of late Neolithic communities in northwestern China.

Hunt, Ryan (Rhodes College), Jon Russ (Rhodes College) and Stephen Carmody**[6]** *Residue Analysis of Archaeological Smoking Pipes from the Southeastern US*

Chemical analyses of organic residues from smoking pipes excavated from archaeological sites in the southeastern United States provide insight into ritualistic smoking traditions of indigenous peoples. This study examined residues scraped from pipes and pipe sherds in collections at the Fernbank Museum of Natural History in Atlanta, Georgia, and the McClung Museum of Natural History and Culture in Knoxville, Tennessee. One of the primary goals was to determine whether nicotine was present in the residue, thereby expanding our knowledge of when and where tobacco was first used in the southeast. For the analyses, residues were extracted by ultrasonication of the samples in methanol/chloroform. An aliquot of the extracts were analyzed directly using GC-MS and GC-FID; another aliquot was derivatized using BSFTA with 1 percent TMCS and also analyzed using GC-MS and GC-FID. While nicotine was present in only two of the residues studied, the results suggest a complex and diverse tradition in which smoking pipes were used to smoke a wide array of natural materials.

Hunt, Alice (University of Georgia)**[14]** *Ceramic Classification and Social Process*

Sir Flinders Petrie revolutionized archaeological ceramic analysis in 1904 by developing 'sequence dating'—the relative dating of strata, buildings, or tombs based on changes in formal and stylistic attributes of vessels overtime as determined by seriation. Since the efficacy of sequence dating is directly related to the quality of the typology upon which it is based, stylistic typologies and classification of ceramic have been the norm for the last century, despite their manifold limitations. In an age of readily available, high-resolution direct dating methods, there is no need for seriation dating or stylistic ceramic classification. Instead, ceramic analysis can begin to look at deeper social processes and behaviors, such as resource management, social values, and technological innovation. In this paper, we propose a morphometric, formal classification of ceramic vessels from the recent excavations at Tierras Nuevas (Manatí, Puerto Rico) to revise previous stylistic classifications and reveal human motivations and social processes at work during the Late Ostionoid/Taino Period.

Hunt, Terry [296] see DiNapoli, Robert

Hunter, Raymond and Steve Kosiba (University of Alabama)**[174]** *Politics of Property: A GIS Analysis of the Shifting Value of Agricultural Land in Colonial Cusco*

Recent GIS studies of colonialism combine archival and archaeological data to understand and map changes in political economy, such as settlement patterns, land use, and population aggregations. Such studies often overlook how colonial politics centered on the transformation of value—the social significance of the things and resources that constituted social life. This paper develops a GIS method to document shifts in land value in the Inca imperial capital (Cusco, Peru), during the long process of Spanish colonization (ca. 1533–1650). The paper develops a range of GIS methods to analyze the

historical ecology of Colonial Cusco, by analyzing where the Incas developed agricultural lands, then identifying the lands that were subjects of early Colonial litigation between indigenous people, Incas, and Spaniards. The paper builds on this foundation to consider how shifts from maize to wheat production corresponded to changes in the social value of land, and discusses how changes in field types, soils, labor requirements, and agricultural-ritual institutions structured how Andean people experienced and contested Spanish Colonialism. The paper adds to our anthropological understanding of colonialism, focusing less on political domination and more on how different social actors negotiated the regimes of value of a colonial project.

Huntington, Yumi (Jackson State University)

[31] *Lost in Translation in the Formative Period: The Iconography of a Bear from the Formative Period Ceramics*

Throughout ancient Andean culture, animals and their attributes have been depicted in objects of material culture associated with religious ceremonies, political authority, and social status. So far, scholars have focused on only a few types of animals, including felines, serpents, caimans, and eagles, for their significant roles in Andean cosmology and society. One important animal has largely been neglected: the bear, which is actually a major species in the Andean habitat, and which also appears as the main protagonist of the ukuku (bear-man) story.

Despite such importance, the identification and interpretation of bear iconography in early Andean objects has been overlooked. In this article, I identify two ceramic vessels from the Cupisnique and Viru regions as portraying bear iconography and interpret their symbolism. Contextualizing these objects in history, I argue that the role of the bear, understood as ukuku, was important during the formative period but diminished with the onset of the Moche period.

Huntley, Deborah [267] see Koons, Michele

Hunt-Watts, Holly (University of Leeds)

[25] *Children of the Revolution: The Rise of Rickets in Urban Societies in 19th-Century England*

In the late eighteenth- to early nineteenth-century England, the impact of the Industrial Revolution on health was experienced by both manufacturers and workers alike, as it both changed the roles played by workers and the environment of urban living. Many of these workers would have been children, often as young as 9 years old, who found employment in factories to supplement the family income. The impact of industrialisation on the nutritional health of adults has been found in evidence such as shrinking physical statures and increases in obesity. This paper aims to explore the impact of industrialisation on the nutritional health of children during this period.

Using collections from urban sites across England, this paper will focus on skeletal indicators of nutritional health to identify the prevalence of rickets and other nutrient deficiencies during this industrial transition. It will explore the impact of various factors on childhood health, such as socio-economic status and geographical location, to create a picture of life for the nineteenth-century child.

Hurcombe, Linda (University of Exeter, UK)

[254] *Experimental Archaeology and Perishable Material Culture: Using Traditional Museums and Open Air Museums to Investigate the Missing Majority*

In living contexts, the majority of material culture is formed from organic materials, but on most archaeological sites only the inorganic elements are preserved. The perishable material culture thus forms the 'missing majority'. The fragmentary records and fragmentary remains of perishable material culture stored in museums can offer new ways of understanding artefacts made from organic materials. A mosaic approach has been used to offer new interpretations of artefacts using original museum records, published accounts and drawings from the 1800s onwards for artefacts which have not survived, augmented by rare extant fragments of types of cordage, containers, and fabrics from prehistory and informed by ethnographic data. The research has explored the use of crafted replicas and digital 3D prints to better understand and present the ancient museum objects, but it has also looked at the processes and contexts involved in manufacture and use. Experimental archaeology projects within 10 open air museums have been undertaken as part of the OpenArch European Union project. The results show how an integrated approach can benefit both the archaeological interpretations of rare perishable artefacts, and the public appreciation of perishable materials.

[214] *Discussant*

Hurst, Heather (Skidmore College)

[230] *Sketching in the Shadows: Re-illustration of the Olmec Paintings of Oxtotitlán, Mexico*

Re-illustration of the well-known cave paintings at Oxtotitlán, Guerrero, Mexico has revealed important new iconographic details. The use of multispectral imaging, as well as direct observation following recent conservation work, contributed to re-visioning the artworks with increased clarity and accuracy to the originals. This paper will present new renderings of the Olmec-Period paintings and summarize observations on artistic practice and iconographic significance that resulted from this project.

[15] *Discussant*

Hurst, Stance (Museum of Texas Tech University)

[16] *Hunter-Gatherer Occupations at San Jon Site, Eastern New Mexico*

One of the hallmarks of Eileen Johnson's career was the establishment of long-term field research projects. Outcomes of this work include high quality datasets, and the development and fermentation of research ideas that can only occur from returning to the same localities year after year. The Lubbock Lake Landmark's regional research at the San Jon site (LA 6437) is an example of one of these projects. The San Jon site is located along the northwestern margin of the Southern High Plains of eastern New Mexico and associated with an extinct playa. San Jon is principally known as a Paleoindian site based on Frank C. Hibben and Frank H.H. Roberts, Jr.'s excavations in the 1940s. San Jon was a persistent place, however, occupied for most of prehistory. Over a decade of fieldwork, led by Dr. Johnson, has produced a sequence of lithic assemblages that span the prehistoric period. A lithic technological analysis from a landscape perspective examines the changing role of San Jon within hunter-gatherer landscape-use strategies across the southern High Plains. Results of this work demonstrate the importance of datasets and research produced from long-term projects.

Hurtubise, Jenna (University of Alabama), Haagen Klaus (George Mason University), José Pinilla (Museo Nacional Sicán, Peru) and Carlos Elera (Museo Nacional Sicán, Peru)

[207] *Social Identity and Mass Sacrifice: An Investigation at Matrix 101, a Late Middle Sicán Funerary Context*

We examine the social identity of the individuals buried at a Late Middle Sicán (A.D. 1050–1120) mass grave designated Matrix 101, located in the Sicán Religious-Funerary Precinct in the La Leche Valley, north coast of Peru. Our objectives are threefold: (1) to understand the social identities of the individuals, (2) to examine the complex mortuary practices that took place during the construction of the burial, and (3) to infer sociopolitical reasons for the construction of Matrix 101 and to see how they might relate to the Sicán political-religious collapse.

Body positions, grave goods, and present frequencies of biological stress allow for social identity of the deceased to be assessed. Due to the large scale of the mortuary context and apparent deliberate skeletal manipulation, preliminary research points to the special nature of Matrix 101. We hypothesize that Matrix 101 represents a mass grave that was constructed in three closely timed events surrounding an El Niño ca. A.D. 1050. We argue that the presence of burial manipulation, specific body positions, and evidence of sharp force trauma provide evidence of ritual killing. We suggest that these individuals represent Sicán elite whose identities were transformed into sacred objects during a crisis ritual.

Huson, Daniel H. [223] see Bos, Kirsten

Hussey, R (University of Florida)

[224] *Dungeons and Virtual Tours: Preserving the Mazmorras of Tetouan, Morocco*

New and economical methods of digital preservation have enabled archaeologists to both protect and increase public access to threatened heritage sites. Recent plans to rehabilitate a long sealed but structurally threatened subterranean dungeon associated with Christian slavery, The Mazmorras of Tetouan, Morocco, provided an ideal location to integrate cost-effective methods of digital preservation with municipal restoration proposals. The creation of an online virtual tour with moderately priced photographic hardware and open-source software was crucial in the creation of trust-building collaborative heritage planning for an extremely restricted historical site. The creation of an online and easily accessible virtual tour digitally preserved the dungeon's appearance preceding any restorative work. These online virtual tours were essential in transcending difficult language barriers to create a collaborative heritage management plan to work with Moroccan restoration proposals.

Huster, Angela (Arizona State University)

[237] *By Themselves They Celebrated His Feast Day: Regional Variation in Postclassic Central Mexican Domestic Ritual*

This poster examines the variation in domestic ritual practices in Postclassic central Mexico, using data from the Basin of Mexico, the Toluca Valley, and Morelos. I use cluster analysis to identify patterning in censer and figurine use, based on the functional attributes of these artifact classes (use mechanics for censers, subject matter for figurines). These clusters are then compared spatially and temporally to identify patterns based on ethnicity and the expansion of the Aztec Empire. The results show a potential division in ritual practices between primarily Nahua and primarily Oto-Pamean subregions, as well as an expansion of the Nahua pattern during the Late Postclassic.

Hutchinson, Dale [286] see Magoon, Dane

Hutson, Scott (University of Kentucky)

[26] *Understanding Variability in Distribution and Consumption in Low-Wealth Households from the Classic period*

This paper explores data on consumption of durable goods in Classic Period domestic contexts both in cities (Chunchucmil, Tikal) and rural areas (Ceren, hinterlands of Izamal and Copan). The goal is to document variation in distribution systems across the lowlands. Though some of this variation may be due to the intensity of market systems, other variation may be due to the wealth and resourcefulness of individual households and some due to long-term trends in economic prosperity throughout the Maya area.

[135] *Discussant*

Huxhold, Wayne [266] see Sievert, April

Hyde, David M. [93] see Kelley, Krystle

Hyde, David M. (Western State Colorado University) and Nadine Gray (GWR Heritage Consulting Ltd)

[93] *Form and Function of a Dual-Chambered Chultun at the Medicinal Trail Community, Northwestern Belize*

The chultun from Group H at the Medicinal Trail Community in northwestern Belize was an unsealed, dual chambered feature filled with lithic debitage and sparse ceramic evidence. The chultun was located on the southern side of the dual level Structure H-1. The chambers had domed roofs and walls with a sill leading into the largest chamber, the western chamber. The eastern chamber was small and was more of a niche than a chamber to be entered. Although storage is suggested by the small size of this chamber and the ability to seal the entrance, no storage vessels were recovered. This poster will compare the Medicinal Trail chultun to others in the Three Rivers Region as well to morphologically similar chultuns outside the region in order to elucidate its possible function.

Hyde, David (UC Berkeley)

[251] *Stories Past and Present: Archaeology, Lore, and Community at von Pfister's General Store, Benicia, California*

The story of the start of the California Gold Rush by the announcement of the discovery at von Pfister's General Store in Benicia, California, lives large in the contemporary community's collective memory. Archaeological excavations and historical research at von Pfister's has shed light on daily life at the general store and has served to historically and socially contextualize the popular story. This paper explores the origins of the story and the ways the narrative has shaped a larger community identity based heavily in its historical relevance to local and state development. Also explored are the ways in which local historic preservation efforts at the von Pfister site have been mobilized to draw attention to local traditions and challenge rapid Bay Area development.

Hyziak, Alyssa (Indiana University of Pennsylvania)

[90] *Life on the Conemaugh: Spatial Analysis of Artifact Densities of the Monongahela Tradition at the Johnston Site (36In2) in Southwestern Pennsylvania*

The Johnston site (36In2) is associated with the Johnston Phase of the Monongahela tradition during the Late Prehistoric Period in southwestern Pennsylvania. Located on the Conemaugh River floodplain in Blairsville, Pennsylvania, this large village site was excavated both in the 1950s by the Carnegie Museum and more recently by Indiana University of Pennsylvania, and is one of the largest known Monongahela sites. This project aimed to describe the artifact densities for this site to interpret the different types of activities that were conducted at various parts of site. Initial indicators suggested that differences existed among the three areas of this circular village: the plaza, stockade, and the domestic areas. However, the analysis of spatial distributions at the site is just beginning, I used Surfer9[®]- Golden Software to generate distribution maps for lithic and faunal materials coupled with graphs to suggest the contrasts in the activities that took place at these three areas of the village. Having personally worked at the Johnston site, it is exciting to see a more complete picture of the site developing that can be useful to further archaeological spatial analyses of this important site.

Hyziak, Alyssa [90] see Napoleon, Taylor

Iannone, Gyles (Trent University)

[262] *The Socio-Ecological Entanglement in Tropical Societies (SETS) Project*

Although comparative studies have been criticized in recent years, especially within the more post-modern corners of anthropology, cross-cultural studies continue to have value for exploring the sometimes congruent, and at other times unique, manner that different communities choose to confront analogous socio-ecological issues. The Socio-Ecological Entanglement in Tropical Societies (SETS) project is a long-term endeavor aimed at promoting the cross-cultural, transdisciplinary examination of the tropical experience, past and present, as a means to explore resilience and vulnerability to changing socio-ecological circumstances. The theoretical and methodological basis of this project will be summarized, and some preliminary insights relating to our on-the-ground research in various parts of south and southeast Asia will be presented.

Idrogo, Henry (Henry A. Idrogo)

[102] *Shared Motifs and Figures in the Archaic of the Cajamarca Highlands: New Data from the site of Callacpuma*

The northern Andes, and in particular the Cajamarca region, has for years seen a dearth of archaeological investigation into the lithic, or archaic period. This is surprising given early investigation in the region by Augusto Cardich whose excavations at caves like Cumbe yielded archaic period occupations dated to 8,500 B.C. More recent work at Conga and Maqui Maqui north of the Cajamarca Basin have documented hunter-gatherer occupations including projectile points dating to approximately 12,000 B.P. Here, I synthesize some of this work and present preliminary impressions related to rock art motifs and figures shared between the sites of Callacpuma in the Cajamarca Basin and the sites of Maqui Maqui and Conga to the north.

Izuka, Fumie (University of California, Merced) and Diana Carvajal Contreras (Universidad Externado de Colombia)

[14] *Subsistence, Environment, and Ceramic Technological Variability at Puerto Hormiga and Monsú, Early Pottery Sites of the Caribbean Colombia*

Archaic to Formative transitions in the Intermediate Area of Latin America have been discussed in terms of the timing of agriculture, population growth, sedentism and mobility, use of coastal resources, and the appearance of pottery. The Caribbean Colombia has among the earliest dates for pottery in the New World. Sites such as Puerto Chacho and Puerto Hormiga, shell middens near the coast, were occupied by ca. 5,000 B.P. during the wet period. Monsú, a mound in the riverine environment, was in use by ca. 4250 B.P. during the dry period. Faunal-based subsistence practices differed at these sites. Technologically, whereas pottery from Puerto Hormiga has fiber temper and sand inclusions, that of Monsú has shell temper and sand inclusions. Degrees of residential mobility and reliance on cultigens have been debated. In this presentation, we focus on Puerto Hormiga and Monsú that were recently re-excavated, evaluating the inter-site and intra-site diachronic relations of subsistence practice, environment, and ceramic technology. We investigated the variability of their pottery technology and their faunal assemblages, and compared them with results from existing lithic and paleoethnobotanical studies. This research provides new insights on the behavior and change at the early ceramic sites of the Caribbean coast of Colombia.

Ikehara, Hugo (Pontificia Universidad Católica del Perú)

[56] *How Did the End of the Cupisnique-Chavín Religious Complex Affect Local Leadership?*

In this paper, I assess the impact of the end of the Cupisnique-Chavín Religious Complex (CCRC) in local leadership. Using the case of the Nepeña Middle Valley, I evaluate how authority was built during the Late Formative and how the disintegration of the CCRC around 500 B.C. had profound impacts in the way power was constituted and negotiated during the next centuries.

[56] *Chair*

Iliff, Jeremy [64] see Slaughter, Mark

Illingworth, J. S. [69] see Adovasio, J. M.

Imfeld, Sarah [129] see Hirth, Kenneth

Immich, Jennifer (Metropolitan State University of Denver)

[70] *Castles and Colonialism: Exploring Meaning in Historic Irish Archaeology*

Castles, architecture embedded with colonial power, can be understood as communicating display, power, prestige, corruption, oppression in the periods in which they were constructed and used, only to see the meanings shifted, reemphasized, manipulated, and recreated in the modern period. This paper examines the multiple temporal and conceptual values of medieval castles in north County Tipperary, Ireland, as objects of material culture whose meaning has shifted in significance from the period in which they were constructed to the present. With timber castles, change is embedded in the shape of the