

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

archaeologically? This paper argues that the 'structured deposits' of European prehistory represent the 'problematic stuff' of the past, and can provide greater insights into individual and communal experiences of death, dying and bereavement among past societies.

Butler, Virginia L. [10] see Bovy, Kristine

Buttles, Palma (Carnegie Mellon University/Software Engineering Institute) and Fred Valdez (The University of Texas at Austin)

[243] *Colha, Northern Belize: A History and Record of Research*

The northern Belize prehistoric Maya site of Colha was first archaeologically documented by the Corozal Project in the early 1970s. The most significant archaeological research at the site was conducted as The Colha Project (1979–1983), with subsequent projects of specialized interests (1994–2017). Though known primarily for its lithic dimension as a major production and distribution center of stone tools, many other aspects of Maya society have been identified from the numerous seasons of research. A brief review of Colha's research history is presented along with general comments on significant findings as well as continuing interests and potential.

Buttles, Palma [243] see Sullivan, Lauren

Button Kambic, Emily (National Park Service) and Lauren Hughes (National Park Service)

[202] *Retracing Reconstruction: America's Second Founding in Archaeological Perspective*

The National Park Service's release of a theme study on Reconstruction and the creation of Reconstruction National Monument in Beaufort, SC, mark the agency's commitment to scholarly and public engagement with the complex and continuing legacies of the post-Civil War period. The National Capital Region and the Organization of American Historians are conducting a historic resource study of Reconstruction sites in the region, including urban sites in Washington, DC, and small town and rural sites in parts of Virginia, West Virginia, and Maryland. This paper will discuss how spatial and archaeological perspectives on Reconstruction can enrich historical and political narratives. First, previous archaeological excavations at National Park Service units have uncovered insights into the conditions and challenges of daily life for rural and urban African Americans that can now be considered comparatively as part of a regional understanding of Reconstruction. Second, mapping the distribution of preserved and no longer extant historic and archaeological sites can help visualize regional trends and differences in African American community and institution building. It can also build connections to the present by revealing how urban development and demographic trends correspond with differences in site preservation across the region.

Bybee, Alexandra

[88] *Historical and Bioarchaeological Investigation of the Evansville State Hospital Cemetery (12VG598), Vanderburgh County, Indiana*

In 2014, Cultural Resource Analysts, Inc., conducted the archaeological relocation of graves from the Evansville State Hospital Cemetery. At the request of Beam, Longest, and Neff, LLC, on behalf of the City of Evansville and the Indiana Department of Transportation, the graves of 31 individuals who were patients at the reform-era hospital between circa 1890 and 1928 were relocated in advance of construction of a pedestrian bridge. The population consisted primarily of young to middle adults, with roughly even numbers of males and females. Numerous skeletal and dental pathologies were identified (e.g., osteoarthritis, degenerative joint disease, and healed bone breaks, along with dental caries, calculus, hypoplasias, and antemortem tooth loss). Other skeletal and dental pathologies that may have been associated with the admittance to or retention of a patient at the hospital were also identified, including deformities consistent with metabolic or other genetic issues. This paper provides a historical context for the treatment of mental health issues in the region during the nineteenth through early twentieth centuries, along with information about the health of the population and their treatment after death.

Byers, David (Utah State University), José M. Capriles (The Pennsylvania State University), Adolfo Gil (IANIGCA/CONICET—Grupo Vinculado San Rafael), Judson Finley (Utah State University) and Jacob Freeman (Utah State University)

[105] *PEOPLE 3K (PaleoClimate and the Peopling of the Earth): Investigating Tipping Points Generated by the Climate-Human Demography-Institutional Nexus over the Last 3000 Years*

One of the least understood aspects of paleoscience is the interplay between climate, human demography, and how changes in population influence resource management strategies. With the goal of understanding such processes, we created the PEOPLE 3000 research network to study trade-offs inherent to the climate-human population-institutional adaptation system over the last 3000 years. We propose that strategies reducing variation in food production and institutions for protecting those strategies generate ever more complex socio-ecological systems (SES). The growth of complexity, accompanied by a loss in social and subsistence diversity, can result in major reorganizations due to external or internal changes that drive a SES across a critical threshold. We explore this proposition using case-studies from the Great Basin, northern Chile and western Argentina. We compare radiocarbon SPDs with records of palaeoecological change, and changes in the diversity of subsistence and social strategies. The results show that population increased from 2000 to 800 BP in all three locations, and populations declined and societies reorganized between 700–550 BP. Our analysis reveals possible trade-offs associated with simultaneous adaptation to population growth and climate change and provides a more informed position to understand relationships between social-ecological parameters and threshold changes in modern SES.

Byers, David [105] see Robinson, Erick

Byrd, Brian [84] see Kaijankoski, Philip

Caballero-Miranda, Cecilia [293] see Soler-Arechalde, Ana

Cabana, Graciela [14] see Fleskes, Raquel

Cáceres Gutierrez, Yasmina [275] see De Juan Ares, Jorge

Cagnato, Clarissa (University Paris 1-Panthéon Sorbonne)

[293] *Macro- and Microbotanical Results from Select Archaeological Contexts in the Plaza of the Columns Complex, Teotihuacan, Mexico*

Paleoethnobotanical analyses provide significant information regarding past human behaviors, which include the selection, production, and consumption of plant resources, among others. This paper focuses on select archaeological contexts, domestic and ritual in nature, which have been investigated from a paleoethnobotanical perspective at the urban center of Teotihuacan, and more specifically in the area known as the Plaza of the Columns Complex. The recovery of macrobotanicals such as maize (*Zea mays*), amaranth (*Amaranthus* sp.), and tobacco (*Nicotiana* sp.), as well as starch grains belonging to chili peppers (*Capsicum* sp.) and manioc (*Manihot esculenta*) among others, indicates not only a wide range of plant taxa utilization, but also that the inhabitants of this particular sector of Teotihuacan had access to a variety of plants resources from both local and possibly

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

more distant landscapes. These new data will be briefly compared and contrasted to those obtained by previous investigations, in particular to the well-studied apartment compounds situated in different parts of the city.

Cagnato, Clarissa [337] see Ponce, Jocelyne

Cagney, Erin and Joe Dent (American University)

[239] *Of Palisades and Postmolds*

The fieldwork conducted in Tyler Bastian's 1969–1970 salvage trench at Biggs Ford revealed a unique window into two Late Woodland villages, a Montgomery Complex and a Keyser Complex. The post mold patterns observed in the initial analysis of the trench may indicate the footprints of both complexes. Linear post mold arcs and a ring of pits may be consistent with other known Montgomery Complex sites, namely the Winslow site in Montgomery County. Additionally, post mold patterns in the extreme eastern and western portions of Bastian's trench indicate possible palisade arcs, analyzed with CAD to reveal a consistency in spacing and diameter with at least three other Keyser Complex sites in Maryland. Since 2013, much more extensive fieldwork has been conducted, revealing the presence of more post molds at the site. This paper will utilize the site data collected from field sessions between 2013 and 2015 to further analyze the post molds and potentially determine the existence of patterns that can indicate the layout of both the Montgomery Complex Village and the Keyser Complex Village at Biggs Ford.

Cain, Tiffany (University of Pennsylvania)

[173] *Kept Out or Closed In? An Analysis of Civilian Fortification Strategies during the Maya Social War*

In this paper, I explore the ways in which albarradas, or the dry-laid enclosure walls ubiquitous to Yucatec Maya towns, can be manipulated to become defensive structures under the threat of attack. I discuss the results of a recent study that conducted a construction analysis on a series of wall features in the now unpopulated town of Tela—an auxiliary to and key commercial thoroughway for the burgeoning frontier hub of Tihosuco (since repopulated) during the 19th century. This town was located at the epicenter of the Maya Social War or Caste War of Yucatan (1847–1901). Preliminary archival exploration suggests that it was occupied as a stronghold for at least the first five years of the conflict. The transformation of everyday enclosure walls into blockades, both of roads and house lots, provide one line of evidence for thinking through the impact of this conflict on the daily lives of Tela's inhabitants. After detailing our team's findings, I link this practice back to the present with a brief discussion of the recent blockading of the major highway that passes through Tihosuco as a response to failures of Quintana Roo's state and municipal governments.

Cajigas, Rachel (University of Arizona)

[21] *The Early Agricultural Period at La Playa, Mexico, A Geoarchaeological Investigation*

La Playa (SON F:10:3), in Sonora, Mexico, has the remains of an irrigation canal system associated with the Early Agricultural period (2100 B.C.–A.D. 50), a period characterized by the development of agriculture in the southwest United States and northwest Mexico. Satellite imagery analysis and magnetic gradiometry surveys covering over 53,000 m² of the site, document almost 8,700 m² of agricultural fields, 15 km of irrigation canals, and over a dozen circular structures. Irrigation canals were excavated and examined for stratigraphic, textural, and hydraulic information. Finally, a dating strategy utilizing both AMS 14C on ecologically specific, short lived, semi-aquatic succinids and single grain Optically Stimulated Luminescence on canal sediments was used to constrain the timing of canal use. The environmental and geochronological data have been synthesized to gain an understanding of the changing depositional conditions on the La Playa floodplain throughout the Early Agricultural period. These data contribute to a comprehensive chronology of the archaeological site within the greater context of the origins of early agriculture in the Southwest U.S./Northwest Mexico region.

Cakirlar, Canan (Groningen University Institute of Archaeology), Francis Koolstra (Groningen University), Christian Kuchelmann (Groningen University) and Salima Ikram (Yale University)

[34] *Marine Turtle Consumption: From Ancient Taboo to Conservation Management*

Remains of marine turtles occur regularly in the archaeological record. They provide insights into ancient subsistence and community practices. They also contain crucial information that can be used to create baselines for conservation. Their explanatory power is increased when the species exploited are identified. Here we describe an osteomorphological method which allows us to analyze fragmented postcranial elements of common Cheloniidae (*Caretta caretta* and *Chelonia mydas*) to species and reconstruct species-specific exploitation patterns. We focus on two case studies from the Eastern Mediterranean (Turkey and Lebanon) which demonstrate that humans were selective in which sea turtle species they exploited. These multi-period case studies, in combination with published information about marine turtle exploitation in the region, also indicate long discontinuities in the archaeological record, which may be related to food avoidance. Size and sex reconstruction point at differing capturing techniques. Results have interesting implications for understanding human-marine turtle interactions with deep-time perspective.

Calfas, George [238] see Baxter, Carey

Callaghan, Michael (University of Central Florida), Brigitte Kovacevich (University of Central Florida), Rachel Gill (University of Central Florida) and Karla Cardona (Universidad del Valle, Guatemala)

[33] *Preclassic Maya Ritual at Holtun, Guatemala: Analysis and Interpretation of the E-Group Architectural Compound*

Recent research in the Maya lowlands has shown that "E-Group" architectural complexes were intricately tied to the development of complex society during the Middle Preclassic period (900 BC—300 BC). First identified at the site of Uaxactun, Guatemala, E-Group complexes consist of a western radial platform and eastern range structure. For many years Maya archaeologists believed E-Groups functioned primarily as celestial observatories. However, recent data have shown E-groups were the locus of many activities, most importantly early ritual and religion. In this presentation we share the results of excavations in Group F at Holtun, or the "E-Group" ceremonial complex, from the 2015–2017 field seasons. Archaeological data suggest Group F served as a focus of ritual from the Middle Preclassic through Terminal Preclassic periods (800 BC—AD 300). In this presentation we discuss how finds from Group F, including monumental stucco masks, caches, burials, and the most extensive collection of Preclassic-period Maya graffiti, inform our knowledge of the development of complex society at Holtun, and offer insights into the basis of Preclassic Maya political power.

Callaghan, Michael [28] see Crawford, Dawn

Calonje, Michael (Cycad Biologist)

[150] *Discussant*

Camacho-Trejo, Claudia [223] see Barket, Theresa

Cameron, Catherine (University of Colorado)

[119] *Discussant*

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Cameron, Catherine [27] see Ellyson, Laura

Caminoa, Jose [154] see Cattaneo, Roxana

Camp, Stacey (Michigan State University)

[201] *Public Archaeology in Remote Places*

Public outreach and engagement has long been perceived as a cornerstone of historical archaeology. Many of the earliest public archaeological projects in the discipline concerned sites that had a significant preexisting audience, such as an urban environment. This paper looks at what it means to do public archaeology in remote settings, and it will explore how archaeologists engage the public when their sites are places of intentional displacement. How do public archaeology strategies and tactics shift in cases where a site remains physically accessible to most members of the public?

Campan, Patricia [155] see Belardi, Juan

Campbell, John (Memorial University of Newfoundland)

[199] *Revisiting Contact Interactions of the Keji'kewe'k L'nuk, or Recent People, and Europeans in the Mi'kma'ki*

The recent emergence of ontological applications in archaeological theory has developed the idea to "reject representationalism", where present archaeological taxonomic labeling comes into question. By adopting the "local" perspective of an indigenous group through the guise of "Amerindian perspectivism," archaeologists can integrate a holistic view of the Mi'kmaq pluriverse. Through perspectivist approaches of the ontological lens, the author will explore sensory worlds, and how sensory should be considered archaeological material. A proposal of investigating cultural landscapes during the Protohistoric Period (1500–1630), on intra and inter-site scales, not only illustrates continuity and change in land usage but also how sensory may perform as a deterrent or incentive in Mi'kmaq/European trade networks. Through examining the early fur trade during the Protohistoric Period via materiality, cultural landscape, and ethnohistoric documentation, archaeologists can interpret sensory worlds of cultural interactions through the perspective of the indigenous population.

[199] *Chair*

Campbell, Sarah K. [10] see Bovy, Kristine

Campbell, Wade (Harvard), Matthew Magnani (Harvard) and Alex Wesson (SWCA)

[36] *Reanalyzing "The Rise": A Gobernador Phase Navajo Habitation Site in Northwest New Mexico.*

In 2003, a master's thesis project examined a multicomponent Navajo habitation site dating to the 17th-18th centuries in the Dinéyah region of northwest New Mexico. The initial survey program carried out a number of activities, including site mapping, surface collection, and artifact analyses; however, certain questions were left unanswered. A new phase of research initiated in the summer of 2017 aims to better characterize the site and explore the possibility of a pastoral adaptation on the part of the site's Diné inhabitants. This talk presents several findings from this new investigation alongside a detailed reanalysis of the ceramic and lithic assemblages collected in 2003.

Campetti, Casey (AECOM)

[148] *Discussant*

Campiani, Arianna (UC Merced)

[172] *Analytical Models for At-Risk Heritage Conservation and 3D GIS*

In the period 2011–2017, scholars from the University of California Merced and Cardiff University recorded the fragile earthen architecture of Çatalhöyük, Turkey employing cutting-edge conservation technologies to monitor the site and gather new data. Our goal was to model and analyze the site decay and plan conservation interventions. Tools and methods for this initiative include blending site monitoring data and digital documentation data from environmental data loggers, terrestrial laser scanning, micro unmanned aerial vehicles, ground photography, structure from motion, and thermal infrared imaging. Our workflow produced a comprehensive set of information that quantitatively describes the rate of decay of Çatalhöyük's buildings overtime and underpins potential causes. This paper discusses our recent effort to integrate our extensive corpus of digital information into a GIS for analyzing the state of preservation of the site. In particular, this paper proposes new methods in predictive modeling for conservation enabled by spatial analysis in 3D GIS. Our predictive models offer an opportunity of building a comprehensive view of the site in its current state and serve as the basis of a new best practice methodology that can be employed in the conservation of other heritage sites.

[172] *Chair*

Campiani, Arianna [172] see Lingle, Ashley

Campos, Cinthia M. (California State University, Los Angeles), José Luis Punzo Díaz (Instituto Nacional de Antropología e Historia-Mich) and Carlos Karam (Instituto Nacional de Antropología e Historia-Mich)

[55] *Ritual Human Sacrifice among the Tarascans*

This study reports on osteological remains excavated from the Great Platform at Tzintzuntán, the Postclassic (A.D. 1300–1522) Tarascan ceremonial capital. The osteological deposit was first uncovered by Alfonso Caso in 1937–1944, re-visited by Rubín de Borbolla and Roman Piña Chan during the 1960's, by Efrain Cardenas in 1992, and most recently in 2011 by the Proyecto Especial de Michoacán. In 1992, 194 skull fragments (MNI=40) and 28 modified femur fragments were recovered while the most recent project recovered 529.88 kg of human bone. Both samples contained males, females, and sub-adults. Multiple thin transverse-cut-marks were identified on 19 skull fragments near temporal muscle attachments. Microscopic analysis shows that cut-marks were postmortem and reflect distinct patterns of cranial de-fleshing, starting from the mastoid process, and pulling back towards the occipital. Seven obsidian blades were identified, some matching the dimensions of the cut-marks. No grave goods were encountered. The archaeological data support ethnohistoric descriptions of postmortem scalping, flaying, and decapitation. The context suggests that individuals recovered at Tzintzuntán were casualties of ritual violence. This analysis combines osteological, archaeological, and ethnohistorical data to generate a broader discussion about the significance of ritual sacrifice and postmortem body treatment in Postclassic Tarascan society.

Canaday, Timothy (Salmon-Challis National Forest)

[106] *Multi-method Geophysics in the Frank Church–River of No Return Wilderness, Idaho*

The Frank Church—River of No Return Wilderness in central Idaho contains numerous prehistoric archaeological sites being impacted by recreational use. Sites located along the wild and scenic portion of the Middle Fork Salmon River are especially at-risk because of the thousands of visitors who regularly camp along the river within sensitive site areas. Non-ground disturbing methods were needed to determine whether the sites retain sub-surface integrity. Eight sites have been investigated using geophysical methods such as fluxgate gradiometry, earth resistance electrical resistivity, magnetic susceptibility, multi-depth electrical conductivity and handheld portable XRF for soil chemistry. The objective of this work is to develop long-

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

term management strategies for the protection of at-risk sites using minimally invasive methods to protect the archaeological sites while still allowing current levels of recreational use. Results of the multi-method geophysical investigations are presented.

[106] *Chair*

Cannon, Aubrey [189] see Wildenstein, Roxanne

Cannon, Danielle (Kutztown University) and Carly Plesic (Kutztown University)

[239] *Using ArcMap to Create a Database for an Historic Cemetery in Northeast Pennsylvania*

As a program designed to integrate and analyze geospatial data, ArcMap has the potential for broad archaeological application. Here we employ ArcMap to create a database for research and management of the historic cemetery at Stoddartsville, a 19th century milling village built along the upper Lehigh River in northeast Pennsylvania. Specifically, we use ArcMap to integrate: (1) spatial data from a total station survey of individual grave markers and cemetery boundaries; (2) descriptive data from grave marker inscriptions and attributes; (3) personal data for buried individuals from archival research; and (4) geophysical data from a ground-penetrating radar survey of the cemetery. As we demonstrate, this map and database provide a useful research tool for examining the Stoddartsville cemetery as a microcosm of the associated historic site, allowing us to explore the changing social composition of the village, evolving funerary customs, and demographic trends. Additionally, we have shared this interactive map and database with the Stoddartsville Preservation Society to aid in their preservation and management of the cemetery. Finally, we have made this resource available online to potentially serve others interested in learning about Stoddartsville, including descendants of those buried in the cemetery decades ago.

Cannon, Kenneth (Cannon Heritage Consultants)

[90] *Ecology of Bison in the Greater Yellowstone Ecosystem*

Bringing the geologically historic record to bear on questions of ecosystem evolution is a goal emphasized in recent National Research Council reports. Within this context one species has become significant, the bison of the Greater Yellowstone Ecosystem. Recent expansion of the population, and its subsequent migration outside federal lands, has created concern among federal managers, local ranchers, and conservation groups. However, much of what is known about pre-management herds is based on historic records and modern studies. While both are invaluable sources, they have limitations. For example, historic studies are often anecdotal and modern studies are based largely on small, isolated herds. The purpose of my research is to develop a longer-term historical perspective on the mammalian community of the GYE. The lack of knowledge of the mammalian community is notable considering all that is known about the glacial, climate, and vegetative history. An initial step in this research is the study of bison ecology through the application of stable isotope signatures (carbon, nitrogen, oxygen, and strontium) derived from discrete downtown samples of modern and prehistoric bison. The third molars from 14 adult bison were selected from archaeological assemblages providing a detailed time-resolution record of each individual.

Cannon, Molly, Kenneth Cannon (Cannon Heritage Consultants), Kenneth Reid (Idaho State Historical Society), Joel Pederson (Utah State University) and Houston Martin (Cannon Heritage Consultants)

[305] *Implications of Integrative Science Approaches for Site Documentation at Bia Ogoi*

Deep in the Washington Territory amongst American expansionism, one of the nation's most devastating conflicts occurred. On the frigid morning of January 29th 1863, the California Volunteers under the command of Patrick Connor attacked the Shoshone village at Bia Ogoi in response to ongoing hostilities between whites and Native groups, resulting in the death of at least 250 Shoshone and 21 soldiers. Over the course of the past 150 years, extensive landscape modification has occurred from both natural and human agents, obscuring the events of this fateful day. This poster presentation highlights an integrated science methodology to identify and record key landmarks including traditional on-the-ground geomorphic studies, historic cartographic reconstructions, and geophysical assay with implications for preservation at the Bear River Massacre Site.

Canseco, Francisco [173] see Hernandez, Hector

Canuto, Marcello (M.A.R.I./Tulane University)

[337] *Preliminary LiDAR-based Analyses of the La Corona—El Achiotal Corridor*

Located in the northwestern Petén, Guatemala, the Maya sites of La Corona and El Achiotal have been investigated since 2008 by a multi-disciplinary US and Guatemalan research project. While a primary goal of this project has been to reconstruct the region's political history, we have also investigated the management of local resources and general human impact on the landscape. In 2016, a LIDAR survey, funded by the Pacunam Foundation and operated by NCALM, was undertaken in a 410 square km rectangular zone encompassing both La Corona and El Achiotal. In the following paper, we present ground-truthing analysis and preliminary interpretations of the LIDAR data-set as it relates to ancient settlement, land-use strategies, and defensive features.

[337] *Chair*

Canuto, Marcello [337] see Barrientos, Tomas

Canziani, Jose (Departamento de Arquitectura—Pontificia Universidad Católica del Perú (PUCP))

[249] *Habitar la diversidad: la transformación del paisaje y la construcción del territorio en el antiguo Perú*

La diversidad de zonas ecológicas que caracterizan a los Andes Centrales, dio lugar desde los procesos iniciales de poblamiento al despliegue de diferentes modos de vida, que se generaron en la interacción de los grupos humanos con estas distintas condiciones de existencia. El territorio es una construcción social que incorpora la historia de las transformaciones del paisaje, y las sociedades modelan su identidad cultural, memoria y cosmovisión en este profundo proceso de habitar el paisaje. Estos procesos, en los que se integran transformaciones sociales y territoriales, adquieren especial trascendencia a partir de la progresiva modificación de las originales características del medio, para favorecer en él los procesos productivos ligados a la agricultura, la pesca y la ganadería, resolviendo con la naturaleza el manejo del agua, de los suelos y del clima. En esta presentación expondremos casos representativos de paisajes culturales que comprometieron la articulación de conocimientos y de especiales formas de organización social, convirtiéndolos en instrumentos de producción de escala territorial. Paisajes que representan no solo un importante patrimonio ambiental y tecnológico, funcional al desarrollo territorial, sino también un referente de trascendencia para las comunidades que los heredaron, en cuanto se refiere a la conservación de su identidad cultural.

Cap, Bernadette (University of Texas-San Antonio), M. Kathryn Brown (University of Texas at San Antonio) and Whitney Lytle (University of Texas at San Antonio)

[173] *The Axis Connecting Classic Maya Economy and Ritual at Xunantunich, Belize*

The ancient Maya formalized avenues of movement between and within urban centers through the construction of sacbeob that both defined space and connected places on the landscape. In this paper, we discuss the ways in which a formally constructed sacbe at Xunantunich functioned as an axis connecting economic and ritual activities. The architectural arrangement of Classic Xunantunich emphasizes a north/south directionality. The site's

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

sacbe, however, was constructed on an east/west alignment. This site plan emphasizes a cruciform pattern, which we argue was intentional, and may symbolically represent the axis mundi. In the west, the sacbe is associated with a marketplace and ballcourt. The openness of this area reflects public participation in economic and ritual activities. As the sacbe narrows towards the east, access becomes more restricted. The sacbe terminates at a hilltop group (Group D) where excavations revealed evidence for repetitive ritual activities. We argue that the Xunantunich sacbe may have served as a processional route for periodic rituals that would have reinforced the connection between economic and religious activities, while at the same time legitimized hierarchical relationships within the society.

Capellin Ortega, Anarrubenia (Graduate Center, CUNY)

[76] *Investigating Ancient Maya Foodways in the Copan Valley, Honduras: Macrobotanical Analysis from Late Classic to Postclassic Middens in the Rio Amarillo East Pocket*

Within the Copan Valley a dearth of macrobotanical assemblages have been analyzed, and most that were focused on the area within or close to the Acropolis. As part of a larger project investigating ancient practices of sustainability within the Copan Valley, macrobotanical remains recovered through flotation from two commoner communities, Site 29 and Quebrada Piedras Negras, Group C, in the Rio Amarillo East Pocket have been analyzed. Due to acidic soil in the area both bone and other types of botanicals have not survived well, thus charred materials offer the best opportunity for gaining insight into past food practices in this area.

Capellin Ortega, Anarrubenia [86] see Billadello, Janine

Capo, Rosemary [106] see Canaday, Timothy

Caporaso, Alicia (Bureau of Ocean Energy Management), Kristine DeLong (Louisiana State University), Douglas Jones (Bureau of Ocean Energy Management) and Michael Miner (Bureau of Ocean Energy Management)

[68] *The Submerged Cypress Forest and the Paleolandscape of the Gulf of Mexico*

Submerged Paleo-geologic features with probability for associated prehistoric sites on the Gulf of Mexico shelf include coastal plain and fluvial valley-fill deposits (e.g. terrace and floodplains) preserved landward of the 60-m bathymetric contour, the approximate late Pleistocene (~12,000 ka) shoreline location. A site ~15 km offshore Alabama was discovered with exposed remains of a previously-buried bald cypress forest with stumps in growth position rooted in an organic-rich paleosol. It has been suggested that exposure resulted from seafloor scour during Hurricane Ivan in 2004. Results from radiocarbon dating and OSL analysis place the timing of tree growth and burial at ~40–60 ka. We hypothesize that rapid floodplain aggradation associated with upstream response to sea-level rise led to burial and preservation. Though much older than expected Paleoindian occupation in this region, this rare find provides an opportunity to study in situ formation and preservation processes of an extent and easily accessible sub-sea preserved Pleistocene landscape surface and paleosol. These results will be used to create a conceptual model to aid in developing geophysical/geological survey techniques to identify buried paleolandforms that could contain archaeological remains from the earliest human occupations along the Gulf of Mexico coast when sea level was lower than today.

Capriles, José M. (The Pennsylvania State University)

[105] *A Review of Paleodemographic Changes in Prehispanic Bolivia Using a Countrywide Assessment of Radiocarbon Dates*

In this poster, I introduce a new database containing the most updated and comprehensive series of geo-referenced radiocarbon dates collected from archaeological sites located within the entire country of Bolivia. The resulting Bolivian Radiocarbon Database reviews and incorporates data from previous syntheses as well as a number of additional dates mostly available in rare publications and recent research. Using recommendations posted in previous studies, I discuss some of the potential and limitations of the resulting series, including geographical and temporal biases. I then select a dataset of representative dates to generate a series of different sum probability curves for different ecological regions (highlands, inter-Andean valleys, and lowlands) and compare them to different sequences of paleoenvironmental change. I discuss the results in light of the questions and hypotheses posted by the PEOPLE 3K Working Group, including the impact of global scale processes of climate change such as the Medieval Warm Anomaly and the onset of the Little Ice Age to different food production systems, and their influence on trajectories of demographic change.

Capriles, José M. [105] see Byers, David

Capriles, José M. [105] see Gayo, Eugenia

Capron, Ranel [261] see Loosle, Byron

Caramanica, Ari

[64] *Reconstructing the Environmental History of El Paraíso, Chillón Valley*

By Late Pre-ceramic Perú (3000–2100 BC) lomas environments were largely abandoned in favor of riparian and littoral ecozones, and hunting and gathering subsistence strategies were increasingly replaced by agriculture. This change coincided with the emergence of several hallmarks of complexity: monumental architecture, specialization, and hierarchical organization. The role that environmental degradation or climate change played in this transition remains a subject of debate. This paper presents microbotanical data from the Late Pre-ceramic site of El Paraíso on the Central Coast of Peru and reconstructs the environment at the site-scale. In particular, the micro-remains indicate an ENSO event and a strong trend toward increasingly saline wetlands over time. These environmental factors are considered in the context of the occupation of the site.

Carballo, David (Boston University)

[293] *Activity Areas and Political Economy at Teotihuacan's Plaza of the Columns: Investigations in Front E*

Front E of the Project Plaza of the Columns Complex comprises the southern sector of this large civic-administrative complex, located in the heart of Teotihuacan. In initial project planning, its surface topography suggested the presence of open spaces and low structures that could have been used for activities of economic significance and/or as residential spaces for individuals not of high elite rank. Excavations over two seasons in Front E prioritized horizontal exposures in order to assess these possibilities. They confirm the presence of open plazas and residential structures in the south of the front, and larger, decorated structures of likely ceremonial function to the north, defining the central precinct of the Plaza of the Columns. In this paper we review the excavation contexts, architecture, preliminary artifact analysis, and working hypotheses concerning the diverse functions of the area, changes over time, and what both contribute to better understanding the political economy of Teotihuacan. Significant finds include sculptural motifs, elaborate drain features, a large domestic midden, and evidence of intensive obsidian blade use.

[129] *Discussant*

Carballo, David [48] see Mark, Andrew

Carballo Marina, Flavia [155] see Nuevo Delaunay, Amalia

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Carbone, Catherine**[223]** *Preliminary Study in Skeletal Weathering in the Southwest Llano Estacado*

Skeletal weathering is rarely addressed in archaeological contexts, despite its importance to archaeology, and other fields of research. Experimental studies in taphonomy should be completed on regional scales, because changes in the microclimate will cause taphonomic agents to express differently on skeletal remains. This research quantifies and calibrates the skeletal weathering cycle for the southwest Llano Estacado region of eastern New Mexico, by placing faunal remains in full sun, shade, and partial shade. Pig metapodials were used to represent human remains, while other faunal remains were selected to simulate indigenous fauna found in the archaeological record. Specimens are documented daily, or as needed, and one sample from each species will be collected at each weathering stage, until a full cycle has been completed. DNA viability will be tested at each stage, as DNA analysis plays an important role in both archaeological and forensic research. Raman spectroscopy is used to determine the microstructure of bone at each weathering stage. Once the skeletal weathering cycle is calculated for the region, forensic specialists and archaeologists will be able to determine the post-mortem-interval, or the time-of-exposure of subaerial remains, understand the expected macro and micromorphology, as well as DNA viability for each weathering stage.

Card, Jeb (Miami University)**[33]** *Reassessing Classic Maya Identity and the Southern Edge of Mesoamerica*

Certain classes of material culture found in Honduras and El Salvador have long been recognized as being related to "Maya style" artwork and artifacts from Copan and Classic Maya cities to the north and west. These objects have been framed through questions of "influence", ethnicity, and boundaries. The recent re-analysis of a ceramic flask from Tazumal, with an unusual inscription tying the object to a Copan king and imagery of tribute, suggests a more distinct political lens through which to view influence and interaction on the southeastern edge of the Maya world. The nature of other "Maya" objects found south and east of Copan not only clarifies possible political and cultural relationships in this region, they also isolate aspects of what may have been recognized and performed by people of the first millennium CE in Central America as the entity later labeled as "Maya". By examining the kinds of objects used to perform or express "Mayaness" on a potential boundary area, the nature of "Mayaness" comes into view.

[117] *Discussant*

Cardona, Karla [33] see Callaghan, Michael

Cardona Rosas, Augusto [335] see Barnard, Hans

Carey, Mia (National Park Service)**[77]** *Artifacts Addicts Anonymous: The Road to Recovery from Negative Data*

Have you recovered thousands of artifacts, but none from the time period of interest? Have you spent weeks or months in the field, with absolutely nothing to address your research questions so you keep digging? This is the phenomenon of negative data. While this can be a scary thing, it is okay. Archaeologists suffering from artifact addiction have developed an unhealthy obsession with the recovery, analysis, and interpretation of material culture. This addiction can result in delayed reports, articles, and dissertations. In this paper, I argue that the road to recovery begins with reassessing our purpose as archaeologists and looking beyond our data, reports, and artifacts as our cultural products. Overcoming this addiction may be challenging, but is possible using this novel perspective. Are you willing to acknowledge your negative data?

[191] *Discussant*

Carleton, Chris [118] see Collard, Mark

Carlson, David (Texas A&M), Michael Waters (Texas A&M) and Joshua Keene (Texas A&M)**[103]** *Intrasite Spatial Analysis at the Debra L. Friedkin Site, TX*

The Debra L. Friedkin site, located in central Texas along Buttermilk Creek, provides evidence of human occupation in Texas during the past 15 thousand years within a deposit approximately 1 meter thick. Excavation Block A consisted of 52 contiguous 1x1 m units excavated between 2006 and 2009. Excavations since the initial publication of the site include 14 units adjacent to the south end of the block and 32 units just northeast. Each 1x1 m unit was excavated in 2.5 cm levels. Currently we are analyzing the horizontal and vertical distribution of diagnostic artifacts and debitage to identify paleosurfaces across the excavation block. Four independent lines of evidence are being used. First, four OSL columns provide one basis for identifying contemporaneous layers across the blocks using Bayesian depositional analyses of each core. The slope of the modern surface and the basal bedrock surface provide a second line of evidence of the slope of the buried components. Third, the distribution of diagnostic artifact types, especially Clovis, Folsom/Midland, Golondrina, Angostura, and Ensor provides a way of identifying surfaces using robust linear regression models. Finally, analysis of debitage densities horizontally and vertically provides yet another approach to identification of paleosurfaces.

Carlson, John (Center for Archaeoastronomy, College Park, MD) and John Hoopes (University of Kansas, Lawrence)**[263]** *Chacmool or Not Chacmool? Was a Mesoamerican Monumental Stone Sculptural Tradition Adopted in Eastern Costa Rica?*

The unique monumental stone sculptural form known as a "Chacmool"—a reclining human with an offeratory bowl on its abdomen—first appeared in the late Epiclassic period in Mesoamerica, most notably at the Toltec site of Tula in Central Mexico and the Maya site of Chichen Itza in the Yucatan. The form is known across Mesoamerica in archaeological contexts from Michoacán, Mexico to Guatemala and El Salvador. It persisted in Central Mexico to the time of the Aztec empire and European Contact, when a Chacmool was a major feature at the Templo Mayor in Tenochtitlan. Carlson has identified the uniquely posed male human form as having derived specifically from the stance of a Mesoamerican ballplayer. Subsequent research has demonstrated clear associations between Chacmool sculptures and ballcourts. Several examples of a similar sculptural form have been found at the site of Las Mercedes in the Caribbean lowlands of Costa Rica. This paper evaluates the examples from Costa Rica with respect to possible Mesoamerican connections and the geographical limits of the rubber ballgame in the Isthmo-Colombian Area.

Carlson, Kristen [21] see Bamforth, Douglas

Carmen, Mayra (Pontificia Universidad Católica del Perú) and Krzysztof Makowski (Pontificia Universidad Católica del Perú)**[132]** *Styles, Technology and Identities: Origins and Uses of Provincial Inca Ceramics in Pueblo Viejo-Pucará, a Huarochiri's Mitmaquna Settlement in the Lurin Valley*

Distribution analysis of provincial Inca pottery in different layers of the residences of Pueblo Viejo-Pucará, including the palace of the curaca, will serve as a starting point to define the differences in access to diverse vessel forms and observe the contexts of use in domestic, funeral, public and ceremonial areas. The excavations in residential and ceremonial architecture carried out in Pueblo Viejo-Pucará, a Late Horizon (1470–1560 A.D.) urban settlement, provided rich and varied evidence of the privileged participation of this mitmaquna population in the distribution network of artifacts that are considered sumptuary. We will contrast evidence of ceramic production to the manufacture of metal artifacts. Previous studies of clays - regarding its origins, pastes and pottery types- suggest that the source materials for provincial Inca ceramics were obtained from the neighboring Rimac valley along with a large number of workshops that also produced ceramics in local styles. The coexistence of architecture, agricultural

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

technologies, pastoralism and funerary behaviors that are typical of the Huarochiri highlands, along with the coastal ceramics and elements of the Inca imperial material culture, demonstrates the complexity of acculturation processes, with multiple identities unfolding during the Inca period.

Carmody, Stephen [5] see Weitzel, Elic

Carpenter, John (Centro INAH Sonora)

[131] *Archaeology and Ethnohistory in the Sahuaripa Region of Eastern Sonora*

There is little doubt that there exists cultural continuity linking the Río Sonora tradition and the Ópata (a term referring to an amalgamation of several groups, generally including Eudeve, Teguíma and Jova-cf. Yetman 2010; Spicer 1962). The socio-political organization of the late prehispanic Río Sonora archaeological tradition remains controversial though little studied. Carroll Riley (1982, 1987, 1999, 2005; see also Doolittle 1984, 1988, 2008) proposed that they constitute “statelets”, based principally upon the interpretation of the ethnohistorical and Río Sonora archaeological site settlement pattern data. Although, we have long been outspoken critics of this concept, supposedly, the renowned cacique Sisibotari counted some 70 settlements within his dominion (Spicer 1962:92), and requested Pérez de Ribas send missionaries to his people; we suspect that when Pedro Méndez established missions in Bacanora, Sahuaripa and Arivechi, these localities fell within Sisibotari’s dominion, and would seemingly indicate a semi-complex level of socio-political organization. This paper presents recent archaeological investigations in the Sahuaripa region. These data, along with the ethnohistorical accounts, indicate that this region was densely populated and figured prominently in regional and long-distance exchange systems in Northwest Mexico and likely served as the principal route followed by the early Spaniards.

[131] *Chair*

Carpenter, John [59] see Sanchez Miranda, Guadalupe

Carpenter, Lacey (University of Michigan)

[82] *Neighborhood Organization in Early States: Exploring Spatial Variability at El Palenque*

The late Formative polity centered at the El Palenque site, near San Martín Tilcajete, Oaxaca, Mexico was a densely populated settlement. The site was founded in the late Monte Albán I phase (300–100) during a period of hostility and violent conflict. The settlement at El Palenque consists of a 1.6 ha civic ceremonial plaza, a 28 ha core area of residential occupation, and an additional 43.5 ha with more dispersed evidence for residential occupation. There may be a number of factors influencing the structure and distribution of neighborhoods across the site including social and political status, a need for defense, kinship organization, and specialized economic production. In this paper, I investigate the underlying processes shaping neighborhood organization and composition in the residential sectors of the site. I use a combination of surface collections and excavated household data to define and compare neighborhoods at El Palenque. Specifically, I analyze the distribution of house foundations, the density of different materials collected during surface collections, and house size and architecture. Through this combination of artifact and architectural data I evaluate different models for neighborhood organization and identify the underlying processes at shaping neighborhoods at El Palenque.

Carpenter, Michelle (University of Texas at San Antonio)

[241] *Indications of Faunal Starvation in Jamestown Colony*

The interpretations surrounding the first English colony founded in Jamestown, Virginia has developed through analyses of historical documents and excavations of the archaeological record. Continued excavations have provided an analysis of fauna within the colony affected by the diminishing food stores during the starving months of 1609 and 1610. Faunal remains were sampled from two archeological water wells in Jamestown dating to 1607–1610 and the second well from 1650. Based upon the preliminary results of collagen extraction by IRMS, fauna from the starvation months indicate an increase of $\delta^{15}\text{N}$ within the bone. These findings could be the result of extreme dietary distress expected to be consistent with $\delta^{15}\text{N}$ levels of the starvation period. Bioapatite was also analyzed for the overall diet of fauna sampled from the starvation months and the 1650 deposition. Due to the aqueous burial context, samples were analyzed for preservation by ATR-FTIR and IRMS. Faunal remains were compared to the 1650 archaeological well for dietary stability and preservation of hydroxyapatite crystals within the bone samples.

Carpioux, Natalie (University of Wisconsin—Milwaukee), Alicia Boswell (Bard Graduate Center), Jessica Walthew (Cooper Hewitt, Smithsonian Design Museum) and Gabriel Prieto (Universidad Nacional de Trujillo)

[265] *Burial Garments of a Chimu Child Sacrifice from Pampa La Cruz, Huanchaco, Peru*

The site of Pampa la Cruz, located in Peru’s northern coast in Huanchaco, is situated just north of the ancient Chimu capital of Chan Chan. A multi-component site with occupations from the Salinar, Gallinazo, and Chimu eras (400 BC—AD 1470), excavations in 2016 recovered Chimu child sacrifices. Each body was interred wearing multiple garments, including mantles, loincloths, and tunics. Environmental and soil conditions enabled the preservation of these textiles. In July 2017 students in the MOCHE Inc Conservation Program completed a preliminary study of these textiles and carried out stabilization measures. In this poster we analyze a set of clothing one child sacrifice was interred in. The set includes a hat, head wrappings, a mantle, a loincloth, and a tunic. Through an analysis of the weaving technology of this set of clothing and comparison to other Chimu textiles, this research provides insight into Chimu sacrifice practices.

Carpio, Edgar

[37] *Contribution of Stephan F. de Borhegyi to the Archaeology in Guatemala: Investigation in the Borhegyi’s Archives at the Milwaukee Public Museum*

Archaeologist Stephan Borhegyi contributed significantly to the development of archeology in Guatemala in the late 1950s and early 1960s with his investigations both in the highlands and on the Pacific Coast. He was a pioneer in underwater archeology at Lake Amatitlán and carried out studies at other sites around the lake. He also made important entries on different archaeological sites in the Highlands and on the Pacific Coast, particularly on the Bilbao site. In Guatemala, his works were published in the journal *Anthropology and History of Guatemala*. He has an important role in the organization of the collections of the National Museum of Archeology of Guatemala. At the Milwaukee Public Museum are his field notes, as well as other valuable documents related to his research work in Guatemala. There are also some samples of ceramic objects and other objects on display, from Amatitlán and the Pacific Coast. Our interest is to recognize his important work in the archeology of Guatemala.

Carpio, Edgar [176] see Andrieu, Chloé

Carr, Christopher (University of Cincinnati)

[238] *Potential Method for Structure Alignment by the Ancient Maya*

It is well established that the ancient Maya favored certain orientations for the buildings in their major urban centers. In the southern Maya lowlands, an orientation of 14° clockwise from the cardinal directions is particularly common. How did the ancient Maya find this orientation? What was their surveying technique? Lidar from many sites shows that this orientation was not limited to major constructions. The smallest residential structures and patio groups, structures spread throughout the site, also were orientated to specific directions. The method of orientation had to be relatively simple, accessible to all levels of society, workable on all parts of the landscape (not just where the horizon is visible), and, most likely, usable at any time of

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

year (e.g., not just at solstice or equinox). A first step in orientating a construction to a particular direction would be to establish the cardinal directions (separately, constructions also could be orientated to features on the horizon). Two methods to determine the cardinal directions are presented here: the north method and the Gnomon E-W method. With the current lack of knowledge of ancient Maya astronomical instruments, examples from other ancient cultures are considered.

Carr, Kurt (The State Museum of Pennsylvania)

[328] *Paleoindian Research in the Middle Atlantic Region*

Paleoindian studies in the Middle Atlantic region have been at the forefront of Paleoindian research in the Eastern Woodlands. William Gardner's research in the Shenandoah Valley of Virginia in the 1980s emphasized a focus on micro-cryptocrystalline lithic sources in the settlement system; smaller territories on the order of 40 to 150 km in diameter and a flexible social organization during the seasonal round involving a pattern of changing micro- and macro-bands. These issues continue to be important in the analysis of Paleoindian adaptive strategies and now include more controlled examinations of community patterning; microwear analysis; refitting studies; and lithic sourcing based on trace element analysis. New sites have been discovered resulting in the definition of site clusters and sites associated with paths. Improved chronological controls have enabled researchers to speculate on changing settlement systems within the Paleoindian period. These studies have resulted in the definition of at least two different Paleoindian adaptive strategies in the Middle Atlantic region.

Carr, Philip (University of South Alabama)

[94] *Team-Based Learning in AN 101: Introduction to Archaeology & Biological Anthropology*

Team-Based Learning (TBL), a powerful pedagogical tool, has several essential elements: forming permanent teams; flipping the classroom; a specific sequence of individual work and teamwork; and immediate feedback. As a polar opposite of the traditional "sage on the stage" pedagogy, there are advantages and disadvantages for implementation of TBL in a moderate-sized (50+ students) introductory course. Specifics of the implementation are discussed for this first time use of TBL in AN 101 and lessons learned are reviewed. Comparison between student work from the traditional and TBL class are discussed. Expectations are that TBL will create a motivational framework in which students increasingly hold each other accountable for coming to class prepared and contributing, which will result in higher class performance.

[94] *Chair*

Carr, Philip [90] see Bradbury, Andrew

Carrasco, Michael [128] see Englehardt, Joshua

Carrasco, Michael (Florida State University)

[150] *Moderator*

[150] *Discussant*

Carreon, Samuel (Cal State Dominguez Hills), Rita Austin (University of Oklahoma) and Sabrina Sholts (Smithsonian Institution)

[143] *Caries from a Museum Skeletal Collections*

Studying teeth in museum archaeological collections allows us to address questions about diet, health, and the environment. One common health indicator is the rate and frequencies of pathological indicators such as carious lesions (cavities) within a population. Changes in the amount of caries over time in a population show the changes in diet which may reflect cultural or environmental changes. Through museum collections we are able to look at caries and assess the relationship between oral pathologies and the environment. This presentation will discuss an effective example of collections based research to document the prevalence of carious lesions among ancient inhabitants of the Santa Barbara Channel region. Specifically, we aimed to build on previous research that showed prehistoric declines in the sexual differentiation and overall frequency of caries in the region, related to a dietary shift from terrestrial plants to marine animals. We found that over time there were less caries in the Santa Barbara Region hinting towards an increase in the dietary reliance of marine mammals. It is through the museum's collections that we are able to conduct research on previous human populations and assess their health and diet.

Carrillo, Vanessa [106] see Stanton, Christopher

Carroll, Jon (Oakland University)

[133] *Assyrians at the Gate: Rethinking the Siege at Tel Lachish*

Sennacherib's destruction of Tel Lachish, Judah (now Israel) in 701 BC was accomplished using state-of-the-art technologies and tactics. We know through the Lachish reliefs once located at Nineveh and now housed at the British Museum, that the Assyrians used a siege ramp to conquer the city. Unfortunately, the ramp was partially destroyed by archaeologists in the 1930's and comparatively little is known about its original dimensions and use in the siege. Computational technologies including the use of drone-acquired aerial imagery are used to reconstruct the landscape and evaluate competing interpretations of the assault on the city.

Cartagena, Nicaela, Sheldon Skaggs (Bronx Community College), Mike Lawrence (Pacbitun Regional Archaeological Project) and Terry Powis (Kennesaw State University)

[256] *Groundstone Production and Community Development at the Ancient Maya Site of Pacbitun, Belize*

The archaeological site of Pacbitun is one of the ancient sites that was inhabited by the Maya for approximately two thousand years. It is located in west central Belize near the modern Maya village of San Antonio. In 2011, investigations in the periphery of the site core revealed a small group of mounds, of which one contained evidence of groundstone production. This group, designated as the Tzib Group, was targeted because one of the mounds, labelled Mano Mound, yielded numerous mano fragments on its surface. Intensive investigations at Mano Mound revealed a production loci, namely the manufacture of manos made from granite, dating to the Late Classic (600–800 CE) period. Systematic survey immediately around the Tzib Group has produced numerous other small groups of mounds also engaged in mano production. Until the summer of 2017 we believed that this mano producing community was limited to the northwest periphery of the site core. However, recent investigations in the southeast periphery have identified yet another groundstone workshop for the manufacture of granite manos. This paper will contextualize our findings and discuss the role of these granite workshops as it relates to sociopolitical and economic development in the Late Classic.

Carter, Alison K. (University of Oregon), Piphall Heng (University of Hawaii), Miriam Stark (University of Hawaii), Rachna Chhay (APSARA Authority) and Damian Evans (l'École française d'Extrême-Orient)

[175] *Urbanism and Residential Patterning in Angkor*

Greater Angkor (9–15th centuries CE) was mainland Southeast Asia's largest low-density urban area. Some of the most visible aspects of this landscape are the large stone temples constructed by Angkorian kings and elites. While many scholars have hypothesized that these temple enclosures were loci of habitation, few have documented this archaeologically. In this paper, we present the results of two field seasons of excavation

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

at the temple site of Ta Prohm, part of a broader research program that was the first to intensively study temple enclosures for occupation. We used lidar data to focus our excavations and sample various locations within the enclosure. This work demonstrates evidence for residential occupation within the temple enclosure from the pre-11th century CE to the 14th century. A comparison with previous work exploring habitation areas within the Angkor Wat temple enclosure highlight similarities and differences in mound construction, organization of the internal grid system, intensity of habitation, and dates of occupation. We argue that temple habitation was a key component of the Angkorian low-density urban system and that investigating this unique form of urbanism deepens current comparative research on the diversity of ancient cities.

[246] *Discussant*

Carter, Benjamin (Muhlenberg College)

[141] *Making Bead Makers: Durability and Change in a Community of Practice among the Manteño-Guancavilca of Ecuador*

Shell beads are rarely considered a major artifact category. However, research on bead production among the Manteño-Guancavilca (AD 800–1532) of coastal Ecuador highlights the fundamental importance of this category of artifacts. By recording six measurements and four qualitative observations for each of 7651 beads from six sites (two regions, three stretches of time), this research has been able to recognize two distinct chaînes opératoires. At approximately AD 1200, bead makers shifted from a highly regular production sequence resulting in standardized chaquira (tiny beads) made from the ritually and economically significant shellfish, *Spondylus*, to one that is more opportunistic and results in irregular beads rarely made from *Spondylus*. This “destandardization” is associated with external economic forces, but also highlights the significance of the bead maker community of practice. Bead making endured the near complete loss of a market for chaquira, by becoming more flexible in their production strategy. That is, they tweaked their technological style to fit a new situation. In this way, bead makers retained their identity, as is demonstrated in the inclusion of raw material, production debris and tools in burials. This paper proposes some ways to think about change and durability in a community of practice.

Cartier, Meghan (California State University, Fresno)

[25] *Naked Huastecs, Anxious Aztecs: Male Nudity and Gender Identity in Aztec and Huastec Sculpture*

The relationship between the Aztecs and the Huastecs is complicated and often defined by Aztec reaction to Huastec culture. The Aztecs have often dominated the landscape of Mesoamerica while the Huastecs have been seen as something somewhat separate. At first glance the difference in Aztec and Huastec sculptural tradition might seem to reaffirm this disconnect. By focusing on male figurative sculpture and how it reflects the construction of gender identity we see that despite clear differences there is a core ideology which connects them through shared traditions and worldview. This examination also reveals how Aztec and Huastec depictions of, and reactions to, male nudity indicate how both cultures use shared ideas of gender and identity to address unique social and political concerns within each group. Ideas of maleness reflected in these sculptures reveal the anxiety of the Aztecs as relative newcomers trying assert themselves as a cosmic and political center of the Mesoamerican world while at the same time solidly giving the Huastec a home in that world. Ultimately this examination of Aztec and Huastec sculpture seeks to better situate both groups in terms of interactions with each other as well as their place in the broader Mesoamerican world.

[25] *Chair*

Carucci, James [13] see Gilmore, Kevin P.

Casado Lopez, Ma. del Pilar [42] see Rios Allier, Jorge

Casaly, Allison

[144] *A Distant Perspective: Characterization of Britain and Ireland in Studies of Large-Scale Exchange*

Archaeologists often characterize the Bronze Age by a pronounced expansion in long-distance interaction, which resulted in contact, whether direct or indirect, between disparate geographical areas. The centrality of this notion to the definition of the Bronze Age has resulted in numerous studies addressing such large-scale exchange of material culture and/or ideology. When incorporated into such studies, Britain and Ireland are often lumped together under the moniker of “the British Isles.” This paper examines the rhetoric surrounding discussions of long-distance communication and trade in the Bronze Age, specifically regarding use of the term “British Isles” in the archaeological literature. In particular, it considers whether the studies of long-distance interaction tend to homogenize Britain and Ireland under the umbrella of southern England, resulting in the glossing over of the rest of Britain and Ireland as marginal and insignificant, or in the blanket attribution of southern English characteristics to Britain and Ireland as a whole. Finally, this paper considers whether modern geographical understanding reflects that of groups in the Bronze Age, and how geographical understanding could have influenced the delineation of group identity. Particular attention is paid to methods of transport and communication, and how these may have shaped conceptualizations of geographical features.

[144] *Chair*

Casana, Jesse (Dartmouth College), Austin Chad Hill (Dartmouth College) and Elise Jakoby Laugier (Dartmouth College)

[68] *Drone-Acquired Thermal and Multispectral Imagery as a Tool in Archaeological Prospection*

This paper presents results of recent research at several sites in North America and the Middle East in which aerial surveys have been undertaken using an advanced radiometric thermal camera and a multispectral sensor mounted on commercial-grade drones. While using drone-acquired color photography to produce ortho-imagery and digital surface models has become an increasingly standard practice in archaeology, thermal and near-infrared imaging offers the potential to detect both surface and sub-surface archaeological features including architecture, earthworks, and artifact concentrations. Overviews instrumentation, survey strategies, and processing methodologies, our results from fieldwork at sites including Khani Masi (Iraq), Tlaxcala (Mexico), Poushoquinge (New Mexico), and the Enfield Shaker Village (New Hampshire), demonstrate both possibilities and challenges of this emerging approach to archaeological investigation. Analysis reveals a great deal regarding the surveyed sites, and offers researchers a powerful means to explore the archaeological landscape in a way that is rapid, inexpensive, and non-destructive.

Casanova, Edgar [293] see Ruvalcaba, Jose Luis

Cascalheira, João [124] see Bicho, Nuno

Case, Nicholas (Independent Researcher), William Taylor (Max Planck Institute) and Julia Clark (Northern Mongolia Archaeology Project)

[238] *Digital Archaeology In Mongolia: Visualizing the Data*

This study presents results from data visualizations of archaeological sites in northern and western Mongolia. Unlike traditional site documentation techniques applied throughout the discipline, digitalization of data while in the field presents distinct advantages for the study and preservation of both cultural heritage and archaeological data collections. These methods include the production of digital 3D maps, from both aerial and hand-held photogrammetry, data collection with tablets using project specific and updatable forms, near real-time data entry into a secured locally hosted onsite database, and increasing data integrity through pre-printed unique barcodes for each artifact and sample collected. We implemented these techniques for the Northern Mongolia Archaeology Project located in Darkhad Basin, Khuvsgul province, northern Mongolia, and the Tsagaan Asga Project, located in Bayan-Ulgii province, western Mongolia. By creating high-resolution maps in both visible and near-infrared light combined with the spatially

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

aware data collected, the result is a fully digitized site to assist in data organization and analysis so that the focus is less on the data entry and more on the data queries.

Caseldine, Christopher (Arizona State University)

[307] *Irrigation Time: An Assessment of Time as a Factor in Hohokam Irrigated Acreage*

The Hohokam within the lower Salt River Valley, central Arizona, practiced large-scale irrigation that spanned thousands of acres. Previous studies examining Hohokam irrigation assumed that there was a direct correlation between the amount of available water within the lower Salt River and the amount of land that could be irrigated. The amount of available water is necessary for assessing where water was sufficient for successful crops and where insufficient water made agricultural production difficult; however, time is also important. A key component of modern irrigation strategies is the amount of time required to apply sufficient water to fields for successful crop growth. Despite its importance, time has not been included in assessments of Hohokam irrigated acreage. In this paper, I estimate the amount of time it would take to irrigate all agricultural land within Canal System 1, the largest of the four major Hohokam systems. This study will provide a further method for assessing the amount of land the Hohokam could irrigate during key points in the agricultural calendar.

Cassedy, Daniel (AECOM), Matthew Jorgenson (AECOM) and Peter Sittig (AECOM)

[184] *New Data on Archaic Period Chronology and Raw Material Variation from a Stratified Archaic Site in the Appalachian Summit Region*

Excavations completed by AECOM documented deeply stratified Archaic deposits at the Weatherman Site (31YC31) in the Appalachian Summit Region of North Carolina. This site is located at 2,500 feet above sea level (10 miles north of Mt. Mitchell, the tallest peak east of the Mississippi River) and is situated in the floodplain of the South Toe River, which flows west to become the Nolichucky River and eventually the Tennessee River. The youngest Archaic component at the Weatherman Site is a Late Archaic horizon dominated by hearth remnants and dozens of broken and whole Savannah River projectile points made of local quartzites. The oldest and deepest component is an Early Archaic occupation dominated by cherts from East Tennessee, which produced a Kirk Serrated projectile point and multiple radiocarbon dates of circa 9200 calibrated radiocarbon years before present. These dates are among the oldest radiocarbon dates yet obtained in North Carolina. A summary of findings at 31YC31 is presented here and compared with other recent Archaic period site investigations in the Appalachian Summit region, with particular attention to spatial organization and changes in lithic resource utilization over time.

Cassidy, Brendan (University of Central Lancashire), David Robinson (University of Central Lancashire) and Devlin Gandy (Wind Wolves Preserve) (Tejon Indian Tribe)

[214] *Accessing the Inaccessible: Valuing Virtual Reality and Remote Access to Pleito Cave*

This presentation showcases the contemporary value of Virtual Reality as a means to experience difficult to access, sensitive cultural sites for different stakeholder groups including researchers, land owners, and Native groups. Here, we show the enhanced virtual reality environment of Pleito Cave, a fragile world class rock art site with accessibility limitation. We discuss how scientific research can be translated into VR data sets to speak to diverse communities and different needs, providing management tools as well as educational opportunities. As a group presentation, the Wind Wolves Preserve and the Tejon Indian Tribe will have representatives appearing via remote access within the VR environment during the talk.

Casson, Aksel (Slippery Rock University) and James Jablonski (Slippery Rock University)

[52] *A Return to Wolf Creek, PA*

The Wolf Creek Site (36BT82) in Slippery Rock, PA was last excavated in the early 1990s as part of Slippery Rock University's (SRU) Field School Program in Archaeology. In this poster, current SRU students evaluate the hypothesis that the site was an historic Kuskuski indigenous camp through a re-analysis of existing collections and additional research at the site.

Castañeda, Amanda (Shumla Archaeological Research and Education Center), Charles Koenig (Shumla Archaeological Research and Education Center), Karen Steelman (Shumla Archaeological Research and Education Center) and Marvin Rowe (Museum of New Mexico-Office of Archaeological Studies)

[180] *Portable X-ray Fluorescence of Lower Pecos Mobiliary Art: New Insights Regarding Chaîne Opératoire, Context, and Chronology*

Painted pebbles are the primary mobiliary art found in the Lower Pecos Canyonlands of southwest Texas and northern Mexico. Previous studies of these artifacts have focused on stylistic variation of the imagery and interpretation of the role these artifacts played within Lower Pecos societies. The focus of this study is the use of portable X-ray fluorescence on Lower Pecos painted pebbles to conduct elemental analyses, providing insight into the chaîne opératoire of painted pebble production. Using a sample of recently excavated painted pebbles, as well as a sample from a private collection, a total of 257 pXRF measurements were collected on 73 pebbles. We determined that charcoal was used as a pigment for black paintings and that iron-based mineral pigments were used for red paintings. The 30 excavated pebbles range in age from ~8000 cal BP to 550 cal BP, and the stratigraphic and chronologic context of these pebbles provides a dataset for analyzing not only the chaîne opératoire of painted pebble production, but also allows us to analyze the potential for changes in production through time. This presentation summarizes the results from the pXRF analysis, and discusses the larger archaeological implications for Lower Pecos painted pebbles.

Castañeda, Amanda [180] see Roberts, Jerod

Castañeda, Francisco [252] see Acuña, Mary Jane

Castanet, Cyril [80] see Nondédéo, Philippe

Castanzo, Ronald (University of Baltimore) and Elgin Klugh (Coppin State University)

[251] *The Archaeology of Historic Laurel Cemetery in Baltimore, Maryland*

Laurel Cemetery was created in 1852 in Baltimore, Maryland, as a nondenominational burial place for African Americans in the city. By the 1930s, after perhaps several thousand people were interred at the site, the cemetery company had become insolvent, and the grounds were no longer being maintained. After the property was sold in the 1950s, the cemetery was demolished in preparation for what would become a shopping center. Approximately 300–400 burials were moved, but it was not known how many, if any, burials remained at the site. The Laurel Cemetery Project, conceived as a public anthropology endeavor, combines archaeology, ethnology, history, and community outreach. The main goal of the archaeology component of the project was to determine if any human remains were still located at the Laurel site. Archaeology fieldwork concluded in the summer of 2017, and involved remote sensing and the excavation of six test units. Wood and metal remnants of several caskets were uncovered in the excavations, in addition to several pieces of human bone. A ground penetrating radar survey, conducted in limited sections of the property, indicates that many burials remain, both in unpaved areas and under the parking lot.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Castellano, Lorenzo (NYU—Institute for the Study of the Ancient World), Roderick Campbell (NYU—Institute for the Study of the Ancient World) and Yitzchak Jaffe (NYU—Institute for the Study of the Ancient World)

[221] *Climatic Narratives across Eurasia: A Comparative Study of the 4.2k Event in Western and Eastern Asia*

In the last two decades, climatic narratives have returned as a central issue in archaeological discourse. The field has been flooded with publications on paleoclimatic reconstructions and we believe it is time for a critical evaluation—both as means of seeking better science, and for building better archaeological narratives.

Climate history is composed by an overlapping meshwork of long-standing trends, punctuated events and short-term phases, with impacts ranging from the local to the global/hemispherical scale. As pointed out by several authors, the perception of change, understanding within specific cultural framework(s), and reactions to those changes, are crucial elements in the understanding of human-climate relationship. It is in this context that the so-called Holocene Rapid Climatic Changes (RCCs)—must be understood.

Among the various RCCs, the so-called 4.2k event represents a special case-study—being often associated with hypothetical widespread changes in the archaeological record. Together with a fresh look at the 4.2k climatic event, we analyze and discuss the ways in which those ‘climatic narratives’ have been built by comparing the Near and Far Eastern cases. Through it we show that mismatches of scale, archaeological and climatic, have profound impact on the way we reconstruct the past.

Castillo, Karime (UCLA-Cotsen Institute of Archaeology), Patricia Fournier (ENAH) and Roberto Junco (INAH)

[69] *Dehua Porcelain in New Spain: Approaches to the Production of Fine Chinese Porcelains*

In the viceregal society of New Spain, Chinese porcelain objects were expensive objects consumed primarily by people of high status. The white porcelain objects produced in Dehua, located in the Fujian province of China, were incorporated into the household items of palaces and mansions, as indicated by archaeological evidence from Mexico City, Acapulco, Sinaloa, and some rural sites in the Otumba Valley. The production of this fine porcelain, also known as Blanc de Chine, involved complex techniques, particularly in its firing process. This paper will present several aspects related to the manufacture of Blanc de Chine porcelain and the kilns used to fire it based on ethnoarchaeological observations performed in active porcelain production centers in Dehua, where these fine products are still made following millennial traditions.

Castillo, Luis Jaime (Universidad Católica del Perú)

[216] *The Priestesses of San Jose de Moro*

Starting in 1991, more than 20 female elite burials have been excavated among the 800+ burials dug in San Jose de Moro, Jequetepeque Valley, Northern Peru. Female burials tell us stories of the rise to power of females in the Late Moche society, of their singular power, emanating from roles in Sacrificial Ceremonies, but mostly each burial is a representation of the specific life of each one of these females, where more is singular than common and shared. Rather than a repetitive pattern, each female burial allows us to imagine the construction and reconstruction of gendered power identities, the ontologies of self and power and meaning associated with these singulars in individuals.

[321] *Discussant*

Castillo, Nina [153] see Núñez Aparcana, Bryan

Castillo Flores, Fernando, Francisco Javier García Ugalde (Universidad Nacional Autónoma de México), José Luis Punzo Díaz (Instituto Nacional de Antropología e Historia), Alfonso Gastelum-Strozzi (CCADET UNAM) and Dante Bernardo Martínez Vázquez (Escuela Nacional de Antropología e Historia (ENAH))

[55] *Automatic Classification of Digital Images of Archaeological Arrowheads*

Currently there exist several databases composed of hundreds or thousands of digital images of arrowheads made by different ancient ethnic groups around the world. Extracting information or comparing and classifying the elements of these databases in an efficient and automated way, even without the need of arrowhead's metadata, would be of great help in carrying out a comprehensive study on this archaeological subject. This work deals with this problem by developing an image processing computational algorithm that performs the automatic classification of the arrowheads. Particularly, the algorithm was used in the study of a set of Mexican's arrowheads coming from the Michoacán state; these arrowheads were classified and compared with other databases consisting of hundreds of arrowheads from North America. The classifier uses these features: eccentricity of the arrowhead, blade kind (excurvate-incurvate) and base kind (concave-curved, straight, with handle, and concave with handle). Except for the eccentricity, the other features were obtained by the curvature scale space (CSS) method computed on the arrowhead contour. An important aspect of the algorithm is its robustness with respect to the image, as it performs satisfactorily even with images of medium quality and the only general requirement is to have a uniform background.

Castro, Juan (Museo de Ciencias Naturales y Antropológicas “Prof. Antonio Serrano”. Paraná.), Mariano Bonomo (CONICET-División Arqueología, Facultad de Ciencias), Lucio González Venanzi (Centro Regional de Investigaciones Científicas y T), Francisco Juan Prevosti (Centro Regional de Investigaciones Científicas y T) and Silvia Cornero (Museo Universitario, Facultad de Ciencias Exactas,)

[7] *New Records of Pre-Hispanic Dogs (Canis familiaris) in Argentinean Northeast*

Canis familiaris has a limited record in pre-Hispanic archaeological sites of Southern South American, but in the last decade, more specimens were published. In this context, we present new remains of domestic dogs from five archaeological sites along the Paraná and Uruguay Rivers in the Northeast of Argentina, an area with few published records. We also discuss their roles within human societies. The studied sample includes seven cranial and one postcranial specimens corresponding to seven individuals, that comprise adults (n= 6) and youngs (n= 2). Estimated body size indicates that they belong to medium sized dogs (13–23 kg). Some of them show anthropic cut marks (n= 4) and carnivore marks (n= 2). Two specimens were dated, one at 1119 ± 23 14C years B.P., and the other at 1910 ± 29 14C years B.P. It is concluded that in the Northeastern Argentine *Canis familiaris* presents greater age variability and slightly larger sizes than previous records. The 14C dates extend the chronological range known for the region. Its presence is linked to hunter-gatherer-fisher and small scales horticulturalist populations with a marked fluvial adaptation. Evidence of anthropic processing indicates possible human consumption during the late Holocene.

Castro de la Mata, Pamela [141] see Velarde, María Inés

Catanzariti, Antonietta (Smithsonian Institution)

[4] *Ban Qala, a Late Chalcolithic Site in the Mountain Region of Kurdistan, Iraq: A Report from the 2017 Excavation Season*

Ban Qala, a site located in the mountainous valley of Qara Dagh, was first identified by Iraqi archaeologists in the 1940s. In 2015, a survey performed by the Qara Dagh Regional Archaeological Project determined the archaeological relevance of the site, which was then chosen as subject of an archaeological investigation. A step trench on the southern slope of the site verified the presence of LC 1–2 (4800/4500–3850 B.C.E.) and LC 3–5 (3850–3100 B.C.E.) occupation levels. This paper will discuss the data collected and provide interpretations on the implication of the Late Chalcolithic period in the Qara Dagh Valley. The presence of stone tools, particularly obsidian, and the strategic position of Ban Qala on a corridor that leads east to the Shahrzior plain and west to Chamchamal, could suggest that the site participated in some form of trade. Finally, the recovery of several bevelled

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

rim bowls in situ suggests that local ceramic production was being carried out within the context of a wide-spread Mesopotamian ceramic tradition.

The Ban Qala excavation is one of the first conducted in the valley and will contribute to our knowledge on its occupational history, providing a regional perspective from the mountainous region of Northern Mesopotamia.

Catignani, Tanya [293] see Sugiyama, Nawa

Catlin, Kathryn (Northwestern University)

[167] *Transforming Marginality in Medieval Iceland: Landscape Reorganization on Hegrans, Skagafjörður*

Eleventh century Iceland was a period of transition. The settlement of the island two centuries earlier set off cascading environmental and landscape changes whose agricultural consequences were then evident, including deforestation, erosion, and wetland alteration. Meanwhile, the rise of a wealthy landowning class altered the economic basis of society from primarily household production towards more centralized structures of rent extraction and tenancy. On Hegrans, a region in Skagafjörður, North Iceland, numerous small settlements on the margins of modern farm properties were abandoned during the 11th century. These sites are in localized areas of deep, dry soils between eroded bedrock and wetland, and while some may represent independent households, others likely served specialized functions in the service of larger farmsteads. After the sites ceased to be inhabited, they were used sporadically for livestock management over the next eight centuries. This rapid reorganization of settlement patterns and landscape use reflects simultaneous and interconnected transformations in ecological and social practice. This paper explores how the changing practices of marginal households both contributed and responded to this moment of transformation, as environmental and political factors came together to alter the material ways in which social inequality was organized and maintained.

[167] *Chair*

Catsambis, Alexis

[78] *Preserving the U.S. Navy's Sunken Military Craft: Transcending Time and Space*

The U.S. Navy maintains a program responsible for the management of its sunken military craft, which are distributed world-wide and extend temporally from the American Revolution through to the Nuclear Age. These multi-faceted submerged heritage sites are managed by the Underwater Archaeology Branch of the Naval History and Heritage Command, which engages in archaeological field research, heritage management, artifact conservation, collections management, and outreach initiatives in furtherance of its mission. This paper will discuss recent research and developments pertaining to the management of sunken military craft, which in addition to representing important heritage sites, may also serve as maritime graves and carry environmental or public safety hazards.

Cattaneo, Roxana, Gisela Sario (CONICET/UNC), Gilda Collo (CONICET/UNC), Andres Izeta (CONICET/UNC) and Jose Caminoa (CONICET/UNC)

[154] *Tracking Quartz: A Methodological Approach to an Elusive Type of Sources Using Chemical Characterization According to Their Geological Origin*

In the archaeology of the Sierras Centrales of Argentina more than one hundred years ago studies reported the presence of a lithic technology centered on the use of quartz as a predominant raw material. However, little effort has been made to try to characterize its chemical composition so as to understand the circuits of mobility or the exchange networks in the archaeological sites of the region.

The results of provenance studies have allowed us to advance in a geochemical characterization of quartz sources and discuss an appropriate set of chemical trace elements useful for comparison between archaeological sites and quarries depending of the geological origin (hydrothermal or pegmatite quartz). We report here a chemical characterization of archaeological and geological samples using thin sections, X-Ray fluorescence and X-ray diffraction.

The detection of trace elements of 100 quartz outcrops and its comparison with archaeological artifacts from 8 sites from the valleys of Ongamira and Copacabana (north of the province of Córdoba, Argentina) are going to be presented, related with samples that belong to different chronological periods (from hunter-gatherer societies—ca. 6000 BP—to more recent occupations—ca. 300 BP).

Cazares, Irma (Zona Arqueologica de Monte Alban, INAH)

[158] *"Teposcolula Viejo, Yucundaa, Oaxaca", Un proyecto Novedoso e Interdisciplinario, Modelo de Co-Participación Gubernamental y Privada en México*

En el año 2004 comenzó el Proyecto: "Teposcolula Viejo, Yucundaa, Oaxaca", en el sitio arqueológico de Pueblo Viejo de Teposcolula, una antigua ciudad mixteca sede de uno de los señoríos más poderosos de la época prehispánica en Mesoamérica, que recibió la incursión de la conquista española y tuvo que transformarse completamente; y esta transición cultural se muestra en los hallazgos arqueológicos.

Este proyecto dirigido por los Doctores Nelly Robles (INAH) y Ronald Spores (Vanderbilt University), conducido por el Instituto Nacional de Antropología e Historia (INAH) de México, contó con financiamiento de la Fundación Alfredo Harp Helú Oaxaca (FAHHO), apoyado por el municipio de San Pedro y San Pablo Teposcolula, Oaxaca, y también tuvo el soporte de Harvard University, del American Museum of Natural History, y de The National Geographic Society, entre otros; de esta manera, se contó con la participación de arqueólogos internacionales, laboratorios modernos y tecnología de punta que permitieron obtener más información de este sitio y este contexto tan particulares, y tan poco conocidos.

Cecil, Leslie (Stephen F. Austin State University)

[112] *Moderator*

Celis Ng Teajan, María Andrea (Andrea Celis Ng)

[19] *Arroyo Pesquero y su "otra" ofrenda*

Desde el descubrimiento de una ofrenda masiva de objetos rituales hallada fortuitamente en un arroyo, el sitio Arqueológico de Arroyo Pesquero enclavado en el área nuclear olmeca ha generado una serie de discusiones acerca de la autenticidad de piezas dispersas en museos y colecciones privadas. Las piezas más representativas son máscaras y hachas de piedra verde con una iconografía propia de la cultura olmeca. Sin embargo, una parte del material del sitio se ha subestimado. Por Medellín Zenil sabemos que se trasladaron otros artefactos de piedra verde erosionados al Museo de Antropología de Xalapa, posiblemente estaban en el fondo del río. Salieron de nuevo a la luz en el 2013 cuando algunos arqueólogos los localizaron en la bodega del museo. El contexto de estas piezas siempre ha sido enigmático, desde la exploración hecha por Manuel Torres en 1969 se perdieron datos acerca de éste. Durante el 2005 comenzaron nuevas investigaciones dirigidas por Carl Wendt y Roberto Lunagómez, que permitieron contrastar información. En esta ponencia nos enfocaremos en el trabajo efectuado sobre estas piezas olvidadas, y ahora trabajadas dentro de un proyecto arqueológico, en las bodegas del museo. Esto nos da la oportunidad de ver "otra cara" de la ofrenda.

[19] *Chair*

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Cercone, Ashley (University at Buffalo) and Zeynep Bilgen (Dumlupınar Üniversitesi)**[146]** *Double Handed Vessels at Seyitömer Höyük in Kütahya, Turkey: The Manufacture, Use, and Trade of Depas Cups*

During the Early Bronze Age, the site of Seyitömer Höyük in Western Anatolia, served as both a center for ceramic production and trade. Through the innovative use of a mold-making technique, as well as a clay coil and wheel combination method, potters were able to produce a standardized diverse ceramic repertoire at a fast rate. Within the site assemblage, a variety of ceramic types are represented, including the depas amphikypellon, a two handled drinking vessel. Depas vessels originating from both local mounds, such as Küllüoba, and foreign locals, like Syros-Kastri, Poliochni, and Kültepe are also present. In addition to these cups, used for both libation and everyday use, zoomorphic rhyta have been uncovered that depict two animals holding a depas cup. This paper reconsiders the daily and ritual uses of the depas cup in light of the Seyitömer Mound excavations and discusses the movement of this vessel type throughout the Aegean islands, Balkan Peninsula, and Anatolian and Syro-Mesopotamian mainlands.

[146] *Chair***Cerezo-Román, Jessica (Cal Poly Pomona) and Kenichiro Tsukamoto (Department of Anthropology University of California)****[37]** *Life and Death of Lakam Elites at the Maya Center of El Palmar, Campeche, Mexico*

During the Late Classic period (A.D. 600–800), Maya non-royal elites frequently appeared in courtly scenes, which are depicted on polychrome vessels and carved monuments. While epigraphic studies over the last two decades have gradually shed light on their political and ritual roles, little is known about their life histories and mortuary practices. One group of these elites held the title of lakam, which has been reported only at three archaeological sites. We detected tangible evidence of their residential cluster at the archaeological site of El Palmar, located in southeastern Campeche, Mexico. A hieroglyphic stairway found at El Palmar's northern Guzmán Group depicts the genealogical list of lakam elites. During the 2016 field season, 10 burials were recovered at the Guzmán Group and subsequently subjected to osteological analyses to document their biological profiles and life histories. By combining the osteological results with archaeological and epigraphic data, we attempt to reveal socio-political circumstances of these relatively unknown elites in Classic Maya society.

Cerling, Thure [198] see Chritz, Kendra

Cervantes, Gabriela (University of Pittsburgh)**[82]** *The Sican Capital: Neighborhoods and Urban Organization in Pre-Columbian Peru*

Cities which become capitals of large states provide unique information on the sociopolitical political organization and the nature of power, as they are home to a society's leaders and central institutions. In the Andes, scholars have highlighted the existence of cities dominated by a centralized single governing institution, like the Moche capital of Pampa Grande; while others have drawn attention to the empty ceremonial centers, such as Cahuachi, main settlement of the Nazca society. A different urban organization model based on extended, low density population has been studied for Mesoamerica but never for the Andes. I present recent work arguing that the capital of the Sican State (800–1375 AD) on the North Coast of Peru presents a dispersed urban pattern with several nuclei. The city is composed by the "Sican Core" that has a monumental center for political-religious activities and the "Greater Sican" forming a dispersed urban pattern with several neighborhoods each with public architecture and residential occupation.

[82] *Chair*

Cesaretti, Rudolf [105] see Johnson, Amber

Cesario, Grace (The Graduate Center, CUNY)**[167]** *Zooarchaeology of Marginality: An Investigation of Site Abandonment in Hegrane, North Iceland*

The settlement of Iceland, a previously uninhabited landscape, began a series of human-induced environmental changes that have had lasting effects on not just the land but on social organization as well. As land claims were made for household farms, hierarchy developed and some were pushed to settle on the margins. In Hegrane, a region in Skagafjörður, northern Iceland, the sites that are on the margins are often much smaller than the others and may not have been farms at all but rather specialized activity areas. Examining marginal and non-marginal sites through a zooarchaeological lens can help decipher patterns of resource use which can act as a proxy for understanding environmental and social change. Current work on Hegrane has shown that the archaeofaunal assemblages from marginal sites are nearly always comprised of over 50% wild resources throughout the site's short occupational history, while those from proper farms are dominated by domesticates. These marginal sites also follow a pattern of abandonment by the year 1104 A.D., while many of the larger farms are still functioning to the present. This paper will examine the social and environmental variables of abandonment by using zooarchaeology to understand site function and status.

[167] *Chair***Chacaltana Cortez, Sofia (Universidad Antonio Ruiz de Montoya)****[100]** *A Local Perspective of Inca Imperial Influence in Coastal Colesuyo of the Southern Andes*

The effects of the Inca empire across the Andes were multiple and diverse. Relying on their sophisticated institutions, the empire originated a strong physical, political, and economic connectivity across the pre-Hispanic Andes that on occasions went beyond imperial boundaries or political borders. People, things and ideas travelled across the empire provoking a cascade of interactions some of which were not directly intended by the center of power. The multi-component site of Tacahuay located in the coastal region of southern Peru was inhabited before and during the influence of the empire (1,100–1540 a.C) at this region. This site resembles an Inca tambo, presents high frequencies of Inca-altiplanic sherds and chullpas (altiplanic funerary structures); however, it was not part of the Inca imperial system. Instead, Tacahuay was an enclave established by elites from the altiplano and coastal populations that allowed elites to have access to foreign resources and political benefits, respectively.

[216] *Discussant*

Chacaltana Cortez, Sofia [257] see Nuñez, Claudia

Chacon, Ricardo [140] see Hurst, Stance

Chadwick, William (Indiana University of Pennsylvania)**[331]** *Geophysical Survey as an Exercise in Applied Archaeological Education*

Graduate and undergraduate students from the course "Geophysical Applications in Archaeology" conduct a geophysical survey related to a potential archaeological site or cemetery each year. The survey is undertaken as a final small group project composed of two to three students. The purpose of the survey is to determine if there is geophysical evidence of potentially buried archaeological features or burials within the survey area. Each individual group surveys a single 20mX20m geophysical grid using ground-penetrating radar and a gradiometer. The individual groups then process and interpret the geophysical data using standard processing software and geospatial technologies. The students present the methods, results, and interpretations as a final project in the class and produce a final technical report for their individual geophysical grid. The overall goal of the exercise is to provide students with field experience in establishing a geophysical grid, executing geophysical survey, post processing geophysical data, and producing a

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

technical report of the results and interpretations. A composite processing and analysis by the instructor provides the students with an overall “picture” of the results of their combined surveys. Here examples and results of this process will be presented.

Chamberlain, Andrew [88] see Procopio, Noemi

Chan Soe, Nyien [56] see Iannone, Gyles

Chandler, Susan (Alpine Arch Consultants Inc.)

[1] *Discussant*

Chang, Melanie (Portland State University) and April Nowell (University of Victoria)

[41] *The Scientific Method in Paleolithic Archaeology*

Paleoanthropological hypotheses are often qualitatively different from questions asked by scientists studying the evolution of other living groups. They are frequently complex and very specific. Rather than seeking to illuminate basic evolutionary processes and mechanisms, they focus on precisely reconstructing events in human prehistory. They are often driven, at least in part, by public interest. These characteristics can enhance paleoanthropological studies because they foster novel research approaches, but they may also encourage the formulation of hypotheses that are essentially untestable given the available data. Perhaps for these reasons, explicit hypotheses are sometimes omitted or never clearly stated in paleoanthropological research papers, and many studies are essentially inductive or descriptive.

We conducted a survey of Paleolithic studies published in 10 archaeological journals since 2000. We evaluated each study according to three criteria: (1) Is an explicit hypothesis stated? (2) Can the hypothesis be tested given the data that were examined? (3) Do the methods actually used in the study adequately test the hypothesis? We examined chronological trends throughout the study period and compared results for different journals. We examine our overall findings and specific examples to elucidate the nature of Paleolithic archaeological studies and their status as a hypothetico-deductive discipline.

Chapa, Reymundo

[332] *Applying Continuous Process Improvement Methodologies to Evaluate and Rebuild the Air National Guard Cultural Resources Management Program*

The Air National Guard (ANG) Cultural Resources Program oversees historic preservation and tribal consultation for 160+ installations throughout the United States and its Territories. One government official and one CEMML Cooperator manage the program centrally from Joint Base Andrews, MD, but the volume of work has prevented officials from managing resources in a proactive and systematic way. As such, managers are applying the Continuous Process Improvement/Lean Six Sigma methodology to focus efforts on improving work flow, enhancing customer value, and eliminating non-value added activities. This methodology has been used primarily by private industry to minimize waste by reducing and controlling variation, but the method also complements cultural resources management practices by eliminating redundancies, clarifying tasks and obligations, identifying solutions to complex problems, and quantifying ambiguities in order to garner understanding and support from key management officials.

[232] *Discussant*

Charles, Michael [71] see Twiss, Katheryn

Charlton, Sophy [219] see Stevens, Rhiannon

Charolla, Breeanna (University of Colorado Denver) and Jamie Hodgkins (University of Colorado Denver)

[304] *Zooarchaeological Analysis of a Late Pleistocene Cave Site in Northwestern Italy, Arma Veirana*

Italy serves as a critically important region for better understanding the late Pleistocene as it was home to Neandertals and other hominins. Archaeological excavation in northwestern Italy at the cave site of Arma Veirana, with layers dating back to 44 ka, intends to provide insight into this ambiguous period in prehistory. Preliminary data from zooarchaeological analysis of 1,414 specimens indicate that Neandertals primarily hunted medium-sized bovid/cervids, including *Capra ibex*, *Cervus elaphus*, and *Capreolus capreolus* to transport back to the site for butchering: 11.6% of faunal remains display cut marks and percussion marks. A number of these remains also show sign of burning (14.2%), and charred fat deposits have been found in micromorphological samples. This zooarchaeological analysis will help highlight behaviors used by hominins at this cave over time, and contribute to a better understanding of Neandertal subsistence behaviors shortly before their extinction ~40 ka.

Chase, Adrian (Arizona State University)

[82] *Understanding Infrastructural Power, Collective Action, and Urban Form: Situating Neighborhoods and Districts at Caracol, Belize*

Ancient Maya cities possessed a unique urban form characterized by two factors: mixed agricultural land use within residential areas and dispersed households consisting of extended family groups. These two factors contributed to the low-density nature of Maya cities, and conditioned urban form and the structure of neighborhoods and districts. The requirements of top-down administration resulted in the creation of districts to delineate areas of provisioning for the city's urban services. However, a variety of interactions between top-down and bottom-up processes create neighborhoods, especially when they occur in areas of frequent, repeated face-to-face interaction between residents. The use of neighborhoods and districts as scales of analysis permits analysis of various concepts, including: urban infrastructural power, collective action among urban residents, household autonomy within the city, and other concepts that span the spectrum from top-down to bottom-up administrative processes. While districts at Caracol can be reconstructed through the spatial distribution of architectural features that would have provisioned urban services, no such architectural features occur uniquely at the neighborhood scale. As such, Caracol's neighborhoods have been reconstructed through spatial methods utilizing the concept of frequent, repeated face-to-face interaction. These reconstructed spatial units help define the unique characteristics of ancient Maya urbanism.

[321] *Discussant*

Chase, Arlen and Diane Chase (University of Nevada, Las Vegas)

[147] *Final Moments: Contextualizing On-Floor Archaeological Materials from Caracol, Belize*

Excavations within various locales at Caracol, Belize have recovered artifactual materials on the floors of epicentral stone buildings that were associated with the latest occupation of the site epicenter. These deposits are the result of both “de facto” refuse and rapid short-term abandonment processes. In many cases, complete vessels and other artefactual remains were recovered from the floors of Caracol's epicentral buildings. Other terminal deposits comprise thin sheet-like layers of broken ceramics, stone artifacts, and faunal materials that potentially indicate a break-down in garbage collection during Caracol's final days. Human remains were recovered from epicentral plaza and building floors, including both whole bodies interpreted to be the result of a sudden violent episode during Caracol's final days. Other cases are suggestive of ritual offerings of human remains. Still other contexts yielded isolated human long bones and teeth. This paper reviews terminal deposits from Caracol and places these deposits within the broader context of Maya archaeology.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

[256] *Discussant*
 [213] *Chair*

Chase, Brad (Albion College), David Meiggs (Rochester Institute of Technology) and P. Ajithprasad (Maharaja Sayajirao University of Baroda)

[297] *Kinship and Cattle in Harappan Gujarat*

Pastoralism, the production and management of livestock, was integral to the lifeways practiced by the peoples of the Indus Civilization (2600–1900 BC), South Asia's first experiment with urban society. The integration of Gujarat (India) into the interregional flows of people, goods, and ideas that knit together the Indus Civilization, for example, is associated with the widespread adoption of pastoralism in a region that was formerly characterized by small-scale horticulturalist-hunting communities. Here, new data generated from recent faunal and isotopic studies are interpreted to infer the organization of pastoral production, circulation, and consumption. While economic and ecological models offer valuable insights into the adoption and practice of pastoralism in Gujarat, a comprehensive understanding of this process must incorporate consideration of the possible roles that livestock, especially cattle, played in the ritual life of local communities. Specifically, it is hypothesized on the basis of ethnographic analogies from South Asia and elsewhere that livestock may have circulated as ritual prestations between families associated with the creation, maintenance, and manipulation of kinship networks in this socially dynamic borderland region.

Chase, Diane (University of Nevada, Las Vegas)

[213] *Sustainability and Climate Change in the Ancient Maya Area: Evidence from Remote Sensing and Long-Term Land Use*

The sub-tropical forests that once covered the ancient ruins of much of Mesoamerica are being rapidly removed due to modern subsistence practices. Yet, archaeological and ecological research shows that this is not the first time that extensive human-caused deforestation has occurred in this region, minimally representing the third iteration of such an event. Analyses of lake-cores and remote sensing imagery provide evidence for extensive land clearing around 1000 BCE and again after CE 250, with the central Maya area reverting to the tropical forests seen today after CE 1000. LiDAR data also reveal successive built landscapes associated with the earlier deforestations in the central Maya region, potentially correlated with substantial changes in rainfall. The LiDAR data also demonstrate how the ancient Maya terraformed their environments to manage the flow of water and engage in sustainable agriculture. At Caracol, Belize, archaeological data show that a successful urban system was created through the construction of integrative causeways to link public architecture and the purposeful spacing of residential groups among hundreds of built reservoirs and thousands of constructed agricultural terraces. This built environment fostered agricultural productivity, health, and long-term sustainability throughout the Classic Period (C.E. 250–900).

[213] *Chair*

Chase, Zachary [66] see Ericksen, Connie

Chastain, Matthew (Massachusetts Institute of Technology), Jianli Chen (Peking University) and Xingshan Lei (Peking University)

[177] *Identifying the “Why” Of Ancient Engineering Choices: Materials Performance and the Production of Ceramic Bronze-Casting Molds in Zhou-Period China*

Bronze ritual vessels from Shang- and Zhou-period China display a combination of features—complex, three-dimensional forms; exquisitely fine surface detail; and monumental size—that was achieved by casting in multi-part ceramic molds. The ceramic material used to form these casting molds is soft, powdery, and silica rich, making it altogether different from pottery clays in both its physical qualities and its production sequence. Why was such a material chosen? Which specific materials properties did foundry workers seek out in order to ensure adequate performance of their casting molds?

Casting molds and other ceramic artifacts from three bronze foundry sites (c. 1100–771 BCE) in the Zhouyuan area of Shaanxi province were chemically and microscopically analyzed to identify differences in processing and composition between object types. The consequences of these production choices for materials performance were then assessed by measuring mechanical and thermal behavior of lab-made facsimiles. On the basis of the results, this paper reconstructs the priorities that informed the selection of production techniques practiced at these sites.

Chatelain, David (Tulane University)

[337] *A Millennium of Sociopolitical Transitions in the PRALC Region: The View from La Cariba*

Excavations at minor centers provide us not only with a wealth of information about those sites, but they can also illuminate sociopolitical shifts over time within the broader region. The minor center of La Cariba, located four kilometers southwest of La Corona, has been investigated since 2009. A broad dataset including architectural, epigraphic, osteological, and artifactual evidence has provided a detailed narrative of political and demographic changes over a millennium at La Cariba. The site's origins in the Late Preclassic demonstrate the establishment of a communal ceremonial place with a substantial investment in labor, despite a strikingly low population density. Around the transition into the Early Classic, a notable demographic increase corresponded with a major construction episode at La Cariba. After a possible abandonment for a few centuries, during the height of Kaan influence in the region, La Cariba was once again renovated, this time with minimal effort, with architectural evidence implying a strong relationship between La Cariba and La Corona. Epigraphic evidence links La Cariba's Early and Late Classic occupations to two enigmatic periods in La Corona's history, greatly enriching our understanding of these important periods, both of which involved major sociopolitical transitions in the region.

Chauca, George [335] see Morrisset, Sara

Chaussee, Anna (University of Winchester)

[62] *Discussant*

Chavez, Sergio [100] see Bray, Tamara

Chavez, Stanislava (Wayne State University)

[181] *Objects of Power and Power of Objects: Tiahuanaco Burial Assemblages in Cundisa (Copacabana, Bolivia)*

This paper explores roles played by objects in forging and cementing local and state identities at a Tiahuanaco cemetery at Cundisa in Copacabana, Bolivia. The cemetery consists of 98 Tiahuanaco burials excavated by the Yaya-Mama Archaeological Project. The majority of tombs contain a single individual. Most of the complete objects associated with these burials belong to classic Tiahuanaco style of decorated pottery, but there is also another peculiar pattern of unfired clay miniatures and large pieces of broken utilitarian pottery in the same burials. I propose that this dichotomy helped to reaffirm the participation of people who buried their dead at Cundisa in the broader Tiahuanaco cultural influence sphere, while at the same time cementing and/or underlying a separate local cultural identity (Copacabana lies within the Tiahuanaco hinterland, but relatively far away from the capital). Fancy Tiahuanaco-style pottery, used in life, during the burial ceremony, and accompanying the deceased in their tombs, helped to underline

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

or maybe even create ties with the larger Tiahuanaco polity. On the other hand, the pattern of unfired miniatures is rather unique within Tiahuanaco contexts. Hence, these objects might have played a role forging or highlighting a unique local identity of the local population.

Chazin, Hannah (Columbia University)

[297] *Ordinary or Extraordinary? Analytical Disjunctures between Production and Rituals in Pastoralist Societies*

This paper considers the connection between the quotidian practices of pastoralism and the role of herd animals (and their material remains) in ritual practices in the Late Bronze Age in the South Caucasus. Zooarchaeological and isotopic analysis of faunal remains from Late Bronze Age (1500–1100 BCE) sites in the Tsaghkahovit Plain, Armenia have revealed new, if perplexing, evidence about everyday practices of production, distribution, and consumption of pastoralist products and the incorporation of animals in ritual practices in walled sites and mortuary assemblages. Specifically, this paper examines the incorporation of isolated skeletal elements into ritual spaces, contextualizing this practice within the broader scope of Late Bronze Age human-animal relationships. Avoiding analytical reduction to tokens of economic transactions or singular items of ritual value, this approach situates both ritual and production as material efforts to stabilize the fluid and multiple connections between activities taking place within fortress sites and the suite of quotidian and extraordinary practices that constituted social worlds lived primarily beyond the confines of walled sites.

Chechushkov, Igor (University of Pittsburgh)

[75] *Winter Is Coming: Is 'Fortification' Always Fortification?*

The case study comes from the southern Urals, Russia. Since 1970's the walled settlements of the Sintashta archaeological culture (2000–1700 BC) have been interpreted as the fortified towns and centers of social life for the religious and war leaders of the local communities. However, settlements' primary locations on the bottoms of the rivers' valleys, as well as lack of other evidence for the warfare, cause doubts about such interpretation. Analysis of natural environments (e.g., local wind, precipitation, water tables) and strategic features of locations allows a different interpretation. With the equal chance, the Sintashta 'fortified' settlements can be artificial ecological niches that allowed pastoralists to keep and maintain livestock in the harsh winter conditions. If this was the case when the original interpretation is not fully correct, and at least in some cases we should be more critical about our understanding of warfare landscapes.

Cheek, Charles

[33] *Male Court Dress on Late Classic Maya Vases*

Dress is an object made up of other objects. I combine a practice approach with the chaîne opératoire and behavior chains methods to analyze technical and social acts involving dress objects. The analysis starts with one segment of the actions involving dress—the actual act of dressing. The study includes only court scenes that appear to memorialize historic events, although some of the observations and conclusions can be applied to other kinds of scenes and other media. After identifying the elements of dress, we can see how the Maya combined them into ensembles and then how these ensembles interacted with non-dress objects and social acts in the Maya court. Maya artists used dress and non-dress objects to help the Maya audience understand what the scenes on the vases were depicting. This paper will address three aspects of male dress as depicted on the polychrome vases commonly used for drinking various beverages. Head gear and material objects provide evidence for three propositions. Dress ensembles 1) were shared throughout the Maya Lowlands; 2) were connected to known titles; and 3) were used to represent a hierarchy of social positions within the court.

Chen, Jianli [137] see Liu, Siran

Chen, Peiyu (University of Pittsburgh), Ali Altamirano-Sierra, Carlos Osoreo Mendives and Jhon Cruz Quiñones

[64] *Fishing, Shellfish Collecting, Hunting and Planting from Late Preceramic to Initial Period: A Case Study from Huaca Nagea, Viru, North Coast of Peru*

By studying fauna and botanic remains unearthed from Huaca Negra Archaeological Project, this presentation seeks to understand subsistence system and daily life in Late Preceramic Period, and how it might have changed in later Initial Period.

Huaca Negra is a fishing village located in the northwest of the Virú Valley and is 1.2 kilometers from the current shoreline. The site was occupied between 5,000–3,200 CalBP, from Late Preceramic Period to Initial Period, which witnessed the transitions from non-sedentary activity to a settled village, from sedentism to the construction of the mound, and finally from the usage to the abandonment of the mound.

Along with these social changes, the long-term occupation provides a unique opportunity to study early coastal life. The comparison of four activities (fishing, shellfish collecting, hunting, and planting) and its diachronic change help to reveal the nature of subsistence system in both Late Preceramic and Initial Period. The preferred catchment zones, change of coping strategy and the implication of social change will also be addressed.

Chen, Xinzhou

[336] *Material Assemblage and Social Changes in Central Tibet, the Second and the First Millennium B.C.*

Compared to the relatively well-researched area of Eastern Tibet Plateau, the archaeology of Central Tibet has long been neglected. This paper offers a review of academic debates concerning the site of Qugong and analyzed the newly found materials in Bangga and Changguogou site. Based on the available materials and 14C dating data, I here propose a primary chronological framework in Central Tibet and revealed the cultural affiliations of Central Tibet with Central Asia, as well as the cultural change pattern throughout second to first millennium B.C.

Cheng, Wen Yin and Chen Shen (Royal Ontario Museum, University of Toronto)

[24] *Two Mould Types for All the Vessels: Correlating Casting Mould Forms to the Vessel Forms Produced during the Shang Dynasty*

Through the previous research on the Royal Ontario Museum's mould fragments, three main types of moulds were identified. In order to extend our knowledge beyond the moulds themselves and associate the moulds to the bronze vessels this paper brings both the moulds and bronze vessels into the same discussion by looking at the correlation between the mould types and the bronze vessel forms they were made to produce. The correlation can further our comprehension into the reason of produce the mould forms the way they were made.

[24] *Chair*

Cheong, Kong (American University), Linda Howie (HD Analytical Solutions / The University of Western Australia) and Terry Powis (Kennesaw State University)

[256] *If Ocarinas Could Talk: The Biographies of Ceramic Wind Instruments Used in a Late Classic Maya Funerary Ceremony at Pacbitun, Belize*
The Classic Maya crafted a wide variety of music instruments from clay and other materials. Numerous depictions of musicians on vase paintings and murals attest to the important role of music in ceremonial occasions. Music instruments were also interred with the deceased during funerary ceremonies; although their comparative rarity in burials suggests that their inclusion was not a common practice. At the site of Pacbitun, music instruments have been recovered from multiple Classic period burials, yet the complement of instruments, their placement within the grave and other characteristics is unique in each case. In this paper, we employ a biographical approach to examine the life histories of a group of ceramic wind instruments interred with a Maya woman who was laid to rest in a Late Classic residential building at Pacbitun. By integrating contextual data with the results of detailed macroscopic and petrographic analyses, we trace and compare the manufacturing origins, use lives and final treatment of these

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

instruments. We investigate the nature of their transition from objects used by the living to possessions of the dead and examine what they reveal about the life of the deceased and the funeral rites that were conducted upon her death.

Cherico, Peter [256] see Powis, Terry

Cherkinsky, Alexander [74] see Loftis, Kat

Cherkinsky, Alexander [35] see Napora, Katharine

Chesson, Meredith S. (University of Notre Dame), Isaac Ullah (San Diego State University), Nicholas Ames (University of Notre Dame), Hamish Forbes (Nottingham University) and Paula Kay Lazrus (St. Johns University)

[54] *Full of Water, Full of Life: Water, Resilience, Sustainability, and Built Heritage in the 19th to 21st Centuries San Pasquale Valley, Calabria, Italy*

In the early 1800s wealthy landowners acquired lands in the San Pasquale Valley, located 50 km from the provincial capital of Reggio Calabria in southern Calabria, Italy. Internal migration of farmworkers to establish commercial bergamot, olive, grape, and mulberry orchards in this valley created a large and thriving community of farmworker families who built the landowners' villas, the overseers' and farmworkers' houses, and the farming infrastructure of wells, cisterns, aqueducts, mills, canals, roads, sheds, barns, and animal stalls. Today, crumbling infrastructure, lack of governmental investment, and dwindling population in San Pasquale Valley mark a steep decline in the sustainability of the community, especially in the last 50 years. Our research tracks the birth, florescence and decline of community life in the last two centuries to investigate how people establish, nurture, and fight the decline of community through decades of political, social, and economic crises.

Chesson, Meredith S. [54] see Ullah, Isaac

Chhay, Rachna, Piphah Heng (University of Hawaii), Visoth Chhay (Ministry of Culture) and Yukitsugu Tabata (Waseda University)

[175] *Changing Angkorian Stoneware Production Modes: Bang Kong Kiln and Thnal Mrech Kiln*

Stoneware ceramic production began in the 9th century CE in the Angkorian core region, and its cross-draft kiln technology, paste types, and vessel forms changed during its multi-century tradition. This paper compares kiln morphology, ceramic technology and vessel form from two Angkorian kiln sites: the 9th-11th century Bang Kong site, and the 10th-12th century Thnal Mrech. The sites are located in discrete geological regions: one in the Phnom Kulen hills (Thnal Mrech), and the other on the Angkorian plain (Bang Kong). Bang Kong was one of the earliest ceramic kiln centers for green glazed and unglazed stoneware, and employed both below-ground and above-ground, and contrasts markedly with kiln technology, vessel form, and paste variability in stonewares fired at Thnal Mrech.

Chhay, Rachna [175] see Carter, Alison K.

Chicoine, David (Louisiana State University), Gabriel Ramón (Pontificia Universidad Católica del Perú) and Martha Bell (Pontificia Universidad Católica del Perú)

[333] *The Berkeley Schools of Geography and Andean Studies*

This paper explores the legacy of the "Berkeley School of Andean Studies" and its relations to the eponymous "Berkeley School of Geography." We examine the relationships between the key founding figures of both schools including John H. Rowe and Carl O. Sauer, but also their students, disciples, and other scholars influenced by their seminal research. Through a review of the interactions between members of the two schools, as well as academic genealogies and writings, our paper has three main goals: (1) define both schools and their Andean manifestations and ramifications, (2) examine the personal relationships and rapport between anthropologists, archaeologists, and geographers influenced by the Berkeley tradition, and (3) review intellectual cross-pollination including methodological insights, geographical, archaeological and anthropological perspectives, and bibliographic influence.

Chicoine, David [82] see Helmer, Matthew

Chilardi, Salvatore [85] see Iovino, Maria Rosa

Childs, Terry (Department of the Interior)

[149] *Moderator*

[149] *Discussant*

Chilton, Elizabeth [294] see Doucette, Dianna

Chilvers, Stuart [106] see Heide, Gregory

Chinchilla, Oswaldo (Yale University)

[176] *Natural Corridor or Challenging Route? Rethinking Pre-Hispanic Communications across the Pacific Coast of Guatemala*

The Pacific coast of Guatemala has long been regarded as a natural corridor that facilitated travel and trade, and served as a route of migration and invasion, connecting eastern Mexico, the Guatemalan highlands, and El Salvador, with further regions of Mexico and Central America. At first glance, the natural configuration of the coast seems to provide unobstructed passage, especially when compared with the rugged terrain of the adjacent highlands. The maps in many publications feature vague arrows marking trade or migration routes, giving the false impression that the coast was a broad unimpeded passageway. They generally omit details of topography and hydrography, and make no distinction among different parts of the coast. A closer look reveals important distinctions in the feasibility and comparative advantage of communication routes along the coastal piedmont, the coastal plain, and the Pacific littoral. The torrential rivers that cut across the coast posed important restrictions for east-west traffic, and in some cases, for north-south access from highland and piedmont sites to the coastal plain and littoral. In this talk, I will use ethnohistorical and geographic data to argue for finer assessment of coastal communication routes.

Chinique De Armas, Yadira (Department of Anthropology, University of Winnipeg)

[323] *New Insights into the Consumption of Cultigens for "Archaic" Age Populations in Cuba: The Archaeological Site of Playa el Mango, Rio Cauto, Granma*

The use of cultigens and wild plants by pre-historic populations has been well established for many regions of the circum-Caribbean and Greater Antilles. However, in the case of Cuba, the largest island in the Caribbean, the evidence is scarce. In this paper, we examine the population of Playa El

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Mango (Cauto Region, Eastern Cuba), traditionally understood by Cuban archaeologists as “fisher-gatherers”, to examine subsistence practices using a combination of starch evidence from dental calculus, aided by carbon and nitrogen isotopic-based probability analyses (Stable Isotope Analysis in R; SIAR). This dual analysis suggests that C3 (beans, root cultigens) and C4 plants (maize) were part of their diet since at least cal. 2110–2081 BP, along with wild plant species and various readily available estuarine, marine and terrestrial animal resources. This evidence demonstrated the use and management of cultigens for indigenous populations from Eastern Cuba since “Archaic” times.

[323] *Chair*

Chiou, Katherine (University of Alabama)

[297] *Meat, Transport, Fertilizer, and Meaning: Considering the Role of Camelids and Ritual in Moche Food Production*

Camelids (i.e., llamas and alpacas) were domesticated in the Andean region of South America over 6000 years ago. Since then, camelids have occupied a place of central importance in Andean lifeways over the longue durée. Nevertheless, while camelid pastoralism in the landscape of the highland Andes has been well documented ethnographically, ethnohistorically, and archaeologically, the intimate relationship between people and camelids in the Andean coastal valleys is less understood. In this paper, I consider the social dimensions of camelids and their ties to food production using case studies primarily from the Moche (AD 200–800) sphere, including recent data from elite ritual and household contexts from the Late Moche (AD 600–800) sites of San José de Moro and Cerro Chépén in the Jequetepeque Valley of the North Coast of Peru. In doing so, I examine the unique role that camelids played in rituals related to the production and consumption of food—rituals that may have taken on heightened significance during episodes of social conflict stemming from environmental stress and diminished food production.

Chiriboga, Carlos [252] see Acuña, Mary Jane

Chirinos Ogata, Patricia (University of California, Santa Barbara)

[273] *Building Statehood: Wari Architecture and Colonial Strategies in Cajamarca*

Wari expansion across the Central Andes involved the construction of colonies, serving as nodes in the state network from Cajamarca to Moquegua. Each colony, even considering local adaptations, was built following a precise sequence and setting up predetermined types of spaces. Monumental architecture exhibiting Wari features and design became an expression of power by itself, a symbol of Wari hegemony physically inscribed in the local social landscape. Large amounts of work were invested in the construction of colonial installations, as well as the roads that connected them with the other nodes in the system, and the agricultural infrastructure that supported the local communities. In this paper I examine the architecture of the two known Wari colonies in the Cajamarca region—El Palacio and Yamobamba—, and compare their construction and trajectories to other excavated Wari sites, to evaluate their role in the state hegemonic project. Research at these sites shows different motivations for their construction, as well significant changes in their use over time, providing evidence of a dynamic Wari agenda in the North Highlands.

Chisholm, Amelia (The Lost Towns Project)

[251] *A Cultural Landscape Study of Generals Highway*

Generals Highway (MD-178), a major roadway that stretches from Annapolis to the Severn River in Anne Arundel County, was paved in the early part of the twentieth century, but portions of the original colonial roadbed still exist. Anne Arundel County’s Cultural Resources Division, in partnership with Maryland State Highway Administration, conducted a multi-year investigation to identify, locate, record, assess, study, and share with the public the range of archaeological and cultural resources within a one-mile buffer of General’s Highway. This landscape study will assist the State and the County in responsible stewardship of those resources should there be future plans for road modifications as well as to ensure that it is appropriately managed, protected and made accessible to the public for the benefit of the citizens of Anne Arundel County. The work conducted during this period included historic resources survey, architectural documentation, archaeological field surveys, and intensive historic and archival research on the corridor, as well as more targeted investigation of individual cultural or landscape features that played an important role in shaping the corridor as it exists today. The results of this investigation clarify areas of significance which speak to the historic and physical development of Historic Generals Highway.

Chiykowski-Rathke, Tanya (Santa Clara University)

[287] *Deposition in Death and Domestic Contexts at Cerro de Trincheras, Sonora Mexico*

How sherds ultimately enter the archaeological record reflect the roles and beliefs regarding the discard, reuse and repurposing of pottery across the Southwest US and Northwest Mexico. This paper examines the deposition of whole vessels and ceramic sherds from Cerro de Trincheras, Sonora, Mexico. It compares two contexts: the debris of domestic spaces, and the careful interment of vessels as part of mortuary ritual. The ceramic deposition practices of Trinchereros (Trincheras Tradition peoples) reveal the life history of the pots themselves. Despite the ubiquity of pottery by 1300 AD, Trinchereros treated their vessels with great care and consideration, vessels were mended, repurposed and included in burial assemblages showing the cumulative effects of their life histories. These insights provide context for understanding domestic refuse. While sherds help date the site and track migration, archaeologists have incomplete knowledge of how Trinchereros used pots in their daily lives. In this paper, I will discuss the deposition of Trincheras funerary ceramics as they relate to household assemblages.

Chmura, Matt [13] see Blank, John

Choi, Jeong-Heon [200] see Nightingale, Sheila

Chouin, Gerard (William & Mary)

[171] *Unthinkable Opportunities: Managing Mass Mortality and Transforming Society in the Context of the Second Plague Pandemic in Late Medieval Sub-Saharan Africa, ca. 1300 to 1500 AD*

The sudden emergence of deadly infectious diseases compels societies to improvise ways to manage the dead, explore causations, and save lives. Such overwhelming demographic events are sources of trauma but also opportunities for individual survivors and for the social fabric as a whole. Sub-Saharan Africa, like many other parts of the Old World where past mass mortalities were not documented, has been omitted from the debate about the impact of pandemics on deep historical trajectories. This paper suggests that the second pandemic of plague—the infamous fourteenth century Black Death—was responsible for demographic crises south of the Sahara, which in turn created opportunities for new elite groups to emerge. I will discuss possible short- and long-term impacts of and responses to the plague crisis in the 14th century by different communities living in the forest environment of West Africa, as manifested in the archaeological and oral historical records of southern Ghana and south-western Nigeria. I will argue that these responses led to major socio-political upheavals that are relevant to our understanding of the rise of Atlantic Africa in the late 15th century.

Chovanec, Zuzana (University Albany)

[77] *The Organic Residue Analysis from the Early Bronze Age Site of Sotira Kaminoudhia in Cyprus*

This paper presents the final results of organic residue analysis from the Early Bronze Age settlement and associated cemeteries of Sotira Kaminoudhia. A total of twelve pottery samples were analyzed using Gas Chromatography/Mass Spectrometry (gc/ms) as part of a larger research program that aimed to identify prestigious, organic substances that would have been utilized on the eastern Mediterranean island of Cyprus during the

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

prehistoric Bronze Age. Three categories of prestigious substances were targeted: 1) psychoactive substances that generate variable altered states in consciousness, 2) medicines, herbal infusions and other preparations that improve health, and 3) perfumes, ointments and other preparations that are hygienic in nature. This report confirms but also revises earlier reported preliminary results. Analytical methods, interpretative strategies, and anthropological implications will be discussed.

[77] *Chair*

Christensen, Kim (University of California Berkeley)

[331] *Countermapping, Data Visualization, and Archaeological Pedagogy: What Happened Here?*

Data and spatial visualization programs afford archaeologists various ways of showcasing their research. Programs, such as the Knight Foundation's free StoryMap JS, and Esri StoryMaps, are of particular use when sharing our research results with the public and, I argue, are useful for conducting collaborative research with communities. In this paper, I detail the experience of using online StoryMap programs in the creation of local history maps created by undergraduate students in collaboration with the Anti-Eviction Mapping Project (AEMP) of San Francisco. By combining information gathered from archaeological reports, oral histories, and historical documents, StoryMaps created through these collaborations showcase diverse histories such as the history of social movements on the UC Berkeley campus landscape, and the "life history" of city blocks in the SoMa neighborhood of San Francisco. These projects are situated in the rich tradition of counter-mapping, which juxtaposes maps created by or to showcase the perspectives of non-hegemonic actors with authorized 'official' maps. In creating these maps, students gain experience in conducting primary and secondary research, writing for public dissemination, and gain mastery of the histories beneath their feet.

Christie, Jessica (East Carolina University)

[132] *Inka Economic and Ritual Landscapes in the Cañete Valley: Strategies to Align the Lunahuana and Guarco*

I will assess strategies employed by the Inka state in interactions with local populations in the Cañete Valley and adjacent valleys. The Spanish found two señorios in the lower Cañete Valley: the Lunahuana, whom they described as well organized and inclined to submit to Inka rule and the Guarco who lived on the shore, offered fierce resistance, and were brutally subdued. The Inka built Inkawasi in Lunahuana territory, envisioned as one copy of Cusco. Inka presence in Guarco territory is documented at Cerro Azul, a primary Guarco center. Its protected bay served as harbour for a society whose economy was based on maritime resources, associated with documented fishing rituals, as well as on irrigation agriculture. The Inka built Cusco-style structures on the cliffs bordering the port, including a wall covering the rocky cliff surface with a staircase descending to the sea. My discussion will assess this exceptional wak'a in relation to Inka cults of the Sun, water, and stone ideology as well as in relation to other Inka installations in nearby valleys, such as Pachacamac, Cerro Bandurria, and El Salitre. The strategic position of Cerro Azul in the Inka road system will also be considered in the analysis.

Chritz, Kendra (Smithsonian Institution), Elisabeth Hildebrand (Stony Brook University), Thure Cerling (University of Utah), Elizabeth Sawchuk (Stony Brook University) and Ndiema Emmanuel (National Museums of Kenya)

[198] *Local Responses to Global Events: Regionally Distinct Dietary Changes among Eastern African Herders at the Close of the African Humid Period*

Changing human diets in eastern Africa across the end of the African Humid Period (AHP) have been inferred indirectly from cultural and faunal remains at archaeological sites. Stable isotope analysis (SIA, specifically $\delta^{13}C$) can measure diets directly, yet few studies have conducted SIA on human remains from this region. We present 25 new $\delta^{13}C$ values from human tooth enamel recovered from archaeological sites around Lake Turkana (northwest Kenya) and on Lukenya Hill and Rigo Cave (southern Kenya), whose material culture suggests economic strategies ranging from fishing-hunting-gathering (FHG) to herding. These data show pronounced regional dietary variability even after herding took hold. All samples from the Turkana Basin, including both FGH (GeJi11) and herding (GaJi4, GeJi9, GbJj1) sites, range from -4 to -8‰, indicating strong intake of either C3 plants or animals that consumed them. In contrast, samples from southern Kenyan herding sites of Lukenya Hill (GvJm202) and Rigo Cave (GrJh3) range from -2 to -4‰, suggesting more input from C4 grasses or herbivores feeding upon them. Overall, individuals from northern Kenya sites exhibit greater dietary variability than those from the south. Results suggest that post-AHP environments differed substantially within the eastern African Rift, fostering localized economic strategies by early herders.

Chrysoulaki, Stella [298] see Prevedorou, Eleanna

Chu, Alejandro

[132] *Inka and Local Elite Interaction as Reflected at the Inka Site of Incahuasi, Cañete, South Central Coast of Peru*

Incahuasi, located at the mid-valley of the Cañete river, is the largest Inca administrative center reported from Peru's Central Coast. Although first built as a military base by the Inca Tupac Yupanqui in his war against the Guarcos, the site was completely transformed into an administrative center with an extensive and prominent storage facility. Recent research at the site has focused in Sector B, described as an elite residential complex. Excavations have found a significant number of finished khipus and elements for their manufacture, which would suggest that khipus were knotted within these compounds. Although khipus are assumed as clear evidence of Inka state exerting accounting and administrative activities at Incahuasi, neither the cultural material nor the architecture at the site are of Inka style, suggesting that a local elite was mainly in charge of the administration and operation of the site. This new evidence from the Cañete Valley adds a new perspective on our thinking about state/local relations in the Inka empire.

[132] *Chair*

Chuchiak IV, John (Missouri State University)

[109] *Human Plunder: The Role of Maya Slavery in Postclassic and Early Conquest Era Yucatán, 1450–1550*

Upon initial contact with the lowland Yucatec Maya, the Europeans discovered that a significant number of Maya slaves existed within the Maya communities that they encountered. War captives, orphans, and forced and enslaved sexual servants from the lower classes, Maya slaves and their possession became by the late Postclassic and early colonial period the major source of wealth and power of the traditional Maya Nobility. Divorced from control over specified traditional patrimonial landholdings (which many recent scholars have shown did not exist for the precontact Yucatec Maya), and alienated from most other sources of wealth, Maya slaves and forced servitude became transformed into the most important system of patrimonial wealth and power for the Maya nobility. This paper will examine the political economy of Postclassic Maya slavery, its scale, nature and cultural practices in an attempt to understand the political and economic impact of indigenous slavery, and the continued role that Maya slaves and slavery played in the early development of the conquest credit system that led to the financing of the expeditions of conquest organized by the conqueror Francisco de Montejo and his family in Yucatan (1527–1545).

Church, Warren (Columbus State University, GA)

[178] *A Record of Changing Pulses and Pathways of Interregional Interaction from Manachaqui Cave in the Northeastern Peruvian Cloud Forest*
Results from analyses of deep, stratified cultural deposits excavated at Manachaqui Cave (3,620 m) in the ancient Chachapoyas region provide a "window" on changing patterns of interregional interaction in Peru's northern ceja de selva. Located beside a pre-Hispanic paved road, the rock shelter accommodated mobile foragers, cultivators, travelers, and llama caravans moving through networks connecting societies north, south, east, and west.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Despite several chronological gaps, Manachaqui's sequence extends from the Terminal Pleistocene through the Late Horizon. Diachronic analysis of Manachaqui's assemblages revealed two major patterns of movement and cultural connections. Early interregional interaction connected societies in regions north and south. By ca. AD 200–400, interaction involving llama caravans pivoted west toward highland societies. This new east-west network overlay, but did not replace north-south interaction that persisted throughout the latter centuries of the sequence. To evaluate subsistence self-sufficiency, it is more useful to examine data from the settlement complexes clustered to the east around 2,800 m in the forested Montecristo valley. Evidence from Manachaqui attests to the presence and intensity of interaction crisscrossing the ceja de selva. Mounting archaeological data from the Montecristo valley, and elsewhere along the ceja is revealing understudied, unique cultural developments unlike those in the Andean highlands.

[178] *Chair*

Clasiano, Gianfranco [285] see Rivera, Luz Stephanie

Cibrian-Jaramillo, Angelica (LANGEBIO, Cinvestav)

[150] *Discussant*

Cicchetti, Jared [91] see Crawley, Andrea

Cinquino, Michael [73] see Hayward, Michele

Ciofalo, Andrew (Leiden University) and Devon Graves (Leiden University)

[323] *Cookware and Crockery: A Form and Functional View from the Southern Bahamas*

Recent archaeobotanical research on the Palmetto Junction archaeological site located in Providenciales, Turks and Caicos Islands, provides new insights into the livelihoods and subsistence practices of the peoples who inhabited this coastal region from c. AD 1200–1500. Significantly, the plant microbotanical remains, identified as primarily seeds and tubers provide evidence for a continuation in the consumption and manipulation of plant resources. During the late precolonial period people used domesticated plants such as maize, as well as plant processing techniques that permitted the consumption of otherwise inedible geophytes. Some of the earthenware may have been used as serving vessels, others such as Palmetto-style griddles for cooking. Interpretations of foodway dynamics in this region will serve to build a unique Caribbean perspective of food patterns. In this regard, this research contributes to modern day global appreciations of ancient food ways, which offer significance and meanings to both socially learned practices and other life-ways. An in-depth analysis covering the style and form of the Palmetto Junction ceramics in conjunction with information from ancient starch grains creates a fuller interpretation of how the interrelationships amongst past human societies, plants, and material culture were entangled.

Ciofalo, Andrew [323] see Donner, Natalia

Cioffi-Revilla, Claudio (George Mason University—Center for Social Complexity) and Niloofar Bagheri-Jebelli (George Mason University)

[4] *A Computational Approach to Initial Social Complexity: Göbekli Tepe and Neolithic Polities in Urfa Region, Upper Mesopotamia, Tenth Millennium BC*

Extensive archaeological field work and multidisciplinary research in recent decades shows that communities of sedentary hunter-gatherers during the tenth millennium BC built the earliest presently known monumental structures during the PPNA (ca. 9600–8800 BC) at the ceremonial site of Göbekli Tepe and nearby PPNB settlement sites in present-day Urfa province, southeastern Turkey. However, the earliest evidence of agriculture dates to a later period (early PPNB, ca. 8750 BC, terminus post quem) or began further south (e.g., the Levant). We present a novel computational analysis of initial social complexity in these early Anatolian communities, based on Canonical Theory of politogenesis, evolutionary dynamics, and lines of evidence drawn from Göbekli Tepe and related Urfa sites. Theory and data are then used to create an agent-based model simulating the emergence of worship sites, other diffused cultural patterns, and the emergence of cultivation as may have occurred in the region during the PPNA and initial PPNB periods. The model is implemented in NetLogo. Along with other computational models of early social complexity, it aims to contribute to multidisciplinary understanding of prehistory, origins of civilization, and long-term culture change. Extensions of the model to other regions of politogenesis are also discussed. Dedicated to Klaus Schmidt.

Ciolek-Torello, Richard (Statistical Research, Inc.), Jeffrey Altschul (Statistical Research, Inc.), B. Gunchinsuren (Institute of History and Archaeology, Mongolian Ac), T. Amgalantugs (Institute of History and Archaeology, Mongolian Ac) and John Olsen (University of Arizona)

[24] *Baibalyk: An Early Fortified Town and Trading Center in a Nomadic Pastoral Landscape on the Mongolian Steppe*

Mongolia is well known for its history of nomadic pastoralism and Bronze and Early Iron Age burials and monuments. It wasn't until later in the Iron Age that the first large fortified towns and urban centers were built by the Uyghur and Khitan Khanates. One of these, Baibalyk is believed to have been established in 758 CE by the Uyghur khagan, Bayanchur Khan, as a ceremonial and trading center in the fertile and strategically located Selenge Valley. Later in the 17th Century, Baibalyk is known to have been the site of a Buddhist monastery. Although prominent on the Mongolian landscape, Baibalyk has received little systematic attention from archaeologists. To address this deficiency, members of the Mongolian International Heritage Team have recently begun a long-term program of investigation to gain a better understanding of the role centers such as Bai Balik played in a nomadic pastoral economy. Preliminary investigation suggests Baibalyk has had a long history of use including Uyghur, Mongolian Empire, Buddhist, and recent historical occupation. In this presentation, we compile existing knowledge concerning Baibalyk and provide the results of a recent reconnaissance of the site and its environs.

Cisceneros, Santos [225] see Lopez, Escee

Cissé, Mamadou [210] see Womack, Andrew

Ciuffo, Roger [332] see Chapa, Reymundo

Ciugudean, Horia [29] see Beck, Jess

Civitello, Jamie A. [269] see Van Vlack, Hannah

Claassen, Cheryl (Appalachian State University)

[122] *Ashes in Western US Rockshelters*

Following the analysis of Newt Kash Kentucky shelter and other ash and sandal shrines in the eastern US as menstrual retreats, the author examines a number of caves and shelters around the Great Basin paying particular attention to their ash and sandal content. Both items may constitute fertility

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

petitions left at retreat and medicine shelters such as Cowboy Cave, Hogup Cave, and High Rolls. The ash may represent the burning of fertility offerings, including menstrual pads and diapers.

Clark, Alexis (George Washington University)

[288] *Designing Influence: Aesthetic Choices and Group Identity in Decorated Ceramics of Late Postclassic Etlatongo, Oaxaca, Mexico*
During the Late Postclassic (A.D. 1200–1520) in the Mixteca Alta of Oaxaca, Mexico, aesthetic qualities of ceramics were utilized as both decorative values and tools for negotiating the creation of group identities and ideologies within communities. Through a stylistic analysis of Yanhuítlan Red on Cream type ceramics recovered from excavations at the site of Etlatongo, in the Nochixtlán Valley, I explore how these vessels and the motifs depicted on them were used during the creation of identity-based meanings that were easily recognized during public ceremonies. Since these ceramic types were broadly accessible and relatively abundant, I compare the frequencies of design motifs to others found on at sites throughout the Mixteca Alta, including Yucuita, Chachoapan, and from survey data within the Tamazulapan and Teposcolula valleys. I argue that the stylistic qualities of Yanhuítlan Red on Cream wares were directly involved in dialogic social processes that promoted ideologies shared by elites and commoners within the site.

Clark, Amy (University of Arizona)

[124] *Knapping for the Thrill of It? The Non-conservation of Raw Materials at Middle Paleolithic Sites*
Open-air Middle Paleolithic sites in France are characterized by dense piles of lithic material surrounded by low density “empty” areas. Spatial analysis can be used to segregate lithic artifacts based on whether they are located in the high or low density zones. This analysis is supported by the spatial tracking of refitting sets. The results indicate that high density zones likely correspond with knapping locations and low density areas contain lithics selected from the knapped material for use. The dense knapping piles contain many lithic pieces thought of as manufacturing debris, but also many optimal blanks. This suggests that the conservation of raw materials was not a priority for Middle Paleolithic knappers at these sites.

[124] *Chair*

Clark, Andrew (SUNY-Albany)

[239] *Warfare and Topography in the Middle Missouri*
The Missouri River Valley is a unique landscape for horticulturalist settlements. The semi-arid Great Plains have wildly fluctuating weather patterns and resulted in a difficult growing environment with frequent changes in productivity. The terraces of the river valley offered relatively flat areas for village planning, the terrace-forming flood waters refreshed the flood plains with nutrient rich sediment for village gardens, and the terrace breaks provided protection from both wind and invaders. While archaeologists have inferred the relationship between topography and warfare among village dwelling farmers living in the Middle Missouri Subdivision of the Great Plains (A.D. 1000–1830), this concept has not been explored systematically. Topographic Position Index (TPI) is one measure that has gained popularity over the last decade as a tool to investigate an array of geographic variables. Using a pre-dam DEM, I calculated a TPI for the Big Bend geographical division to identify landform classifications within the model compared against site locations. The results show a fluctuation in village settlements among differing landforms over time and between taxonomic cultural units along with a positive correlation between topographic prominence and increased fortification construction.

Clark, Geoffrey [13] see Kingrey, Haden

Clark, Jeffery (Archaeology Southwest)

[91] *Chair*

Clark, Jorie (USFS) and Cathy Bickenheuser (USFS)

[106] *Call of the Wild: Historic Preservation in Region 1's Wilderness*
Region 1 of the U.S. Forest Service manages more than 25 million acres in Washington, Idaho, Montana, and North and South Dakota, with more than five million acres designated as Wilderness and Wilderness Study Areas. Because of the Wilderness Act, NHPA Section 106 surveys that would identify potential archaeological sites are generally not undertaken in Wilderness areas. However, a number of known historic structures in these areas have been restored by the Northern Region Historic Preservation Team (NRHPT), which is a unique entity within the U.S.F.S. that completes historic preservation projects throughout Region 1. In particular, the NRHPT directs a wide range of historic building preservation projects, including the use of traditional tools. Several Forest Service employees have been trained by the NRHPT, enabling national forests to plan and implement their own preservation projects with minimal preservation team supervision or guidance. A wide variety of historic properties that might otherwise fall into disrepair or neglect are now maintained for continued agency operations and public use. In this presentation, we will provide examples of restoration projects of historic structures in Wilderness areas in Region 1, underscoring the importance of preserving these structures through this unique resource.

Clasby, Ryan (Central Washington University)

[178] *Through the Forest: North-South Interregional and Intra-regional Interaction along the Eastern Edge of the Andes during the Early Intermediate Period*

This paper will examine the intensification of long distance intraregional interaction networks among eastern slope (also known as ceja de selva) populations during the late Early Horizon and Early Intermediate Period. The centuries following the decline of the Chavín and Chorrera cultures are thought to represent a period of balkanization and (eventual) regionalization throughout much of the Central and Northern Andean coastal and highland valleys as previously established interregional interaction networks were discarded in favor of localized self-sufficiency. However, recent archaeological data from the site of Huayurco in the Jaén Region of the northeastern Peruvian Andes suggests that ceja de selva (and some highland) populations from Ecuador and northern Peru continued to engage in both interregional and intraregional long distance exchange through the end of the Early Intermediate Period. Based on the broad patterning of material culture, these networks were seemingly oriented around the Marañón River and its major tributaries. Through a diachronic comparison of the Huayurco data to artifact assemblages from the ceja de selva and Ecuadorian highlands, I will examine the nature of these intra and interregional exchange networks, the mechanisms that held them together, and their impact on long term cultural change within the Andes.

[178] *Chair*

Clauwaerts, Pauline (Université Libre de Bruxelles)

[216] *Emergence of Female Power on the North Coast of Peru: Exploring Priestesses' Identities and Their Influence within the Funerary Realm in San José de Moro*

After more than twenty years of investigations, the San José de Moro Archaeological Project has found a total of seven funerary chambers pertaining to the Late Moche “priestesses” (AD 600–850) in one of the most important ceremonial centres and cemeteries located on the North coast of Peru. The sudden appearance of that specific character is echoed in the sacred imagery where the priestess is depicted, as a supernatural woman enacting in complex ritual activities with other elite characters. This new imagery introduces an era where powerful women are made visible and contributes to the construction of a normative image of the Moche deity. While the necessary and contingent reasons for their sudden appearance remain unclear, some

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

questions still remain regarding the women who were buried as their personification. This paper fits into the broader issues of the emergence of women power in the Moche society, as we assess how identities are negotiated through the priestesses' burials by looking at the related data material, along with the architectural and anthropological data. We also propose to measure the influence of the new cult on contemporary mortuary population. By doing so, we aim to bring new light on those peculiar powerful women.

Clay, Elizabeth (University of Pennsylvania)

[208] *"A Wondrously Fertile Country": Agricultural Diversity and Landscape Change in French Guiana*

As a circum-Caribbean, non-island space on the coast of northeastern South America, French Guiana presents a distinct context in which to explore plantation slavery and Caribbean commodity production. The "sugar revolution" that overtook areas of the Caribbean at various historical moments reached French Guiana during the nineteenth century, yet monocultural production of the crop never took hold. Instead, plantations producing a variety of agricultural commodities including cotton, coffee, annatto, and spices were more typical for the region. Using archival, archaeological, and remote sensing evidence, this paper presents an overview of the diversity of agricultural production in 19th c. French Guiana and specifically explores how and why certain commodities destined for foreign markets came to be produced in this marginal space, how their production impacted the daily lives of enslaved Africans and altered local landscapes, and the contemporary legacies of these social and spatial transformations.

Clay, R. Berle [156] see Hargrave, Michael

Cleary, Megan

[221] *Stress and Sociocultural Reactions to Environmental Change in the Late and Terminal Lima on the Central Coast of Peru*

This project examined evidence of stress in 469 excavated human skeletons of the pre-Hispanic Lima population from Huaca 20 in the Maranga Complex in modern day Lima, Peru dating to the end of the Early Intermediate Period (ca. 200–600 AD) and the beginning of the Middle Horizon (ca. 600–900 AD). This period saw the movement of the populations on both the North and Central Coasts of the Andes inland to areas with greater access to the critical water supply (Shimada, 1994). While the majority opinion is that this transition was related to environmental stressors, their severity, effect, and manifestation in the population is unclear. The main objective of this study is to explore what types of stressors the Lima at the Maranga Complex, one of their principal ceremonial-population centers, experienced and how the population responded to those stressors.

Cleghorn, Naomi E. [99] see Keller, Hannah

Clindaniel, Jon (Harvard University)

[65] *Are Inka Khipu Knots Anything More than Numbers?: A Computational Investigation*

Inka khipus—the knot and cord recording devices of the Andes—have been said to have recorded everything from accounting, to histories and songs. Leland Locke demonstrated in the 1920s that Inka khipu knots often have standard numerical values. However, non-numerical Inka khipu signs remain elusive and undeciphered. Recent work by Gary Urton, however, has identified Inka khipus and individual khipu cords with knots that do not obey the standard numerical rules Locke identified. May Inka khipu knots also have had a non-numerical semiotic function?

Here, I use the Harvard Khipu Database, Python statistical libraries, and Benford's Law to evaluate this claim and potentially identify a non-numerical Inka khipu sign unit. Specifically, I compare knot value frequencies in extant Inka khipus to those expected in a numerical dataset, as predicted by Benford's Law. Benford's Law is used to identify fraud in a variety of disciplines—providing numerical frequencies that are characteristic of a set of empirically observed numerical values as a point of comparison. Thus, if knot value frequencies diverge severely from Benford's Law expectations for any set of khipus, these khipu knots likely functioned as non-numerical signs.

[65] *Chair*

Clinnick, David

[329] *The First East-West Dichotomy?*

Hallam Movius proposed that the Lower Palaeolithic cultures of East Asia and SE Asia were derived from a different cultural trajectory than that of Europe and Africa. The chopper-chopping tool complex of East and SE Asia was argued to be more primitive in many aspects. The type-site assemblages of the Pacitanian and Tampanian cultures are two out of only five assemblages that Movius initially used to define the chopper-chopping tool complex. The Pacitanian was first discovered by Michael Tweedie of the Raffles Museum, Singapore, and Gustav von Koenigswald in 1935 in the Pacitan Regency of Java. Three years later, a scientific team, including Movius, travelled to Java to investigate Tweedie and von Koenigswald's findings. Also in 1938, Michael Tweedie's colleague at the Raffles Museum, H. D. Collings, published an article in *Nature* announcing a discovery of a similar archaeological assemblage in Malaysia that he named the Tampanian. This presentation provides a reassessment of the original Pacitanian and Tampanian assemblages that are still held in Singapore, highlighting reduction strategies that have been overlooked since the 1930's and how the postcolonial history of scientific research in Singapore coupled with the dominance of Movius's analysis may have led to this oversight.

Cobb, Allan, James Brady (California State University, Los Angeles) and Guillermo De Anda Alaniz (Gran Aquífero Maya)

[134] *Demystifying the High Priest's Grave: Investigations in the Cave/Cenote below the Osario*

One of the most enigmatic publications in Maya cave archaeology has been Edward H. Thompson investigation of the High Priest's Grave at Chichen Itza in 1896. Thompson discovered a masonry shaft running down the center of the pyramid that gave access to a cave/cenote beneath the structure. This was the first account of a cave with a pyramid built over it and Thompson suggested that the cave contained seven chambers, hinting at the possibility of a Chicomoztoc. J. Eric Thompson in editing and publishing the report in 1938 notes that there are a number of discrepancies in this early account and over the years, archaeologists have grappled with the meaning of the discovery.

The Gran Aquífero Maya project undertook a restudy of the pyramid, shaft, and cave. The stone floor at the base of the shaft was found to be the top of a small platform that predated the construction of the pyramid. Evidence suggests that the cave had been subjected to a termination ritual and no Chicomoztoc configuration was found.

Cobb, Charles (Florida Museum of Natural History)

[283] *Ancestral Chickasaw Migration and the Makings of the Anthropocene in Southeastern North America*

We describe recent investigations of Indigenous communities who vacated the Tombigbee drainage of eastern Mississippi in the mid-fifteenth century A.D. These and surrounding groups migrated into nearby uplands known as the Blackland Prairie. Populations continued to move northward within the prairie and coalesced around what is today Tupelo, MS, in the 1600s. The move from a riverine to upland setting involved a dramatic shift in practices of historical ecology. The rich soils and open terrain of the prairie system at the time of European contact were likely a result of repeated burning and other modifications by ancestral Chickasaw, leading to an early description of the countryside as "pleasant open forests of oak chesnuts and hickory so intermixt with savannas as if it were a made landscape." Our work describes how the historical ecology of migration was an outgrowth of climate change, regional social tensions, and the later arrival of Europeans.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

[255] *Discussant*
 [119] *Chair*

Cobb, Charles [119] see Krus, Anthony

Cobb, Charles [119] see Lieb, Brad

Cobb, Emilie, Jess Beck (University of Cambridge), Colin Quinn (Hamilton College) and Horia Ciugudean (National Museum of the Union, Alba Iulia)

[185] *Health and Mortuary Treatment in Early Bronze Age Transylvania*

Copper and gold resources from Southwestern Transylvania played a critical role in the emergence of inequality in European Late Prehistory. Communities in this metal-rich landscape, however, remain poorly understood. Though the highly visible tombs in the Apuseni Mountains where these communities buried some of their dead have been known to local archaeologists for decades, very little is known about the backdrop of health and disease in the region. Here, we present one of the first bioarchaeological analyses of skeletal and dental health for the Apuseni Early Bronze Age, focusing on a sample of human remains that incorporates individuals of both sexes and a range of ages, from very young children to older adults. Our results show relatively low levels of skeletal pathology, with age-related insults such as osteoarthritis predominating. In contrast, dental insults were more common and included caries, calculus, alveolar resorption, and abscesses. We present several case-studies of older individuals affected with particularly severe combinations of dental insults, and discuss the dietary and behavioral implications of handling such pathologies, at both the level of the individual and the community.

Coben, Lawrence (UPENN and the Sustainable Preservation Initiative)

[327] *Community-Based Economic Development: Is It Pragmatic? Should It Be?*

Does pragmatism work in practice? More particularly, does pragmatic philosophy actually contribute to the well-being of stakeholders, especially those from the local community who have historically been marginalized and have not benefitted from archaeological practice? Can archaeological practice be expanded beyond the production of knowledge to include the needs and desires of community members as they themselves express them? This paper will explore these questions, utilizing the community-based economic development programs of the Sustainable Preservation Initiative as a springboard to an inclusive and not self-serving archaeological practice incorporating a reality based pragmatism.

Cobos, Rafael (Universidad Autónoma de Yucatán)

[142] *Discussant*

Cochran, Lindsey (University of Tennessee)

[67] *Geospatial Interpretations of Enslaved Landscapes in the Antebellum Georgia Lowcountry*

This project uses geospatial landscape theory to explore how enslaved people living in settlements on the Sapelo Plantation signaled their African and Caribbean roots through overt and covert materials and landscape patterns in Bush Camp Field and Behavior settlements. Enslaved people at the Sapelo Plantation were likely granted higher levels of relative independence, resulting in a different relationship with the landscape than enslaved people at contemporaneous lowcountry plantations. I hypothesize that the formative factors that created such an intricate network of places on the Sapelo Plantation landscape stem from three major variables: (1) the use of the task system at Sapelo Plantation for organizing labor; (2) the agricultural, political, and economic uniqueness of the late-antebellum Georgia plantations, including the impact of the cessation of the global slave trade; (3) and the impact of the Igbo Landing Rebellion. Throughout the antebellum south, planters defined how certain spaces were to be used by slaves; enslaved people created and cultivated places. The purpose of this research is to identify the location of previously unknown non-tabby slave cabins at Sapelo Plantation to understand how the three variables impacted slaves' use of the landscape leading to ethnogenesis of Gullah Geechee culture on Sapelo Island, Georgia.

[67] *Chair*

Codding, Brian (University of Utah)

[92] *Chair*

Codding, Brian [5] see Weitzel, Elic

Codlin, Maria [293] see Carballo, David

Coe, Michael (Yale University)

[175] *Discussant*

Coffey, Grant (Crow Canyon Archaeological Center) and Mark Varien (Crow Canyon Archaeological Center)

[226] *The Final Frontier: Chaco Great Houses in the Great Sage Plain of Southwestern Colorado*

The expansion of the Chacoan regional system into Southwestern Colorado was relatively late compared to other areas, occurring for the most part from A.D. 1080 to 1140. This poster examines this late expansion by focusing on Chaco-style great houses located in the Great Sage Plain of southwestern Colorado. Information on these Chacoan sites has been compiled during a series of projects that began in the late 1980s and continued with 2017 fieldwork during the Community Center Reassessment Project. We present an inventory of all known great houses, assess their chronological development, document variation in their size, examine their association with other types of public architecture, and identify groups of great houses that occur in distinct clusters. We conclude by examining the connection between these sites and those in Chaco Canyon and at Aztec.

Cofran, Zachary (Vassar College), Reed Coil (Nazarbayev University) and Gabriel McGuire (Nazarbayev University)

[304] *Geoarchaeological Survey of the Irtysh River Basin, East Kazakhstan*

Evidence for the earliest human occupation of Eastern Kazakhstan is poorly known, despite it being part one of the largest countries in the world and flanked along its borders with important paleoanthropological sites in Russia and China. We sought evidence of prehistoric sites by foot and vehicle survey around the Irtysh Basin. At each major point of interest we took photographs geotagged with geographic coordinates, and collected global positioning system (GPS) data. Although much of the area we covered lacked clear evidence of human prehistory, we found several locations that merit further investigation. One exposed soil profile contained a large bovid humerus, a long bone shaft fragment with apparent green fractures, and two stone flakes. In addition to foot and vehicle survey, we consulted with local residents in many of the small villages we encountered. A resident of the village Balgyn led us to a small cave, in which he says he had found "arrowheads." This informant also told us there was a larger cave in the area, which we will investigate next season. Two other caves were found near the town of Ognevka, both following the same small river that drains into the Irtysh.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Cohen, Anna (Utah State University)**[169]** *Local Political Economies at Angamuco, Michoacán: Insights from Ceramic Archaeometry*

A key goal in the study of ancient artifacts is determining their provenance. Such information can provide insight into the production and consumption of artifacts, but may also inform discussions about local political economies. Our study uses qualitative optical petrography and geochemical analysis (NAA) to evaluate the tempers and paste recipes in ceramic fragments and raw clays from Angamuco, located in the Lake Pátzcuaro Basin, Michoacán. Angamuco was occupied before and throughout the development of the Purépecha Empire (1350–1530 CE) and is thus an important case study for understanding the impacts of political change on urban landscapes. Angamuco appears to have been relatively self-sufficient in pottery production, beginning in the Classic and through the Postclassic, including during imperial incorporation. While we did identify some temporal and spatial variation in ceramic production and consumption, pottery technologies and techniques of manufacture appear to have remained relatively stable over long periods of time. Our data point to multiple small-scale producers, who focused on local clays and tempers, generating numerous, complex paste recipes. The results of this analysis contribute to our understanding of ceramic production processes at Angamuco and may be compared to provenance studies in Western Mexico and elsewhere.

[169] *Chair*

Cohen, David [177] see Patania, Ilaria

Coil, Reed (Nazarbayev University), Martha Tappen (University of Minnesota), Reid Ferring (University of North Texas), Maia Bukhsianidze (Georgian National Museum) and David Lordkipanidze (Georgian National Museum)**[41]** *Photogrammetry, Spatial Patterning, and Site Formation of the Hominin-Bearing Layers at the Lower Paleolithic Site of Dmanisi, Georgia*

The Lower Paleolithic site of Dmanisi, Georgia, is well known for its rich archaeological and paleontological deposits, which include bones from at least five individuals attributed to *Homo erectus*. Taphonomic analyses show that carnivores contributed greatly to the accumulation of faunal material, while contributions by hominins were present, but uncommon. Recent excavations in the hominin-bearing layers of Block 2 at Dmanisi have revealed a complex underlying basalt formation that likely dictated much of the site formation processes, both biotic and abiotic. Combining spatial patterning with a 3D model of the excavation generated using Agisoft Photoscan, we identify several areas where the basalt, and the pseudo-karstic pipe and gully formations, have constrained the deposition of material. 3D bone orientations in many areas show strong correlations to the underlying shape of the basalt formation. In addition, spatial patterning of the lithic and faunal material differs depending on stratigraphic layer, which is also controlled largely by the basalt and pipe/gully formations. The distribution of coprolites, however, is independent of these patterns, possibly indicating spatially discrete carnivore activity.

Coil, Reed [304] see Cofran, Zachary

Coker, Adam (University of Illinois Urbana-Champaign), Kimberly Swisher (University of Michigan), Jennifer Birch (University of Georgia), Stefan Brannan (New South Associates) and Tiffany Yue (University of Georgia)**[266]** *Creating Community at Singer-Moye: Feasting and Craft Production in a Residential Precinct*

During its estimated 400-year history of occupation, Singer-Moye was a focal point of prehistoric settlement and socio-political development in the Lower Chattahoochee River Valley of southwestern Georgia (USA). Between A.D. 1300 and 1400, the site was a focus of regional settlement aggregation that included the expansion of the site's monumental core and the deposition of a dense occupational midden surrounding that core. In 2016 and 2017, excavations at Singer-Moye were focused on investigating geophysical anomalies in an area adjunct to Mounds A and H at the site, in what has been interpreted as an elite or ceremonial precinct. This poster discusses the results of those investigations and presents interpretations of activity patterns in a residential portion of the precinct during a pivotal period in the site's occupational history, including evidence for feasting and specialized craft production.

Colaninno-Meeks, Carol (Southern Illinois University Edwardsville)**[168]** *The Need for Discipline-Based Education Research in Archaeology*

Over the last several decades, STEM scholars have recognized the importance of developing and integrating discipline-based education research (DBER). As outlined by the National Research Council of the National Academies, the goals of DBER are to 1) understand how students learn discipline concepts, practices, and ways of thinking; 2) understand how students develop expertise; 3) identify and measure learning objectives and forms of instruction that advance students towards those objectives; 4) contribute knowledge that can transform instruction; and 5) identify approaches to make education broad and inclusive. Physicists, chemists, engineers, biologists, astronomers, and geoscientists have been among the first to adopt DBER, mostly at the undergraduate education level. Given research that demonstrates the effectiveness of instructional strategies derived from DBER, both at P-12 and undergraduate teaching, I call for archaeologists to adapt DBER, while developing infrastructure that supports and advances avenues of DBER and instructional implementation. Further, I argue that adopting DBER will be vital to sustain our field given current threats and actualized funding cuts.

[168] *Chair*

Colaninno-Meeks, Carol [188] see Van Hagen, Logan

Colantoni, Elizabeth (University of Rochester), Gabriele Colantoni (University of Rochester), Serena Cosentino, Maria Rosa Lucidi (Sapienza—Università di Roma) and Gianfranco Mieli**[29]** *The Copper Age in Apennine Central Italy and the San Martino Site at Torano di Borgorose (Rieti, Italy)*

Excavations at the San Martino site (Torano di Borgorose, Rieti, Italy) have uncovered the remains of a Copper Age settlement, with evidence of a daub structure and possible hearth. The present contribution reports the results of investigations here and situates these results within the broader context of the mountainous interior areas of central Italy, including parts of the Lazio region and especially neighboring Abruzzo. The quantity of data available from Copper Age sites in this geographical area has increased considerably in recent decades, and it seems clear that people were occupying the landscape fully by the third millennium BC. Evidence from excavation and survey includes abundant pottery, lithic assemblages, and bones, sometimes associated with structures. Sites were used for activities connected with pastoralism and are found along lakeshores, on raised terraces and hillslopes, and even at high altitudes. Still lacking are extensive explorations of individual sites, and absolute dating is needed to refine the traditional chronology, based almost exclusively on ceramic evidence. Nonetheless, the amount of information available from places like the San Martino site makes this geographical area ripe for the kind of regional syntheses already long since undertaken for the Copper Age in other parts of Italy.

Colantoni, Gabriele [29] see Colantoni, Elizabeth

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Colclasure, Cayla (University of Alabama), Megan Belcher (University of Tennessee), Jon Russ (Rhodes College), Stephen Carmody (Troy University) and Martin Walker (University of Tennessee)

[86] *Analyzing Late Woodland Pipe Fragments from the Topper Site (38AL23): Exploring the Botanical, Social, and Ritual Intersections of Smoking*

Three pipe fragments uncovered during a 2017 University of Tennessee excavation at the Topper Site (38AL23) in Allendale County, South Carolina have opened a window into the social and ceremonial practices of the site's Late Woodland inhabitants. Morphometric, paleoethnobotanical, and residue analyses have enabled us to explore the societal role smoking played within this community. We compare the form, design, and contents of these fragments to similar artifacts from across the region and explore the multifaceted role smoking played at the individual and civic levels. Paleoethnobotanical and chemical residue analyses have been conducted on the contents of a pipe bowl from the site, the results of which will inform our interpretations and enrich our understanding of smoking's purpose within this Woodland community. Drawing on ethnohistorical accounts and comparative archaeological studies, we consider the known uses of various plant species in smoking rituals within the precontact Southeast. We aim to understand the role of smoking within this community specifically, and to situate this local iteration of the practice within the broader regional context.

Cole, Kasey (Dept. of Anthropology, California State University,) and Kelsie Hart (Department of Anthropology, California State University)

[179] *Faunal Remains from Point San Jose: Analysis of Butchery Patterns and Implications for Site Context*

The analysis of butchered archaeofaunal specimens from historic sites can lend important insight into diet, food preparation, discard practices, and socioeconomic status. In this study, we examine faunal specimens found commingled with human remains from a pit associated with a 19th century historic army hospital located in Point San Jose, California. The specific aim of this study is to relate observed butchery patterns on the faunal remains to diet and socioeconomic status at the site. Patterns of butchering are compared to two other historic assemblages in California, as well as historic accounts of army food rations and butchery practices. The results of this study will provide a deeper understanding of the role of the army hospital pit and the site in general, and has greater implications for interpreting butchery patterns in the archaeological record.

Collar, Anna (University of Liverpool)

[83] *Going Deeper: Can We Use Network Approaches to Reconstruct Memory, Meaning and Emotion?*

Understanding our past needs more than the long lens of nodes, links, and centrality measures: archaeology is bound to people's things and people's places. Although network analysis is concerned with relationships, it has not yet been harnessed to approach the meaning, memory and emotion encoded in our relationships with things and places. We must address this by ensuring that our network analyses incorporate these aspects of lived experience and make meaningful contributions to advancing the archaeological narrative. This paper explores how we might build a methodology for humanised archaeological network analysis in which the lived experiences of people in places and with material culture are considered as an 'entanglement of lines, not a connecting of points' (Ingold 2007: 81). I will focus on the material associated with Syrian cults in the Roman world, using different network approaches at a range of scales in combination to present place as a complex, ongoing result of multiple intertwined networks of experience, emotion, memory, narrative, material and landscape. Network analysis is only part of this project—which begins to look more like Ingold's meshwork or a 'deep map'.

Collard, Mark (Simon Fraser University), Brea McCauley (Simon Fraser University), Chris Carleton (Simon Fraser University) and Andre Costopoulos (University of Alberta)

[118] *Testing Dunnell's Waste Explanation for Monument Building with an Agent-Based Model*

The construction of shrines, tombs, and other monuments is one of the most puzzling human behaviors from an evolutionary perspective. Building monuments is costly in terms of time and energy, and yet it is difficult to see how it contributes to survival and reproduction. In the late 1980s, Dunnell argued that monument building and other apparently wasteful behaviors are in fact adaptive in environments that are characterized by severe and/or unpredictable perturbations. Such behaviors are adaptive, according to Dunnell, because groups that undertake them will have lower birth rates than groups that do not and therefore will be less likely to experience food shortages in bad years. In addition, wasteful behaviors are adaptive because they represent a reservoir of time and energy that can be devoted to subsistence and/or reproduction in times of difficulty. Here, we report the results of a study in which we tested the waste hypothesis with an agent-based model in which the severity and predictability of environmental threats and the agents' propensity to waste time and energy were varied systematically. Our results indicate that the situation is not as straightforward as Dunnell imagined.

Collins, Catherine [51] see deFrance, Susan

Collins, Michael (Gault School of Archaeological Research)

[79] *Dennis Stanford at SI: The Man, The Place, The Career*

Dennis Stanford heads up the Archaeology division at the Smithsonian Institution and its Paleo-Indian Program. From the time he completed his graduate studies (PhD 1974, University of New Mexico), Dennis has held positions in the Department of Anthropology at SI, repository of the major archaeological collection in the United States. In his more than four decades at SI, he has fostered acquisition of archaeological (especially PaleoIndian) additions to the Department's collections, conducted scores of field investigations here and abroad, and produced numerous archaeological exhibits, publications, and films. He is curator of North and South American Paleolithic, Asian Paleolithic, and Western United States archaeological collections. Even though his office is nearly always busy with staff, interns, students, visiting scholars, and kibitzers, it exudes a welcoming atmosphere. Although beset with administrative and public service responsibilities, Dennis has maintained a research program of the highest quality and built the finest PaleoIndian collection in the Americas. His aura reaches far and wide. Our discipline owes him a huge, "Thank You."

Collins, Renee (Northern Arizona University) and Rafael Guerra (University of New Mexico)

[28] *Rising from the Bush: Investigations of Elite Households Adjacent to Site Cores in the Belize Valley*

Since 2010, the BVAR Project has conducted intensive research at the recently discovered site of Lower Dover, located directly across the Belize River from Barton Ramie. A major part of the BVAR investigations is to determine the socio-political relationship between Lower Dover, Barton Ramie, Blackman Eddy, and Baking Pot. Other research questions have focused both on the monumental architecture of the site core, and on plazuela groups in the periphery of site's epicenter. One such peripheral house group, classified as Group G, consists of 5 mounds that enclose a small plaza just north of center's ballcourt. This paper presents the results of our investigations on Group G, compares the development of this household with that of the site center, and discusses the potential relationships between site cores and adjacent patio groups.

Collins, Ryan (Brandeis University)

[162] *Selective Surplus: Material Networks in Formation at Yaxuná, Yucatan, Mexico (900 to 350 BCE)*

Recent investigations of Yaxuná, Yucatan, Mexico have provided evidence to suggest that the earliest permanent spaces, by way of the site's E-group complex, in the Northern Lowlands were roughly contemporaneous with the early developments observed at Central Lowland sites. On the one hand, this data provides an outlet to better explore the large scale social processes impacting the early macro-region of the Maya area. However, material analysis of recovered shell, lithic, and ceramic artifacts assisted by stratigraphic context has revealed that many of the regional characteristics of later

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

periods, such as shared religious practices, systems of material value, and networks of exchange were much more distinct at the local level than anticipated in the earliest investigated contexts. As a result, the data make it clear that as time progressed from 900 to 350 BC, while Yaxuná underwent urbanizing processes, the presence of material objects increased while the selection of those materials gradually became focused on more fixed sources. In the same way, the previously recognized diversity of material objects became increasingly limited. This paper will focus on the implications of the Yaxuná data for the development of systems of value and exchange in early Maya society.

Collo, Gilda [154] see Cattaneo, Roxana

Colten, Roger (Peabody Museum of Natural History, Yale University)
[149] *Moderator*

Coltman, Jeremy (University of California, Riverside)

[209] *Chichen Itza and the Early Postclassic International Style*

Chichen Itza has long deserved an approach based on an analysis of the art and iconography of the site for its own merits rather than the continually frustrating analysis that results from attempts to project Late Postclassic religious stories on to the site. Effortlessly blending themes of paradise and militarism, Chichen Itza drew on a wide array of styles that appear in strikingly similar ways indicating the workings of an Early Postclassic International Style that simultaneously integrated old and new, local and exotic. The sheer cosmopolitanism of Chichen Itza makes this site an excellent point of departure for examining how stylistic and iconographic elements came to be shared at such distant sites and in similar ways. While Central Mexican influence cannot and should not be ignored, other cultural areas in the Late Classic period such as Cotzumalhuapa and Ceibal deserve renewed attention as contributors to an Early Postclassic International Style.

[209] *Chair*

Coltman, Jeremy [134] see Verdugo, Cristina

Coltrain, Joan [187] see Werlein, Amanda

Colwell, Chip (Denver Museum of Nature & Science)

[72] *Discussant*

Compton, Mary (University of Western Ontario)

[321] *Discussant*

Comstock, Aaron (Ohio State University) and Robert Cook (Ohio State University)

[266] *Hidden in Plain Sight: Mississippi Plain Pottery as an Indicator of Movement on the Mississippian Periphery*

Shell tempered pottery with smoothed surfaces, widely referred to as Mississippi Plain Pottery, is a ubiquitous but understudied element of Mississippian assemblages throughout the Midwest and Southeast. Along the northeastern Mississippian periphery, shell tempered plain pots and body sherds are present but have not been formally considered. Through analysis and direct dating of early Fort Ancient (c. AD 1000–1300) ceramic assemblages, we suggest that Mississippi Plain pottery appears early at some sites along the Middle Ohio River. Comparing these assemblages to contemporary Mississippian and Fort Ancient sites in the Ohio Valley points to a dichotomy in the early Fort Ancient system. Sites along the Ohio River appear to be more “Mississippian” in nature while sites south of the Ohio River appear to be more “Woodland” in nature. Using ceramic assemblage composition as one line of evidence in a multifaceted project investigating agricultural origins, it is becoming clear that the development of Fort Ancient societies was tied to the movement of Mississippians throughout the river valleys of the Midwest.

Conard, Nicholas, Mareike Brenner (Department of Archaeology University of the Witwatersrand), Knut Bretzke (Department of Early Prehistory and Quaternary Ecology), Christopher Miller (Institute of Archaeological Sciences University of) and Manuel Will (Department of Early Prehistory and Quaternary Ecology)

[124] *Interpreting Small-Scale, Intra-site Spatial Variation of Finds from the MSA Deposits at Sibudu Cave, South Africa*

Sibudu Cave in KwaZulu-Natal, South Africa is a key Middle Stone Age site that provides a high-resolution stratigraphic record of cultural change. The sequence from Sibudu is well-dated and has been the focus of intense geoarchaeological research. This paper examines the spatial distribution of lithic artifacts, faunal remains, worked ochre, burnt materials and botanical finds to see if these distributions provide meaningful information on the changing use of space at the site. The study will focus on deposits overlying the Howiesons Poort and dating to ca. 58,000 years ago, a period when the site was occupied intensely and for which we have documented much short-term technological change. We examine the question of whether or not important behavioral information on the spatial use of sites can be identified through careful analysis of small areas with high stratigraphic resolution.

[174] *Discussant*

Conger, Megan (University of Georgia) and Jennifer Birch (University of Georgia)

[190] *Inferring Iroquoian Architectural Variability from Magnetic Gradiometry*

Magnetic gradiometry is an affordable and preservation-minded method to detect a wide range of subsurface features at historic and prehistoric archaeological sites. Horizontal excavation is the only way to confirm the nature of features detected by magnetic gradiometry, but in some cases may be impossible or undesirable. Excavation-based understandings of local architectural practices can be used to infer the nature of magnetic anomalies, as long as those understandings encompass the full range of architectural variability that may reasonably be expected. Magnetic gradiometry was conducted at three sixteenth- and seventeenth-century Iroquoian villages in Ontario, Canada: Spang, Trent-Foster, and Hamilton-Lougheed. A search of extant excavation records was conducted to characterize the range of architectural variability likely to be found on these sites, including structure dimensions, hearth placement, and wall construction techniques. The different kinds of anomalies that these structural variations might present in magnetic gradiometry data were reproduced, and compared to actual data collected from the three sites. Based on these expectations and the identified anomalies, significant intersite and intrasite architectural variability is inferred. This approach has general methodological utility for interpreting subsurface anomalies in magnetic gradiometry data in the Eastern Woodlands and other areas with similar soil conditions and architectural traditions.

Conlee, Christina (Texas State University)

[335] *Nasca-Wari Relationships on the Greater Peruvian South Coast*

The Middle Horizon was a period of unprecedented interaction and change in the Nasca region. Nasca was one of the earliest places where Wari influence was found, extending back to the pre-imperial Huarpa culture of the Early Intermediate Period. It is also one of the few coastal regions with solid evidence of Wari colonization. However, the relationship was not a simple, unilinear one with Wari the dominant core society and Nasca the passive peripheral society. Instead a bilateral relationship developed in which many things were shared between the two. Wari colonies and foreigners are found in Nasca, along with changes in local settlements, new mortuary practices, and new long-distance prestige goods. Many aspects of Nasca

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

culture were incorporated by Wari including ceramic technology, iconography, flexed burial positions, and trophy head taking. The evidence from Nasca suggests a hybrid culture developed that is most evident in the Loro ceramic style and in ritual practices involving trophy head taking. It is possible that it is from the Nasca region that Wari influence, and this new hybrid culture, spread to valleys further south along the coast.

Conlee, Christina [165] see Vaughn, Kevin

Conlogue, Gerald (Quinnipiac University) and Michelle O'Connor (Radiologic Sciences Programme, School of Medici)

[204] *The Role of Radiographer as a Member of the Arch Street Project Team*

The value of a radiographic examination of skeletal remains is unquestionable. Over the past several decades, technical innovations have resulted in more compact equipment making it easier to set up radiography in the field. Digital imaging receptors have replaced film and software has enabled post-processing image manipulation, further simplifying the logistics and efficiency of field imaging studies. Radiography systems are designed to minimize radiation dose in living patients leading to a concurrent loss of resolution. However, anthropological applications aim for optimal resolution with less regard for radiation dose. A radiographer, versed in the science of radiography, can be invaluable in planning field radiographic studies, selecting optimal equipment, and assembling an imaging team. A team should consist of at least three individuals for maximum efficiency. Including radiography students on a team provides an opportunity for classroom theory to be put into practice. It also exposes students to the realities of field research such as needing to modify plans onsite due to unforeseen challenges. The presentation concerns the examination of material recovered from Arch Street Project by a team that put the aforementioned ideas into practice.

Connaughton, Sean (Inlailawatash)

[113] *I Am from the Sea, You Are from the Land*

How does water act as a relational presence when in the field, and how does this relationship inform local Indigenous communities as they look to a future with more authority over their territory and heritage? This paper provides a first look into a Guardian Watchmen program situated on Vancouver Island and explores the ways in which Guardians better understand the social and cultural networks in which they are embedded in both the contemporary world and the places in which the ancestors and their belongings reside.

Connell, Samuel (Foothill College), Kathryn Maurer (Foothill College), Chad Gifford (Columbia University) and Niall Brady (ADCO)

[98] *Castles in Communities Ireland Field Program*

The 200 pound pig slowly turns on the spit for hours while a few feet away students from California trowel through excavations at Ballintober Castle. A marquee is set up as villagers busily prepare for Heritage Weekend, which they pushed up to mid-July to accommodate the field school and 70 people staying in the village. In the next few days there will be storytelling, sports in the castle, tours by the archaeologists, lectures about the geophysical work, and more BBQs. In fact, this sort of thing has been going full stop for five weeks each of the past three summers. All of this happens as part of the Castles in Communities project which is a unique combination of research and community involvement. The following briefly tries to capture the spirit of the program and share its successes.

Connolly, Robert (University of Memphis), Elizabeth Cruzado (Louisiana State University), Natalie Kramm (Louisiana State University) and Dominique Giosa (Louisiana State University)

[168] *Prioritizing the Expressed Community Needs in Educational Projects in Ancash, Peru*

This paper evaluates the efforts to create and implement a diversity of cultural heritage educational programs over a four-year period in the Ancash Region. The initial impetus for the development was in large part viewed as a means for obtaining community support for archaeological research projects and an increased commitment of local stewardship for cultural heritage resources. Over the four-year period, we made a decisive shift from an approach of creating products for the community to one where we worked directly with the community. We determined that a co-creative approach that prioritized the expressed needs of the community resulted in programs with an increased likelihood for being sustained increasingly by the local community. Finally, we consider on a Critical Assessment Framework as developed by Worts to evaluate the success of these programs.

Conrad, Cyler (University of New Mexico), Caitlin Ainsworth (University of New Mexico) and Emily Lena Jones (University of New Mexico)

[125] *A Commensal-Prey Relationship in Early Mainland Southeast Asia? The Case of the Burmese Hare (*Lepus peguensis*)*

Rabbits and hares are often a central part of human subsistence strategies in both the past and the present. However, the Burmese hare (*Lepus peguensis*)—the sole member of the family Leporidae indigenous to mainland Southeast Asia (MSEA)—is rarely eaten today, and its status in the past is unclear. Although this taxon is currently abundant across a wide geographic range, it has a poor zooarchaeological record during the Pleistocene and Holocene. Identified specimens occur sporadically in hunter-gatherer contexts, and increase in presence and abundance during the Neolithic, Bronze and Iron Age. Ecological data suggests that *L. peguensis* prefers anthropogenically modified agricultural environments and can be an agricultural pest. This species may thus represent a potential commensal-prey species for prehistoric agricultural populations in MSEA. In this paper, we use zooarchaeological evidence for Burmese hare and stable isotope analysis of prehistoric and modern specimens to assess whether this taxon represents a commensal species in prehistoric mainland Southeast Asia.

Conrad, Cyler [115] see Hamilton, Marian

Contreras, Daniel [332] see Walder, Heather

Conway, Jessica [334] see Farrow, Clare

Cook, Anita (Catholic University of America)

[335] *Discussant*

Cook, Gordon [29] see Hamilton, Derek

Cook, Jacqueline

[253] *We know that our people have been part of this land since the beginning of time—A Cultural Statement for the Ancient One*

The assumption was made that because the Ancient One was so old, and because the court deemed him not “Native American”, the Claimant Tribes had no connection to him, and, therefore, no concern for him. Those assumptions were proven to be incorrect. Evidence demonstrating the Cultural Affiliation of the Ancient One to the Claimant Tribes can be found within the disciplines of indigenous knowledge, geography, biology, archaeology, anthropology, linguistics, folklore, oral tradition, and historical data. The totality of all evidence demonstrates cultural persistence and adaptive change resulting in the continuum of culture and kinship within Plateau peoples. The evidence clearly indicates the indigenous people of the Columbia Plateau adapted to changing spatial and temporal landscape over millennia. These adaptations encompass the cultural affiliation with the Ancient One’s remains. By virtue of a shared group identity directly connected to places,

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

resources, and people within the geographical context of a cultural landscape affiliation always was certain.

This presentation will provide overview and insight into the indigenous knowledge and contemporary scientific knowledge. Our reliance on our teachings, beliefs, and way of life necessitated our petition for his return, allowing us to fulfill our cultural duties.

[337a] *Discussant*

Cook, Katherine and Genevieve Hill (Royal BC Museum)

[130] *Museums as Classrooms: Lessons in Applied Collaborative Digital Heritage*

Tech-centred courses in archaeology are becoming ever more present in university and college training programs, as demands for digital field recording, data management and analysis, and public engagement applications increase. Traditional classrooms and labs may be conducive to methodological training, however experiencing the complicated ethics, politics and logistics of applying these methods to heritage practice is limited in these settings. This paper reflects on a collaborative project that took students from the University of Victoria off campus to the nearby Royal BC Museum (Victoria, Canada) to develop digital applications to engage visitors in a pop-up event in local archaeology. In this rapid design, development and launch process, technical outputs were as important as critical explorations of indigenous archaeology, accessibilities, impact, and message. In applying digital heritage through collaborative practice for public engagement, the museum becomes a classroom at many levels, for students, for academic and museum professionals, and for the community.

[316] *Discussant*

Cook, Michael (Northern Illinois University)

[155] *Geographic Distribution Analysis of Elko Series Projectile Points across the Great Basin*

The Elko projectile point series is diagnostic of the early Archaic period throughout the Great Basin. Within the Elko series, two identified subtypes exist: Elko Eared (EE) and Elko Corner-notched (ECN). While morphologically distinct, both subtypes occur within the same chronological and geographic extents. In this study, I gathered a sample of 37 sites throughout the Great Basin with identified EE and/or ECN points, then developed an index representing the proportion of EE to ECN points in each sampled site. I then created several sets of geographic distribution groups and used Analysis of Variance to look for significant differences in index numbers between tested groups. Each geographic analysis yielded no statistically significant results, indicating no consistent geographic variation in frequencies of EE versus ECN points across the Great Basin. This result suggests that both subtypes were used similarly throughout the Great Basin and observed differences in frequencies at specific sites among these two point types are not indicative of any distinct culture.

Cook, Robert (Ohio State University)

[119] *When and Where Did They Go? More Fully Conceptualizing Fort Ancient's Descendants*

There were two distinct cultural systems in a key part of the Fort Ancient region—Anderson and Madisonville—with the general understanding that one changed into the other in situ ca. AD 1400 and then left the region en masse ca. AD 1650, becoming one of several contemporary Central Algonquian tribes. However, new data raise the possibility that this interpretation needs revision. First, through a biodistance analysis we learn that at least some Anderson and Madisonville groups were not closely related biologically. Second, we know from oral histories that Dhegiha Siouans departed the Ohio Valley at the same time as the Madisonville shift and have recently learned that the Anderson pattern is very similar to several Dhegiha accounts. Hence, it is now possible to question whether the Anderson cultural system relates to Dhegiha Siouans more so than the Madisonville one that may be more closely related to Central Algonquians. Reasons explored to account for the potential for multiple departures include various mixes of environmental and cultural push/pull factors, such as deteriorating climatic conditions for agriculture, increased interest in bison, and increased pressures from Iroquoians who were interested in the region for both the burgeoning fur trade and slave raiding.

Cook Hale, Jessica (University of Georgia)

[244] *Remnant Landscapes, Taphonomic Challenges and Middle Range Theory in Submerged Prehistoric Archaeology*

Submerged prehistoric archaeological sites have increased relevance in archaeology because they retain direct evidence addressing multiple questions, such as human dispersal patterns, use of coastal zones, and human responses to climate change. They also have potential for high degrees of preservation in some cases. However, just as often, they present significant site formation challenges including geochemical and mechanical degradation of artifacts and features, weathering and deflation of sediments during and after submergence, and resulting loss of stratigraphic integrity—all a direct function of coastal and marine processes. These problems must be addressed more thoroughly in the field by accounting for these alterations with appropriate middle range or higher level theory for behavioral versus ecological processes. This is also an issue in grant proposal/peer reviews wherein our “terrestrial” colleagues’ comments and critiques demonstrate they also lack an understanding of alteration of submerged offshore sites. This paper reviews, briefly, the development of investigative strategies for submerged offshore sites that operationalized theory and method for the location and study of submerged sites. We then propose some revision and revamping of these strategies that can more effectively address the unique issues involved in the study of a submerged prehistoric world’s remnants.

[315] *Discussant*

[244] *Chair*

Cooley, Delaney (University of Oklahoma)

[21] *Investigating the Emergence of Ute Culture on the Uncompahgre Plateau, Colorado*

The Numic Expansion (A.D. 900 to 1300) and other explanatory models that have been used to explain the distribution of Numic speakers across the American West often fall short of providing specific methods for identifying peoples, such as Ute, in the archaeological record. This paper expands on previous investigations of this Numic Expansion narrative through the detailed reanalysis of lithics from two excavated sites: Christmas Rockshelter (5DT2) and Shavano Spring (5MN40). I compare lithic procurement and production strategies through time and between the two sites to characterize the degree of cultural continuity (or lack thereof) in the Uncompahgre Plateau, Colorado. I identify changes to projectile point and biface production and raw material selection strategies that are unit to occupations during and after the Numic Expansion. I conclude that these differences represent changes in the region reflecting the movement of people, development of new Ute communities, and exchange of materials, ideas, and knowledge. I argue these differences represent changes in the area and broader region and may reflect the movement of people, development of new communities, and exchange of materials, ideas, and knowledge.

Cooper, Angela

[26] *Mounds, Museum Visitors, and You (the Archaeologist)*

During the 18th century, European-Americans created a myth regarding the earthen mounds found throughout the eastern United States. This myth indicated that a western people, possibly the Lost Tribe of Israel, had inhabited North America and established cities throughout this region. They then succumbed to Native American savagery and brutality and were eradicated. Over time, archaeologists disproved the myth by conducting excavations and demonstrated the cultural similarities between the mound building Native Americans and the Native Americans of the region. Although archaeologists since then have condemned, dismissed, and constantly disproved the myth, this misconception is still prevalent in today’s society. Many people still believe that non-Native Americans built the mounds, and other people recognize that pre-contact Native Americans constructed the mounds

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

and cities, but that they disappeared or went extinct. For both groups, they do not recognize the cultural continuity from the mound building people to contemporary Native Americans. My dissertation examines whether museums combat or perpetuate the myth of the mound builders, what preconceptions visitors have of Native Americans and their mound-building ancestors, whether their preconceptions change after visiting a tribal or mound site museums, and what museums can do to begin changing preconceptions of Native Americans.

Cooper, Jago (British Museum)

[283] *A Hundred Years of Human Migration in the Caribbean: Considering the Key Tipping Points of Cultural Transformation between AD1492 and AD1592*

This paper will review some of the ways in which unprecedented human migration and cultural encounter in the 15th and 16th century Caribbean is reflected in the transformative material exchanges made on Isla de Mona. Discoveries made during recent fieldwork on Isla de Mona will be used to illuminate and inform these thoughts by examining the dynamic ideological setting within which they are situated.

[57] *Discussant*

Cooper, Jago [123] see Samson, Alice

Cooper, Zachary (University of Colorado, Boulder)

[27] *Developmental Period Migration in the Northern Rio Grande*

The origin of Tanoan language diversification is inextricably linked to the debate around the origin of the Tewa. While paleodemographic, bioarchaeological, linguistic, and DNA evidence support a thirteenth century Mesa Verde-Northern Rio Grande migration, the lack of clear material culture evidence of this migration is perplexing. Critical to this discussion is the possibility of an earlier, tenth century migration of (presumably) Proto-Tiwa speakers from the Upper San Juan region into the Northern Rio Grande. While scholars generally agree that Proto-Tiwa split from Proto-Tewa no later than AD 1000, the location of this split, and the subsequent movement of Tiwa speakers, remain unresolved. In this presentation, I evaluate the ability of two competing hypotheses to account for the paleodemographic, linguistic, and archaeological evidence underpinning this question. The first hypothesis posits that Proto-Tiwa split from Proto-Tewa in the Upper San Juan region, which would support the idea of a Mesa Verde migration. The second hypothesis suggests a split within the Tewa Basin, which would shift the argument in favor of in situ development. This research represents a small contribution toward a better understanding of the complexities inherent in the study of Ancestral Puebloan migration patterns.

Cootsona, Melanie (Barnard College)

[259] *Animal as Social Actor: A Case Study of a Pre-Colonial Northern Tiwa Structure*

This paper explores the role of animals as social actors, namely the way natural animal behaviors influence human religious settings. The paper focuses on the case study of a floor organization of a formally closed thirteenth century Northern Tiwa kiva in the Northern Rio Grande region of New Mexico. The worldview and beliefs of the Northern Tiwa were deeply shaped by the species and biomes with whom they co-habited. Through the synthesis of material data, ethnographic information and behavioral traits, we can begin to understand how the Northern Tiwa in the thirteenth century may have situated specific species within a landscape-based religion. The animal species highlighted within the case study of the kiva includes the North American porcupine, the American crow, the American bison, and four domesticated dog burials. This kiva at Pot Creek Pueblo (also known as T'aitōna) embodies a moment of heightened meaning, as it includes the floor burial of a young child (who likely suffered a traumatic death).

Corcoran Tadd, Noa (Harvard University)

[85] *Landscapes of Mobility in the South-Central Andes: From Chiefly Networks to Colonial Markets (AD 1100–1800)*

The great silver mining centers of Potosí, Porco, and Oruro in the Bolivian highlands have long formed an important focus for understanding the Spanish colonial world, both for the colonial imagination and for the contemporary historian. In comparison with the contexts of production and exchange based around these mining centers, however, their wider contexts of mobility and logistics within the altiplano and the valleys leading west to the Pacific coast have been comparatively under-investigated by historians and archaeologists alike. This presentation considers these peripheral and 'interstitial' landscapes and the communities they constituted (particularly as they articulated with prehispanic legacies of mobility and infrastructure) within the context of ongoing research in southern Peru and northern Chile. The resulting discussion highlights some of the ongoing tensions between multiple scales of analysis and between textual and archaeological sources of historical data.

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

[95] *Ceramic Petrography of Woodland Period Swift Creek Complicated Stamped Pottery in Florida and the Lower Southeastern United States*
Swift Creek Complicated Stamped pottery from the lower Southeastern U.S. is a premier material for the systematic study of Woodland period social interactions. Petrographic analysis of Swift Creek pottery was undertaken as part of a research program that integrated materials analyses of pottery, including Neutron Activation Analysis, digital imaging of paddle stamp designs, technological analysis, and absolute dating, to identify patterns of social interaction. Over 200 samples have been thin sectioned from more than two dozen sites across Florida and Georgia, dating between AD 200 and 800. 91 clay samples from most of the sample regions were included for comparison. Petrographic analysis documented eight gross temper and/or constituent categories and eight matrix or petro-fabric groups (on the basis of presence/relative frequency of mica and siliceous microfossils). Most gross "temper" and petro-fabric categories are well represented in the sampled clays. The results indicate mostly local pottery manufacture within the northern regional site clusters, which encompass large ceremonial centers. Swift Creek pottery at the southern clusters contain an abundance of non-local vessels, especially at burial mounds. Integrative results indicate that interactions were geographically extensive, but clearly most intensive along particular corridors.

Cordell, Ann [95] see Duke, C. Trevor

Corl, Kristin (University of Texas at San Antonio), Kristina Solis (University of Texas at San Antonio), Robert Hard (University of Texas at San Antonio) and Michelle Carpenter (University of Texas at San Antonio)

[105] *Demographic Change through Analysis of Age Profiles of Burial Data*

A series of mortuary sites on the Texas Coastal Plain provide a dataset useful for analyzing demographic change through examination of age profiles. Other archaeological data suggest that populations peaked during the Late Archaic period (4000–800 BP) and sharply declined during the Late Prehistoric period (800–350 BP). Analysis of the ratio of adults to young individuals has been used to identify rapid population growth among other populations. Hunter-gatherer groups living in the Texas Coastal Plain developed complex and stable human-resource systems that utilized a variety of habitats across the Coastal, Riverine, and Inland Zones. The heterogeneity of available resource rich environments within a short distance enhanced resilience to resource fluctuations. This adaptation appears to have remained relatively stable for much of the Holocene providing the ecological context for rapid population growth. As part of a National Science Foundation grant, we are using burial data from a series of mortuary sites to identify periods of population growth and decline and how they compare to archaeological expectations, Late Holocene climate change, and other factors.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Corl, Kristin [91] see Whisenhunt, Mary

Cornero, Silvia [7] see Castro, Juan

Corrales-Ulloa, Francisco (Museo Nacional de Costa Rica)

[260] *From Coast to Coast: Recent Research in Southern Caribbean and Osa Peninsula, Greater Chiriquí Region*

I present new data of investigations conducted in two almost unexplored zones on both coasts (Pacific and Caribbean) of the Greater Chiriquí Region. An exploratory survey, and test pit excavations of selected sites in the southern coast of Caribbean Costa Rica, allowed recording materials similar to those found on the Pacific coast. This reaffirms the proposed extension of related groups on both sides of the Talamanca mountain range. I provide comments about the relationships maintained between people of the Sixaola valley and the Bay of Almirante; as well as the establishment of the cultural boundary between the archaeological regions of the Central Caribbean and the Greater Chiriquí.

In addition, explorations near the Tigre River, located in the Osa Peninsula, Pacific coast, have provided evidence of two phases of occupation. Of the sites registered, Cantarero is a main center of the Aguas Buenas period. Recent excavations carried out at Cantarero shed light about the development of complexity in the long and still unknown Aguas Buenas period. The documentation of late sites nearby the gold bearing Tigre River, provides elements to discuss relationships with the Diquís delta, based on long distance control of gold sources.

[260] *Chair*

Correa, Itaci [141] see Vidal-Montero, Estefanía

Correa, Leticia (Leticia Cristina Correa) and Astolfo Araujo (Astolfo Gomes de Mello Araujo)

[2] *Paleoindian Site in Central São Paulo State, Brazil: Bastos Site, Dourado County*

Bastos site, located in central São Paulo State, provided ages between 7,600 and 12,600 cal BP. The lithic industry is composed by flakes on silicified sandstone, with rare unifacial retouch, without formal artifacts. The site probably represents a habitation area in a river terrace, later covered by alluvial fan. Refitting pieces attest the overall integrity of the spatial positioning of the archaeological materials. The site is the oldest found in São Paulo, and is contemporaneous to sites from Lagoa Santa and Pains regions, in Minas Gerais State. However, the lithic industry is unrelated to the ones found in these areas, suggesting the existence of a different Paleoindian group

Cortes-Rincon, Marisol (Humboldt State University), Jonathan Roldan (Humboldt State University), Cady Rutherford (University of Texas at San Antonio), Byron Smith (Humboldt State University) and Walter Tovar Saldana (Humboldt State University)

[18] *Utilization and Field Testing of LiDAR in the Maya Hinterlands*

Airborne LiDAR (Light Detection and Ranging) is an active remote-sensing technique which records the surface of the earth using laser scanning. The recent acquisition of LiDAR data for a portion of the Three Rivers regions in northwestern Belize offered the opportunity for a new way to analyze settlement and landscape utilization by the ancient Maya. This paper will focus on the systematic analysis of the dataset, ground verification, and post-processing methodologies. ArcGIS was used for the interpretation, LAS classification, and tiling of the maps for hand-held GPS (Global Position System) units. Household groups, single mounds, courtyard groups, depressions, and sacbeob were identified and verified during field surveys. Ground truthing took place during the 2017 field season of the Dos Hombres to Gran Cacao Archaeology Project (DH2GC).

Cortes-Rincon, Marisol [30] see Smith, Byron

Cory, Mackenzie (Indiana University)

[331] *Archaeological Field Schools Beyond Buzzwords: Engaging with Critical Pedagogy while Connecting with Administrative Goals*

Although archaeological field schools are widely accepted as a prerequisite for employment in the field, a disconnect has developed between universities sponsoring these courses and the instructors who teach them. Field schools are unique experiential learning opportunities, the value of which can be difficult to communicate to university administrators who set course minimum enrollments and summer tuition rates. Instead of just thinking of field schools as a means to teach skills necessary for future employment, archaeology instructors should engage with critical pedagogies that help us better translate the utility of field schools in an era of financial shortfalls and Responsibility Centered Management budget models in higher education. In this presentation, I discuss how the Bighorn Archaeology Field School (Indiana University) not only trains students in field techniques but also embraces a more critical approach by taking into account students' experiences and preconceptions. The instructors frame discussions of ideology, race, culture, and landscape that shape perceptions of the western plains and mountains where they work, through media, fiction, and experience. In addition, I argue that making use of the unique advantage of undergraduate students' understanding of new social media platforms to engage with the public is beneficial for all parties involved.

Cory, Mackenzie [5] see Herrmann, Edward

Cosentino, Serena [29] see Colantoni, Elizabeth

Coskunsu, Güner [85] see Iovino, Maria Rosa

Costa, August (Moore Archeological Consulting, Inc.), Jonathan Lohse (Moore Archeological Consulting, Inc.) and Stephanie Orsini (Moore Archeological Consulting, Inc.)

[217] *High Resolution Chronology and Paleobiogeography of Bison and Pronghorn Occupation in Southeast Texas and their Implications for Human Paleoecology*

Bison and pronghorn are taxa that have relatively high visibility in the archaeological record of the southern Plains. Understanding when bison and pronghorn were present in regions located in the southern Plains periphery is important for our general knowledge regarding bison/pronghorn ecology, climate, and environmental change in North America, as well as providing insights into human responses during these periods. Previous studies of the extent and timing of bison expansion into the southern Plains of Central Texas suggest this group's presence and absence constitutes a series of events that correlates to specific climatic excursions, with associated human responses. A comparable situation appears to prevail in Southeast Texas where bison are occasionally reported from Late Prehistoric archaeological contexts. Pronghorn, an animal with requirements similar to yet unique from bison, may provide additional insights on the timing and manner of change witnessed in both paleoclimate and human paleoecology in Southeast Texas. Stable and radio-isotopic analyses of bone collagen from bison and pronghorn can provide high precision data on both the timing and effect of different kinds of environmental change on human lifeways. We discuss the application of these techniques and present new direct AMS radiocarbon data on bison from Southeast Texas.

Costamagno, Sandrine [41] see Franklin, Jay

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Costin, Cathy (California State University, Northridge)**[121]** *Technology and Social identity on the North Coast of Peru*

Drawing on nearly three decades of inspiration from and collaboration with Rita Wright, this paper explores the relationship between craft technologies and social identities on the North Coast of Peru over the longue durée. The technologies used to manufacture goods were themselves meaningful, often considered to be divinely inspired and certainly a key element in determining the value and significance of both everyday and esoteric objects. As transformative processes, the methods and techniques of craft manufacture reflected the power of artisans to create and animate the material and social worlds. Importantly, within media distinct technologies were often associated with different genders, classes, ethnicities, and other aspects of social identity. Set within the context of the rise and fall of regional state-organized polities and waves of “contact” and conquest by more distant powers, I discuss how technological stability in some media reflected the persistence of autochthonic identities, “traditional” social structures, and indigenous claims to place, while the episodic introduction of new technologies—some developed locally and some “imported” by more distant conquerors—reflected the assertion of new loci of authority, the restructuring of sociopolitical relationships, and claims to different modes of prestige.

[216] *Discussant***[216]** *Chair*

Costin, Cathy [95] see Lawrence, John

Costopoulos, Andre (University of Alberta)**[219]** *The Impact on Mobility of Regional Variability in Rates of Environmental Change: An Agent-Based Simulation Approach*

I use agent-based computer simulation to evaluate the impact of regional scale variability in rates of environmental change on residential and logistical mobility. Previous regional case studies and simulation work suggest that high variability in regional rates of environmental change (in shoreline displacement, for example) should favour settlement strategies that reduce residential mobility and rely on logistical mobility. Those strategies should select longer-term residential sites that are environmentally relatively stable at a very local scale, and are surrounded by more rapidly changing

landscapes that provide logistical access to a variety of resources. I will test whether this pattern holds up when variability of the rate of change in more than one environmental variable is tracked.

Costopoulos, Andre [118] see Collard, Mark

Cottreau-Robins, Catherine (Katie) (Nova Scotia Museum), Jacob Hanley (Geology Department, Saint Mary's University), Paige Fleet (Geology Department, Saint Mary's University), Christopher McFarlane (Earth Sciences Department, University of New Bruns) and Brandon Boucher (Earth Sciences Department, University of New Bruns)**[21]** *Bay of Fundy Provenance for Pre-contact Copper Artifacts from the Maritime Peninsula, Northeastern North America*

We used non-destructive laser ablation inductively-coupled plasma mass spectrometry (LA-ICPMS) to compare trace element concentrations in 50 copper artifacts from a variety of pre-contact sites in the Maritime Peninsula (Nova Scotia, New Brunswick, Prince Edward Island and Maine), to natural copper samples from 16 geological sources in Michigan, Ontario, Pennsylvania, New Jersey, and the western and eastern regions of the Bay of Fundy. Of particular note is the contrasting composition of Lake Superior copper (elevated arsenic) and Bay of Fundy sources (elevated zinc). A Bay of Fundy provenance is unambiguous for many artifacts analyzed. Importantly, no artifacts have chemical compositions consistent with Lake Superior sources. The results establish the importance of local (Fundy) copper to pre-contact period Indigenous peoples of Nova Scotia and the Maritimes, negating the Lake Superior model. Furthermore, recognition of distinct eastern and western Fundy copper provenance within the artifact collection has significance in the broader context of territorial procurement of copper and trade relationships.

[21] *Chair*

Coughlan, Katelyn [241] see Sawyer, Elizabeth

Coughlin, Sean (ASC Group, Inc.) and Kelly Sellers Wittie (Row 10 Historic Preservation Solutions, LLC)**[90]** *Feeding New Orleans: Where's The Pork?*

In 2014 R. Christopher Goodwin & Associates, Inc., completed the analysis of the faunal remains from archaeological data recovery at the Colton School site (16OR562), Orleans Parish, Louisiana. Analysis of faunal remains from the site revealed a propensity for beef rather than pork, a finding that contrasts Sam Bowers Hilliard's statement on eating trends in the American South ca. 1860 as presented in his 1972 book *Hog Meat and Hoecake*. This article presents the result of this analysis and the journey taken based on those results. In many ways, like any good research project, this data raises more questions than answers and leads to avenues of research that need to be addressed by future research.

Coulthard, Ian [208] see Varney, Tamara

Countryman, James (University of Chicago)**[297]** *Ritual Production, Commodity Production, and Cultivating Agricultural Heritage in Ravni Kotari, Croatia*

Agricultural crops may be selected not only because they “work” from the perspective of agroecology, but also for their value in maintaining religious affiliation, historical memory, and community identity. Drawing on emerging archaeobotanical evidence from the Ravni Kotari region of southern Croatia, this paper discusses the challenges of understanding continuities of cultivation practices over multiple millennia in relation to changing political-economic contexts within which cultivation has taken place. I emphasize the production of *Olea europaea* and *Vitis vinifera*, two non-subsistence crops that emerged as central components of market-oriented production under the Roman Empire, and continue to provide the basis of commercial agriculture in the region today. The long-term transmission of these cultivars is complex. The ritual use of wine and oil within the Christian church may have sustained the cosmological importance of these crops through the geopolitically turbulent medieval period, while their commercial importance diminished. More recently, viticulture and oleiculture have become emblematic of “traditional” folk life and agricultural heritage, their consumption ritualized in new ways through agritourism. Ritual offers a lens for considering both the shifting social meanings of cultivated plants, as well as how and why certain practices can be sustained across social, cultural, and political disjuncture.

Courtright, Scott [268] see North, Chris

Coutros, Peter (Yale University)**[198]** *Flexibility against Fragility at the Diallowali Site System during the 1st Millennium BC*

The first millennium BC was a period of dramatic social and environmental change throughout West Africa. Along the Middle Senegal Valley (MSV), communities experienced rapid and dramatic changes to biospheric conditions accompanied by largescale technological, social, and economic reorganizations. On the western edge of the MSV, the inhabitants of the Diallowali site system developed a network of flexible institutions capable of

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

maintaining a thriving community throughout this turbulent period. Despite the rapid and profound changes to the surrounding landscape, varying degrees of reliance upon hunting, fishing, agriculture, and animal husbandry, as well as long distance trade and craft production, contributed to over 700 years (1100–400BC) of intense occupation of the site system. Through an examination of changes in local conditions, and the synchronous shifts in settlement organization and subsistence practices, this paper investigates the social implications of intense and unpredictable climate change on Late Stone Age and Early Iron Age populations along the MSV.

Coutros, Peter [210] see Womack, Andrew

Couture, Nicole C. [87] see Blom, Deborah

Covarrubias, Miguel [37] see Plank, Shannon

Covert, Alexandra (Northern Arizona University)

[27] *From Water to Land: Analysis of Prehistoric Shell from Wupatki Pueblo*

This research focuses on the prehistoric shell artifacts recovered from excavations at Wupatki Pueblo. The shell artifacts from Wupatki Pueblo were analyzed in order to accurately determine the genus and species, artifact types, trade routes, and uses of shell. By looking at manufacturing techniques, this research determined if shell artifacts were traded or brought to Wupatki Pueblo as finished products by the Hohokam or if shell manufacturing occurred at Wupatki Pueblo. To determine the significance of shell artifacts at Wupatki Pueblo, the shell assemblage was compared to shell assemblages of other prehistoric northern Arizona sites and to shell assemblages from Hohokam shell manufacturing sites. Ultimately, this research adds valuable information about trade, migration, and social networks between the Hohokam and the Ancestral Puebloans, which is important to the understandings of function, complexity, ideology, adaptation, resilience, and the foundation of modern Pueblo cultures.

Covey, R. Alan (University of Texas at Austin)

[100] *Rethinking Inca Social Power in the Imperial Heartland (Cuzco, Peru)*

It is commonplace to note that the Inca Empire was the most powerful indigenous state in the Americas before the time of European invasions. Retrospective sixteenth-century Inca accounts played up the scale and intensity of imperial social power, but the ethnohistory and archaeology of the Cuzco region of highland Peru—the Inca capital region—indicate more nuanced networks of power across the imperial heartland. Using Michael Mann's typology for social power as a guide, this poster develops documentary perspectives on networks of ideological, economic, military, and political power in Inca Cuzco. The ethnohistoric review will consider some distinctive features of the Quechua conceptualization of social power, which will then be compared with regional patterns from Cuzco's rural hinterland. Settlement patterns from the Sacred Valley and Xaquixaguana Plain demonstrate some socioecological patterns to the development of Inca social power, as well as some intriguing trajectories for building royal power on local landscapes during the generations of Inca imperial dominance.

[100] *Chair*

Covey, R. Alan [100] see Payntar, Nicole

Coward, Fiona (Bournemouth University)

[83] *'All things being equal'? Multiplex Material Networks of the Early Neolithic in the Near East*

Archaeological network research typically relies on material culture similarities over space and time as a proxy for past social networks. In many cases, a range of different types of material culture are subsumed into reconstructed connections between nodes. However, not all forms of material culture are equal. Different types of objects may be caught up in rather different forms of social relationship—crudely put, 'personal' items such as jewellery may perhaps have more social and cultural significance than commodities, for example functional tools—and may thus be traded/exchanged/gifted in different ways. Analyses including different types of material culture may thus conflate multiple different forms of social relationship and patterns of connection. However, 'significant' and 'functional' are rarely mutually exclusive categories, and are always fluid, culturally and contextually dependent. This paper will investigate the multiple lenses different forms of material culture provide for studying social networks in the early Neolithic of SW Asia. What would a multiplex perspective for archaeological network research look like, and how might it impact on our understanding of past material cultures and social change?

[329] *Discussant*

Cowell, Shannon (New Mexico State University)

[69] *Micaceous Ceramics at Los Ojitos, New Mexico*

Los Ojitos (LA 98907) is a Hispanic New Mexican site occupied between 1865 and 1950 on the Pecos River in eastern New Mexico. Excavators recovered micaceous brownware sherds alongside American goods in household deposits and refuse scatters surrounding historic structures. A single ceramic type encompasses all micaceous wares found in the region: Middle Pecos Micaceous Brownware, dating AD 800–1300. A lack of typological guidelines for distinguishing prehistoric and historic micaceous sherds found at Los Ojitos limits site interpretation and throws into question all previous temporal assumptions about micaceous wares in the Pecos River valley. Research into micaceous ceramics in historic Hispanic contexts sheds light on gendered, multi-ethnic trade economies and the persistence of indigenous ceramics alongside mass-produced tablewares in American-period eastern New Mexico.

[69] *Chair*

Cox, J. Royce (Office of Archaeological Studies, Museum of New Mexico), Eric Blinman (Office of Archaeological Studies, Museum of New Mexico) and Shelby A. Jones-Cervantes (Scripps Institution of Oceanography at University)

[74] *Improving the Effectiveness of Archaeomagnetic Dating in the Southwest*

The theoretical foundations for archaeomagnetic dating are strong, and we enjoy more than 50 years of experience and practice in the Americas. Abundant independently dated burned sediments have supported the progressive refinement of secular variation (dating) curves as observed in the Southwest, improving the precision and replicability of date range interpretations. However, the performance of archaeomagnetic dating has not lived up to its potential as a source of reliable dating information, frustrating client archaeologists. This is in part due to the common use of an outdated statistical approach to deriving date ranges from the SWCV1995 dating curve. Despite curve refinements (i.e., SWCV2000), reliance on the old calibration and the statistical approach have often produced nonsensical date results. We address these issues through the use of a graphical approach to confirm the sensibility of dates and date ranges, and the use of alternative dating curves for some time periods. Further efforts to restore the credibility and extend the contributions of archaeomagnetic dating emphasize precision at all points in the process, including improved field sampling and laboratory measurement techniques, increased use of the recently available DuBois archaeomagnetic archive, and the initiation of new approaches to building and evaluating secular variation curves.

Cox, J. Royce [74] see Blinman, Eric

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Cox, Kim and Carolyn Boyd (Shumla Archaeological Research & Education Center)**[73]** *Using Rules from the Texas Lower Pecos to Interpret Jornada Mogollon Rock Art*

Four principal rules of interpretation for Pecos River Style rock art of the Lower Pecos region of Texas are proposed. These rules were proposed based on a commonality between Pecos River Style and the iconography of historic Corachol-Aztec speaking tribes such as the sixteenth century Mexica of central Mexico and the present-day Huichol of western Mexico. This presentation shows how the same rules can be applied to the interpretation of the rock art of other prehistoric Corachol-Aztec speaking groups such as the Jornada Mogollon of New Mexico, where, for example, their glyph for the Sun contains certain linguistic characteristics that operate outside of mere symbology and are more of a depiction of the name of the Sun than a representation of the Sun itself.

Cox, Maria (California State University, Chico) and Valerie Sgheiza (California State University, Chico)**[179]** *Number Games: MNI and Element Representation in the Point San Jose Collection*

The Point San Jose skeletal collection was excavated from a 19th century medical waste deposit. Remains within the deposit were completely commingled and highly fragmented. As re-association was highly unlikely, careful assessment of the commingled nature of the collection was required. To establish the Minimum Number of Individuals (MNI) represented in the collection, two approaches were used: Max (L,R) and an age-informed MNI. The maximum count per unique element resulted in an MNI of 22 (right talus), the age-informed MNI yielded an MNI of 25. When the Most Likely Number of Individuals (MLNI) was calculated, the results ranged from 19–38 individuals. As this collection originated from a medical waste deposit, the larger estimations cannot be disregarded. To further inform and explain the MNI and MLNI results, element representation was assessed. Frequency counts per element were obtained, as was information on side, distal/proximal, axial/appendicular, and upper/lower limb. As many of the long bones were fragmented, data was collected as to which portion of the bone exhibited damage. The results of this study will enable a better understanding of the use and origin of the deposit, as well as which portions of the body were most likely to be included.

Crabtree, Barbara [90] see Hofman, Jack

Crabtree, Pam (New York University)**[121]** *A Re-examination of the Animal Bone Remains from Rojdi, a Sorath Harappan Site in Northwest India*

The later 3rd and early 2nd millennium site of Rojdi in Gujarat, India was excavated under the direction of the Professor Gregory Possehl over eight field seasons between 1982 and 1995. Rojdi is an agricultural village with substantial stone architecture, most of which dates to the early second millennium (1900–1700 BCE). Significant progress has been made in our understanding of the Sorath Harappan culture, including detailed ceramic studies, analyses of archaeobotanical materials, and additional faunal studies, since the Rojdi excavations were completed in 1995. This presentation will re-examine the zooarchaeological data for herding strategies and hunting practices at Rojdi in light of the new archaeological and zooarchaeological data from the region.

[121] *Chair*

Crabtree, Pam [121] see Green, Adam

Crabtree, Stefani (The Pennsylvania State University)**[83]** *Using Food Web Models to Examine Desert Networks in the American Southwest and Western Australia*

Archaeological studies benefit from rich ecological data, yet linking ecological data to narratives of the past can be difficult. Here I use trophic network modeling to understand both Ancestral Pueblo and Australian Aboriginal food webs, comparing these systems for a greater understanding of human and environmental resilience. Here I show that Ancestral Pueblo people connected themselves into a greater environmental web and use network analysis to examine how the changing network properties of the Ancestral Pueblo food web led to vulnerabilities of the web to environmental stochasticity and anthropogenic change. I then calibrate the results from this study to ethnographic data recently gathered among remote living Aboriginal people in the Western Desert of Australia. I show how food web modeling can help us understand the cascading extinctions of small mammals following the removal of Aboriginal people to outstations in the 1960s. The utility of food web modeling for understanding the ethnographic dataset can then be extrapolated to the Pueblo dataset, indicating where and when the Ancestral Pueblo people became most vulnerable to environmental change. Ultimately I demonstrate that an unstable food web led to decreased resilience of the Pueblo people, forcing migration.

[234] *Discussant***[83]** *Chair***Craib, Alexander (University of Wyoming)****[81]** *Dalton Mobility in the Tennessee River Valley: An Assessment of Raw Material Use and Tool Curation*

Previous research in the Southeast has demonstrated that Dalton groups underwent a process of settling in to the landscape. This has been demonstrated through the identification of raw materials used for the production of Dalton hafted bifaces. A preference for locally available raw materials has been noted in previous studies, a departure from Clovis groups who routinely made use of non-local cherts. This trend has been well established outside of the Tennessee River Valley; however, little research has been done concerning the settling in of Dalton groups in this region. In order to test the hypothesis that Dalton groups in the Lower and Central Tennessee River Valley were also settling in, 187 Dalton points were analyzed for raw material type and amount of curation. All analyzed samples were originally collected by avocational archaeologists and subsequently donated to the McClung Museum of Natural and Cultural History. The collections used (Ernest J. Sims, Smeltzer, Cambron/Hulse) all possess exceptional spatial data with site-specific locational information. Results of this study are consistent with the trends previously identified, demonstrating that Dalton groups in the Lower and Central Tennessee River Valley were settling in.

Craib, Oliver [50] see Admiraal, Marjolein

Cramb, Justin (University of Georgia)**[20]** *Manihiki & Rakahanga: Archaeological Research on a Dual-Atoll Cluster in East Polynesia*

Archaeological fieldwork was completed on the atolls of Manihiki and Rakahanga, in the northern Cook Islands, from May to July of 2015 and from July to November of 2017. This includes survey and mapping on six islets, the documentation of extant and past fish traps and fishponds, lagoon to ocean shovel test sampling, and the excavation of habitation and resource production sites. This work identified village centers on each atoll and preliminary analyses indicate that the coral-cluster landscape of Manihiki and Rakahanga was intensively altered by past human practices. These include the creation of horticultural pits, coral fish traps, fishponds, curbed and paved pathways, marae, residential centers, and potential shoreline armoring. Furthermore, it appears that individual islets and marine areas were used differentially in manners conducive to the inherent production capabilities of each microenvironment. The data that continues to emerge from this ongoing research advocates that a complex human/environmental dialectic shaped these atolls and created the productive landscape present today. Additional research, including forthcoming zooarchaeological analysis and AMS dating, promises to improve our current understanding of these atolls' past, coral-cluster land use, and landscape creation practices.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Cramb, Justin [13] see Cramb, Sara Lynn

Cramb, Sara Lynn, Justin Cramb (The University of Georgia), Haumata Tepania (Manihiki Atoll, Cook Islands) and Justine Tuatai William (Manihiki Atoll, Cook Islands)

[13] *The Ngake 001 Site: Surface Mapping and Subsurface Investigations*

The Ngake 001 site is located on Manihiki Atoll in the northern Cook Islands. In all, the site covers an area of roughly two hectares and consists of four coral-edged courts, two small coral-edged enclosures, a possible well, part of a lagoon shore path, and a mound and trench system that provides access to the islet's Ghyben-Herzberg freshwater lens. Multiple surveys, by the authors and others, suggest that the Ngake 001 site is situated at the center of a large prehistoric village complex that includes residential areas, marae, and cultivation areas. Furthermore, the site provides access to multiple resource zones including Manihiki lagoon, the ocean shore, and the shallow channel that connects the two. Subsurface investigations, include an ocean-to-lagoon shovel-test survey and multiple excavation units. Preliminary analyses of artifacts, including clam-shell adzes and pearl-shell fishhooks, indicate that Ngake 001 was utilized during the late prehistoric period before the arrival of missionaries in AD 1849 and possibly much earlier. Additional analyses will allow us to provide greater detail on the role of Ngake 001 as a habitation site, population center, and possible seat of chiefly power on Manihiki Atoll.

Crass, Barbara [50] see Krasinski, Kathryn

Crawford, Dawn (Southern Methodist University), Brigitte Kovacevich (University of Central Florida) and Michael Callaghan (University of Central Florida)

[28] *Terminal Classic Residential Groups at Holtun, Guatemala*

Holtun, located in the central lakes region of the Maya lowlands, was occupied from the Preclassic through the Postclassic. To date the Holtun Archaeological Project has mapped approximately 13 groups in the site core and over 30 residential groups in the periphery to the north. The majority of these surface residential structures date to the Terminal Classic and Postclassic. The residential groups excavated to date vary in their proximity to the site core, number of structures, construction investment, structure and plaza size, and patio space elements. Together these features can be used to discern possible socio-economic status of the inhabitants (Ashmore et al. 2004; Chase 1992; Gonlin 2004; Hirth 1993; Marcus 2004; Masson and Lope 2004:197; Robin 2013; Schwarz 2013). This paper presents an overview of the Terminal Classic residential groups excavated to date at Holtun from within the site core and the immediate periphery. Excavations focused on sampling residential groups across the site and cataloging the structures and plaza groups based on the above-mentioned criteria in order to better understand socio-economic status, access to resources, and local production patterns for a wide variety of inhabitants of a single site during the Terminal Classic period.

Crawford, Gary (University of Toronto)

[284] *The Shangshan Culture and Agricultural Origins*

The Shangshan Culture is among the first in China to be associated with at least one domesticated organism: rice (*Oryza sativa*). A decade of research on Shangshan is providing critical insight on events leading to Neolithic developments in the Lower Yangtze Valley. So far, some expectations are not yet confirmed: e.g., the Shangshan ancestors developed from a local Palaeolithic population, and the first farming developed in the rich lowlands. Collaborative research is documenting potential evidence of managed and domesticated rice as early as 11,000 BP and certainly by 8,500 BP. Research focuses on understanding the circumstances of Shangshan's location (upland, intermontane basins), settlement structure, technology, and human-environment interaction. In particular, by 9000–8500 BP sites are relatively large with, at least in some cases, substantial ditches constructed around or through them. The ditches appear to have been an important aspect of the Shangshan niche and they are hypothesized to have played a role in rice's early association with people.

[284] *Chair*

Crawford, Laura (The Ohio State University)

[50] *Ancient Alaskan Firewood Management Strategies and the Role of Selectivity: Preliminary Results*

When historic Alaskans chose a settlement site, access to adequate fuel was as important as the availability of food and water. Despite its importance fuel use in the Arctic and Subarctic has received relatively little attention. Work currently underway aims to clarify the criteria used to select fuel in ancient Alaska by testing two hypotheses. The Efficiency Maximization hypothesis, derived from the prey choice model of human behavioral ecology, proposes that Alaskans ranked woody taxa according to net energy acquisition, and preferentially selected highly ranked taxa. The Firewood Indifference hypothesis proposes that Alaskans were not selective but rather sought to minimize the energy and time expended gathering firewood without regard for the specific properties of different taxa. This pattern is predicted by the prevailing fuel use model, the "Principle of Least Effort" (PLE), but is at odds with ethnography, which indicates that Native Alaskans discriminate between and seek specific wood(s) with preferred properties. This paper reports the results of preliminary statistical analyses designed to determine which fuel-use model best explains the anthracological record for three Alaskan sites. These sites differ in cultural affiliation, ecological setting, and chronological position, and thus illustrate how different constraining variables determined fuel selection strategies.

Crawley, Andrea (New Mexico State University), Fumiyasu Arakawa (New Mexico State University), Jared Cicchetti (New Mexico State University) and Garrett Leitermann

[91] *Classic Mimbres Phase Archaeology: A Contrastive Study of Two Sites at the Headwaters of the Upper Gila River*

Classic Mimbres sites can be seen across the Mimbres Valley and Upper Gila areas. For one tributary of the Gila River, Diamond Creek, there are several of these sites that lay alongside it. As a part of the "Northern Mimbres Project," two sites—Twin Pines Village (a large Classic Mimbres village) and South Diamond Creek Pueblo (a small four room site)—have been excavated by New Mexico State University field schools over the course of three years. Our excavations and research of these sites have led us to better understand the relationship between large and small scale habitation during the Classic Mimbres phase in the Upper Gila. The relationships between these two sites can be observed in the differences in: 1) architectural style, 2) pottery assemblages, and 3) amounts of exchanged items. Based on the results of our field work, we argue that data from the Twin Pines and South Diamond Creek Pueblo sites offer a deeper understanding of the Upper Gila region as well as a broad perspective of the Classic Mimbres culture in the American Southwest.

Creager, Brooke (University of Minnesota)

[197] *Individual Christianity: A Post-Roman Practice in a Changing Landscape*

The individual is often overlooked in reconstructions of ritual activity, particularly within constructed spaces, where the repetitious nature of ritual obscures the signature of individual variance. Ritual actions are attributed to a group, or community, even burials are not the action or pure representation of an individual. The identification of the individual within a ritual practice highlights the variance accepted within a culture. In this case study of Early Anglo-Saxon Britain, individual practice demonstrates the degree of integration between two cultures: the Anglo-Saxons and the Post-Roman British. Ritual continuance from the Roman period is evidenced through Christian practices within the Anglo-Saxon cultural framework. The use of Roman ritual spaces, such as churches, provides insight into the role of cultural continuity, where the remnants of actions can be attributed to a

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

small number rather than large groups of practitioners. This paper will explore the evidence for the use of Roman Christian spaces by a few Post-Roman peoples. Continuing ritual practices, in this case study of fifth- and sixth-century Britain, provide insight into the individual's role in maintaining, or rejecting, colonial ritual practices within the new cultural framework.

[197] *Chair*

Creel, Darrell [325] see Baustian, Kathryn

Creese, John (North Dakota State University)

[22] *Iroquoian Longhouses and Sociotechnical Assemblages*

A better understanding of the role of domestic dwellings in shaping past social relations is needed. In this paper, Northern Iroquoian longhouses are studied as sociotechnical systems. This approach allows us to appreciate how social relations were generated and contested in the very activities of building and living in houses. I examine a sample of pre-Columbian longhouses from southern Ontario, Canada. Variation in aspects of house construction, spatial layout, and ritual indicates that sociotechnical networks associated with different houses were variable in scale, durability, and organization. What emerges is the sense that a dynamic, driving tension between forces of collectivization and atomization, inclusion and exclusion, lay at the heart of longhouse life.

Creger, C. Cliff [261] see Pay, Nicholas

Cressler, Alan [90] see Simek, Jan

Creswell, Ebony (University of Wyoming)

[44] *Culture and Disease: Modeling the Spread of Tuberculosis in Wyoming*

Until recently, the development and spread of tuberculosis in humans has been associated with the advent of Old World animal domestication and agriculture. However, recent evidence for the presence of *Mycobacterium tuberculosis* raises the possibility of a Pleistocene era dispersal. Poor bone preservation and small populations make finding Pleistocene-era bioarchaeological evidence of the disease difficult. Coupled with this, epidemiological studies suggest that population numbers were too low for an epidemic to take hold. Reconciling the epidemiological theory with the limited bioarchaeological evidence for the disease requires a closer examination of how behavior would influence transmission. I examine this possibility and report on several agent-based models I created in R to ascertain how tuberculosis may have arisen and dispersed. I incorporate archaeological, ethnographic, and biological data in order to understand how different human cultural behaviors, such as communal hunting, and other factors may have affected the spread of tuberculosis among hunters, gatherers, and foragers. I believe these models can also be modified and adapted to understand the spread and dispersal of other epidemic diseases during other periods in human history.

Creuziger, Adam [77] see Foecke, Kimberly

Creveling, Marian (National Park Service) and Karen Orrence (National Park Service)

[202] *Thinking inside the Box: Research Potential of National Park Service Archeological Collections at the Museum Resource Center*

The National Capital Region of the National Park Service is rich with archeological resources as can be attested by the vast collection of objects stored at the Museum Resource center. However, for many collections, only a basic identification of the artifacts exists. Collections dating from early Native American habitation to the American Civil War to 20th Century Industrialization are available for further research that could lead to Master's Thesis or Dissertations. This paper will highlight some of the collections available for study.

Crews, Christopher (Museum of Indian Arts and Culture), C. L. Kieffer (Museum of Indian Arts and Culture) and Magdalena Wantschik (Museum of Indian Arts and Culture)

[15] *Accuracy of Museum Volunteer Measurements: A Study of Projectile Point Measurements at the Museum of Indian Arts & Culture, New Mexico*

In light of more and more museums relying upon volunteers, this study investigates the accuracy of museum volunteers taking measurements of projectile points for the purpose of documentation. Data collection was done by two archaeologists trained in lithic analysis, one anthropologist previously not trained in lithic analysis, and two retired volunteers with no previous training in lithic analysis. Volunteers received a crash course in measuring greatest length, width, and thickness prior to measuring hundreds of points from the individually cataloged collection at Museum of Indian Arts & Culture. Results of paired T-tests between categories of measurements indicated similar results between the archaeologists. However, statistical analysis between the archaeologists and previously untrained volunteers had various levels of significant statistical differences in various categories of measurements. This study also includes a discussion and analysis of re-measurements after additional training of volunteers.

Criado-Boado, Felipe

[319] *Moderator*

Crider, Destiny [263] see Willis, Kelsey

Crisà, Antonino (University of Warwick, Department of Classics and Ancient History)

[146] *Ancient Tokens, Communities and Cults in Sicily: A New Ongoing Research Project*

We usually consider tokens as 'alternative' coins or gadgets that are used for different purposes. When you visit a museum, you can store your jacket or bag in the cloakroom and then receive a token to claim your item(s) back at the end of your visit. Tokens were also commonly used in the Roman world. Archaeologists are still finding many tokens, also known as 'tesserae', but they often struggle to interpret and understand the tokens' functions and roles within ancient communities.

Luckily, the 'Token Communities in the Ancient Mediterranean' project is currently being undertaken by the University of Warwick to understand the scope of ancient tokens. As a research fellow, I am currently analyzing Hellenistic and Roman tokens discovered in Sicily and now kept in local museums. The scope of my paper is to provide a first-hand outline of this vital research. First, I present the whole project, assessing the archaeological evidence and describing a selection of Roman 'tesserae'. Then, I evaluate Sicilian tokens, offering a detailed account of unpublished finds. Such case studies are crucial for understanding the role of tokens within local communities, and reveal a wealth of information about economy, cults and religion on a regional scale.

Crispino, Anita [85] see Iovino, Maria Rosa

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Critchley, Zachary (Binghamton University)**[49]** *Iconographic Depictions of Spear-Thrower Use in the Ancient Andes*

Spear-thrower devices held a role around the world as a primary weapon and tool before slowly falling out of favor in certain areas for other projectile weapons. While it is widely accepted that spear-throwers were used by the people of the ancient central Andes, comparatively little research has gone into the role that they had as weapons of war, hunting tools, and objects of ceremonial reverence. Many Andean societies have rich traditions of art and iconography, often portraying human and supernatural figures wielding and using spear-throwers in a variety of contexts and with notable associated symbols, such as avian imagery. In addition, the Andes developed a unique style of spear-thrower and have produced many examples of spear-throwers with exceptional craftsmanship, leading me to believe that these tools were given special reverence.

This poster will present the findings of my project, in which I used a review of iconographic depictions of spear-throwers bolstered by physical specimens and associated artifacts to determine the wider significance that these tools played in society.

Crocker, Alicia [241] see Anderson, C. Broughton

Cromartie, Amy**[153]** *Mountain, Steppes, and Barley: GIS Modeling of Human Environmental Interactions In the Armenian Highlands during the Bronze and Iron Ages*

This poster investigates how Bronze and Iron Age communities around Mount Aragats, in central Armenia, managed their grassland environment through their subsistence strategies. I suggest that these distinct social and political societies not only participated in constructing a landscape of domestic cereal grains, such as barley and wheat, but also were participants in the ecology of this open mountain steppe environment dominated by Poaceae, Chenopodiaceae, and Artemisia. I investigate how the challenges of this volcanic mountain steppe such as microclimates, altitude, slope, and aspect may have influenced planting and grazing on this difficult, but fertile, terrain and contributed to the dependence on resilient cereal crops such as barley. To create these models, I combine regional digital elevation models (DEM), satellite imagery, with archaeobotanical datasets from the multi-period sites of Aparani Berd and Tsaghkahovit. I then use modern climate data and paleoclimate proxies to calculate growing degree days (gdd) for these cereal crops and predict optimal planting locations in relation to these sites. In addition, I consider how the unique social and political structures of these communities influenced these decisions and the impact of these choices on the mountain steppe ecology.

Cromwell, Richard-Patrick (University of Nevada Reno), Erin Herring (University of Oregon—Department of Geography—E), Chantel Saban (University of Oregon—Department of Geography—E) and Brianna Kendrick (University of Oregon—Department of Anthropology)**[38]** *Paleoecological Analysis Using Select Coprolites & Sediments Recovered from Paisley Caves, Oregon*

Coprolites recovered from archaeological context provide direct access to understanding past human interactions with their environments. The Paisley Caves of south-central Oregon are notable for the presence of hundreds of preserved coprolites, the oldest confirmed as being human in origin and approximately 14,350 cal. BP years old. Our project focused on analyzing a series of coprolites and their corresponding sediments to look for variabilities in the paleoenvironment in the area immediate to Paisley Caves during the late Pleistocene through the early Holocene. Using palynological, faunal, and parasitological proxies for evidence, the results showed a high degree of variability between coprolite and sedimentary sources, thereby allowing a comparison of mobile environmental signals versus stationary ones but related in temporal context.

Crosby, Hunter [305] see Dalpra, Cody

Cross, Austin (Department of Anthropology, Florida State University) and John Sabin (Department of Anthropology, Florida State University)**[102]** *Predictive Modeling of Early Archaic Bolen Site Distribution in Northwestern Florida, USA*

Site visibility has long been an issue for late Pleistocene/early Holocene research in the southeastern United States, partially due to modern forest cover and partially due to large portions of the Southeast having been submerged by more than 80 meters of sea level rise. However, a large number of Late Paleoindian/Early Archaic Bolen artifacts have been discovered in Jefferson and Taylor counties in northern Florida, including dozens from underwater sites that were inundated post-depositionally. Surface collecting underwater and on land has occurred in this area has also occurred for well over 100 years, which has produced a robust database of site distributions. By using GIS to conduct spatial analysis, we aim to determine what environmental factors led to Bolen site preservation. This model will map out where Bolen points occur in situ to positively weight areas for site preservation and selection and negatively weight extensively collected sites where they have not been found, in order to create a robust model for discovering new Bolen sites.

Cross, Kathryn [84] see Reeder-Myers, Leslie

Crothers, George [52] see Hummel, Rebecca

Crow, Kaitlin (New York University) and Norbert Stanchly (AS&G Archaeological Consulting)**[256]** *Preclassic Faunal Utilization at Pacbitun, Belize*

Archaeological excavations within the Belize River Valley region have produced robust faunal assemblages that have increased our understanding of the Maya use of animals during the Preclassic. At Pacbitun, located on the southern periphery of the Valley, large scale horizontal excavations are providing insights into animal utilization during the Preclassic period at the site (1000 BC—AD 300). These investigations have probed into plaza floors, residential and ceremonial platforms, as well as burials. The resulting conclusions have demonstrated a relatively narrow use of animals at the site as food resources but exemplify a significant use of freshwater and marine faunal resources, with evidence for the widespread use of the latter as raw material for Preclassic shell bead production. We offer varying interpretations for the substantial amounts of freshwater jute shells found at the site and discuss Pacbitun's role in long distance exchange networks to procure marine faunal resources. Investigations at Pacbitun demonstrate numerous avenues for the use of animals and help determine evolving space and social class dynamics over time. Finally, we contextualize faunal use at Pacbitun within the broader patterns of Preclassic animal use seen in the Belize River Valley.

Crow, Kaitlin [256] see Powis, Terry

Crowe, Douglas [177] see Cutts, Russell

Crowell, Aron (Smithsonian Institution)**[16]** *Comparing Archaeology and Oral Tradition at the Tlákw.aan (Old Town) Site, Yakutat Bay, Alaska*

Southeast Alaskan oral narratives describe the epic migration of an Ahtna Raven clan from its interior Copper River territory over montane glaciers to the Pacific coast at Yakutat Bay, where the group founded the village of Tlákw.aan (Old Town) and intermarried with Eyak and Tlingit lineages. The

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

multi-cultural origins of the residents are reflected in architecture and artifacts excavated at the site by Frederica de Laguna in the 1950s and during collaborative Smithsonian investigations in 2014. Archaeological data verify many aspects of oral tradition and place the founding of the site in about A.D. 1550, while paleoenvironmental, archaeofaunal, and glaciological evidence also correlate with the traditional narratives. The study suggests that culturally-curated oral histories known as shkalneek in Tlingit, even if centuries old, may possess a substantial degree of demonstrable historical accuracy.

[206] *Discussant*

[16] *Chair*

Crowell, Elizabeth

[328] *Public Archaeology and Outreach in the Middle Atlantic Region*

The current paper will address the history of public archaeology and outreach in the Middle Atlantic region. It will focus on programs that engage the interested public to participate in archaeology. It will also look at the contributions of local and state jurisdictions and organizations to establish avocational archaeology certification programs.

Crowley, Erin (University of Minnesota)

[197] *Performing Feasts and the Use of Animals in Ritual Contexts in Iron Age Ireland*

Activities at large ceremonial complexes are interpreted as regional community endeavors that form group identities and reify social and political structures. Imposing monuments such as Dún Ailinne, Navan Fort, and Rathcrogan have provided tantalizing glimpses into ritual and ceremonial performances of the Irish Iron Age (500 BC-AD 500). Communal feasting has been suggested to be a key practice at these sites during the later periods of use. At feasts, social structure and identity are reinforced, wealth is redistributed, and political alliances are formed. In this way, feasts become a space for community concerns to be negotiated. The large hilltop complexes, however, are not the only ritual spaces in Iron Age Ireland. During the later prehistoric period, there is a proliferation of smaller ceremonial enclosures and barrow burials. Variation in ritual performance at these different sites provide insights into cultural concerns across different scales of society. This paper examines the role of animals and feasting at smaller hilltop enclosures and burial monuments of the later Iron Age in comparison to activities at the large ceremonial complexes, in order to better understand both ritual and ceremonial performance in these more private spaces and the social framework from which these practices develop.

[197] *Chair*

Crown, Patricia (University of New Mexico)

[115] *Room 28 in Pueblo Bonito: Architecture and Ceramics*

A small room in the north-central part of Pueblo Bonito, Room 28 is best known for the large assemblage of cylinder jars discarded in it. The UNM excavations reveal a complex history for the room, including use as an outdoor activity area perhaps under a ramada, construction of walls, remodeling, construction of shelving to hold the cylinder jars, and termination by burning. Ceramics, stratigraphy, radiocarbon and tree-ring dates provide the basis for understanding the sequence of use and abandonment. Backfill encountered in 2013 came from nearby rooms, providing information on construction and use of those rooms as well.

[115] *Chair*

Crown, Patricia [115] see Ainsworth, Caitlin

Cruz Quiñones, Jhon [64] see Chen, Peiyu

Cruzado, Elizabeth [168] see Connolly, Robert

Cruzado Carranza, Elizabeth (Louisiana State University)

[265] *The 2017 Excavations at Pan de Azúcar de Nivín: Insight into the Middle Horizon Occupation of the Middle Casma Valley, Peru*

Pan de Azúcar de Nivín is located 23km east to the city of Casma, in the small town of Nivín, at the right margin of the Casma River Valley in the Department of Ancash, Peru. In June and July 2017, a team of archaeologists from Louisiana State University carried out mapping and excavation operations at this important archaeological complex. Through limited excavations, architectural mapping, surface collection and the analysis of associated materials, the Proyecto de Investigación Arqueológico Regional Nivín (PIAN) explores the cultural prehistory of middle section of the Casma Valley.

Preliminary results of the stylistic analysis of pottery fragments combine with the appearance of the architectural layout indicate the presence of Middle Horizon and early Late Intermediate Period components at the archaeological complex. In this poster, I will introduce the region study, present the methodologies used in the field, and discuss the preliminary results of the analysis of the distribution of the ceramic fragments collected during the surface collection at the different architectural features at Pan de Azúcar de Nivín.

Moreover, the 2017 field work provides an opportunity to compare Pan de Azúcar de Nivín with other neighboring Middle Horizon and Later Intermediate Period groups nearby the Casma Valley.

Cua, Zaakiyah (Indiana University of Pennsylvania, Department of Anthropology)

[334] *Loyalhanna Lake: A Geoarchaeological Approach to Understanding the Archaeological Potential of Floodplains*

Unlike uplands, floodplains generally yield stratified deposits that may include deeply buried landscapes and archaeological sites. Most state specifications for cultural resources surveys require floodplains to be geomorphically evaluated in order to identify buried landscapes. This is most frequently accomplished via trenching, an effective, but timely, costly, and sometimes destructive method. This project reports on an alternative technique utilizing a multi-proxy methodology coupling geophysical survey with auger sampling. These non-invasive and limited-impact methods produce accurate results without causing extensive destruction to cultural resources. The study area, located along Loyalhanna Creek in Westmoreland County in western Pennsylvania, is managed by the US Army Corps of Engineers—Pittsburgh District (USACE). As a federal agency, the USACE is mandated to identify and preserve cultural resources by Section 110 of the National Historic Preservation Act (NHPA). Unfortunately, federal agencies often face limited staffing, resources and funding to address management of cultural resources. In addition to proposing a method for identifying buried landscapes, this project also provides a case study of partnerships between federal agencies and public universities; a mutually beneficial collaboration which provides agencies with data essential to land management while simultaneously providing students valuable opportunities to conduct cultural resource management assessments.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Cucchi, Thomas (CNRS/NHM Paris), Lior Weissbrod (University of Haifa), Jean-Christophe Auffray (Institut des Sciences de l'Evolution de Montpellier) and Jean-Denis Vigne (CNRS/NHM Paris)

[125] *On the Origin and Dispersal of the House Mouse*

The house mouse is probably our most successful commensal and one of the most threatening invasive mammals to biodiversity. Until recent advances in bioarchaeology methods, the origin and dispersal of this elusive mammal and the history of its co-evolution within the human niche construction was highly speculative. Here, we would like to review our latest understanding on the origin of its commensal relationship with humans and the pace and vectors of its dispersal through western Eurasia; bringing together zooarchaeology, ethnozoarchaeology and evolutionary biology.

Cucchi, Thomas [125] see Hulme-Beaman, Ardern

Cucina, Andrea [176] see Renson, Virginie

Cuevas, Mauricio (Universidad Veracruzana) and Lourdes Budar (Universidad Veracruzana)

[93] *Agua dulce, Agua salada. Diferenciación de actividades pesqueras en el sistema portuario de la costa este de Los Tuxtlas*

El corredor costero al este de Los Tuxtlas delimitado por las lagunas de Sontecomapan, y del Ostión, los volcanes de Santa Marta y San Martín Pajapan y el mar del Golfo de México, fue el escenario prehispánico de una alta densidad poblacional que entre su desarrollo contó con el emplazamiento de un complejo sistema portuario.

Los recursos naturales que ofrecen los cuerpos de agua en esta zona sin duda fueron explotados para su consumo y comercio desde el Formativo Medio hasta el Clásico Tardío. Así lo demuestran los artefactos ligados a la pesca que han sido localizados en los 250 km² investigados sistemáticamente por el Proyecto Arqueológico Piedra Labrada-Sierra de Santa Marta y San Martín Pajapan, Los Tuxtlas, Ver. Entre los objetos registrados pueden observarse una clara distinción entre los contextos de piezas pulidas de basalto y el de guijarros de arenisca reducidos a los costados. En este trabajo se analiza la posibilidad de la delimitación por áreas de explotación que se llevó a cabo en los diferentes puntos del sistema portuario, a partir de la categorización de estos artefactos

Cullen Cobb, Kimberly [139] see Harrison, Ainslie

Culleton, Brendan J. [176] see Renson, Virginie

Cummins, Tom

[206] *"Cosas Extraordinarias": America in Early Modern Royal Spanish Collections*

This talk concentrates on objects from America placed in the Palacio Real in Madrid and the Escorial. They form various parts of several types of collections that in recognizing the heterodoxy of their appearance in display different contexts dispel the overarching notion of the cabinets of curiosity that predominates in histories of collections for this period.

Cuneo, Allison (Boston University)

[110] *Broken Minarets and Lamassu: The Propagandization of Heritage on the Front Line of the War in Northern Iraq*

The armed conflict in Iraq has produced a catastrophic humanitarian crisis, beginning with the take-over of Mosul by the Islamic State (ISIS) in June 2014 followed by their subsequent gains in its northern governorates. Since then millions have become internally displaced or left the country as refugees. These war-weary Iraqis are struggling with a loss of identity and a lack of control over their lives, and these feelings are further compounded by the destruction of their as a result of the ongoing conflict. Thousands of cultural properties have suffered collateral damaged as a result of intensive armed combat, particularly as a result of aerial bombardment, and more directly by the systematic and overt campaign of genocide and cultural cleansing wrought by ISIS. The conflict has brutally underscored the linkages between cultural heritage, cultural diversity, and human rights. Based on personal fieldwork experiences in northern Iraq and activities with the American Schools of Oriental Research Cultural Heritage Initiatives (ASOR CHI), this talk discusses how the belligerents engaged in the current northern Iraq conflict have responded politically and militarily to the destruction cultural sites, as well as how Iraqi civilians in these war-torn regions are coping with the loss of local heritage.

Cunnar, Geoffrey (WCRM) and Edward Stoner (WCRM)

[87] *Thirty Years On, Considering Kelly's 1988 "Three Sides of A Biface", and Why It Matters for Great Basin Archaeology*

We argue that it is time to reconsider the use of the term biface in Great Basin archaeology and implement more heuristic terms in its place. In most instances, there is only one role or "one side of a biface" and that was to become a projectile point. It is time we recognize bifaces as such and acknowledge that preform morphology can be an indicator of temporal association and of social agents including children. Stage classification alone is limiting in terms of allowing us to broaden our understanding and interpretation of the archaeological record. We suggest projectile point preforms are useful proxies of skill and that the majority of complete preforms left in the archaeological record were terminal artifacts with so many mistakes they could not have been finished; hence they remain as complete preforms in the record. The use of refined terminology along with the implementation of the theoretical framework of the chaîne opératoire, careful technological assessments and recognition of the importance of lithic scatters gives us the opportunity to present more holistic site interpretations. These include the examination of the nurturing of children which will allow for a more comprehensive look and interpretation of ancient group composition.

Cunnar, Geoffrey [38] see Stoner, Edward

Cunningham, Doug [140] see Hurst, Stance

Curet, L. Antonio (National Museum of the American Indian, Smithsonian Institution)

[123] *Cultural Interaction and Creolization (or Transculturation or Hybridization or Mestización or Criollización) in the Studies of the Ancient Past of the Caribbean*

Traditionally, the ancient history of the Caribbean is viewed as one where one culture replaces or dominates another through time. These views were highly influenced by the perspective of the early Anthropologists who saw intercultural relations through the colonial lens of dominant cultures and acculturation. Despite this emphasis on cultural "purity," the history of Caribbean archaeology includes several scholars who viewed cultural interaction more as an exchange of ideas and material culture. Although called by other names, these models are similar to what today we call creolization. This paper offers a historical overview of these theoretical perspectives from the traditional Culture-Historic approaches and discusses how they compared with contemporary concepts of creolization and ethnogenesis.

[237] *Moderator*

[123] *Chair*

Cureton, Travis [325] see Arnett, Abraham

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Curley, Allison [139] see Thibodeau, Alyson

Curley, Angelina (Columbia University), Sylvia Wemanya (National Museums of Kenya), Emmanuel Ndiema (National Museums of Kenya), Jonathan Reeves (The George Washington University) and David R. Braun (The George Washington University)

[99] *Quantifying Basalt Artifact Weathering and Depositional Context: Insights from the Koobi Fora Formation, Kenya*

Stone artifact weathering is important for understanding the formational history of surface and in situ assemblages. While much of this work has focused on chert and other crypto-crystalline silicas, the weathering of basalt is under-studied. As a large proportion of the Early Stone Age record consists of basalt, it is necessary to explore the weathering process of this material. Characterizing basalt weathering currently relies on the subjective characterization of both mechanical and chemical weathering properties. This is problematic as the rate at which these processes accrue depends on the depositional context. Thus, it is necessary to systematically understand how various weathering attributes accrue in different contexts. Here, we present a systematic analysis of basalt weathering in a variety of different sedimentary contexts. Taphonomic attribute data was collected from lithic assemblages from the Koobi Fora Formation in different depositional and temporal contexts. Multi-variate analysis was used to determine whether quantitative color estimations, the presence of crystals, and degree of edge and ridge rounding could be used to discriminate basalts from different depositional contexts. A discussion of the preliminary results is presented.

Currie, Elizabeth (Department of Archaeology, University of York, UK) and Diego Quiroga (Universidad San Francisco de Quito)

[63] *How to Invent Your Past. Cultural Appropriation or Adoption of Orphan Cultural Identity?*

In January 2017, members of the indigenous Salasaca community of the central sierra region of Ecuador discovered a cache of pre-Colombian pottery during ditch construction work which passed through a site of ritual significance. The government organisation responsible for managing antiquities removed the artefacts, promising that archaeological investigations would be carried out in due course. They never were.

The cache of artefacts was a strange mixture of authentic ceramic figurines and vessels of a wide geographical provenience, none of which were from the Salasaca area. In the absence of formal excavations, it is unclear how they were deposited there in the first place.

The local community responded enthusiastically, seeing the artefacts as an important connection with their lost ancestral past. Some believed they were mitmakuna—peoples translocated by Inca conquerors in the 15th century from an alternative geographic location to replace rebellious tribes recently conquered. They had some oral traditions, but no ancestral connection with the land they had been brought to, suggesting this cache of artefacts filled a lacuna in their sense of cultural identity.

This paper discusses the importance of archaeology and material cultural in the construction of collective cultural identity and ancestral legitimacy.

Curry, Jessica [179] see Peters, Mallory

Curteman, Jessica (The Confederated Tribes of Grand Ronde), Briece Edwards (The Confederated Tribes of Grand Ronde) and Jon Krier (Oregon State University)

[303] *Storied Landscapes and Cultural Resource identification on Oregon's Paleocoastline*

The significance of cultural resources along Oregon's dynamic coast continues to have a stronger presence and recognition in landscape management. As future projects look to develop off Oregon's coast, there is a need for predictive modeling and analysis of cultural resources in a landscape that today is submerged. Paleolandscapes having high potential for a variety of cultural resources are identified using isostatic rebound adjustments and bathometric data. One such landform is off-shore of today's Tillamook Bay. Through historic documents, oral histories, and stories the distribution of cultural resources is mapped and rated. This gathered information along with off-shore paleolandscape reconstruction can begin to show the landscape's potential through an understanding of cultural practice.

Curteman, Jessica [331] see Edwards, Briece

Curtis, Caitlin (University of Wisconsin-Eau Claire)

[63] *Analyzing Urban and Industrial Threats to Heritage in Turkey Using Remote Sensing and GIS*

In Akçalar, Turkey, the location of the Neolithic-Chalcolithic Aktopraklık site, urban and industrial development present shocking social, cultural, and economic changes to the community. The local landscape is transforming as towering apartment complexes are quickly expanding into areas previously occupied by sprawling fields of crops. As documented ethnographically, these processes have heightened local awareness of the decline of community heritage values, like neighborliness, agricultural livelihoods, and green space. Furthermore, a diachronic ground survey has confirmed these dramatic changes in the previously small village over the last 5 years. Ahead of recent urbanization, industrialization of the area has expanded greatly in the last 20 years, especially in the designated industrial zone that surrounds the archaeological site. Indeed, ethnographic data indicates that factory construction in this zone has previously destroyed archaeological finds in its path. This study triangulates on-the-ground research with GIS and remote sensing analysis of satellite imagery and land use/land cover data to track the rapid development of this previously rural area. In particular, this analysis aids in planning future measures aimed at protecting valued archaeological and community heritage.

Curtis, Matthew [198] see Arthur, John

Cusicanqui, Solsiré (Harvard University)

[249] *Cajamarca: Identity through Movement*

The Cajamarca Valley, located in the northern Andes of Peru, is a space of encounter and movement of material from different ecological areas since early times to the present. This is mainly due to its strategic location within Andean geography as an enclave of natural points of access to different ecological zones (coastal valleys, Amazon rainforest, southern highlands). Cajamarca culture (100 BC—1400 AD) is characterized precisely by the mobility of its inhabitants, as indicated by their white pottery—a result of the use of the kaolinitic clay found in its mountains. Although we know much about this contact from the remains left outside its borders, we know little about cultural motivations and dynamics that took place in Cajamarca and what drove these people to move outside. Here, I will focus on two key points about the nature of this culture: its possible malleability in adapting to different ecological zones due commercial activity, and second, given its nomadic nature through the landscape, the way in which characteristic Cajamarca ceramic style was used as its seal of “denomination of origin”, and as a reminder of identity or political affiliation to the Cajamarca group.

[249] *Chair*

Cutright, Robyn (Centre College) and Carlos Osoro Mendives (Proyecto de Investigación Arqueológica Cerro la Gu)

[82] *A Tale of Two Cities?: Neighborhood Identity and Integration at Ventanillas*

Studies of Andean urbanism have often focused on contrasts: between elite and lower-class compounds or neighborhoods, between rural and urban communities, or between the “true” cities in regions like Mesopotamia and the “special case” of the Andes. Recent work at Ventanillas, a large Late

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Intermediate Period site in the middle Jequetepeque Valley at the frontier of coastal Lambayeque and Chimú polities, was initially designed to contrast what were presumed to be an elite coastal residential neighborhood and lower-class, possibly highland, hillside terraces. However, 2016 excavations on the terraces failed to confirm this easy assumption, and have complicated our view of who lived at Ventanillas. This paper compares subsistence remains, ceramics, and other artifacts across neighborhoods at Ventanillas, with the goal of elucidating similarities and differences between sectors, and, more importantly, exploring the extent to which residents living in different parts of the site participated in a shared cuisine, specialized in different economic activities, and expressed wealth and ethnic or cultural identities. We ultimately hope to speak to the ways in which Ventanillas neighborhoods were (and were not) socially and economically integrated at the community level and in the context of valley processes of social and political change.

Cutts, Russell (University of Georgia), Ervan Garrison (University of Georgia) and Douglas Crowe (University of Georgia)

[177] *Macro- and Microscopic Effects of Heating in Lithics: Potential Indicators of Human-Controlled Fire?*

Outside of clear association of human activities and fire features (e.g., a constructed hearth and artifacts), a perennial challenge persists in linking human/hominin behavior to the control of fire. This particularly vexes ongoing investigations to determine early human-fire interaction(s). Although natural landscape fires can be intense, their tendency to move quickly may limit modifications in lithic material at ground level. Studies examining the effect(s) of heating tool-stone at different temperatures and durations may provide insights on the question of human-controlled fire. As opposed to heat-treating material for improved flakeability, we report here on analyses examining macroscopic and microscopic modifications of various tool-stone (e.g., basalt, chalcedony, ignimbrite, etc.) at 250°, 500°, 750° and 1000° Celsius, and at different durations of exposure. Results indicate that consistent effects in lithics heated in high-energy, discrete, long-duration events (i.e., campfire) may corroborate other lines of evidence suggesting human-controlled fire. In that lithics are both a predominant human artifact and preserve well in the record, these techniques—in concert with other advances in the study of human-controlled fire—may be valuable to archaeologists, and in particular paleoanthropologists investigating potential human-fire features in early sites.

Cutts, Russell [41] see Hlubik, Sarah

Cynkar, Katherine [153] see Lane, Amanda

Czukur, Péter [295] see Duffy, Paul R.

D'Andrea, A. Catherine [210] see Mazzariello, Joseph

Dacus, Brandy [81] see Morrow, Juliet

Daehnke, Jon (University of California, Santa Cruz)

[201] *Sovereignty, Colonialism, and Collaboration: Reflections on Archaeological and Ethnographic Work on the Lower Columbia River*

Over the course of the last two decades I have been actively involved in anthropological research along the Lower Columbia River. This includes archaeological field work conducted within and just outside of the boundaries of the Ridgefield National Wildlife Refuge in Washington, as well as a heritage ethnography completed in collaboration with the Chinook Indian Nation. This research has happened on both federal and private lands and has involved multiple “stakeholders,” including both federally recognized and non-recognized tribal nations. This work has also been conducted in a region where heritage claims and archaeological sites are occasionally contested, and where the cultural connections and “authenticity” of tribal communities are at times questioned. In my presentation I'll reflect on the challenges of navigating my responsibility, and positionality as an anthropologist—especially one committed to “engaged,” ethical, and community-relevant research—in an arena where multiple interests and jurisdictions intersect. I'll argue that although negotiating my position as a researcher can be difficult, a focus on the centrality of tribal sovereignty (both as it's legally defined and enacted by communities), as well as constant mindfulness of the continuing manifestations of colonialism, can offer guidance for an appropriate and engaged research path.

Daggett, Adrienne (South Carolina SHPO) and Lu-Marie Fraser (University of Pretoria)

[32] *Subsistence Technology in Early Iron Age Botswana*

Analysis of the faunal assemblage from Thabadimasego, an Early Iron Age site in northeastern Botswana, contributes to the growing notion that hunting played a larger-than-expected role in the subsistence pattern of the area's communities. Beyond understanding what they ate, what do the faunal remains tell us about the subsistence technology of Botswana's Early Iron Age? Recent studies have focused on metallurgy and ceramic technology, but faunal patterns can provide information on the use of other technologies, including ones that don't usually survive in the archaeological record. This paper will discuss the evidence for the use of ephemeral materials as indicated by Thabadimasego's assemblage, as contextualized by evidence from other regional sites.

[228] *Chair*

Dai, Xiangming

[45] *An Analysis on the Taosi Cemetery from the Late Neolithic in North-central China*

Taosi is one of the largest sites surrounded by the huge fortification during the late Neolithic in the middle Yellow River valley. So far the archaeologists have excavated a large cemetery, and uncovered a number of burials at Taosi. These burials can be divided into a few categories based on their scale, structure and grave goods, representing the different social ranks. The cemetery consists of several sections, which represent the different social groups. During the early Longshan period, some large tombs were arranged in an area according to their sex and status at first, and then the other large tombs were centrally distributed in another area. During the late Longshan period, a group of large tombs appeared in another district, and the largest one of them with very complex structure and abundant luxury goods was located in a special area alone, so that it looks like a king tomb. In general, this paper will discuss the social change of the Taosi site on the basis of its cemetery analyses.

Taosi is one of the largest sites surrounded by the huge fortification during the late Neolithic in the middle Yellow River valley. So far the archaeologists have excavated a large cemetery, and uncovered a number of burials at Taosi. These burials can be divided into a few categories based on their scale, structure and grave goods, representing the different social ranks. The cemetery consists of several sections, which represent the different social groups. During the early Longshan period, some large tombs were arranged in an area according to their sex and status at first, and then the other large tombs were centrally distributed in another area. During the late Longshan period, a group of large tombs appeared in another district, and the largest one of them with very complex structure and abundant luxury goods was located in a special area alone, so that it looks like a king tomb. In general, this paper will discuss the social change of the Taosi site on the basis of its cemetery analyses.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Dakovic, Gligor (Belgrade University / University of Pittsburgh)

[303] *Preliminary Analysis of Landscape—Social Complexity Relationship Changes from Neolithic to Bronze Age in South Carpathian Basin*
The onset of the Early Bronze Age saw increasing degrees of social inequality and institutionalized leadership in most of Europe. In the Carpathian Basin these changes are most evident in shifts in burial practices and settlements. This research aims to see if these changes are reflected in regional settlement patterns by applying spatial analyses to two periods of a regional settlement dataset. I will examine the landscape and the environmental characteristics of Neolithic and Bronze Age settlements and their respective catchments and compare the settlement pattern to a random distribution to determine the extent to which environmental and sociopolitical concerns shaped human settlement. Shifts in demographic focus from Neolithic tell settlements to Early Bronze Age cemeteries will be tested by examining network properties of 'centrality', and the emergence of new elite controlled trade by looking at the 'betweenness' of the settlement pattern. The importance of warfare during the two periods will be compared by examining defensive features like buffers zones or the utilization of less accessible areas.

Dalan, Rinita [156] see Hargrave, Michael

Dale, Jedidiah [116] see Erickson, Clark

Dallas, Herb

[38] *Revisiting CA-VEN-1 and Millingstone Culture Re-examined*

The concept of Millingstone has long and intriguing history in California Archaeology. Millingstone conjures up visions of early, simple, crude tools, and a confusing legacy. Millingstone Culture is not easy to define, though it is quite consistent throughout its geographic distribution. Millingstone never fit clearly into earlier theoretical paradigms. Millingstone has been variously described as a technology, as a culture, as an adaptation, as a Horizon, as a tradition, as a regional pattern, and as a subsistence strategy. Perception and interpretation of Millingstone sites have often been colored strongly by early investigations of these settlements. Using an updated paradigm of the coastal migration theory can offer some new insights into redefining older interpretations of Millingstone sites. I use newer data from the "Little Sycamore" site to show how broader research questions and newer data collection methods can shed new light on Millingstone and its interpretation.

Dalpra, Cody and Hunter Crosby

[305] *Historic Evidence of Social, Economic, and Gender Issues at Petrified Forest National Park: Variability in the Archaeological Signature of Historic Homesteads*

The archaeological "wealth" in Petrified Forest National Park (PEFO) of Northeastern Arizona is not isolated to the well-known Ancestral Puebloan populations, but similarly includes Historic peoples. The westward expansion of the late 19th and early 20th centuries in Northern Arizona represents a time of clashing cultures and a period of uncertainty combined with untold risks and rewards. Along the Rio Puerco in and near PEFO are five homesteads from this period that display different and unique signatures that suggest varied occupants and functions. From "Cowboy Camps" occupied primarily by males working the range to significantly larger homesteads that display evidence of women with Chinese and other fine porcelain, which is not seen on other contemporary sites, demonstrates variability. The diverse signature of these sites represents a prime case study for the varied peoples who came to the area now occupied by PEFO. These sites demonstrate that even in seemingly homogeneous times diversity is present, describing more facets of the historic homestead populations than is previously thought. A contrast and comparison of these sites demonstrates the varied archaeological signature tied to the early historic ranching culture of the area; a ranching culture that continues today with the parks neighbors.

Dalton, Jordan and Paula Patricia Moreno Zapata

[100] *Exploring Local and Imperial Strategies in the Chincha Valley*

Inca archaeologists have regarded the Chincha Valley as a special case of imperial expansion due to the privileged position that the Chincha held within Tawantinsuyu. From the ethnohistoric documents we learn that the Chincha Kingdom was powerful, controlling long-distance maritime trade to Ecuador. The Chincha also relied on a highly specialized economy composed of fishermen, merchants, and agriculturalists. Previous studies of the Chincha Valley have emphasized coastal centers of fishermen and merchants, but in this poster session I present new research on how the large agricultural center of Las Huacas accommodated economic changes during the Late Horizon (A.D. 1470–1532). The archaeological site of Las Huacas covers 105-ha. and contains unique stratigraphy, a 2.5 m deposit that accumulated throughout the Late Horizon. This deposit is composed of various layers of fill and distinct floors, allowing us to establish a fine-grained chronology within the Late Horizon and explore changes that were brought about by the Inca occupation of the valley. By analyzing the cultural artifacts, plant material, faunal remains, and a series of architectural transformations associated with these distinct levels, this poster will present recent research on which activities at Las Huacas changed and which remained largely unchanged during Inca occupation.

Daltroy, Terence (Columbia University)

[170] *Discussant*

Damasceno Barbosa, Antônia [116] see Rebellato, Lilian

Damick, Alison (Columbia University)

[259] *Deep Ecology: An Introduction and an Inquiry*

Archaeology has engaged with ecology in various ways over the years. Recently, post-humanist thinking has gained popularity as an approach, urging us to think about human and non-humans relationally, as having contingent qualities that vary in relation to their interaction over time. Simultaneously, we see increasing attempts to think with indigenous philosophies and descendent communities about what the environment is and does. However, there remains a disconnect between approaches that seek to include indigenous philosophies and/or post-humanist approaches, and much work of the ecological sciences which are developing at a rapid pace, providing greater precision and clarity of information. This paper considers the history of archaeology's relationship to the idea and study of ecology, and proposes the concept of "Deep Ecologies" as an approach to human-nonhuman interactive pasts that offers the opportunity to bridge some of these perceived divides, while also being attentive to the politics of attempts to do so and the appropriative histories of archaeological work in this vein. It serves as an organizing thesis statement for the session, which presents attempts to grapple with the idea of "deep ecology" through ten years of archaeological fieldwork in northern New Mexico.

[259] *Chair*

Daneels, Annick J. E. (IIA-UNAM Mexico)

[128] *Making Sense of a Holy Trinity: The Dioses Narigudos of Classic Period Central Veracruz*

Dioses Narigudos are a series of ceramic figurines that are extremely frequent during the Classic period in a very restricted area of South Central Veracruz. They occur generally in ritual deposits under floors of major and minor buildings, combining female and male representations of different hierarchy. Current interpretations relate them to a solar deity or a water deity, none of which identifications apply to all three main figurine types. Their

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

attributes and the contexts in which they are found would suggest they are used not only to sacralize the space but also the persons who inhabit the built spaces under which they are placed. This leads me to relate them to a deity similar to the later Postclassic Nahua Tlaltecuhli; to argue this I use the model of numbered ritual deposit proposed by Dehouve for the investiture of persons of authority, and the female/male elements related to the Classic Gulf Coast Water/Earth Mountain supreme being as analyzed by Koontz and Wyllie.

Daneels, Annick J. E. [285] see Pastrana, Alejandro

Dani, János [245] see Riebe, Danielle

Danis, Ann (University of California, Berkeley) and Ruth Tringham (University of California, Berkeley)

[309] *Doing Senses: Methods and Landscapes*

In this paper we discuss methods for what Yannis Hamilakis (2013) has called “sensorially reconstituted archaeologies.” Rather than being strictly focused on single mode sensory experience in the past, such archaeologies cannot be done without a self-reflexive awareness of multisensorial elements in every experience and event of modern archaeology and the imagined past. The theoretical goals of such a large-scale shift in thinking about archaeology and the senses have already been laid out, but they have yet to be borne out in practice. Our goal is to guide the “doing” towards an expanded toolkit of methods, some from within archaeology and some from other disciplines, that access, interpret, represent, and evoke sensorial attention. We pay particular attention to methods linked to landscape archaeology and our personal practices in the North American Southwest and Turkey.

Danis, Annie [239] see Peckham, Moira

Dardeniz Arıkan, Gonca (Koc University) and Tayfun Yildirim (Ankara University)

[71] *Metal and Vitreous Production Technologies at the Early Bronze Age Resuloğlu (Central Anatolia, Turkey)*

Modern day Çorum is the homeland of the Hatti people, the culture that later formed the Hittite Empire. Resuloğlu, dated to the Early Bronze Age (ca. 2500–2100 BC), is one of the few Hatti sites being systematically excavated. The site, located on a hilltop near the Delice River, consists of a cemetery area and settlement that spreads over two opposing–once connected–ridges with numerous extraordinary metal and vitreous artifacts. The settlement exemplifies well the self-sustaining pre-Hittite societies in the Halys basin.

This research focuses on the Early Bronze Age metal and vitreous artifacts at Resuloğlu to understand the production technologies by combining archaeometric methods with archaeological theories about integrated crafts. While comparing and contrasting the technology and raw material exploitation at Resuloğlu with the available local and regional data, we will also present the results of the new ongoing survey at the region. By using the archaeometric and survey results of Resuloğlu, we would like to bring a fresh look to theories of possible local production(s) region and trade relations of Hatti before the Hittite Kingdom emerges.

Darling, J. Andrew (Southwest Heritage Research, LLC), Barnaby V. Lewis (Tribal Historic Preservation Office, Gila River In) and M. Kyle Woodson (Cultural Resource Management Program, Gila River)

[72] *Nuh nuhy Himdag. The Role of Song in the Identification of O’Oodham Traditional Cultural Properties*

The Gila River Indian Community Tribal Historic Preservation Office and Cultural Resource Management Program have been engaged in Traditional Cultural Property (TCP) inventory for more than two decades. This presentation considers the role of Nuh nuhy Himdag (song culture) in TCP identification with specific reference to a recent study of Vainom Do’ag (Iron Mountain), which, based on a ruling by the United States Board of Geographic Names in 2008, was named Piestewa Peak in honor of the first Native American woman to be killed in combat while on active duty in the United States military. New translations of the Vainom Do’ag song in the Ant and Oriole series reveal the significance of this TCP, while demonstrating the fundamental misunderstandings that can arise when the naming practices of two cultures confront one another. In spite of recent advances in the recognition of TCPs in cultural resource management, this study acknowledges that the O’Oodham can never be free of the cultural appropriation that continues to be part of the national process and the accommodation that is required for Tribes to perpetuate their own culture within federally legislated frameworks.

Darras, Véronique (CNRS—University Paris 1 Pantheon-Sorbonne) and Brigitte Faugère (University Paris 1 Panthéon-Sorbonne)

[262] *Sociopolitical and Cultural Renewals during Late and Terminal Formative in the Lerma’s Valley: The Post-Chupicuaro Developments*

Chupicuaro reached its cultural and demographic peak between 400 and 100 BCE. This Formative culture was integrated into the western Mesoamerican sphere and was characterized by its homogeneity, with diversified but still poorly understood relationships with Central Mexico, particularly in the sites of Cuicuilco and Cerro de los Tepalcates, and Tlaxcala-Puebla area. The decades before our era underwent both socio-spatial reconfigurations, probably due to rapid environmental change in the principal cultural epicenter, the valley of Acambaro, which was massively depopulated. The synchronicity of these evolutions with the events that took place in the Basin of Mexico or the regions of Puebla Tlaxacala is particularly striking. The recent works carried out in two zones of the Lerma region, the valley of Acambaro itself, and the alluvial plain of Lerma some 100 km downstream, lead to revisit the current assumptions on the directions of population movements that signal the end of Chupicuaro and which mark the beginning of new processes embodied by Protohistoric societies in north-central Mexico. These societies are characterized by their diversity, at least through their material culture, and display more or less intense links with Teotihuacan.

D’Arrigo, Rosanne [213] see Buckley, Brendan

Darrington, Glenn, Kathryn McDonald (Confederated Salish and Kootenai Tribes), Mary Rogers (Confederated Salish and Kootenai Tribes) and Kevin Askan

[183] *Trails, Trees, and Transmission Lines—A Holistic Cultural Resource Study Involving the Jocko Wilderness Area*

The Jocko Wilderness Area is located in the southeast corner of the Flathead Indian Reservation in Montana. In 2015 a cultural resource study involving the Jocko Wilderness Area was initiated to assess the past, current, and future effects of an existing NorthWestern Energy electrical transmission line that was constructed in 1964. This study, undertaken by the Confederated Salish and Kootenai Tribes (CSKT) Preservation Office, integrated multiple avenues of research including historical records review, ethnographic interviews, and archaeological field surveys to identify a number of historic properties that are of immense importance to the CSKT. This holistic approach also helped in the development of effective management strategies to help protect and preserve a dynamic area with living cultural resources during the future operation and maintenance of the transmission line.

Darvill, Timothy [190] see Ruby, Bret

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Daugherty, Sean, Alexander Vermillion (Morehead State University/The Craft Academy), Garrett Jones (Morehead State University/The Craft Academy) and Timothy Hare (Morehead State University)

[190] *The Map Results of an Integrated UAV-Based Remote Sensing Platform in the Northern Yucatán*

We report the results of testing a UAV-borne LiDAR and multispectral mapping system for archaeological mapping and modeling at the city of Mayapán, Mexico, located 40km south of modern Mérida. Mayapán was the largest Postclassic political capital and was one of the most densely nucleated of all Maya cities. The initial test is in an area adjacent to the south side of Mayapán's monumental center. Previous research indicates the existence of a dense and complex system of residential and public architecture covered by low dense surface vegetation and a high forest canopy. Additional zones were randomly selected based on types of surface vegetation. The resulting data are processed in a variety of geographical information systems, photogrammetric software, and 3D modeling applications to generate final maps and models of the study areas. We compare these products with previous maps of the region, including those of the Carnegie Project from the late 1950's, total station and GPS-based maps, and a digital elevation model from the 2013 Mayapán LiDAR Mapping Project.

Daughnora, Linas [43] see Harvey, Virginia

Davenport, Bruce [63] see Erlingsson, Christen

Davenport, James (University of New Mexico)

[265] *Three-Dimensional Photogrammetric Modeling of Ceramic Whole Vessels from Pachacamac, Peru: Challenges, Considerations, and Applications*

In recent years, photogrammetry has emerged as a low-cost solution for the digital preservation of archaeological sites and artifacts. Beyond preservation, the creation of three-dimensional models allows archaeologists and researchers to ask questions of objects or sites remotely and at more refined scales. It also allows sites or active excavations and objects not on display to be accessible to the public. Whole ceramic vessels from Max Uhle's 1897 excavations at Pachacamac, curated at the Penn Museum, were recorded using photogrammetry. The sample was excavated from several locations at the site of Pachacamac, including the Temple of the Sun and the Temple of Pachacamac, and includes ceramics in Inka, Ychsma, and earlier styles. These vessels included both closed and open forms, like plates, bowls, and cups. This poster examines the challenges in using this method to record ceramic vessels, as well as the potential applications for academic research and public outreach using the 3D models.

Davies, Gareth [139] see Knaf, Alice

Davies, Gavin (University of Kentucky)

[176] *Routes of Resilience and Dependency in the Lake Atitlan Basin of Highland Guatemala*

Combining archaeological, ethnohistoric and ethnographic data with an analysis of least cost routes, the current paper examines the network connections and craft industries that fueled Lake Atitlan's prehispanic economy and connected it to the wider Mesoamerican World. The documentary evidence, which I synthesize here, indicates that the lake's principle exports were perishable goods such as textiles, mats, rope products and foodstuffs. While insufficient to produce significant wealth, I argue that the diversity of products available in the lake area enabled its communities to weather broad scale political and economic fluctuations and to retain strong collective identities even during times of political integration. Correspondences between historically documented trade routes and ceramic imports indicate that the essential infrastructure for these industries was in existence by the Early Classic Period.

Davis, Allison (U.S. Department of State)

[322] *Discussant*

Davis, Christopher (University of Illinois at Chicago)

[73] *Conspicuous Knowledge Transmission through Amazonian Cave Art*

Among large-scale societies, esoteric knowledge is often exploited for power, prestige, or status. In such a social framework, it becomes important to guard the transmission of esoteric knowledge, restricting access by exclusive mechanisms of indoctrination or co-option. When discovered, evidence of guarded knowledge often flags the attention of the archaeologist because of its often meticulous preservation. However, if the same knowledge were conspicuous, unguarded, and socially mundane, evidence of it is less likely to preserve as well archaeologically, and archaeologists might be more inclined to underestimate its cognitive sophistication. Ancient rock art paintings conspicuously placed on the ceiling of a cave along the lower Amazon River conveys sophisticated astronomy knowledge that parallels knowledge chronicled during contact and historical periods from oral transmission. Archaeological excavations of the cave and region reveal low-density populations since the earliest period of human habitation over 13,000 years ago, during the same period that most of the red ochre pictographs were painted. Here, I argue that this small-scale society transmitted sophisticated knowledge through conspicuous rock art, which later transferred, or was re-imagined, through oral transmission. This example provides evidence for the importance and awareness of sophisticated knowledge maintained, and perhaps originated from (often overlooked) traditional cultures.

Davis, Dylan (Binghamton University)

[52] *Filling in the Map: Object-Based Image Analysis and Its Potential for Shell Ring Identification on Hilton Head Island, SC*

As a resource, the archaeological record is finite and remains largely incomplete. Within the context of Southeastern American archaeology, the incompleteness of the record can be seen in the study of shell rings. Many unidentified shell rings exist in the archaeological record, and their detection remains difficult—even with remote sensing techniques—due to the fact that many are located under heavily forested canopies. However, with the use of object-based image analysis (OBIA), such archaeological features can be rediscovered. Utilizing LiDAR data and a method known as "template matching," this study creates elevation and shape profiles to search for previously unknown shell mound sites throughout Hilton Head Island, South Carolina. This method has been successfully applied for similar purposes in other regions of the world, but has not been tested in the American Southeast. As such, this research offers a new means by which shell mounds and shell rings can be identified and further studied. Furthermore, this new method has the potential to be implemented worldwide for various archaeological purposes, including that of site and feature identification.

Davis, Jeffrey (Northern Arizona University), Julie Hoggarth (Baylor University), Jaime Awe (Northern Arizona University) and Chrissina C. Burke (Northern Arizona University)

[37] *Terminal Deposits and Terminal Classic Collapse: An Analysis of the Proportional Distribution of Artifacts from Terminal Deposition Events at the Site of Baking Pot, Belize*

Throughout the Maya Lowlands, archaeologists have identified Terminal Classic deposits associated with the final activities in ceremonial and domestic spaces. These features include concentrations of cultural material deposited in the corners of plazas and courtyards. At the site of Baking Pot, Belize, the Belize Valley Archaeological Reconnaissance (BVAR) project has identified several of these terminal deposits. This presentation will shed light on the types of artifacts that were deposited during these final events to answer questions related to the nature of abandonment activities. We also employ this data to identify the cultural significance of ritual deposition of cultural materials, to ascertain how distinct combinations of artifact classes can yield

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

information on human behavior, and to demonstrate how the terminal deposits at Baking Pot offer additional information about abandonment activity in the Maya Lowlands.

Davis, Jennifer

[203] *The Walter Landgraf Soapstone Quarry State Archaeological Preserve: Honoring a Man and Preserving a Site*

Soapstone was a valuable raw material for the production of items used in food preparation, including cooking vessels, in eastern North America before the development and spread of ceramic technology. Durable, waterproof, fireproof, nearly impervious to thermal shock and, at the same time, soft and very easy to extract and then sculpt into a desired shape, the demand for this raw material was high but supply was geographically constrained. Designated a Connecticut State Archaeological Preserve in 2015, the Walter Landgraf Soapstone Quarry is an intact soapstone extraction site associated with a habitation, the Ragged Mountain Rockshelter. At least five unfinished and "unharvested" bowl forms are visible at Locus II, the primary soapstone source at the site. Excavation of the quarry, the discovery of numerous, primarily quartzite quarry picks, and a series of quartzite cobble workshops nearby the quarry provides an opportunity to investigate an important, multi-tiered industry in ancient Connecticut. The concept of "disruptive innovation" as initiated by the introduction of ceramic technology is offered to explain the abandonment of the Walter Landgraf quarry more than 2,800 years ago.

Davis, Kaitlyn E. (University of Colorado, Boulder)

[27] *Smoking Customs and Plains-Pueblo Interaction in the Southwest Border Pueblos*

This project centers on Plains-Pueblo interaction in the late-prehistoric and protohistoric periods. It analyzes how trade and inter-regional interactions were ritually mediated between these two culture groups, through the examination of pipes and smoking materials used in economic interactions at pueblos in the Northern Rio Grande area of New Mexico. Ethnographic and ethnohistoric literature indicates that pipe-smoking was part of rituals that cemented inter-tribal trade relationships. The data from this project support the idea that pipes were used in trade negotiations and ceremonial interactions and can be proxies for examining social interaction and regional mediation aspects of trade and decision making. The blending of Plains and Pueblo pipe forms and materials suggests that there may have been a certain level of integration, alliance, or partnership in these interactions. Three categories of data totaling 1,306 pipes were analyzed from known trade centers and comparative samples from interior sites not known to be trade centers in the Southwest and Great Plains. Methods used in this study included analyses and tabulations of particular physical attributes of pipes that provide information on pipe use and regional style, as well as spatial and temporal analyses of pipe concentrations and concentrations of particular pipe attributes.

Davis, Katharine (Ursinus College)

[17] *Libations and Meat: A View of the Construction of Social Capital in Tiwanaku Residential Spaces through Ceramics and Faunal Material*

In the latter part of the Middle Horizon (A.D. 800–1000) previously unoccupied areas around the megalithic ceremonial core of Tiwanaku came under settlement. A reorganization of space within the core coupled with the influx of new urban residents drawn to the site of Tiwanaku from the surrounding areas by the variety of social, economic, and ritual interactional opportunities meant that newly built households and neighborhoods further away from the monuments became the loci of quotidian activity. Experiencing population density never before achieved in this area of the Andes, families constructed their physical shelters as they built their interdependent social networks. This paper examines ceramic and faunal remains that suggests that feasting in one such household context, Muru Ut Pata, was perhaps more intense and integral an activity to building and maintaining social capital than in elite contexts.

Davis, Loren (Oregon State University), Alexander Nyers (Northwest Archaeometrics), Jillian Maloney (San Diego State University), Neal Driscoll (University of California, San Diego) and Shannon Klotsko (San Diego State University)

[79] *Searching Oregon's Outer Continental Shelf for Submerged First Americans Sites: Theory, Methods, and Recent Discoveries*

If the First Americans initially migrated into the New World from northeastern Asia along a coastal route, we should expect to find the earliest evidence of human occupation in the Americas in submerged sites along the northeastern Pacific Rim. Late Pleistocene-aged human coastal migrants would undoubtedly exploit high ecological productivity zones of ancient estuaries and bays that once existed along paleocoastal landscapes. A systematic approach to the discovery of First Americans coastal sites requires detailed knowledge of these paleocoastal landscapes and how they evolved since the last glacial maximum. To this end, we constructed a digital model of central Oregon's paleocoastal landscape, which guides offshore exploration efforts. We present the results of recent geophysical cruises that reveal physical traces of modeled terrestrial stream networks and discuss potential archaeological targets that will be further explored through marine coring in 2018.

Davis, Loren [101] see Nyers, Alexander

Davis, Mary A. (UW-Madison)

[304] *Domestic Craft Specialization and Social Spatial Organization of Harappa*

The site of Harappa, Pakistan, was a major urban center of the Indus Civilization with over two thousand years of occupation (3700–1700 BCE). The site did not have an obvious civic ceremonial center but was instead multi-nodal with walled sub-divisions. As an aspect of stone tool assemblage analysis at the site, the most functionally relevant attributes of the blade tools were differentially weighted to produce a soft hierarchical clustering classification scheme. These classes are considered temporally and contextually, across spatially distinct walled administrative districts and proposed social neighborhoods within these walled mounds. The relationships of the tool classes between and within the mounds were evaluated via correspondence analysis. Each of the districts is found to have a limited repetition of crafts, suggesting that some level of economic integration was a factor that contributed to the cohesion of this decentralized urban center. Analysis of chipped stone tools at the neighborhood level identified previously unknown centers of craft specialization of perishable products and craft specialist activities taking place in domestic contexts. Possibly two different textile traditions were important both for occupational specialization and neighborhood and community membership.

Dawson, Emily (University of Texas at Austin)

[259] *Plant Use and Deep Ecology in Colonial New Mexico*

Understanding the interactions between people and the landscape has long been a concern of archaeologists working in the American Southwest. A particular emphasis of this research has focused on understanding the way pre-colonial Pueblos altered the landscape for agricultural production. More recent studies have worked to incorporate indigenous voices into scholarly understandings of the landscape. So far, less attention has been paid to the way Hispano communities in New Mexico experienced and interacted with the landscape during the colonial period. Early accounts by Spanish colonists indicate that they brought wheat, lentils, melons, garlic, and other Old World cultivars with them. While these accounts indicate the colonists were growing the cultivars, previous archaeological work has produced limited evidence for the growth and use of these plants. This paper considers how the desire for specific plants impacted colonial views of the landscape and ecology of northern New Mexico through preliminary phytolith analysis. We use the evidence of everyday plant use over time to work towards a better understanding of the deep ecology of colonial life in the region.

[259] *Chair*

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

De Anda Alaniz, Guillermo (Instituto Nacional de Antropología e Historia (INAH))**[134]** *Reconceptualizing Chichen Itza: The Gran Acuífero Maya Project*

During the summer of 2017, the Gran Acuífero Maya (GAM) project initiated an investigation at Chichen Itza designed to define the site around its aquatic resources. The project is based on my previous work at Cenote Holtun, located 1.6 miles west of Chichen Itza, which found that a line drawn between Holtun and Cenote Kanjuyum on the east passed through the center of El Castillo. It has long been known that El Castillo is bisected by a line drawn between the Sacred Cenote on the north and the Cenote Xtoloc on the south so Chichen Itza defined itself around a cosmogram formed by its water features. Additional, Balankanche and other caves with water are being restudied as cenotes. GAM is employing high tech equipment to Chichen Itz's aquifer including sonar to search for underwater passages in the cenote Xtoloc and the Sacred Cenote; low level Lidar that has located four caves that may lead to the water table, and ground penetrating radar to detect subterranean passages. Our preliminary assessment is that Chichen is far richer in water resources than previously recognized.

De Anda Alaniz, Guillermo [134] see Verdugo, Cristina

De Carteret, Alyce (Brown University)**[36]** *Building an Empire: Spanish Colonial Encounters with Maya Houses and Housebuilding*

In the late sixteenth century, King Philip II of Spain sent out a request to the local administrators of his overseas colonies, asking that they complete a questionnaire designed to collect information about the lands he had conquered. The responses to this questionnaire, completed primarily between 1578–1586, form a set of documents now known as the Relaciones Geográficas. Question 31 asked respondents to describe the form and construction of the local houses and the materials used to build them. In this paper, I consider Question 31 of the Relaciones Geográficas and its responses, in conjunction with a survey of archaeological research, to assess the nature of Maya housebuilding in the Colonial period (particularly the sixteenth century). These data indicate an interest on the part of the Spanish Crown to understand indigenous building practices and labor in order to better control it. I argue that construction was targeted by Colonial reducción policies (i.e., the policies intended to mold indigenous communities into proper Spanish subjects); in the Colonial Maya world, Spain aimed to build its empire literally, through reformed building practices of reformed Maya communities.

De Juan Ares, Jorge (IRAMAT-CEB, UMR 5060, CNRS, Orléans) and Yasmína Cáceres Gutiérrez (Universidad Complutense de Madrid)**[275]** *Archaeology, People and Identity in Cape Verde Islands*

The geographical location of Cape Verde islands made them one of most important places in early Portuguese exploration of African coast. The first European settlers were favoured by the Portuguese monarchy in the relations with African coast. Since 1472, they were forced to carry out exchange with local goods. This encouraged the development of cotton and sugarcane crops with slaves from the "Guinea Rivers", as was common in other Atlantic islands and the American colonies. The excavations reported here were carried out in Cidade Velha, the first capital of the islands. Archaeological materials from the Iberian Peninsula and other places of Europe, Africa and China have been recovered. Material evidence is useful to explore early Atlantic commercial networks. Over the fifteenth and eighteenth centuries, this commercial activity was accompanied by the circulation of people, languages and ideas. The loss of the slave trade led to a gradual economic decline which, coupled with environmental constraints, resulted in the shortage of European settlers and the absence of indigenous population from the islands, and encouraged an early fusion of people and culture, giving rise to the present Creole Cape Verdean national identity.

De La Garza, Mary**[231]** *10 Years, 3 Supervisors, 7 Assistants and 30 Students. How the Iowa Office of the State Archaeologist Managed, Manages and Plans for the Future of Archaeological Data*

Sustainable accessible data storage is as important to archaeologists as tractors are to farmers. In 2001 the Iowa Office of the State Archaeologist, (OSA), was archiving 20GB of data on a 100GB server. Sixteen years later the office is serving 32TB on several server systems and plans are in place to archive 60TB over the next 4 years. In addition to space needs the office must also make this data in its many forms accessible to outside entities. In the not so distant past archaeologists secured and stored paper, photos and film in Hollinger boxes stacked to the ceilings in many places. These days many archaeological agencies have scanned and archived massive amounts of data to server systems which takes up less space and can contain many times more data. The OSA has taken advantage of many grants to scan and archive over 400,000 sheets of paper and 58,853 photos and slides. The advantage of this undertaking; accessibility and scalability.

Moving into the future the OSA must develop and plan for the security storage and accessibility in ways that protect sensitive data. Security is paramount in any organization but especially so when culturally sensitive data is in place.

De La Peña Paredes, Juan (Juan D. D. Paredes) and Yamile Lira-Lopez (Universidad Veracruzana)**[93]** *La sociedad prehispánica del valle intermontano de Maltrata, Veracruz: Desarrollo poblacional, aprovechamiento y cosmovisión*

El valle de Maltrata, al oeste del estado de Veracruz, presenta un desarrollo poblacional que inicia desde el periodo Preclásico, continúa en el Clásico, Posclásico y Colonia, durante esos periodos de tiempo la población se fue asentando en distintas partes del valle, aprovechando los espacios naturales que se disponían. Desde el inicio de la ocupación se utilizó la posición estratégica del valle como una ruta de comunicación, comercio e intercambio, que fue usada por diversas culturas para la obtención de materiales diferentes, unos instalaron enclaves, otros intentaron conquistar el lugar para extender su dominio hacia otras regiones. Durante esos periodos de tiempo la cosmovisión de los habitantes está plasmada en distintos materiales culturales como el Monolito de Maltrata, así como en los lugares de culto.

De Lucia, Kristin (Colgate University) and Enrique Rodríguez-Alegría (University of Texas-Austin)**[63]** *Digging in Churches: Community Archaeology in Xaltocan, Mexico*

Xaltocan has a thriving community and its people have a strong connection to their long history, although this was not always the case. Elizabeth Brumfiel pioneered community archaeology at Xaltocan almost 30 years ago and initiated a long process of collaborative archaeology that continues until this day. As a consequence of the close interaction between archaeologists and the community, the past has become a vehicle for the construction of local and national identity in Xaltocan. We will discuss recent efforts and new understandings that have emerged from our recent archaeological project focused on the town's 16th-century church, which is in disrepair and at risk of collapse, and look ahead to new possibilities for future community collaboration.

[63] *Chair*

De Marigny, Elizabeth (Department of Anthropology, The University of Texas at Austin)**[229]** *The Economics behind Pottery: The Impact of Romanization on Castro Culture Ceramics in the Littoral Northwest*

Through a comparative analysis of ceramic materials from several archaeological sites including the Cividade de Bagunte, this paper explores the effects of Romanization on the fields of production and consumption belonging to the Castro Culture of northwest Iberia. These sites were chosen because the archaeological materials uncovered reflect differences in social, political, and economic organization from the Iron Age to the Roman period. Further, the proximity of these sites to one another would have been ideal for trade and communication. By analyzing ceramic assemblages, it

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

is possible to determine the types of activities that dominated a settlement's economy, such as vessels used for storing or transporting agricultural products, or ceramic objects used in craft production such as loom weights and spindle whorls. Drawing from behavioral economics, this research will investigate how colonial interactions and economic restructuring brought on by Roman conquest led to the adaptation, adoption, or abandonment of certain ceramic forms. This presentation focuses on how the implementation of Roman standards of trade and commerce influenced the production and use of certain ceramic forms and led to separate but connected economies.

De Pena, Felicia

[304] *Lithics and Learning: Communities of Practice at Kharaneh IV*

Flintknappers during the Levantine Epipaleolithic were proficient at microlith production, these skills were learned and passed down from one flintknapping generation to another as no one is born with the innate ability to flintknap. By utilizing practice theory and a chaîne opératoire approach to the Epipaleolithic chipped stone tool reduction sequences of narrow-nosed cores at Kharaneh IV, I strive to identify how individuals learned to flintknap, from raw material acquisition to the production of the final tool. I view the knowledge transmission process as a proxy for culture: as apprentices took on new ideas and identities to fit within a community of practice, the apprentice may have lost (or maintained) kinship ties yet subscribed to a more meaningful relationship within their community of practice. Kharaneh IV is an Early and Middle Epipaleolithic aggregation site well-situated for this research due to its well-preserved stratigraphy, numerous caches, and hut structures, which allows for observation of repetitive practices and identification of changes in technique. Research is currently in the nascent stages of core refitting: future experimental work is planned to establish baseline knowledge regarding the relationship between skill level and social structures that influence the production process.

De Pol-Holz, Ricardo [86] see Mcrostitie, Virginia

de Smet, Timothy and Sean Field

[27] *Remote Sensing to Identify Chaco Roads: A Case Study of the North Road*

The focus of this research is to demonstrate the efficacy of data processing methodologies of remotely sensed data to detect the Chacoan Great North Road between Pueblo Alto and Pierre's group. This research highlights a scaled approach to the analysis and processing of remotely sensed data to efficiently identify prehispanic roads. The data analyzed in this project includes: thermal infrared multispectral scanner (TIMS), light detection and ranging (LIDAR), orthoimagery from Google Earth and Worldview 3, and legacy historic aerial imagery. We also discuss the efficacy of additional remote sensing data types which have not been applied to this study area, including advanced spaceborne thermal emission reflectance radiometer (ASTER) and hyperspectral thermal emission spectrometer (HyTES). The use of novel processing techniques via proprietary and open access processing methods, improved road identification as opposed to traditional aerial image analysis. The use of a multi-scalar integrative approach to the identification of roads allowed us to avoid false positives (modern roads), understand modern impacts, and predict the long term future of these roads.

de Smet, Timothy [156] see Frazer, William

De Vore, Steven [268] see Dempsey, Erin

Deal, Michael (Memorial University of Newfoundland)

[199] *Early Seventeenth Century French Feasting in Acadia and Its Relation to Pre-contact Mi'kmaq Practices*

The early French settlers at the Port Royal Habitation relied heavily on the local Mi'kmaq to survive the cold Nova Scotia winters. In the winter of 1606–07 Samuel de Champlain initiated a social club, commonly referred to as "The Order of Good Cheer", primarily to battle against scurvy, but also to create camaraderie among the colonists and to strengthen their relationship with the local Mi'kmaq. The French developed elaborate rituals for the feasts, partly based on those of their homeland. Food for the feasts came from their own gardens, ship's provisions brought from France, locally available plants and animals, as well as generous gifts of meat, fish and fruit from the Mi'kmaq who were invited to dinner. The Mi'kmaq had their own elaborate feasting traditions which also influenced the French celebrations. French writings of this period allow us to explore these two rich traditions, and along with available archaeological evidence, shed some light on the nature of Pre-contact Mi'kmaq feasting.

Dean, Emily (Southern Utah University)

[70] *The Mystical Past and the Lucrative Present: New Age Archaeological Tourism in the Andes*

The last two decades in the south central Andes have witnessed the rapid growth of "Turismo Místico" or New Age Tourism to archaeological sites and monuments in the south central Andes. Using the Cusco Valley of Peru as a case study, this paper analyzes textual, visual, experiential, and ethnographic data in order to assess the economic and socio-political impact this industry has on the communities in which it thrives. In particular, I explore the implications New Age Tourism has on local and visitor perceptions of Andean prehistory and heritage management. What are the positive and the negative aspects of New Age Tourism. I conclude by discussing the ambivalence many professional archaeologists feel when confronted with these 'un-scientific' understandings of the past. How do we, as archaeologists, respond (or not respond) to perceived challenges to our professional authority? How do we share the past with people we may disagree with? While many of us are keenly interested in indigenous religious practices, we may be highly skeptical or even contemptuous of New Age spiritual beliefs. How do we negotiate the limits of our own professional cultural relativism?

Dean, Rebecca

[187] *Fauna from the Marana Platform Mound Site, Arizona, in Context*

The Marana Platform Mound Site is an Early Classic period (1150–1350AD) Hohokam site in the northern Tucson basin, Arizona. It was one of many sites in the basin, part of an entire landscape that was shaped by the Hohokam people, reflecting their activities and values as a community. Faunal remains from Marana and surrounding Early Classic period communities are an excellent source of information on labor constraints, social organization, diet, microenvironments, and the cultural meaning of prey species. Comparing the faunal assemblage from Marana to those of its neighbors provides a baseline comparison for understanding the ecological and dietary context of Hohokam fauna, while highlighting the unique ways in which the Marana community interacted with prey species, particularly in the greater diversity of their faunal remains.

DeBoer, Warren (Queens College CUNY)

[178] *Discussant*

Debono Spiteri, Cynthia [126] see Schumacher, Mara

Decker, Michael (University of South Florida)

[130] *Discussant*

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

DeCorse, Christopher (Syracuse University)**[275]** *Contact, Colonialism, and the Intricacies of Ethnogenesis: Portugal, Spain and the Iberian Moment*

This paper examines Portugal's and Spain's varied contacts, intersections and colonial aspirations in West and western Central Africa. Portugal and Spain share centuries of culture history, religion, and governance, and were united under the Iberian Union between 1580 and 1640. Yet within the context of European expansion into the non-Western world, they have often been considered distinct with regard to their histories and as foci of study. Pushing beyond national pasts, this paper contextualizes Portuguese and Spanish intersections with varied African people and polities in terms of both the wider socioeconomic landscapes of which they were part and the local conditions and contingencies that mitigated policy, and structured locally articulated social, cultural, and economic interactions. While inescapably nested in European nationalist agendas and global economy, the cultural exchanges of Portugal and Spain in Africa were characterized more by variability than by unitary templates, more by persistence than hegemonic change. Often they were expressly non-colonial in aspiration or affect. Drawing on archaeological and historical data from West and Central Africa, this paper considers the varied African-European interactions that unfolded, the diversity of ethnogenesis that evolved, and their materialities.

Dedrick, Maia (University of North Carolina at Chapel Hill)**[254]** *Ritual Use of the Rejolladas of Tahcabo, Yucatán*

In Tahcabo, Yucatán, 5% of the town's municipal land is contained within rejolladas. Rejolladas, like cenotes, are sinkholes formed in the karstic bedrock of Yucatán, although they do not reach to the level of the water table. They make for ideal gardens when located within settlements, as their low elevation allows for the collection of deep and moisture-rich soil that provides an advantage for the cultivation of almost any plant. At the nearby site of Kulubá it has also been shown that rejolladas share some of the same significance within Maya cosmology as cenotes and caves. Their locations, deeper into the earth, may have been seen as places with additional potential for communication with the underworld. Ceramic, botanical and faunal data from units excavated within five rejolladas in central Tahcabo demonstrate garden cultivation within the features over the community's long history. One rejollada demonstrated consistent ritual use through time. Today it is a place in which the Ch'a' Cháak ceremony is practiced, and in the deep past it was a place in which at least one human burial was interred. This paper will provide new evidence about the role of rejolladas and gardens more broadly in Maya worldview.

[254] *Chair*

DeFanti, Thomas [172] see Schulze, Jurgen

DeFelice, Matthew (CAHR, Inc.), Chris Davenport (Palm Beach County), Mallory Fenn (Florida Public Archaeology Network), Jeff Ransom (Miami-Dade County) and Sara Ayers-Rigsby (Florida Public Archaeology Network)**[195]** *On the Front Lines-Addressing Climate Change at the Local Level in South Florida*

How do you place a value on heritage at risk, and who gets to make these decisions? In South Florida, sea level rise is an issue of paramount importance, yet preservation of archaeological and historical sites are rarely the focus of resiliency planning efforts. This paper summarizes the efforts of various groups to combat this, though engaging with local governments and city planners to raise awareness of how archaeological sites will be impacted by sea level rise and insert it into policy at the local level, as well how archaeologists can work collaboratively with marginalized communities, activists, and local tribes to draw attention to these issues. Examples will include discussion of the South Florida Regional Climate Action Plan version 2.0, which includes a new section on archaeological resources, and the Tidally United Conference, which was co-hosted by the Florida Public Archaeology Network and the Seminole Tribe of Florida. Ultimately, not all sites can be saved or excavated and the process of identifying and evaluating sites at risk must be a shared responsibility.

deFrance, Susan (University of Florida), Edana Lord (Department of Anatomy, University of Otago, Dunedin), Michelle LeFebvre (University of Florida), Catherine Collins (Department of Anatomy, University of Otago, Dunedin) and Elizabeth Matisoo-Smith (Department of Anatomy, University of Otago, Dunedin)**[51]** *To the Caribbean and Beyond: Complete Mitogenomes of Ancient Guinea Pigs (Cavia porcellus) as a Proxy for Human Interaction in the Late Ceramic Age*

The Caribbean Ceramic Age (AD500–1500) was associated with increased interaction between the islands and mainland South America. The domestic guinea pig (*Cavia porcellus*) was introduced to the Caribbean post-AD500 through human transportation. Archaeological remains of guinea pigs are present on several Caribbean islands. This study used complete mitogenomes from ancient guinea pigs as a commensal model to identify likely human migration routes and interaction spheres within the Caribbean region. Possible origins of early historic European and North American guinea pigs were also determined. Complete mitogenomes of 23 ancient and two modern guinea pigs were obtained. The identified haplogroups indicate that two introductions of guinea pigs to the Caribbean likely occurred, both from Peru, to Puerto Rico (AD500) and the Lesser Antilles (AD1000). A potential origin for historic European domestic guinea pigs was identified as the Andean region encompassing Peru and Bolivia. A historic period North American guinea pig was found to have likely come from Peru. This study is the first to use next-generation sequencing to obtain complete mitogenomes of a commensal animal to investigate prehistoric interaction in the pan-Caribbean region, and results are in agreement with current archaeological evidence for human mobility and interaction in the Caribbean.

DeFrancisco, Nicole [157] see O'Brien, Colleen

DeGraffenried, Jennifer [154] see Martindale Johnson, Lucas

Dekel, Yaron [125] see Weissbrod, Lior

DeLance, Lisa (University of La Verne) and Jaime Awe (Northern Arizona University)**[147]** *Ancestor Veneration, Termination and Renewal: New Considerations of Construction Fill*

Archaeologists working in Mesoamerica frequently encounter construction fill within architecture. Construction fill has been variously used as a tool for determining architectural construction sequences, as a resource for seriation dating, and occasionally as a context for radiocarbon deposits. Although much information can be gleaned from examining construction fill, material culture found within such fill is frequently mentioned in passing as little more than refuse, if it is mentioned at all. This paper examines the phenomenon of material culture used in Formative Period construction fill at the site of Cahal Pech, Cayo, Belize and posits that the specific articles of material culture found within construction fill at Cahal Pech may not have been simply refuse but rather a special and highly significant form of ancestor veneration combining termination and renewal rituals to aid in the construction of new buildings.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Delaney, Colleen (Cal State Channel Islands) and James T. Brewer**[305]** *Stories from the Guadaluca: Changes in Land Use along the California Coast*

California State University Channel Islands is known as the location of the former Camarillo State Mental Hospital. The campus also serves as a case study for examining changes in communities and land use in California throughout time. Archaeological surveys on campus, artifact analyses, and historic records together document shifts in human activities at this location. This presentation outlines the long term use of this area by a noteworthy variety of people: the Chumash and their ancestors, Mexican rancheros and vaqueros, Euro-American farmers, WPA workers, mental health professionals, mental hospital patients, laborers at the hospital dairy/farm, and homeless members of the public. In particular, our discussion focuses on a probable Depression-era structure of unknown function.

DeLeonardis, Lisa (Johns Hopkins University)**[69]** *The Hidden Faces of Santa Cruz de Lancha: Ceramics and Structure in Eighteenth-Century Architecture*

The global exchange of ideas and practices in Latin American architecture during the viceregal period (ca. 1520–1825) remains one of the issues at the forefront of scholarly interest. Remarkable insights are gained about how ancient building materials were sustained and translated as architects and novices alike sought to align European design canons with local techniques and materials. Equally informative is how imported materials were incorporated into building practices.

In this paper, I analyze one of several construction techniques identified at Santa Cruz de Lancha, a Jesuit-managed hacienda in Pisco, Peru. The practice employed earthenware bottle fragments (*botija*) to create wall encasements or internal facing. Initially, the technique was thought to be a response to earthquake damage late in the site's history. Recent discovery demonstrates an earlier precedent, and one with consistent application throughout the site. Analysis of the site's ceramic assemblage informs questions about the choice of construction materials and draws attention to the range of imported and locally-produced earthenwares.

These findings widen the scope of building methods and materials utilized in viceregal building construction. They provide material evidence for ancient practices that were translated by Andean builders, and speak to their innovation.

Delgado, James (SEARCH Inc.)**[78]** *Telepresence Enabled Maritime Archaeology*

Advances in robotic and satellite technology have shifted ocean exploration into an interactive forum that links scientists and the public via "telepresence." Working with this paradigm, archaeologists have joined the ranks of ocean explorers on a variety of projects ranging from surveys to excavation in depths ranging from a few hundred to thousands of meters deep. The process has encouraged wider scientific integration, provided access to sites at depths previously not considered "workable," and also provided a powerful educational and outreach tool to share archaeological practice, methods, theory and ethics to a global, Internet-savvy audience.

[193] *Discussant***Delgado Espinoza, Florencio****[132]** *Interaction and Resistance against the Inka on the Land of the Cañaris, Southern Ecuador*

According to the early Spanish chronicles, the Cañaris were a constellation of chiefdoms which fiercely challenged the Inka expansion to the north. Early Texts show that war and conflict was the way they interacted in the region. As a conquest strategy during Wayna Qhapaq's rule, the Inkas built important infrastructure in their heartland, such as Tomebamba in Cuenca and Ingapirka in Hatún Cañar, in addition to other smaller sites along the Qhapaq Ñan. However, the archaeological evidence for the conflictive nature of their relationship is not clear. Research around Ingapirka shows that while the Inka built extensive and prominent infrastructure, and apparently incorporated the locals into their political and belief system, the Cañaris' households did not incorporate any Inka cultural effects in their domestic behavior, indicating instead that resistance was held steadfast at the domestic sphere.

Delgado Espinoza, Florencio [177] see Oyuela-Caycedo, Augusto

Delle, James**[208]** *"A Glittering Speculation": Archaeology of Jamaica's First Coffee Boom, 1790–1806*

In the late 18th century, the British colony of Jamaica entered the first of its several boom periods in coffee production. A highly addictive product that was at the time primarily a luxury good for a small domestic market, overproduction on the island resulted in attempts by the coffee industry to expand their markets in Great Britain and the European continent to the middle and working classes. Meanwhile, the rush to get coffee to the market resulted in a rapid expansion in the number and scope of slave-based plantations, owned by both wealthy speculators and local middling planters without the means to become established in sugar production. This paper will examine the material evidence of this first coffee boom, which one planter characterized in his correspondence as "a glittering speculation." Evidence presented will include excavation results from Marshall's Pen Plantation in the central Jamaica parish of Manchester, as well as survey data from the former Blue Mountain parish of St. Davids.

DeLong, Kristine [68] see Caporaso, Alicia

Delque-Kolic, Emmanuelle [175] see Leroy, Stéphanie

DeLuca, Anthony (University of Colorado Denver)**[30]** *From Cooperation to Competition: An Architectural Energetics Analysis of Labor Organization for the Construction of Circle 2 at Los Guachimontones, Jalisco, Mexico*

The Teuchitlán culture is one of many cultures in West Mexico during the Late Formative to Classic periods (300 B.C.—450/500 AD) that share in the tradition of burying some of their dead in shaft and chamber tombs. The Teuchitlán culture is noteworthy among their contemporaries for the large number of circular ceremonial buildings concentrated around the Tequila volcano and surrounding valleys. Los Guachimontones, located on the southern side of the volcano, is the largest site in the region with the largest number of public architecture and highest concentration of people. One such building, Circle 2, is among the largest documented guachimontones in the region. Using an architectural energetics analysis of Circle 2, I modeled how lineage based elites within a corporate system at Los Guachimontones may have organized labor for construction. The variable construction represented within Circle 2 suggests multiple labor recruitment strategies were employed. A labor collective was used to construct the foundational patio of Circle 2 followed by elites employing *corvée* labor to finish the remaining architectural features. The switch from cooperation to competition suggests alliances were temporary and geared towards aiding the community through the construction of public architecture.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Demarest, Arthur (Vanderbilt University)

[258] *Political and Economic Change on the Eve of the Classic Maya Collapse: Building on a "Ceramic Foundation"*

Joe Ball's research, his ceramic studies, his insistence on material culture as basis for work, and his honesty in critique of poorly grounded interpretation together provide a standard of building culture-history on solid ceramic studies, chronology, and material culture analyses. Many recent interpretations of Classic Maya society have not met that standard. Here we aspire to his bottom-up, material culture approach to interpretation in recent collaborative research in the western Peten and the southern "frontier" of the Classic Maya states. His emphasis on lab-driven research, detailed ceramic analyses and fine-grained chronologies and a "direct" style is shamelessly mimicked here, first to briefly criticize serious flaws in recent studies of economy, dynastic collapse, and other aspects of Classic Maya societies and social change. However, then we build positively on detailed ceramic classification, statistical study, chronology, and compositional analyses to reconstruct economic systems on a more solid, controlled data base. Those "ceramically-grounded" studies have revealed strengths and weaknesses in southern lowland political economies, ingenious attempts to adapt them to a changing Mesoamerican world, and reasons for the failure of those brilliant innovations. The field of ceramic studies remains central to any credible effort at culture-historical reconstruction and theoretical interpretation.

[176] *Discussant*

Demarest, Arthur [121] see Victor, Bart

Demarte, Pete (Trent University), Scott Macrae (University of Florida) and Gyles Iannone (Trent University)

[142] *The Ancient Maya Settlement of Waybil, Belize: Middle-Level and Hinterland Settlement Investigations*

The Classic Maya, with their towering jungle temples and sprawling cities have been the focus of archaeological studies since the mid-1800s. Although numerous investigations have fostered considerable insights, important questions remain regarding the circumstances in which these settlements originated, interacted, developed, and were ultimately abandoned. The organization of Maya settlements is best conceptualized as a continuum consisting of three basic, but variable types, including: upper-level, middle-level, and lower-level settlements. This discussion reviews the primary research results for the full-coverage survey and test-excavation program conducted at the middle-level hinterland settlement of Waybil, Belize, Central America. The overall result was the collection of valuable information concerning the development of the central courtyard, peripheral settlement groups, and relic agricultural terraces found within the site. Middle-level settlements such as Waybil are unique units within the continuum as they are smaller and more specialized than upper-level settlements, but larger and more diverse than lower-level settlements. Thus, they are thought to have performed distinct roles and functions within the greater settlement matrix. Exploring the configuration of individual middle-level settlements is essential to improving our knowledge of ancient Maya socio-political and socio-economic interactions, hinterland archaeology, human-environment adaptive strategies, and the circumstances surrounding the Classic period "collapse".

Demchak, Benjamin [303] see Reed, Karen

Dempsey, Anna [268] see Dempsey, Erin

Dempsey, Erin (National Park Service, Midwest Archeological Center), Steven De Vore (National Park Service, Midwest Archeological Center), Ashley Barnett (National Park Service, Midwest Archeological Center), Nora Greiman (National Park Service, Midwest Archeological Center) and Anna Dempsey (National Park Service, Midwest Archeological Center)

[268] *Looking Closer at Those Dots on the Map: Documenting Mound Sites at St. Croix National Scenic Riverway*

Over the last four years, the Midwest Archeological Center has been conducting a project designed to gather information on mound and earthwork preservation across the Midwest Region of the National Park Service. St. Croix National Scenic Riverway in eastern Minnesota and western Wisconsin, is one of several parks included in the study. The St. Croix and Namekagon river valleys are home to mounds and earthworks of a variety of shapes and sizes. Some have been dated to the Late Woodland period and others are of unknown age. Part of our work at the park has involved revisiting recorded mound sites to determine their locational accuracy, in addition to simply clarifying which sites are on federal versus private land. A more significant portion of our work at the park has been devoted to conducting magnetometer surveys at three sites where mounds are extant. The magnetic data clearly indicate that subsurface portions of mounds and other types of earthworks are present at each site. While ground disturbing efforts at exploring these features is not recommended or planned, these data form a critical component of properly preserving, protecting, and interpreting these valuable archeological and ethnographic resources.

DeMuth, Robert (Indiana University Bloomington), Joshua J. Wells (Indiana University South Bend), Kelsey Noack Myers (LG2 Environmental Solutions, Inc.), David Anderson (University of Tennessee) and Eric Kansa (Open Context)

[130] *Archaeological Geographies—A Reflexive Consideration of the Impact of Archaeology across Racial and Socioeconomic Regions Using DINAA*

This paper uses "big data" about archaeological sites from the Digital Index of North American Archaeology (DINAA) to reflexively assess and interpret how archaeology has affected minority communities. DINAA's data set represents an almost complete record of the current extent of archaeological site definitions, within the project's area of effect. Therefore, collectively, these data can reveal information about archaeologists and archaeology as a discipline, as well as the past. As public spending, whether via heritage management or university research, is the impetus for most archaeological work in the United States, archaeological sites can be seen as a metric of sorts to gauge public spending, and develop a better understanding of where, and how monies have been invested around American communities over the past half century. This paper will use the free, open source, and publicly accessible DINAA database to examine the correlation of archaeological site density across the eastern US with US Census data on socioeconomic and demographic trends, with specific interest in parts of Appalachia, and historically African American communities, in order to begin to assess the impact of archaeological work on modern residents.

Dengel, Craig (CEMML @ Fort Polk, LA)

[332] *New Beginnings at Fort Polk, Louisiana: CRM Strategies for the Expansion of Training Lands*

Located in western Louisiana, Fort Polk has an extensive record of cultural resource management with more than 150,000 acres of land surveyed between 1972 and 2002. Over 3,500 sites have previously been identified and 600 of these evaluated for eligibility. Recently, the Army expanded the installation by 42,000 acres of new training lands in less than four years. So a new round of Phase I surveys for cultural resources were necessary. The completion of these surveys will allow natural resources management activities to begin, which in turn will protect training areas against wildfires, encourage reforestation, and integrate endangered species and game management. In coordination with the Louisiana SHPO and consulting Native American tribes, the work of evaluating and protecting significant historic and prehistoric sites is an on-going joint effort between the Army, the National Park Service, private CRM firms, and The Center for Environmental Management of Military Lands (CEMML) at Colorado State University. In this paper we discuss the coordination and cooperation necessary to survey such a large area in a relatively short time frame.

[232] *Discussant*

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Dennehy, Timothy, Christopher Merriman (University of New Mexico) and Keith M. Prufer (University of New Mexico)**[77]** *Lithic Technological Changes from the Paleoindian to the Late Archaic: A Pilot Study*

How do subsistence-related changes impact lithic technology over the course of thousands of years? Three stratified rockshelters in Belize contain evidence of Paleoindian through Classic Maya period occupations. This span of time witnessed the initial hunting and gathering subsistence economy of the Paleoindian period, the introduction of horticulture and increasing reliance on cultivars in the Early Archaic, and the emergence of full-scale agriculture in the Late Archaic. Explaining variations in lithic technology during these millennia can shed light on the processes underlying the slow but steady increase in plant resources that preceded the adoption of agriculture. This study analyzes several chipped stone attributes—including cortex ratio, retouch intensity and frequency, and flaking type—of lithic assemblages from one such rockshelter known as Tzib'te Yux. By examining these traits in a subsample of artifacts, the authors will establish the ability of these methods to detect technological changes over time, and create a timeline of lithic technology using absolute dating methods. This study thus serves as a pilot study for a future project that will compare changes in mobility, subsistence economy, and lithic technology at all three rockshelters using the full assemblages available at each.

Dennett, Carrie (National Museum of Natural History, Smithsonian Institution, Washington, DC)**[263]** *It's Complicated: Making Sense of Material Monoculture in Multicultural Societies*

Ethnohistoric and colonial documents typically focus on detailing a socioeconomic and political landscape dominated by Chorotega and Nicaraog groups for contact-period Pacific Nicaragua. Yet these texts simultaneously indicate that other groups living in isolated communities or urban barrios were also commonplace and included Maribios, Mazatec, Chondal, Matagalpans, Sumo-Ulwa, and possibly Lenca and/or Maya-speaking peoples, among others. As archaeologists, we are aware—many of us dutifully placing the convoluted language distribution map in our culture history write-ups. Despite this, most of these groups are not factored into theoretical discussions and are rarely, if ever, seriously discussed as part of the region's archaeological past. Instead, a three-phase linear trajectory (Chibchan-Chorotega-Nicaraog) premised on 'great' migration events ending in regional domination by foreigners and their intrusive material monoculture has been the interpretive norm. This inconsistency begs the questions: Do we really believe complex multicultural lifeways magically appeared with or immediately before the Spaniards? And if multicultural lifeways were a pre-Columbian norm in this area, as complex social organization at contact suggests, why can't we see those other groups in the record? Using Sapoá-period (AD 800–1250) ceramics as a case study, this paper explores whether the assemblage represents 'Chorotega monoculture' or a complex multicultural aggregate.

[263] *Chair***Dennison, Meagan (University of Tennessee, Knoxville)****[90]** *Chair*

Dennison, Meagan [35] see Randall, Connie

Dent, Joe [239] see Cagney, Erin

Derevianko, Anatoly [41] see Douka, Katerina

Derose, R. Justin [105] see Finley, Judson

Des Lauriers, Matthew [19] see Hinojosa, Marlen

Desloges, Joseph R. [284] see Soleski, Anna Marie

Desrosiers, Pierre [16] see Forsythe, Kyle

Deter-Wolf, Aaron (Tennessee Division of Archaeology) and Tanya Peres (Florida State University)**[217]** *Archaic Tattooing and Bundle Keeping in Tennessee, ca. 1600 BC*

The Fernvale archaeological site in Williamson County, Tennessee, is a multi-component site that includes a significant Late Archaic cemetery and occupation dated ca. 1600 BC. Although the site was excavated in 1985, it was not fully analyzed or published for nearly three decades. Formal analysis of zooarchaeological materials from Fernvale took place from 2007–2012 as part of an overall effort to reassess the site assemblage. In this paper we describe findings generated by combining traditional zooarchaeological analysis with ethnohistorical research, ethnographic analogy, experimental archaeology, and use-wear analysis. By incorporating these various lines of evidence we are able not only to correct previous errors in species identification, but also to produce a contextual framework that informs our understanding of both emerging and entirely new aspects of Late Archaic lifeways. Through this interdisciplinary effort we are able to provide archaeological evidence of the oldest directly-identified bone tattoo implements in the world and to demonstrate the persistence of Native American bundle-keeping and tattooing traditions over more than three millennia.

Deter-Wolf, Aaron [217] see Peres, Tanya

Devièse, Thibaut [41] see Higham, Tom

Devièse, Thibaut (University of Oxford), Thomas W. Stafford Jr. (Stafford Research, LLC), Michael Waters (Texas A&M University) and Tom Higham (University of Oxford)**[74]** *Advanced AMS 14C Dating of Contaminated Bones Associated with North American Clovis and Pre-Clovis Butchering Sites*

When humans first colonized the Americas is becoming better understood by the addition of aDNA studies; however, the absolute dating of these late Pleistocene sites is crucial and depends upon accurate 14C dating of the fossils (i.e. bones, teeth and ivory). We re-dated vertebrate fossils associated with the North American butchering sites Wally's Beach (Canada), La Prele, also known as Fetterman (Wyoming), Lindsay (Montana) and Dent (Colorado). Our work demonstrates the crucial importance of sample preparation to completely remove contaminants derived from sediments or post-excavation museum curation. Specifically, our work illustrates that chromatographic methods, e.g. preparative High Performance Liquid Chromatography or column chromatography using XAD resins are the only efficient methods for removing geological and museum-derived contaminants. These advanced methods yield unquestionably accurate AMS 14C measurements that refine the ages of these sites and thereby advance our understanding of human population dispersals across North America during the late Pleistocene. We will present the new dating evidence and compare the results with previous determinations made using less refined techniques.

Devio, Jessica (Washington State University)**[76]** *Assessing Botanical Diversity of Late-to-Terminal Classic Households at Xunantunich, Belize*

Understanding household plant use can provide a wealth of data about subsistence practices, past agricultural systems, and strategies used to mitigate climatic stress. Plant use may also vary between households. By examining this variation, botanical data may yield further information on personal

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

preference and cuisine differences between households. Aside from consumption for subsistence, plants were used for a wide range of activities conducted by individual households. Botanical datasets may reveal other activities such as fertilization of garden plots or ritual activities. This paper examines the botanical diversity found in Late-to-Terminal Classic households near the site of Xunantunich in Belize. The paper discusses on-going research at the site and focuses on macrobotanical analysis of activity areas. The results are part of a larger research design combining both macrobotanical and microbotanical data which seeks to overcome some of the biases that are inherent in single methods of analysis. By incorporating macrobotanical and microbotanical remains, a wide range of plant remains will be represented that may be absent from carbonized assemblages alone. The paper further discusses a comparison of machine-assisted flotation versus the washover method for processing flotation samples.

[76] *Chair*

Devlin, Joanne (University of Tennessee), Lee Jantz (University of Tennessee) and Michelle Hamilton (Texas State, San Marcos)

[90] *Beyond the Farm: Forensic Taphonomy in East Tennessee*

The impact of Walter Klippel's teaching has provided his students the tools necessary to answer several critical questions faced by forensic anthropologists. Through his classroom tutelage countless numbers of graduates have the skills to recognize and categorize non-human bones. Beyond this zooarchaeological training, his research influence and guidance has also afforded both students and practitioners alike with knowledge to identify and document particular signatures of postmortem damage and taphonomy on human remains. His long term research leadership at the outdoor research facility at the Forensic Anthropology Center at the University of Tennessee has centered on establishing techniques to best assess postmortem animal modification. This research has led to improved means for identifying and understanding the postmortem signatures of animal activity, significantly contributing to forensic investigations. Additionally, he has contributed to the knowledge of estimation of the postmortem interval via his student-centered approaches to research in animal scavenging. As a result, the success of our forensic work is directly attributable to the contributions of Walter Klippel and his dedication to students and anthropological science.

DeVore, Steven [301] see Green, William

Dewan, Eve (Brown University), Ian Kretzler (University of Washington) and Briece Edwards (Confederated Tribes of Grand Ronde, Historic Prese)

[114] *A Community of Heritage Practitioners: Keeping the Past in the Present at Grand Ronde*

For the Confederated Tribes of the Grand Ronde Community of Oregon, care of tribal heritage is an expression of sovereignty, cultural creativity, and connection to place. We discuss three arenas in which the Tribe draws on information about the past to reaffirm connections in the present. First, exhibits at the Chachalu Tribal Museum & Cultural Center, language immersion programs, and artistic pieces showcase how the diverse Native peoples of western Oregon overcame dispossession and removal to form the contemporary Grand Ronde nation. These Native-centered histories counter colonial narratives that relegate Native communities to a distant past and tragic present. Second, the Tribal Historic Preservation Office utilizes broad conceptions of heritage—placing tribal knowledge systems at the center—to protect archaeological sites and cultural properties threatened by development in the Tribe's homelands. A collaborative field school has contributed to these efforts by implementing a Grand Ronde-specific form of archaeological practice to investigate historic sites on the reservation. Third, tribal heritage infuses contemporary cultural practice, from song and dance at the tribal plankhouse to loans of historic objects to tribal members for ceremonial use. Within the Grand Ronde community, the past is present in ways that include and transcend conventional archaeological practice.

[151] *Discussant*

Dhody, Anna (Mütter Museum of The College of Physicians of Philadelphia) and Kimberlee Moran (Department of Chemistry, Rutgers University)

[107] *No Good Deed: The Recovery of Philadelphia's First Baptist Church Cemetery*

What to do when one box of bones becomes a whole cemetery? In late 2016, the Philadelphia Inquirer reported that human remains were uncovered at a local construction site, 218 Arch Street, formerly a cemetery that closed in 1859, its dead supposedly having been interred elsewhere. Because the site is privately owned and the construction privately funded, no clear legal guidelines exist governing authority over human remains. Seeing a potential research project, the authors contacted the developers and offered to take the small banker's box of human remains for analysis and reburial. Months later, the construction firm contacted the authors with a developing problem. Dozens of whole coffins were being unearthed daily, and no state or local government agency was willing to step in and take charge. In the absence of authority, with a construction deadline looming, the authors conducted a salvage archaeological operation to save the remains. This presentation will discuss the legal and ethical issues surrounding the Arch Street Project, which continues to evolve in magnitude and complexity.

Dhody, Anna [204] see Moran, Kimberlee

Di Paolo, Marianna [36] see Parker, Ashley

Diaz, Alice

[49] *Zooanthropomorph Iconography in the Gran Coclé, Gran Chiriqui and Tairona Areas*

The zooanthropomorphic beings present on some artifacts of the cultural areas Tairona (Colombia), Gran Coclé (Panama) and Gran Chiriqui (Costa Rica) dating back to pre-Columbian times have often been identified as shamans. But what are the iconographic elements that are in favor of such a precise interpretation?

To begin with, we did a thorough iconographical analysis aiming to determine taxonomically the animal component, the ratio between human and animal, and the precise anatomical elements that could be attributed to one or the other. In the second phase of this work the iconographic analysis has been cross referenced against the abundant anthropologic literature available on the subject of shamanism.

This process allows us to perceive better the diversity of possible interpretations for Zooanthropomorphic beings, which are not necessarily confined to a shamanic metamorphosis.

We can therefore reflect upon the spiritual and political context with more latitude, which is necessary for the information we have about either in the three concerned cultural areas is scarce.

Díaz, Mauricio [142] see Barrios, Edy

Diaz Arriola, Luisa Esther

[132] *Ychsma Cultural Identity in Armatambo during Inca's Occupation, Peruvian Central Coast*

This paper presents the results of a typology and iconographic analysis made on ceramic and textiles artifacts recovered at the Ychsma settlement of Armatambo. The Ychsma cultural affiliation of this archaeological site, which is located on a dense urban area south of Lima, is recognized in the literature (especially with the aerial photographs published by Kosok in 1965) but little detail has been published on the evidence of its affiliation and

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

character of occupation. We can confirm that Armatambo was densely occupied during the Late Horizon (1450–1532 AD) on the Peruvian Central Coast and was the local Ychsma harbour to gain access to the ritual site of Pachacamac, the Ychsma capital. We propose that archaeological evidence that we have recorded resulted from the political interaction between Incas and local Ychsma population, which reflect a scenario of tolerance toward the local elites and the cultural expressions in the lower valley of the fertile Rimac drainage.

[132] *Chair*

Diaz-Andreu, Margarita and Tommaso Mattioli (Universitat de Barcelona)

[136] *Acoustic Effects at Las Cuevas Cave (Western Belize): An Archaeoacoustic Analysis of a Maya Cave*

The site of Las Cuevas (western Belize) has been identified as a mid-sized, Late Classic ceremonial and administrative center. Interestingly, given the importance of caves in Maya religion, the underneath part of the site has a large cave system. Research so far on this cave has focused on aspects that are common in cave archaeology: 1/ structures—in this case on the one hand the series of platforms built around a central, sunk cenote and on the other the walls subdividing the narrow part of cave into several distinct areas; 2/ pottery distribution in the different areas and platforms within the cave. Yet, in addition to the material remains within the cave, there are other aspects that are worth analysing. A decade ago Margaret Bruchez alluded in an excellent article that “subject to the precepts of science, archaeologists could collect the aural data as material artifacts, despite a previous regard of sounds as ‘immaterial’ “ (Bruchez 2007: 48). The aim of this paper is to show the results of our archaeoacoustic analysis in the cave of Las Cuevas highlighting the acoustic effects that have been detected as the most relevant and their relationship to particular parts of the cave.

Diaz-Guardamino, Marta (Cardiff University, United Kingdom)

[214] *Digital Imaging and Rock Art (Relational) Biographies: Reassessing Iberian Late Bronze Age “Warrior” Stelae*

Formal approaches to rock art traditionally focused on meaning and representation. Rock art images and panels were treated as static representations of symbolic frameworks while their materiality and active role in cultural production were overlooked. Rock art is the product of the dynamic interplay between people, tools and the rock surface. The properties of the rock panel have the capacity to shape rock art production as much as the skill and knowledge held by the engraver/painter and the social context in which these engagements take place. Furthermore, rock art panels may accrue complex biographies via multiple engagements.

I combine a relational-biographical approach with digital imaging technologies (e.g. RTI) to the study of rock art carvings as a way forward to address these questions. By focusing on the biographies of Iberian warrior stelae (how they were made, reworked, etc.), relevant details emerge: despite iconographic standardisation there is variability in the techniques and procedures deployed which are linked to the interplay between the stone, the skill of the carver and her/his knowledge of local rock art traditions; stelae can be reworked at later stages and reused in a variety of ways, opening up a debate about the temporality of rock art traditions.

Dibble, Harold [304] see Abdolazadeh, Aylar

Dibble, W. Flint [298] see Scarry, C. Margaret

Dice, Michael, David Barrackman (POWER Engineers, Inc.), Rebekka Knierim (POWER Engineers, Inc.) and Darren Schubert (POWER Engineers, Inc.)

[183] *Prehistoric Lake Cahuilla Shorelines Identified Using a Systematic Satellite Photograph and Ground Truth Methodology, Salton Sea Region, Imperial County, California*

Lake Cahuilla is the archaeological representation of the modern Salton Sea and represents one of the largest rift lakes in the Western Hemisphere. Formed in the Salton Basin by western-trending Colorado River runoff, in-fillings and outflows from the Colorado to the Lake and thence into the Gulf of California were episodic yet constrained by the vast Colorado River Delta. Because modern agricultural development has buried many of the ancient shorelines, the Lake’s Holocene oscillation history is difficult to identify and interpret. Recent improvements in satellite-based photographic quality have made it possible to use the desktop to hunt for prehistoric resources located on the margins of Lake Cahuilla. In this paper, we describe the discovery of a prehistoric cultural landscape made up of thousands of distinctive stone features known to local archaeologists as “fish-traps” using a systematic desk-top analysis and ground-truth process. Our research shows that at some period in the recent prehistoric past, the western shore of Lake Cahuilla can be identified in at least three stable strandlines between 40 and 90 feet below sea level and that these episodes may be datable.

Dickson, Antony [133] see Donahue, Randolph

Diederichs, Shanna R. [226] see Simon, Rebecca

Dieguez, Sergio [9] see Salgán, Laura

Dillehay, Tom

[79] *Dennis Stanford’s Legacy in Latin America*

The influence that Dennis Stanford has had on archaeologists (and others) working in Latin America on the topic of early peopling is discussed, with specific reference to lithic technology, migratory models, and logistical/academic support.

[257] *Discussant*

Dillehay, Tom [6] see Benson, Kristin

Dillian, Carolyn (Coastal Carolina University) and Charles Bello (FEMA)

[42] *Historic Preservation and the Indian Division of the Civilian Conservation Corps*

The Civilian Conservation Corps (CCC), and other federally sponsored work programs, provided much needed employment during the Great Depression and have been examined extensively by scholars in a range of fields. However, few are aware that a parallel program, Indian Emergency Conservation Work, later subsumed into the CCC as the Indian Division (CCC-ID), offered similar programs for Native American young men and performed extensive conservation work on reservations. These men built roads, bridges, fences, and public buildings; fought fires; constructed dams and irrigation systems; and improved rangeland. These landscape features are now eligible for the National Register of Historic Places, and this project outlines preliminary efforts to work with Tribal governments to recognize and document CCC-ID sites and structures.

Dillingham, Frederic, Bryan Hockett (Bureau of Land Management, Nevada State Office), Evan Pellegrini (Nevada Department of Transportation, Carson City) and Jeffrey Weise (Bridgeport Ranger District, Humboldt-Toiyabe Nation)

[106] *Communal Trapping and Pinyon Exploitation in the Wovoka Wilderness*

Heritage resources are recognized as a characteristic of the relatively new Wovoka Wilderness, created in 2014. Located in western Nevada’s Pine Grove Hills and in the Sierra Nevada’s rain shadow, resources relate to pine nut exploitation and communal artiodactyl hunting. The Wichman deer

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

game trap still has standing corral posts, providing insights about the structure and function of Great Basin traps. Other game traps, blinds, rock rings, brush huts and bow stave trees are among the resources in this western Great Basin wilderness.

Dillmann, Philippe (LAPA-IRAMAT CNRS FRANCE), Stéphanie Leroy (LAPA-IRAMAT CRNS FRANCE), Sylvain Bauvais (LAPA-IRAMAT CRNS FRANCE), Maxime L'Heritier (HSPS, Université de Paris 8, France) and Alexandre Disser (LAPA-IRAMAT CRNS FRANCE)

[137] *New Insights for Provenance Studies of Iron Artifacts*

The study of the production and trade of metals is one of the means to highlight the technical and social organization of societies. Among several issues, the question of the provenance of the metal is of primary importance and can lead to enlighten the organization of the production (spatial and temporal structures of the chaîne opératoire) and of the supply networks. Concerning iron and its alloys, these last years have seen important developments in archaeological sciences to address the question of provenance. These approaches are based on both trace elements and isotopic approaches.

The aim of this paper is to discuss the principle, potentiality, advantages and limits of the archaeological science approach through the example of two provenance studies applied to different socio-economical contexts. The first one deals with the circulation of iron products in the North-Alpine area during the end of the First Iron Age (6th-5th c. BC). The second one concerns the use of iron reinforcements in the gothic monuments and cathedrals of the Middle Age in France. Finally, several prospects will be proposed for developing integrated and interdisciplinary provenance studies in the future.

Dillmann, Philippe [175] see Leroy, Stéphanie

Dillon, R. Scott [294] see Robinson, Francis "Jess"

Dimitroff, Braeden (New Mexico State University) and Candice Disque (Statistical Research, Inc.)

[269] *The Ancestral Puebloan Community of Alkali Ridge: Investigating The "Prudden Unit" Paradigm*

The 2017 Alkali Ridge Data Modernization Project completed an intensive survey of 10 Ancestral Pueblo habitation sites within the Alkali Ridge National Historic Landmark as part of the ongoing collaboration between NMSU and the National Park Service to modernize data and conduct research. The 2017 fieldwork season focused on recording small residential sites in close proximity to community centers to examine the role small satellite habitations played in the Pueblo II-III period landscape of Alkali Ridge. We speculate that there may have been a regional shift in architectural patterns of the Alkali Ridge community that differ from those seen in the Mesa Verde core region. By analyzing the "Prudden Unit" archetype at Alkali Ridge, there is potential to demonstrate variation that occurred amongst small residential sites of the same unit type. This would permit a better understanding of the differential placement and function of these sites within the local community landscape. This poster will summarize the 2017 project data collected, as well as provide the basis to future research in examining potential functional variability of "Prudden Unit" sites in relationship to the Alkali Ridge community landscape.

DiNapoli, Robert J. (University of Oregon), Terry L. Hunt (Department of Anthropology and Honors College, Uni) and Carl P. Lipo (Department of Anthropology and Environmental Studi)

[238] *Quantifying Energy Investment in Monuments (Ahu) on Rapa Nui (Easter Island) Using Structure from Motion Mapping*

Pre-European contact Rapa Nui (Easter Island) society is well-known for its substantial investment in monumental architecture, including over 300 platforms (ahu) and almost 1000 statues (moai). Recent theoretical and empirical research on the island suggests that ahu and moai were focal points for competitive and cooperative signaling by relatively small-scale communities dispersed across on the island. Evaluation of this hypothesis, however, requires the measurement of the amount of energy invested in the construction of these monuments and comparing these values to the relative quality of resources supporting local communities. Despite the significant amount of research directed towards Rapa Nui's monuments, we currently lack accurate, precise, and comprehensive estimates of monument size. To fill this gap, we used UAV-based photography and structure-from-motion photogrammetric tools to create scaled high-resolution, 3D representations of ahu. With these 3D models, we calculate volume estimates and use these values to derive energy investment estimates for each ahu. Using these data, we explore spatial patterns in energetic investment within and between local communities.

DiNapoli, Robert J. [13] see Napolitano, Matthew

Dine, Harper, Traci Ardren (Department of Anthropology, University of Miami) and Chelsea Fisher (University of Michigan)

[171] *Vegetative Agency and Social Memory in Houselots of Ancient Cobá*

It is difficult to pin down the objective definition of a weed; rather, the idea of a weed is constructed through a set of characteristics that are, for the most part, dependent on context and relative interactions. Doody et al (2014) use Judith Butler's (1990) concept of performativity to describe this dynamic, ongoing construction as a product of the agency of both people and plants. Here we interpret studies on ancient Maya agricultural techniques through the lens of plant agency and human-plant relations. We aim to investigate the place-making of agricultural landscapes through an analysis of both helpful and destructive 'weed' agencies in traditional planting, weeding, and medicinal practices. Using new LiDAR data from Cobá, we examine the liminal spaces around houselots, sometimes called 'toft zones,' to look at time management and place-making at different temporal scales. This shifting social practice and place-making factor into the performativity of weeds, and vice versa. A result of this exercise is the problematization of what it means for a plant to be 'out of place' in the ancient Maya agricultural landscape (Head et al 2014) as well as a new appreciation of how certain plants impacted daily time management schemas.

Diserens Morgan, Kasey (University of Pennsylvania)

[42] *Navigating Narratives of the Past in the Present: Archaeology and Heritage Preservation in Tihosuco, Quintana Roo, Mexico*

A national narrative glorifying the deep past of Mexico was formed using archaeological sites. The government has gone to great lengths to rebuild and preserve many ancient indigenous sites and objects for use as national symbols and as a draw for tourism. However, this practice has contributed to the 'othering' of indigenous groups by placing the 'mysterious Indians' firmly in the past, and restricting the access of descendant communities.

Working within a modern Maya community, the members of the Tihosuco Heritage Preservation and Development project seek to add to the national discourse on patrimony by using a tool recognized by the nation state: archaeology. The project investigates the legacy of the Caste War of Yucatan (1847–1901), one of the most successful indigenous rebellions in the New World.

This paper explores the ways in which archaeologists can navigate between the constructed national narrative and producing knowledge that may subvert or run counter to it. How do we negotiate the tensions that occur between the communities and government agencies that both provide approval for our work? How do government control and conceptions of ownership impact archaeological work? What impact do national laws protecting patrimony have on those living within historic sites?

Disque, Candice [269] see Dimitroff, Braeden

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Disser, Alexandre [137] see Dillmann, Philippe

Dixon, Christine C. (Green River College) and Payson Sheets (University of Colorado, Boulder)

[142] *The Complex Community of Cerén, El Salvador: a Classic Maya Example of Heterogeneity*

The Loma Caldera eruption of c. AD 660 dramatically buried a sophisticated community built by craftspeople, architects, religious specialists, political leaders, and agriculturalists. As people fled for their lives, they left behind belongings and buildings. Results from decades of archaeological research at Cerén, El Salvador and in the surrounding Zapotitán Valley challenges an ethnocentric, over-simplified reconstruction of ancient socio-political organization. Cerén was not in the middle of a city, but neither was it isolated. The large regional center of San Andres was only 5 km away, yet Cerenians distinguished themselves with their own governance, religious ceremonies, feasts, the wide array of species they grew, and their earthen architecture (road, domiciles, and public buildings), that was unlike the stone construction of surrounding settlements. The Cerén community expressed and maintained their ideological, social, political, and economic autonomy, while remaining connected to the variety of other settlements throughout the valley. Engaged in larger Maya practices and trade networks of southern Mesoamerica, Cerenians crafted a lifestyle for themselves that enabled them to successfully subsist off the land on their own terms. Remains of such communities enhance our understanding of the socio-political spectrum and provide a graphic reminder of the liabilities of using simple dichotomies.

Dixon, E. James (Maxwell Museum)

[79] *Dennis Stanford: The Alaska Years and Beyond*

Dennis Stanford was first introduced to Alaskan archaeology in 1966 as a field assistant to Robert L. Humphrey during an archaeological survey in the Utukok River valley in the western Brooks Range. At the urging of John M. ("Jack") Campbell he began work near Point Barrow in 1968 to investigate controversial questions about the origins of Thule culture. Following brief investigations at the Utkiavik site, he focused his excavations south of Barrow at Walakpa, where he discovered more than 20 stratigraphic levels documenting the transition from Birnirk to Thule cultures. His analysis led him to conclude that the transition from Birnirk to Thule was correlated to climate change and possibly an over-reliance on seal hunting. His subsequent research interest in Alaska has focused the relationships between eastern Beringia and the first colonization of the Americas. In 1989–90 he served as Visiting Distinguished Professor, at the Alaskan Quaternary Center, University of Alaska Fairbanks where he taught Paleoindian archaeology and mentored students. His long engagement in Alaskan research has significantly influenced his contributions to the study of bone taphonomy, late Pleistocene paleoecology, and the first colonization of the Americas.

[79] *Chair*

Dixon, E. James [79] see Graham, Russell

Dobney, Keith (University of Liverpool, UK), Ardern Hulme-Beaman (University of Liverpool), Carly Ameen (University of Liverpool), Allowen Evin (CNRS University of Montpellier) and Thomas Cucchi (CNRS Natural History Museum, Paris)

[212] *Divergence of Domestic Dog Morphology through Deep Time*

The modern domestic dog is behaviourally and morphologically far removed from its ancient counterpart. Increasingly, research has demonstrated that using modern comparative collections for identifying domestic animals in archaeological contexts is problematic. This is likely the result of the intensive breeding that modern animals have undergone in at least the last two centuries. It is unclear how far back the current modern morphology of dogs goes, or how different ancient dogs were from their modern descendants. Here we present the results of analyses examining the differences between archaeologically identified dogs with modern domestic dogs, modern wolves and Pleistocene wolves to see how these groups have morphologically diverged. To do this we will examine the morphologies of both the mandible and the first mandibular molar and compare the through-time shape change of archaeological dogs to the baseline of shape variation of each of the reference groups. The results of these analyses will go far beyond the simple identification of wild and domestic animals, as they will shed light on the changes brought about to one of the most important human-animal relationships across deep time.

Dobney, Keith [125] see Hulme-Beaman, Ardern

Dobrov, Amanda (UC Berkeley)

[242] *Roman Amphorae of North Africa: Markers of a Pan-Mediterranean Economy*

This project is centered around the Roman amphorae excavated from the Palatine East Archaeological Project. The site is located on the northeast slope of the Palatine Hill in Rome. The ceramic deposits date from the first century to about the fifth of sixth century CE. I focus on the amphorae produced in North African, specifically those of Tunisian origin. My work is hoping to better understand the geographical location of production sites of these trade vessels.

The results of this project intend to highlight the role played by specific regions with Roman North Africa in the supply of foodstuffs to the urban centers, including northern Tunisia, the Sahel, Tripolitania, and the Kabylie of Algeria, from the early to the late empire.

The project involves the classification of the rim fragments by amphora class, the characterization of their fabric by means of the evaluation of photomicrographs taken with a digital microscope with a view to determining their likely provenience, and their quantification by the estimated vessel equivalents (EVE) technique.

All of this work has been done in close consultation with Michel Bonifay's 2004 publication, *Études Sur la Céramique Tardive d'Afrique*, and Simon Keay's 1984 amphorae handbook.

Dockrill, Stephen (Stephen Dockrill, University of Bradford) and Julie Bond (Archaeological Sciences, University of Bradford)

[135] *Swandro, Rousay, Orkney: Between Sea and Land*

The site of Swandro is on the eroding coastal fringe of the island of Rousay, Orkney and has been the focus of field training for the next archaeological generation between the University of Bradford, Archaeological Institute UHI and Hunter College, CUNY since 2010. Such sites are a finite resource, endangered by coastal erosion exacerbated by the effects of climate change. The site straddles both the shore and the land and consists of a Neolithic Chambered Cairn and a later settlement dating from the Early Iron Age to the Norse period. Archaeological investigation of the beach, where the sea has cut into the complex depositional sequence to form a series of terraces required an adapted response. Excavation over multiple seasons has enabled an understanding of the stratigraphic sequence and the process of erosion and also the development of new methodologies to facilitate its recording before the sea destroys the surviving evidence. The evaluation and excavation of the beach has provided an understanding of past environments, structural succession, economic and industrial activities. A key element of the work is creating public awareness of this fragile but valuable resource.

Dodd, Lynn (USC)

[321] *Moderator*

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Dodge, Robyn (The University of Texas at Austin)[28] *Ongoing Household Research at Hun Tun: An Ancient Maya Hinterland Settlement in Northwestern Belize*

The ancient Maya site, Hun Tun is a Late-Terminal Classic commoner settlement located in northwestern Belize. Research at Hun Tun operates under the Programme for Belize Archaeological Project (PfbAP). Social complexity at the household level serves as a research theme for Hun Tun investigations. This paper addresses the ancient Maya commoners who lived in household contexts at Hun Tun while discussing how their role as a hinterland community contributed to ideas of household identity, social formation, and production within the larger La Milpa political capital. Ancient Maya commoners are great adapters to their environment responding to external cultural and natural pressures. Analysis of everyday material culture, monuments, and major architecture features from domestic contexts contribute to understanding the role of Hun Tun within the La Milpa hinterland. Interpreting the function and use of household spaces are crucial to understand the activities which took place. Knowledge about commoner rituals also serves to incorporate and legitimize Hun Tun within ancient Maya society. Specifically, ceramics, various lithic material assemblages, and small find material culture, are among the artifacts recovered from prominent features that will be discussed.

Doelle, William (Archaeology Southwest)[96] *Moderator***Doering, Briana (University of Michigan)**[283] *Exploring the Cause of the Athabaskan Migration through Isotopic and Geospatial Evidence*

Linguistic and archaeological evidence suggests that Athabaskan-speaking peoples rapidly spread south from present-day Central Alaska and Northwest Canada into the Great Plains region around 1000 years ago. Historically, explanations of this important event have centered on relatively small geographic regions and traditional methodologies. This paper offers an alternative view at both a much larger scale and using distinct methods. I argue that this significant migration event was driven by the increased importance of salmon and other fish in the Athabaskan diet, a hypothesis based on my on-going central Alaskan research, which employs a compound-specific isotopic analysis of soils, landscape modeling, and predictions from human behavioral ecology. The results of this research provide not only a more nuanced understanding of late prehistoric Athabaskan subsistence and culture, but also a novel perspective on human biogeography in the Americas prior to European colonization.

[250] *Chair***Doershuk, John (University of Iowa)**[166] *The University of Iowa American Indian Concerns Archaeological Field School—Putting the Zimmerman Vision to Work*

As an established scholar, Larry Zimmerman spent several years around the turn of the millennium at the University of Iowa where he served as a faculty member in the Department of Anthropology and Director of the American Indian and Native Studies Program. With the encouragement and support of then State Archaeologist of Iowa William Green, Larry and I initiated a program of study in 1999 emphasizing the teaching of high quality archaeological field techniques coupled with active exploration of American Indian concerns about how archaeology is often conducted. This field school represented a unique partnership of a wide variety of agencies, institutions, and individuals. With UI staff and faculty members as key personnel, the inaugural project also involved close collaboration with Plymouth County, Iowa officials; a Sioux City, Iowa archaeological consultant; Briar Cliff College as host institution and provider of food, lodging, and classroom/lab space; and several individuals associated with regional Indian tribes (Omaha, Sioux, Winnebago, and Meskwaki). We replicated our 1999 success in northwest Iowa with two additional editions of this Zimmerman-inspired field school configuration in 2000 and 2001.

Dogandzic, Tamara [304] see Abdolazadeh, Aylar

Dolan, Sean (Los Alamos National Laboratory)[42] *Thinking outside the Excavation Unit: Lessons Learned from an Alternative Mitigation Project on the Pajarito Plateau, New Mexico*

Excavation is often the way to mitigate for the loss of cultural resources to comply with Section 106 of the National Historic Preservation Act. However, excavation is not always the most practical solution. A case study is presented to demonstrate how alternative mitigations advance the research value of cultural resources, and increase flexibility in land-use decisions by agencies while satisfying the mutual interests of stakeholders. In 2012, four prehispanic Ancestral Puebloan fieldhouses were impacted at Los Alamos National Laboratory due to tree thinning activities. The State Historic Preservation Officer (SHPO), Advisory Council of Historic Preservation, and Pueblo de San Ildefonso were notified, and a damage assessment report was written. A Memorandum of Agreement between Department of Energy and the SHPO was signed in 2016, and it stipulated that a fieldhouse context document be written in lieu of excavation. The document resulted in the acquisition of new research that advances northern New Mexico archaeology. Also, funds went towards the creation of a free public book to achieve wider public awareness about the local archaeology and cultural preservation. I identify lessons learned during this project and offer recommendations for future application of alternative mitigations.

Dollarhide, Eli (New York University)[121] *Revealing the Local: A Look Inwards at the Archaeology of Southeastern Arabia*

Rita Wright's valuable contributions to the archaeology of urbanism and holistic, multi-scalar approaches to settlement patterns is well-attested in her survey work along the Beas River Valley. This paper picks up these themes in a different region of the interconnected Bronze Age world that has been the focus of her research—ancient Oman.

Known as Magan in Mesopotamian texts, a considerable amount of research has been conducted on Bronze Age Oman by focusing on its external connections to other polities. In this paper, I present an alternative, hyper-local perspective on the archaeology of this area. Utilizing ceramic and survey data collected in the spring of 2017 from the region surrounding the UNESCO World Heritage Site of Bat and nearby remains at 'Amlah, this paper works to shift the focus of research on ancient Oman inwards by examining connections between settlements in the Bat region. An analysis of the ceramics collected in this area suggests a temporally dynamic landscape, with shifting centers of activity. Taking a localized, historically-particular approach to the archaeology of interactions in this small area ultimately reveals the significance of even the smallest known settlements in ancient Oman.

[196] *Chair***Domeischel, Jenna (Eastern New Mexico University), Jesse Tune (Fort Lewis College), Christine Gilbertson (Eastern New Mexico University) and Heather Smith (Eastern New Mexico University)**[222] *UAV-Based Mapping and Public Outreach at Blackwater Draw*

Remote sensing has dramatically changed the way we collect data at archaeological sites, and has added new and innovative methodologies to our fieldwork. It has also facilitated greater public engagement by making archaeology more accessible—this is especially true of sites that are considered remote or difficult to access because of challenging terrain. As part of the public outreach initiative of the new Blackwater Draw Museum and its associated website, an unmanned aerial vehicle (UAV) mapping project was undertaken to provide a layered interpretive experience for visitors. Visitors are only able to physically access limited areas of the archaeological site due to a variety of factors, most importantly their own safety and the

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

safety of our archaeological resources. As a result of the UAV mapping project, the public, students, and researchers alike will be able to digitally access and explore the terrain outside of the marked roads. In this manner they will have the unique experience of seeing archaeology through an archaeologist's eyes, and be better equipped to understand the data collected throughout the site's history.

Domeischel, Jenna [222] see Waggle, Tawnya

Domenici, Davide (University of Bologna (Italy))

[139] *An Underground Home for Earthly Beings. Reconstructing the Archaeological Context of a Lot of Mesoamerican Mosaic Encrusted Artifacts in the National Museum of the American Indian Collections*

The National Museum of the American Indian holds a lot of Mesoamerican mosaic encrusted wooden masks and shields bought in 1921 from Carl A. Purpus, who stated they were found in a cave near Acatlán, Puebla (Mexico).

The presentation, besides including a brief description of the artifacts, is aimed at reconstructing the objects' unknown contextual information through a comparison with similar objects held in American, Mexican and European museums, some of them proceeding from scientifically excavated caves. The comparative analysis, integrated by information deriving from Mixtec codices and early colonial Spanish historical sources, suggests that a group of caves in Puebla and Oaxaca contained similar sets of sacred bundles representing earthly beings known as ñuhu in Mixtec language. The bundles must have been used in ritual performances related with the reciprocal exchange of gifts between humans and extra human beings. The aim of the paper is thus to provide the artifacts in the NMAI collection with some of the contextual information that was lost when they were looted from the cave. In this way, the artifacts reacquire their status of powerful instantiations of earthly fertility, thus becoming much more meaningful both for Mesoamericanist scholars and contemporary indigenous communities.

[206] *Discussant*

Domic, Alejandra [59] see Hirth, Kenneth

Dominguez, Miriam (University of Florida)

[141] *Renderings of Knowledge and History in the Jubones River Basin: Neutron Activation Analyses and Petrography in the Ceramics of Potrero Mendieta (ca. 1,000 BCE)*

Inter-regional interaction cannot be defined simply by the unambiguous material evidence of exotic materials but also by the knowledge associated with the manufacture and movement of those materials. And thus, the physical properties of these materialized practices, which include human and non-human agents, are not unmovable facts or culturally specific interpretations but part of the histories of social interaction. This case-study examines the results from the compositional analysis of the ceramic wares from the site of Potrero Mendieta, in southwestern Ecuador, and the historical processes of social interaction and movement of peoples associated with this context through different regions by way of the inter-Andean Jubones River Valley at around the first millennium BCE. This archaeological analysis departs from the notion that the "physical world" and the "social world" are mutually constituted. The application of archaeological sciences to analyze materials at the compositional level generates data suitable for the description and interpretation of the historical processes of human mobility and social interaction which in turn presents how materials and their physical qualities have functioned as participants and mediators of history and not only as a background to history.

Dominguez, Silvia [285] see Pastrana, Alejandro

Dominguez Vazquez, Gabriela [59] see Gonzalez, Silvia

Donahue, Caitlin [241] see Hermit, Elijah J.

Donahue, Randolph (University of Bradford)

[133] *Further Understanding of Subsistence and Settlement in the Later Mesolithic of Northern England*

We present the results of an integrated study of lithic microwear analysis and lithic sourcing at the large Mesolithic site of Stainton West. Microwear analysis helped to understand why the site was so large and how the occupants supported themselves while at the site. Microwear analysis of 700 artifacts led to 49% identification of use. There is much diversity in tool use: hide working, butchery (meat/fish), impact, antler/bone working, wood working, and plant working. Various patterns were detected between tool use and tool technology. Many of the numerous microliths showed impact damage, but are attributed to fishing rather than hunting. This conforms to the riverside location of the site on the River Eden. Hide working was primarily limited to dry hide, which supports the hypothesis that hunting was not the primary procurement activity and is also suggestive of a residential site, which is further supported by the diverse set of tools and wide range of activities represented. The sourcing study shows that raw material was procured from long distances in all directions. We conclude that the site was likely an aggregation site where many bands came together to exploit an abundant but temporary fish resource.

[133] *Chair*

Donaruma, William (University of Notre Dame) and Ian Kuijt (University of Notre Dame)

[296] *I Could Read the Sky and Make Nets: 19th Century Irish Taskscapes of Remembrance and Belonging*

19th century Irish emigrants from coastal settings, including the islands of western Ireland, traveled to America to establish better lives for themselves, their relatives, and their future offspring, often in new and very challenging urban settings. These islanders left their homes, the seascapes that framed their lives, and entered into a new placelessness. To Irish islanders living and working in America, crafts such as making fishing nets, provided a point of entry into the emotional landscape of memory and belonging. Nets were not just economic tools or objects; rather these practice helped islanders make their past meaningful through the repeated reenacting of crafts, and negotiate their place in the New World. Migration is, above all else, a dissociative event, one that fundamentally challenges an individual's sense of place, of home, and identity, and creates moments in which individuals reside in one place, but "belong" in another place. Combining oral history, folklore and documentary records, we discuss how the film *Nets of Memory* (Lionta na Cuimhne) explores how a 19th century Islander from Inishark, County Galway, Ireland, continued to make fishing nets for 40 years after emigrating to Clinton, MA.

Dongoske, Kurt E. (Zuni Cultural Resource Enterprise) and Giorgio Hadi Curti (, Cultural Geographics Consulting (CGC) and San Di)

[72] *Re-indigenizing Mitigation Processes and the Productive Challenge to CRM*

What is mitigation? By definition, it is reducing the severity, seriousness, or painfulness of an event, development, procedure, or situation. As part of CRM mitigation processes, direct, indirect, and cumulative effects must all be identified in order to address any competent approach to and for mitigation. A key question must then also arise within any mitigation process—by whom is mitigation developed and implemented and for what and whose interests, concerns, benefits, and well-being? The bureaucratic recognition of TCPs in Bulletin 38 and in 1992 amendments to the National Historic Preservation Act have provided productive directives to identify and consider properties vital to different cultural groups. These directives have concomitantly presented a challenge to consider what sound mitigation may—or may not—be, as the significance of such places are defined far more

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

by their integrity of associative relations. Avoidance is the mutually acceptable form of mitigation by tribes, agencies, industry and the CRM community; however, when it is agreed by all parties that avoidance is not feasible, we present examples from our experiences working with the Zuni of how cumulative effects and the Zuni worldview and associated cultural practices, must be considered and applied in the design of successful mitigation.

[166] *Discussant*

Donnelly, Chad [135] see Ollendorf, Amy

Donner, Kristin (Seyitömer Höyük Rescue Excavation Project) and Laura Harrison (University of South Florida)

[265] *Mix, Mold, Fire! An Exploration of the Chaine Operatoire through the Eyes of an Apprentice Potter*

Pottery manufacturing in Early Bronze Age (EBA) Anatolia witnessed a host of technical innovations that transformed what had been a small-scale domestic activity into a specialist craft. At the proto-urban village of Seyitömer Höyük, dedicated pottery workshops appeared in the EBIII period (ca. 2250–2200 BCE), along with a suite of technical innovations, such as pottery molds, clay mixing pits, and clusters of pottery kilns. These advances allowed potters to manufacture more vessels with less effort, and represent a fundamental shift in the chaine operatoire, which is indicative of broader social and economic changes in the EBA. This poster presents the archaeological evidence for various stages of standardized pottery production, in comic book style. Sequential illustrations tell the story of an apprentice potter learning her craft under the tutelage of a seasoned corporate group of specialists. These fictional characters perform activities that are empirically attested at Seyitömer Höyük, and offer an approachable way for general audiences to engage with real archaeological data.

Donner, Natalia (Leiden University), Andrew Ciofalo (Leiden University), Samuel Castillo (Universitat de Barcelona) and Alexander Geurds (Leiden University, University of Oxford)

[323] *Pre-colonial Griddles in Central Nicaragua: An Archaeometric and Archaeobotanical Approach to Foodways at the Barillas Site, Chontales*
Since 2007, the Proyecto Arqueológico Centro de Nicaragua, directed by Alexander Geurds, has excavated several archaeological sites in Chontales, Nicaragua, northeast of Lake Cocibolca. This paper reports on fragments of ceramic griddles recovered in layers dated to cal AD 1275 and 1290 at the Barillas site—unprecedented find challenging our views on ancient foodways in the region. The paucity of these comales has hitherto co-determined narratives on human mobility from Mesoamerica, due to the debatable assumption that this type of artifact necessarily entangles consumption of maize tortillas.

In this paper, we present results on paleoethnobotanical and archaeometric analyses, discussing technological and provenance aspects related to the ceramic fragments and interpretations of the ancient starch remains attached to the earthenware retrieved during the excavations. Also, we will review techno-functional and use-wear aspects related to chipped stone artifacts found in the same context. The interdisciplinary approach to this dataset will shed light onto the ways people prepared and consumed food in Central America. Studying foodways is vital to understanding socially learned practices. This research on cooking dynamics will help expose the unique Central Nicaraguan perspective of food practices.

Donop, Mark (University of Florida)

[301] *Pot Souls and Kill Holes: Weeden Island Ceramics from Palmetto Mound, Florida*

Most of the ceramic vessels interred in Palmetto Mound (8LV2), were “killed” for reasons that are not adequately explained. These include biomorphic ceramic effigy vessels that depict or embody living things, or their characteristics. Using ethnohistorical and archaeological data, I suggest that the ceramics vessels in Palmetto Mound were considered to be animate, non-human persons with souls that were ritually killed, dismembered, and interred in the mound.

Donovan, Erin (Indiana University Purdue University Indianapolis) and Jeremy Wilson (Indiana University Purdue University Indianapolis)

[266] *Who Was Where: Georectification and Radiometric Dating of a Mississippian Mortuary Complex*

The Orendorf site is a Mississippian village and mortuary complex located in west-central Illinois. Salvage excavations between 1970 to 1990 have yielded one of the largest and best-preserved skeletal assemblages in the central Illinois River valley. The human skeletal assemblage from the Orendorf site has been ideal for a wide variety of bioarchaeological research, both invasive and non-invasive. Despite the attention given to the individuals, research focusing on the burial contexts and radiometric dating of the burials are lacking. Through georectification of spatial data from the original excavation paperwork, I have identified seven individual burials from distinct stratigraphic episodes within the burial mound excavated between 1986 and 1990 for radiocarbon dating. Establishing a chronology for the Orendorf mortuary complex allows for greater inter- and intrasite comparisons within the central Illinois River valley, as well as, a more nuanced understanding of previous bioarchaeological research conducted with the Orendorf skeletal collection within a temporal context.

[337c] *Discussant*

Doonan, Roger

[318] *Moderator*

[318] *Discussant*

Doonan, Roger [77] see Mlyniec, Michael

Dore, Christopher [63] see Greaves, Russell

Dores, Tiago [68] see Fraga, Tiago Miguel

Dorison, Antoine (University Paris 1—ArchAm (CNRS)), Gregory Pereira (ArchAm (CNRS, Paris)) and Marion Forest (Arizona State University)

[169] *Thirty Years Later. Revisiting the Tarascan City of Las Milpillás and Its Environment, Malpaís de Zacapu, Michoacán*

Thirty years ago, investigations in the city of Las Milpillás in the Malpaís de Zacapu, provided unprecedented insights on the origins of Late Postclassic Tarascan social organization. One was the highlighting of a unique kind of urban organization upon lava flows; as in all four Tarascan cities of the Malpaís. Yet, unlike its counterparts, Las Milpillás specificity resides in the fact that a site portion lies upon older volcanics, providing arable lands at hand for the city dwellers to use. Today, newly acquired LiDAR imagery covering the entire city and its environment brought the research to a new scale and raises several important questions regarding the management of agrarian resources and their appeal for human settlers through time. In this work, we revisit Las Milpillás integration in its volcanic environment in light of the LiDAR imagery. We first present the methods implemented to extract data from the LiDAR derived DEM, and compare the results with the 1980's alidade field mapping. We then assess the human effort undertaken to take advantage of the environment in view of the numerous agrarian features brought to light. We finally discuss the potentiality of dating areas on the basis of human-modified landscape features.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Dorland, Steven (University of Toronto)

[87] *Learning through the Children: An Experimental Analysis to Investigate the Relation between Childhood Pottery Making Techniques and Social Learning Strategies*

In Güner Coşkun's The Archaeology of Childhood: Interdisciplinary Perspectives on an Archaeological Enigma, Kathryn Kamp has discussed the potential to conduct experimental archaeology to assess childhood practice. In this paper, we follow Kamp and propose the use of experimental studies to explore the relation between different social learning strategies and material interactions. We investigated the performances of youth participants making pottery. Three forms of social learning were observed: 1. Participants who made a bowl by copying a pre-made bowl made by the authors, 2. Participants who made a bowl while watching the authors make a bowl, and 3. Participants who made a bowl while the authors made a bowl and described the actions. The results demonstrate patterns of different mental processes, of which caused participants to apply different methods of bowl making. Rather than basing inferences of the past on assumptions of child performance, experimental studies provide a greater opportunity to develop a more concrete understanding of the material indicators that archaeologists identify to assess child performance. These questions help enhance our understanding of childcare practices and the roles of childhood agents in broader social milieus. As a result, we produce a refined understanding of the archaeological past.

[87] *Chair*

Dorshow, Wetherbee (University of New Mexico) and Michael Heckenberger (University of Florida)

[116] *Recent Investigations in the Upper Xingu Basin*

In the southern Amazon, two decades of rapid agro-pastoral development, extreme drought, and forest fires in the "arc of deforestation" threaten to precipitate an ecological oscillation of southern transitional forests from an eco-region dominated by closed tropical forest to one of open savanna and woodlands. Collaborative research conducted with the Kuikuro indigenous community in the Xingu River headwaters, involving archaeology, soil science, paleoecology, remote sensing, geospatial analysis, as well as, oral history and ethnographic investigation, documents human interventions into landscape of unprecedented scale, precision and planning in indigenous Amazonia. In the Xingu, indigenous knowledge and land management strategies, such as soil enrichment, wetland and fisheries management, and agroforestry, provide alternative pathways to ecological resilience and sustainable land use in the face of dramatic climate change during the Current Warming Period. This paper summarizes these findings, with an emphasis on a geospatial time-series analysis of Landsat imagery designed to identify the distribution, spectral signature, and potential functions of anthropogenic "Banded Forests" in the region.

Dorshow, Wetherbee [161] see Heckenberger, Michael

Dotzel, Krista (University of Connecticut)

[294] *Phytolith Analysis of Woodland Period Carbonized Food Residues from Block Island, RI*

Due to poor preservation, Woodland-era plant resources in New England, both wild and cultivated, have long been poorly understood. Previous macrobotanical analyses have suggested that Woodland subsistence strategies for plant resources in New England are unique to the region, with further intra-regional variation between coastal and interior contexts. This paper presents a preliminary analysis of phytoliths extracted from carbonized food residues found on ceramic sherds from the Early Woodland site 1428 on Block Island, RI and other Woodland sites in New England in order to gain new insight into the subsistence strategies of the era.

Doucette, Dianna (The Public Archaeology Laboratory (PAL)), Elizabeth Chilton (Binghamton University), David Foster (Harvard University), Deena Duranleau (UMASS Amherst) and Evan Taylor (UMASS Amherst)

[294] *Fire and Vegetation Dynamics: Blazing the Trail in Pre-contact Southern New England*

The concept that Native Americans were using fire for wide spread vegetation control and subsistence procurement during the pre-contact period in Southern New England has long been excepted as common practice, leading to changes in the landscape and then settlement patterns. However, save for the accounts of early explorers and colonists, whose goal was to solicit the "new land" as a familiar landscape and not an unknown wilderness, there is little supporting scientific evidence. This paper presents a component of a larger NSF-funded research project aimed to better understand the dialectical relationship among human activity (fire, land clearance, horticulture), vegetational dynamics, and climate by combining archaeological, paleoecological, and paleoenvironmental data. Overall, results of the multidisciplinary data analyses conducted thus far from state of Massachusetts and, further, from three distinct ecological zones within the state: Martha's Vineyard, the Taunton River Drainage Basin, and the Deerfield Valley, does not show clear influence of human agency on the environment during the pre-contact period.

Doucette, Dianna [294] see Jeremiah, Kristen

Douglas, Diane (Applied EarthWorks)

[292] *Climate Change Adaptation: Implementing Indigenous and Local Knowledge to Increase Community Resilience*

Community resilience can be enhanced by engaging local and indigenous groups in the management of their cultural resources, both intangible and tangible. Many communities in developing nations were formally subjected to colonial governance, which imposed foreign architectural designs, irrigation agriculture and economic crops—and these systems vastly changed the social-cultural dynamics of these communities, often destabilizing systems that had been in place for generations. After colonial powers left, indigenous and local groups were left with trying to manage their countries/regions with systems poorly adapted to their geographic landscape. In many regions, climate change is stressing communities to the brink of failure. Millions of people are subject to starvation, social/political collapse, forced migration due to degradation of the environment, and loss of their cultural heritage and social-cultural identity. This paper presents an upper level course that helps graduate students identify ways that public/private partnerships can be implemented to help communities recall and implement indigenous and local knowledge (ILK), and in so doing make them more resilient to climate change. The course encourages graduate students to "adopt" a particular community and make it their dissertation or master's thesis and to design a "resilience through ILK" program in collaboration with local persons.

Douglas, Michele Toomay [20] see Ikehara-Quebral, Rona

Douglass, John (Statistical Research, Inc.)

[275] *Chair*

Douglass, Kristina (The Pennsylvania State University), George Manahira (Morombe Archaeological Project), Roger Samba (Morombe Archaeological Project), Voahirana Vavisoa (Morombe Archaeological Project) and Felicia Fenomanana (Morombe Archaeological Project)

[114] *Integrated People, Practices and Knowledge in the Archaeology of Southwest Madagascar*

Since 2011 the Morombe Archaeological Project has undertaken archaeological survey, excavation and oral history recording in the Velondriake Marine Protected Area of southwest Madagascar. The project's aims are to investigate diachronic human-environment dynamics and refine our understanding of the region's settlement history by leveraging multiple scientific techniques and the collective historical and socio-ecological knowledge

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

base of Velondriake's living communities. The project is run by a diverse team of ancestors, elders, men, women and youth from different communities in Velondriake, representing five ancestral clans. In this paper we describe the outcomes of the project's approach to integrate diverse community members and collective knowledge in all aspects of the research and promote this approach as necessary in generating new and humanized narratives of human-environment interaction on the island of Madagascar.

Douglass, Matthew (University of Nebraska), Simon Holdaway (University of Auckland) and Sam Lin (University of Wollongong)
[200] *Investigating Prehistoric Land Use History and Place Use Variability with Low Density Surface Scatters of Stone Artifacts in the Oglala National Grassland, Northwestern Nebraska*

The USDA Forest Service National Grassland System consists of 20 individual native and restored prairie grasslands. While the scale of these areas allows landscape survey, this 'sea of grass' is a challenge for artifact and feature discovery due to vegetation cover, meaning archaeologists must use surface visibility created by erosion, deflation, and other natural and anthropogenic processes. Here we report on a collaborative student-training project between the Forest Service and the University of Nebraska on the Oglala National Grassland in far northwestern Nebraska. A record of low-density lithic scatters permits assessment of movement and land use history in different locations throughout the grassland. Using raw material variability, measures of reduction intensity, and cortex proportions, we assess in-flow of non-local and out-flow of local materials, and discuss the implication of this pattern for understanding the organization of lithic technology in this environment, and how spatial variation in this process relates to a deep history of landscape structure and land use.

Douglass, Matthew [99] see Phillips, Emily

Douka, Katerina (Max Planck Institute & University of Oxford), Samantha Brown (Max Planck Institute for the Science of Human Hist), Mikhael Shunkov (Institute of Archaeology and Ethnography, Siberian), Anatoly Derevianko (Institute of Archaeology and Ethnography, Siberian) and Tom Higham (Research Laboratory for Archaeology, University of)
[41] *Searching for the Denisovans*

In 2010, a finger bone discovered in Siberia was assigned using DNA to a previously unknown human group, the Denisovans. The Denisovans interbred with both Asian Neanderthals and modern humans over the past 100,000 years; their geographic distribution is now thought to have stretched from the Siberian steppes to the tropical forests of SE Asia and Oceania. Despite their broad spatio-temporal range, the Denisovans are only known from 4 bones, all from a single cave. This patchy knowledge of an entire human population significantly limits our ability to test hypotheses regarding routes and timing of people movements across Asia, the nature and frequency of interaction between archaic indigenous groups and migratory modern humans, and the mechanisms leading to sole dominance of our species.

In 2017, a new 5-year research project "FINDER", funded by the European Research Council, was inaugurated, its main purpose being the discovery of new Denisovans. We apply a novel combination of analytical methods, namely collagen fingerprinting, also known as ZooMS, radiocarbon dating and ancient DNA analysis, designed to identify, date and genetically characterize human fossils amongst thousand animal fragments excavated from Denisova and elsewhere in Siberia. The first results from this work are reviewed in this presentation.

Douka, Katerina [41] see Higham, Tom

Dowd, Anne S. (National Park Service)
[140] *Sacred Stone, Sacred Land: A Traditional Native American Quarry Cultural Landscape*

The Pipestone National Monument, created August 25, 1937, attracts people to mine its catlinite rock containing traces of iron-rich hematite giving it a red hue. The living cultural landscape preserved as a National Monument in southwestern Minnesota is 301 acres, but its modern constituency extends far beyond these borders. In ancient times, raw material from the Sioux Quartzite Formation traveled long distances as well. Archaeological research in combination with ethnography and descendent community participation provides an important perspective on the interrelationship of natural bedrock and Native American groups, who extracted raw material for trade, pipe making, and other craft or ritual products.

Dowell, Mike [190] see Jones, Garrett

Downes, Jane [135] see Maher, Ruth

Downey, Jordan
[303] *No-Budget Archaeology: Landscape Archaeology Using Free Data and Software*

Geographical Information Systems (GIS) and remotely-sensed data are now used ubiquitously in archaeology. While these tools offer incredible possibilities for landscape archaeology and can be extremely cost-effective compared to traditional survey methods, they are nevertheless costs that must be borne by research budgets and home institutions. Data acquisition can easily reach thousands of dollars, and industry-leading GIS software platforms require expensive annual licenses. But all hope is not lost for those of us with no budget: many governmental or academic agencies offer free data with fair-use licensing for academic research, and open-source or free-to-use software can perform powerful computations and create publication-quality maps. This poster presents several examples to highlight how no-cost data sources and software can be used to explore the archaeological landscape of the north coast of Peru from 500 B.C. to A.D. 500. Of course, such data cannot address all research questions and fieldwork is always necessary to ground-truth findings, but this poster will give hope to junior academics and professors emeriti alike by showing how you can continue to produce and disseminate new research with nothing more than a computer and an internet connection.

Downs, Lauren (AECOM) and Kyle Waller (University of Missouri)
[306] *Problematic at Best: Assigning Sex to Prehistoric Remains with Consistency*

Historically, the sex of prehistoric human skeletal remains has been visually assessed by researchers who are (hopefully) knowledgeable about the population being examined. However, methods of assigning sex can be largely subjective and often lead to inconsistent results. In this study, we consider human skeletal remains from the Medio period (A.D. 1200–1475) from Paquimé, a site in northern Chihuahua, Mexico, that was the economic and political center of the Casas Grandes region. The sexes of the human skeletal remains from this site have been assessed on three separate occasions (Benfer 1968; Butler 1971; Waller 2017) using a variety of methodologies, and have yielded significantly different results. We examine how these inconsistent analytical methods can influence more general interpretations of Paquiméan society, and consider how these results might be applied to broader studies of gender roles and status within prehistoric societies.

Downum, Chris [70] see Smith, Jaye

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Doyle, James (The Metropolitan Museum of Art), Griselda Pérez Robles (Proyecto Paisaje Piedras Negras-Yaxchilan) and Edwin Pérez Robles (Proyecto Paisaje Piedras Negras-Yaxchilan)**[163]** *New Advances in the Conservation of Monuments at Piedras Negras, Guatemala*

In 2016, a pilot project began for the conservation of sculpted monuments including stelae, altars, and panels at the site of Piedras Negras, Guatemala. Since then, a team in conjunction with the international Proyecto Paisaje Piedras Negras-Yaxchilan has constructed new platforms with roofs to house the monuments, protecting them from further weathering, moisture, and biological agents. The results of the implementation of the innovative system—platforms of powdered lime and local stones, wooden supports made from local pucte trees, and semi-translucent polycarbonate roofs—are currently being monitored with respect to relative humidity and temperature. In 2017, notable reductions in microorganism and plant growth were observed.

Excavations and three-dimensional photogrammetric modeling are augmenting the data available for some well-known monuments, which will contribute to a new database of in situ and removed monuments and fragments in Guatemalan and international museum collections. Furthermore, archival research on Piedras Negras Stela 5, on loan from Guatemala to the Metropolitan Museum of Art, has revealed new information about the illicit removal of monuments from the site and their subsequent appearance on the art market in the United States and Europe.

Doyon, Luc (Université de Montréal & Université de Bordeaux)**[219]** *Aurignacian Projectile Points Do Not Represent a Proxy for the Initial Dispersal of Homo sapiens into Europe: Insights from Geometric Morphometrics*

It has been argued that Aurignacian projectile points made of antler, bone, or ivory represent a proxy for the initial dispersal of *Homo sapiens* into Europe. Our research reassesses this claim by using geometric morphometric analysis to study 547 Aurignacian osseous implements recovered from 49 European sites. This approach allowed the identification of eight volumetric templates reproduced by Aurignacian artisans during the manufacture of split-based points. Two templates were identified for massive-based points, one of which includes a number of variants. Spatial and chronological distribution of these templates suggests the dominant hypothesis must be reconsidered. We argue that Aurignacian armatures signal the development of innovative socioeconomic strategies by groups already present on the continent and linked to one another. In this case, the osseous armatures would have conferred an adaptive technological solution to prehistoric groups engaged in increased mobility. The subsequent adoption of the innovation at a continental scale must be linked with the dispersal of the Campanian Ignimbrite tephra. Finally, the replacement of split-based points by massive-based points suggests that an important transformation occurred in the technological strategies (i.e., curation versus expediency) implemented by earlier and later Aurignacians even though they favoured a similar mobility pattern.

Dozier, Crystal (Texas A&M University)**[36]** *Toyah Mitotes: Feasting in the Terminal Late Pre-Hispanic Southern Plains*

The proto-historic period within North America provides a framework for assessing the transformations brought on by contact and conflict between indigenous peoples and European colonizers. In central and south Texas, a distinct archaeological culture, Toyah, spans some 400 years, 1250–1650 CE. The hallmark projectile point and first systemic, locally-produced ceramic tradition in the area have intrigued archaeologists for over a hundred years; interpretations of the phenomena have been unsatisfactory as to the factors responsible for such a distinctive change in material culture within a foraging society. This paper argues that feasting theory provides an interpretative and explanatory lens for Toyah. With increasing population pressure on the landscape, interactions between foraging and farming groups across southern North America increased during the late Pre-Hispanic period. Large feasts, which the Spanish called mitotes, became important social mechanisms for crucial intergroup meetings for trade as well as political, marriage, and spiritual negotiations. Ethnohistorical accounts of mitotes complement the archaeological assessment of a feasting society.

Dozier, Danielle (Florida State University)**[102]** *Fire on the Waterfront: The Archaeology of an 1800s Storefront in Apalachicola, Florida*

In the 1840s, Florida was a large part of the trade and shipping networks of the Southeast United States. The Gulf coastal town of Apalachicola became the third largest port in Florida. This poster presents the archaeological evidence of a storefront located along Water Street in Apalachicola, Florida, built in 1837 and burned in 1844. The entire market place comprised of stores, clerk offices, and cotton warehouses, with this particular property (8FR1318) being B.S. Hawley's store. Nineteenth-century newspaper articles announcing the shipment of goods are compared to the archaeological evidence to show what was shipped, sold, and eventually burned in the store.

Drake, Lee (University of New Mexico)**[77]** *An Open-Source Calibration Framework for XRF*

The Lukas-Tooth and Price algorithm for empirical calibration of x-ray fluorescence systems has become the standard for archaeometry, particularly in obsidian sourcing. Here, a new way of using the computer language R and HTML5 websites is introduced to calibrate these systems.

Drake, Stacy (The Field Museum), Marla MacKinnon (The University of Victoria) and America Guerra**[15]** *Exploring Collaborative Curation of North American Human Remains*

In 2016, The Field Museum was awarded a National Leadership Grant from the Institute of Museum and Library Services (IMLS). The overall mission of this project is to “research, explore, develop, and implement thoughtful, practical, and forward-thinking practices for the ethical care of human remains.” The project is working to bring together stakeholders from collections-holding institutions, scientific research institutions, and Native American and First Nations communities to move beyond conversations of challenges imbedded within institutional collections of human remains by working together to establish shared protocols and principles involving these remains. This poster introduces the IMLS-funded collaborative project currently underway at The Field Museum and particularly focuses on the bioarchaeological and osteological work that is being conducted by the museum's newly hired bioarchaeologist and 2017 interns. The poster highlights a brief history of the project, and reviews the successes and difficulties of the developing osteological inventory process for these Native North American human remains, including ethical digital curation of human remains data, individuation of remains within commingled collections, rehousing individuals in conservation-approved materials, and accomplishing accurate osteological inventories of mummified individuals.

Drane, Leslie (Indiana University)**[301]** *Constructing Communities: A New Magnetometry Survey at the John Chapman Site*

The John Chapman site is a mounded village that lies along the Apple River in northwestern Illinois. At approximately A.D. 1050, it appears that Mississippian migrants traveled to the area and interacted with the Late Woodland people already occupying the land. Previous excavations in the northern portion of the site revealed John Chapman people changing their ceramics to emulate Mississippian styles, while keeping their houses Late Woodland-like. Recent magnetometry surveys targeted central and southern portions of the site that revealed high concentrations of materials during walk-over surveys with the goal of comparing potential habitation sites to the ones excavated in the north. This poster will display the subsurface anomalies picked up during the survey and discuss what this can inform us about landscape usage and communities.

[337c] *Discussant*

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Drapeau, Michelle (Anthropology, Université de Montréal) and Jesseca Paquette (Anthropology, Université de Montréal)**[219]** *Habitat Preferences in Early Hominins and the Origin of the Human Lineage*

Early hominins, such as australopithecines, are characterized by bipedality and enlarged posterior teeth. Originally, these traits were thought to be adaptations to an open environment. However, discoveries of older hominins, such as *Ardipithecus* that were possibly only occasionally bipedal and did not have enlarged teeth, have refocused the origins of early hominins within a much more closed, wooded setting. Even the later australopithecines are currently cast as inhabitants of mosaic environments encompassing some closed habitats. However, research in some localities that clearly sample closed habitats do not yield hominins. The four million-year-old Mursi Formation of southern Ethiopia is a good example: its fauna, and stable isotopes values from mammalian teeth and paleosol carbonates suggest a fairly closed woody cover, more so than in penecontemporaneous localities of the region. Yet, the Mursi Formation has no hominins while the other localities with dryer and more open habitats do, suggesting that early hominins could not occupy exclusively closed habitat and were reliant on resources found in more open settings. This type of habitat was novel and different from those exploited by our closest relatives, the great apes, and might be a defining characteristic at the origins of the human lineage.

Drass, Richard R. [268] see Trabert, Sarah

Draznin-Nagy, Sophia and Jeffery Clark (Archaeology Southwest)**[91]** *Pigment and Clay Variation in Polychrome Ceramics*

This poster presents the results of a project that attempted to replicate viable paint and clay combinations employed to make Salado and Maverick Mountain polychrome ceramics. We know from NAA and petrographic studies that both of these painted ceramics were locally produced and widely exchanged in the Upper Gila region. Local clays and pigments, from the Gila River Valley, were used to show how effectively different pigments adhere to clay. The study also provided an opportunity to explore the processing of organic and mineral materials potentially used as pigments. The study showed that several variables affect how pigments and clays interacted during the firing process including: the type of clay, type of pigment, time at which pigment was applied, firing temperature, and firing time. Using experimental techniques allowed for nuanced understandings of the results based on observations during various stages of production. The results of this project further show the complexity in manufacturing a polychrome vessel, from the clay type and paint recipe used to the firing technique.

Dresser-Kluchman, Elizabeth (Barnard College)**[259]** *Scarred Traces: Trees as Artifacts on the Northern Rio Grande*

In the Rio Grande del Norte National Monument, at the confluence of the Rio Grande and the Red River, groups of ponderosa pine trees are dotted with peeled trees, scarred by surrounding animals and weather as well as by human consumption of the trees' cambium. In most considerations of inner bark utilization, the threat of starvation is posited as the key motivation for bark-peeling. This landscape, however, lends itself to narratives that use trees as artifacts, among the full breadth of survey data, to consider its histories. Performing a landscape archaeology that takes these living artifacts of a visible food practice seriously raises questions for the process of looking at the landscape, by which trees become a powerful, if transient, player in a trajectory of landscape-based practices surrounding sustenance and sweetness on the northern Rio Grande.

Drew, Brooke [215] see Freire, Shannon

Drine, Ali [210] see Fenn, Thomas

Driscoll, Neal [79] see Davis, Loren

Druckenbrod, Daniel [39] see Proebsting, Eric

Drucker, Dorothee [2] see Haller Von Hallerstein, Sophia

Dublin, Susan-Alette (Hunter College)**[23]** *(Re)Building the Present, (Re)Claiming the Past: Architecture and Social Memory at the Medieval Monastery of Psalmodi, Gard, France*

This study employs archaeological and documentary evidence to examine adaptive reuse and social memory at the site of the medieval monastery of Psalmodi in Gard, France. During the late twelfth century, the abbey church was partially rebuilt, enclosing the footprint of an earlier church and maintaining early public space while transforming and enlarging monastic space. The reconstruction occurred shortly after a century of turmoil that saw the takeover of the monastery by a rival and the ultimate retention of Psalmodi's independence and sovereignty based on a forged foundation legend. I argue that the meshing of early and later architectural elements was an expression of social memory in the aftermath of a period when the independence and the very existence of the monastery and its community had been threatened.

Dubois, Jonathan (University of California, Riverside)**[264]** *We Are Kin with the Land: The Role of Rock Art Sites in the Negotiation of Social Relations in the North Central Andes of Peru*

Research in the highlands of Huánuco, Peru, has revealed rock art sites were used to establish, negotiate, and legitimize changing social relations for more than three millennia. Implementation of stylistic seriation bolstered by art from more securely dated archaeological deposits allowed for the development of a chronological sequence of rock art styles in Huánuco. The research revealed rock art played a prominent role in expressing changing social relations in the region. This paper focuses on the rockshelter, Gongga, and its rock art panel that was created and repainted multiple times over the millennia. An early painting depicts a human couple, while later repainting emphasized the female character and the male figure was smeared with paint. I propose that the initial painting served to instantiate the people represented by the figures as founding ancestors of an ayllu (kinship group) based on the timing of the painting in conjunction with the appearance of public burial structures called chullpas. The highlighting of the female character at the expense of the male indicates a negotiation or contestation of prevailing social relations. Finally, I argue that rock art was a medium for negotiation because the mountains where they were painted were considered active, sacred agents.

[264] *Chair*

Dudar, Chris (Smithsonian Institution)**[337a]** *Contributions of Osteological Evidence to Repatriation Assessments*

Since the inception of the Repatriation Office at the Smithsonian's National Museum of Natural History in 1991, the documentation of Native American skeletal remains has been accomplished by the Repatriation Osteology Lab. The need for a computerized data entry system was recognized as a critical component to the success of this process along with a structured database for data access and management. The resulting software interface and SQL relational database, called Osteoware, is available to the public for free. The osteological data collected has contributed biological information that has assisted in the resolution of cultural affiliation in many difficult cases.

Dudgeon, John [8] see Riordan, Kyle

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Dudley, Meghan (University of Oklahoma)**[44]** *Identifying Hunter-Gatherer Socialized Landscapes in the Bridger Mountains, Montana*

Archaeologists working in the Rocky Mountains and throughout the world have long recognized that people invest social meanings into the landscape around them. Based on de Certeau's (1984) "Spatial Stories," these "socialized landscapes" consist of two archaeologically identifiable components: espaces (practiced spaces) and tours (practiced paths). I operationalize these ideas by creating archaeological expectations for six socialized landscape types and ask what types of socialized landscapes can we identify from a largely lithic archaeological record. I test my expectations with a pilot study in the Bridger Mountains, Montana. By controlling for time using projectile point types found at sites throughout the mountains, I conduct a series of four analyses by time period to determine what types of espaces and tours past peoples created. I then compare those results against my archaeological expectations and landscape types. Although this study reveals areas of the methodology and analyses that can be improved in future studies, my research suggests that we can use this approach to understand past hunter-gatherer socialized landscapes both in the Rocky Mountains and worldwide.

Dudley, Meghan [222] see Stackelbeck, Kary

Duenas Garcia, Manuel [172] see Lingle, Ashley

Duff, Andrew (Washington State University), Wesley Bernardini (University of Redlands) and Gregson Schachner (UCLA)**[218]** *The Homol'ovi Research Project—The View from ASU*

It is unlikely that we will see a research effort of the scope and duration of the Homol'ovi Research Program project replicated in the Southwest. It is the successful execution of this work by Chuck Adams and Rich Lange, unfolding over more than three decades, that we will attempt to contextualize from the vantage point of that other university in Arizona, ASU. We begin by reviewing the intellectual context of Southwestern research preceding the Homol'ovi project, in particular how the aftermath of the "complexity debates" shaped academic research going into the 1990s. A more productive environment for regional scholarship emerged, and a number of research products and approaches emanating from the Homol'ovi work informed research by ASU-associated scholars studying other Pueblo IV-era settlements and settlement clusters. The Homol'ovi program was a key hub in collaborative partnerships among scholars across multiple institutions and contexts (e.g., academic, tribal, governmental) that have enhanced our collective understandings of ancestral Puebloan settlements and the connections these have to contemporary Pueblo peoples.

Duffy, Paul R. (University of Toronto) and Péter Czukor (Eötvös Loránd University)**[295]** *Using Multiple Time Scales to Understand the Divergence of Prehistoric Social Trajectories in the Carpathian Basin*

A variety of new groups emerged during the Bronze Age in the Carpathian Basin—some had powerful rulers holding feasts and controlling the trade in commodities, and some were egalitarian peoples leaving little evidence for social differentiation outside of age and gender. This paper uses a comparative and multi-scalar perspective to study two different social trajectories in the Carpathian Basin during the second millennium BC: the Lower Körös Basin in Eastern Hungary, and the Danube and its tributaries in Central Hungary. We begin with coarse-grained chronological settlement data and consider the importance of foundational differences in population in both regions. We then look at the productive catchment and yearly agricultural needs of settlements, and weigh their likely importance in decision-making at the household level. Finally, we address how geographic location and compounding trade interests over successive generations potentially influenced the changing relationships between people and communities in the Körös and Central Danube regions in the second millennium BC.

Duffy, Paul R. [245] see Parditka, Györgyi

Duggan, J. S. [35] see Adovasio, J. M.

Duke, C. Trevor (Florida Museum of Natural History), Neill Wallis (Florida Museum of Natural History) and Ann Cordell (Florida Museum of Natural History)**[95]** *Mortuary Spaces as Social Power: Ceramic Exchange and Burial Practice at Safford Mound (8PI3)*

Mortuary spaces often served as gathering points for disparate communities in the pre-Columbian past. The deep temporal associations of many burial mounds across the southeastern United States linked living societies to the ancestral landscape, thus creating a sense of social memory that penetrated both quotidian and ritualized social practice. Safford Mound (8PI3), a burial mound located near modern Tarpon Springs, Florida, embodies some of these characteristics. In this study, we qualitatively describe thin sections, and also present a gross paste characterization and technological analysis of ceramic vessels from the Safford assemblage. Although the excavations were poorly recorded, the sheer size and completeness of this assemblage provides us types of information usually unattainable through standard recovery methods. We use these data to investigate the ways in which vessel exchange and provenance at Safford represents both change and continuity in mortuary practice during the Woodland (1000 BC-AD 1000) and Mississippian Periods (AD 1000–1500). The results of these analyses ultimately suggest that Safford Mound maintained its social power during a period of immense sociopolitical realignment and reorganization. We view this pattern as indicative of the embeddedness of mortuary ritual within social life in the Gulf Coastal Plain.

Duke, C. Trevor [84] see Pluckhahn, Thomas

Duke, Daron (Far Western Anthropological Research Group) and D. Craig Young (Far Western Anthropological Research Group)**[92]** *The Dated Paleoindian Archaeology of the Old River Bed Delta*

The Old River Bed delta is a premier open-air Paleoindian locality in the eastern Great Basin. Its chief distinction is scale—some 2,000 square kilometers-plus of nearly continuous and single-component archaeological material on what would have been the largest basin wetland in the region. But the record is largely surficial. In this poster, we detail a series of sites that have yielded temporal data from buried cultural contexts. The sites help clarify the broader associations of artifact types and shifting hydrology that have thus far defined the limits for examining change through time on the delta. These refinements have implications for our understanding of Paleoindian land use and technology throughout the region, and what life was like in Great Basin wetlands.

Duke, Guy (The University of Texas Rio Grande Valley), Sarah Rowe (The University of Texas Rio Grande Valley) and Brandi Reger (The University of Texas Rio Grande Valley)**[101]** *Figuring Things Out: 3D Models of Valdivia Figurines for Research and Outreach*

During excavations at the Valdivia site of Buen Suceso, Ecuador, in 2017 we recovered a number of figurines. Using in-field photogrammetry and post-field processing, we have created digital 3D models of these figurines. For us, the purpose of photogrammetric models is: 1) to facilitate comparisons across assemblages by a variety of scholars, and 2) for use in public education and outreach. While the creation of 3D images via photogrammetry is becoming more common in archaeological practice, the results of applying these methods are still only rarely publicly available. In fact, even at academic conferences, they are often employed within standard PowerPoint presentations with little opportunity for audience interaction. For this

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

reason, it is crucial to utilize various platforms in order to make these models more accessible to the public at large, including other academics. This allows for remote comparison of other figurine databases by archaeologists without needing to rely on two-dimensional photographs or drawings, as well as a fantastic educational opportunity for the public to see entire figurines and virtually turn them over in their hands in order to gain a greater appreciation for their craftsmanship and artistry as well as a deeper understanding of their cultural meaning and context.

Duke, Hilary (IDPAS, Stony Brook University, New York) and Sonia Harmand (Department of Anthropology, Turkana Basin Institute)

[329] *Hilary Duke and Sonia Harmand—A New Approach to the Evolution of Early Pleistocene Hominin Cognition and Technological Change: Examining the Technological Context of LCT Emergence 1.8–1.76 Ma at Kokiselei, West Turkana, Kenya*

The eastern African Early Pleistocene witnessed critical shifts in climate, environment, hominin anatomy and behavior. The lithic record shows change within this broader context. After 1.8 Ma, Large Cutting Tools (LCTs), such as bifaces, entered the hominin lithic repertoire. These artifacts are widely viewed as the first evidence of lithic shaping. Many archaeologists theorize both cognitive and practical differences between “flaking” and “shaping” among knapping strategies. Most of these cognitive models are based on our current understanding of living human cognition, not that of Early Pleistocene hominins. Little empirical evidence supports these concepts’ usefulness for Early Pleistocene archaeology and the study of hominin cognitive evolution. Further, we often lack holistic information about non-LCT components of Early Acheulean lithic assemblages. Early LCTs, and associated non-LCT lithics, occur in the Kokiselei Site Complex in West Turkana, Kenya (1.8–1.76 Ma). This project fills a gap in the empirical research necessary for testing hypotheses about “shaping” and LCT emergence through holistic technological analyses of both LCT and non-LCT lithics at Kokiselei and an experimental program that investigates the knapping strategies employed by hominins at Kokiselei. Here, non-LCT lithic components from Kokiselei are compared to data collected from an experimental lithic assemblage.

Dumitru, Ioana, Joseph Lehner (Department of Anthropology, University of Central) and Michael Harrower (Department of Near Eastern Studies, Johns Hopkins)

[177] *Modelling the Connectivity of Socioeconomic Networks of Copper Production in Ancient Northern Oman*

With over 5000 years of production history, Oman was a major ancient source of copper, participating in a trade network that supplied a large part of the ancient world, the extent of which has yet to be fully mapped. As part of the Archaeological Water Histories of Oman (ArWHO) Project, we have been working since 2012 in the Ad-Dhahirah Governorate of Oman to clarify the structure of ancient copper production networks. Methodologically, our investigations employ satellite imagery analysis to map copper resources, ground-truthing of resulting prospectivity maps, systematic and targeted archaeological survey, and x-ray fluorescence of slags and ores. While we are broadly concerned with understanding raw material exploitation, production, and circulation, this paper focuses on modelling Iron Age and Islamic Period networks of production. Sites which demonstrate shared production technologies are used as proxies for social network connectivity. We combine pXRF-derived geochemical analyses of copper slag with formal social network analytical methods (SNA). We use pXRF data to determine technological strategies employed by metal producing communities. We then compare geochemical data between sites to elucidate dynamics of inter-site relations. Combining site-centered data with regional survey data enables multi-scalar analysis that provides a novel view of ancient metal producing societies.

Duncan, Lindsay [224] see Graham, Elizabeth

Duncan, Neil (University of Central Florida) and John Walker (University of Central Florida)

[333] *Donald Lathrap, the Tropical Forest, and Hemispheric Archaeology*

Donald Lathrap was a visionary anthropologist and archaeologist. His contributions always reflected the “big picture”: an understanding that all pre-Columbian culture history was intertwined, and that these connections went back through time to origins in the lowland tropics, or the Tropical Forest. He practiced an archaeology that gave equal weight to iconography and religious thought, and rim sherds and energetics. The most significant issues for Lathrap’s version of American Archaeology, is not an argument over the significance of the Amazon Basin in comparison to the Andes, or as a center for cultural innovation. The legacy of Lathrap is Hemispheric Archaeology, that there are deep cultural-historical connections across the Americas, particularly between the Andes and the Amazon that have explanatory value. The big picture is relevant both for maize farmers in the Mississippi Valley, tuber gardeners in the Pacific Northwest, and raised field builders in the Southwest Amazon. Such hemispheric explanations could be just-so-stories, but correcting for this danger is worth the effort, because as the evidence for earlier developments continues to accumulate, the big picture is getting bigger.

Dungan, Katherine (Center for Archaeology and Society, Arizona State University)

[287] *Secret Identities and X-Ray Vision: Applying CT-Scanning to Roosevelt Red Ware Formation Techniques in the Tonto Basin*

The techniques used to form ceramic vessels—in this case, coiling and scraping as opposed to the use of a paddle and anvil—have long been treated as key elements differentiating among archaeological “cultures” in the US Southwest. At the same time, finished vessels often retain little or no obvious visual evidence of the technique used in their formation, and this low visibility has implications for both ancient practice and modern archaeological analysis. We utilize computed tomography (CT scanning) to examine the formation techniques used in producing Roosevelt Red Ware in the Tonto Basin, an area with a deep history as a geographic and cultural frontier between archaeological traditions. While this pottery is ubiquitous in the 14th- to 15th-century Tonto Basin, contemporaneous sites otherwise show substantial differences in material culture and were likely home to diverse populations. Along with a broader examination of variation in Roosevelt Red Ware vessel forms and use among sites, exploring the techniques used to make these vessels in relationship to deep histories of ceramic production can shed new light on the place of this pottery in social diversity in the Tonto Basin and the greater Southwest.

[287] *Chair*

Dunham, Sean (Chippewa National Forest)

[133] *Feeling the Juju: Archaeological Survey as Traditional Knowledge*

The practice of archaeological site reconnaissance falls within the western scientific tradition and relies on consistent methodology, precise measurement, and sampling strategies. However, there is also an experiential element to archaeological survey in which practitioners consciously and unconsciously observe patterns in the field that lead them to hunches or gut feelings that drift beyond quantifiable, empirical observation. While such hunches are occasionally crafted into hypotheses, they are more commonly shared and discussed among practitioners without finding their way into the official project record. The experiential knowledge obtained through archaeological survey is the result of accumulated observations of archaeological and geographic phenomena as well as interactions with the environment. From this perspective there is a common theme with forms of traditional knowledge especially those related to experiential knowledge acquisition and reading landscapes. This paper explores the premise of archaeological survey as a form of traditional knowledge.

Dunne, Jennifer (Santa Fe Institute)

[83] *Discussant*

Dunne, Julie [87] see Salisbury, Roderick B.

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

Dunning, Nicholas [76] see Lentz, David L.

Dunning Thierstein, Cynthia (Dr.), Sabah Jasim (Dr), Eisa Yousif and Ellinor Dunning

[145] *Mleiha Archaeological Park: Management of a Future UNESCO World Heritage Site within Nature and Culture*

Mleiha in the center of the Emirate of Sharjah (UAE) presents a long archaeological history in which the natural environment plays an important role. The management of this site is complex and serves as a good practice example for the Salalah Doctrine. Our presentation will develop the challenges of management of archaeological sites in their special natural context involving the management of water resources, game and agriculture in an environment situated between the desert and the high mountain regions of the Hajar range. The particular societal structures of Sharjah and the importance of foreign researchers in the development of knowledge may also be subject to discussion. Another challenge is tourism, since this desertic region draws more and more visitors that could disturb the cultural and natural balance of this fragile zone.

Dupont-Hébert, Céline [16] see Frasier, Brenna

Dupont-Hébert, Céline [167] see Woollett, James

Dupras, Tosha [87] see Wheeler, Sandra

Dupre, Jacob [39] see Mann, Rob

Dupuy, Paula (Nazarbayev University)

[336] *The Role of Pastoralists and 'Operational Complexity' in Shaping the Materiality of Trans-Eurasian Exchange*

For decades, descriptions of prehistoric Eurasian pastoral societies would present ceramic typologies as material evidence for macro scale economic, social, and ideological cohesion—and trans-Eurasian interaction. However, recent investigations that focus more on human-environment interactions and domestic economies reveal a more dynamic and varied past in micro-regions of Eurasia. Pastoral strategies dating to the 3rd-2nd millennium BCE were regionally diverse, and societies were engaged in contacts that extended beyond the steppe world confines. These new discoveries bring material assemblages back into focus with the fresh purpose of scientifically examining the spectrum of technologies and social dynamics that generated the materiality of Eurasian pastoralism. Through a focus on mountain campsites in Kazakhstan, this paper proposes that 'operational complexity', a new theoretical term to describe the varied technological behaviors and learning contexts behind the production of household and ritual items, was a central factor in shaping the materiality of Eurasian pastoralism and trans-Eurasian exchange.

Duranleau, Deena [294] see Doucette, Dianna

Dussol, Lydie (University Paris 1 Panthéon-Sorbonne), Louise Purdue (University Nice Sophia Antipolis), Eva Lemonnier (University Paris 1 Panthéon-Sorbonne), Dominique Michelet (University Paris 1 Panthéon-Sorbonne) and Philippe Nondédéo (University Paris 1 Panthéon-Sorbonne)

[254] *Domesticated Forests? Interpreting Agroforestry Practices from Diachronic Trends in Firewood Collection at the Classic Maya City of Naachtun*

What can be drawn from anthracological data to infer long-term socio-environmental dynamics among ancient Mayas is a question that has received little attention. At Naachtun (Northern Peten, Guatemala), we studied charcoal remains from archaeological contexts in relation with pedological data to reconstruct forest resources and land management through time. Since the beginning of Naachtun's occupation at the end of the Preclassic period (\approx AD 150), domestic firewood economy seems to have been closely linked to the local agrarian system. Wood was collected in semi-opened woodlands, suggesting a reliance on both fallow lands and preserved forests probably close to human settlements. In that context, the observation of an important shift in firewood collection strategies during the second half of the Late Classic period (AD 750–830), from opportunistic gathering of a wide range of forest species to a heavier reliance on fruit tree species, allows us to draw hypotheses on the intensification of arboriculture practices and the progressive transformation of woodlands around the site. As this shift occurred rapidly while the city experienced its demographic peak, it could express an adaptation strategy throughout Naachtun society, utilizing forest garden plots for its firewood supply as a result of higher pressure on local resources.

Dussubieux, Laure (Field Museum of Natural History), Thomas Fenn (California State Polytechnic University, Pomona), Shinu Abraham (St Lawrence University) and Alok Kanungo (IIT Gandhinagar)

[137] *Pushing Boundaries in the Scientific Investigation of Glass: A New Project to Source Ancient Indian Glass*

Scientific investigation of archaeological glass has advanced, beginning in the early 2000's, with studies relying more heavily on determination of trace element concentrations to differentiate production recipes depending on distinct ingredient sources and the use of larger corpuses of artifacts to more easily and reliably reveal production patterns. At the same time, isotope analyses (e.g., Pb, Sr and Nd) attempting to source raw materials used to manufacture glass in antiquity grew in importance, focusing mostly on glass produced around the Mediterranean basin.

In a new project, recently funded by the National Science Foundation (NSF), we will combine trace element and isotope analyses to study the ancient glass industry of South Asia which, despite its importance and impact within and beyond the Indian Ocean region, is still poorly understood. To this end, we will collect raw materials, test their suitability to obtain glass and compare the trace element and isotope signatures with those of different South Indian glass types. By connecting Indian glass types to potential production regions in South Asia, the results of this project will illuminate the spatial and temporal interconnections between cultures and regions of the Indian Ocean and beyond.

Dussubieux, Laure [141] see Klarich, Elizabeth

Duwe, Samuel (University of Oklahoma)

[131] *Not Abandoning the Middle Place: Rethinking the Historic Tewa Pueblo World*

In the 1500s the settlement patterns of the Tewa Pueblo world fundamentally shifted. The Rio Chama valley was a population center with 12 villages housing thousands of people at the beginning of the fifteenth century. By century's end it was nearly devoid of full-time habitation. The timing and causes of the protohistoric 'abandonment' of the Chama has sparked interest from archaeologists and historians. Was this movement out of the Chama the continuation of a centuries-long process of Pueblo coalescence, or rather a response to early Spanish contact and colonization? The latter idea is bolstered by the fact that the Chama is the ancestral homeland of Ohkay Owingeh where Governor Oñate established the first capitol of New Mexico in 1598.

I reframe this debate by assuming that the Chama was never abandoned. Based on archaeological, historic, and ethnographic documentation the Chama remains the heart of Ohkay Owingeh's cosmography, and was visited and occupied throughout the Historic period. Opposed to favoring a

INDIVIDUAL ABSTRACTS OF THE SAA 83RD ANNUAL MEETING

prehistoric or historic cause for sixteenth-century landscape change, I take a 'long-view' that incorporates these disparate sources of knowledge and blurs the lines between history/prehistory to understand how the Tewa cosmos evolved in the face of dramatic change.

Dvoracek, Douglas [188] see Van Hagen, Logan

Dwyer, Rachel (SUNY-University At Buffalo)

[86] *Passing the Paleo Drug Test: Testing for Medicinal Plant Use in the Paleoethnobotanical Record*

For decades, paleoethnobotanical research almost exclusively concentrated on reconstructing past subsistence economies. At 2011's SAA conference, I presented a paper entitled, *Toward A Paleoethnomedicine*. I suggested that paleoethnobotanical research should take inspiration from ethnomedicine (a subfield of ethnobotany) and concentrate on analyzing past people's healing practices and performances. This paper presents a method to operationalize this concept, a technique for analyzing paleoethnobotanical data to detect past medicinal plant usage. The general observations from ethnobotany/ethnomedicine about modern medicinal plant use gives researchers an idea of expected observations in the paleoethnobotanical/ paleoethnomedicine record. A common practice in macrofloral analyses is to calculate the ratio of a plant group (food, nut shell, charcoal etc.) in order to provide evidence of the certain activities at a site. This paper presents a new ratio extrapolated for plant observations from archaeological contexts and includes the results of a pilot study based on the paleoethnobotanical data from Birka and other Late Iron Age/Medieval sites in east central Sweden.

Dye, David [291] see Burnette, Dorian

Dyer, Monica

[154] *XRF Analysis of North Carolina Piedmont Ceramics to Locate Source of Production and Trade at Rural Plantation Sites*

Little documentation exists of the trade exchange occurring in the central Piedmont during the 18th and 19th century at wealthy plantation sites or at surrounding sites of lower economic status. In this historical archaeology research, I focus on understanding the socio-economic patterns of settlers in the more rural areas of the region at two plantation sites and wasters from a local kiln site from same time period. Using pXRF data of lead glazed earthenware I attempt to map ceramic regional origin using existing pXRF data of identical ceramic types. Non-local wares for comparison were chosen based on documented trading sites during the 18th and 19th centuries, including Britain, Philadelphia, the Chesapeake, South Carolina and the Northern Virginia Piedmont. I propose that the settlers' desire for independence and sustainability to form a nation independent from Britain would have been the primary factor in deciding where to obtain utilitarian vessels, rather than choosing non-local sources as an indicator of social status, i.e., local wares should be much more common than those from northern states or imports.

Dyke, Arthur [16] see Forsythe, Kyle

Dylla, Emily (Baer Engineering and Environmental Consulting, Inc.)

[220] *Hunters, Soldiers, and Holy Men: Exploring the Gendered Politics of Mission Landscapes in Alta California*

Space was paramount to Spanish missionary work in 18th and 19th century Alta California. This mission system was designed to irreparably reshape the Indigenous conceptual universe into that of a Christo-European worldview, to transform Native peoples into gente de razón. In addition, missions were the setting against which ecclesiastical and military colonists were in constant contact, and missionaries also used space as a moralizing tool, in an attempt to reform the lax morals of soldiers assigned to guard the missions. In this paper, I examine how the mission system reconfigured California's natural and cultural landscape, and the gendered politics underpinning these changes. I focus in particular on identifying disparate ideals of masculine gender among mission inhabitants, and suggest masculinity was a significant locus of both conflict and concord that helped to shape not only the missions themselves but Alta California as a whole.

Dzvonick, Laura [155] see Ripley, Kevin

Ea, Darith [175] see Heng, Piphall

Earle, Julia [100] see Payntar, Nicole

Earle, Timothy (Northwestern University), Magdolna Vicze (Százalombatta Museum), Kristian Kristiansen (Gothenburg University) and Marie Louise Sørensen (Cambridge University)

[245] *Százalombatta Archaeological Expedition (SAX). Hungary: A 20-Year History of Theories, Methods, and Results of an International Project in Central Hungary*

This paper documents the theories, methods, and results of SAX, an international, collaborative Bronze Age project in the Carpathian basin. Three topics are emphasized: First is the value added by international collaboration, which creates an intellectual openness to research objectives and theoretical discussion. Second are technological transfer and creative problem-solving approach to field and laboratory research. And third is an inherent comparative agenda, for which results are seen always within broader regional, transregional, and world contexts. The project has produced 20 years of sustained research with substantial results on Bronze Age society along the Danube, a major transport route for metal.

Earley, Caitlin (University of Nevada, Reno)

[128] *Becoming Divine: Stone Sculpture and Deity Impersonation in Classic Veracruz Visual Culture*

Recent study of an hacha from Classic-period Veracruz in the collection of the Metropolitan Museum of Art reveals that hachas and palmas may have been used as costume elements in ritual performances related to the ballgame. As costume elements, these sculptures would have allowed actors to assume the identity of captives, rulers, or deities. This accords well with iconographic evidence of ballgame-related ritual performances in Veracruz, and suggests comparisons with artworks from other Mesoamerican cultures, in which rulers impersonate deities in performances associated with the ballgame. In this paper, I suggest that deity impersonation and performance are productive lenses through which to interpret ballgame-related sculpture, including yokes, hachas, and palmas. I examine a corpus of stone sculpture from Classic-period Veracruz, considering how such sculpture may have been used to invoke the presence of specific deities, and what it can tell us about the role of those deities in Veracruz culture. Incorporating comparative evidence from Central Mexico and the Maya area, I demonstrate that deity impersonation in Classic Veracruz worked to affirm political power, solicit the sanction of the divine, and express fundamental ideas about gods, the cosmos, and the continuation of time.

Earley-Spadoni, Tiffany (University of Central Florida)

[75] *Fear Written Large: Systematic Warfare and the Ancient Empire of Urartu*

This paper presents a Landscapes of Warfare case study, combining textual documentation, archeological data and GIS analysis to elucidate the effects of pervasive warfare on the development of Urartu, a highland empire that existed in the ancient Near East in the 1st Millennium BCE. Specifically, I argue that forts, fortresses and fortified settlements were strategically placed for both defensive communication as well as the systematic