



**ASHLEY ALDAN**; *Edinboro University of Pennsylvania*

[A Statistical Analysis of Sex Estimation using the Sacroiliac Joint.](#)

Keywords: sex estimation; forensic anthropology; sacroiliac joint

Abstract:

Using the pubic symphysis as described by Phenice is the most commonly used way to estimate sex from skeletal remains. However, the pubic symphysis does not always preserve in the archaeological context, therefore one must find a different way to accurately estimate sex if this instance occurs. This generates a problem in forensic anthropology when accuracy and precision are questioned. Iscan and Derrick report accuracy rates of 96-100% when using the sacroiliac joint. Three landmarks on the posterior aspect of the pelvis are used: the iliac tuberosity, the postauricular sulcus, and the postauricular space. I observed their method using three different populations. Two of my samples populations were from the Hamann-Todd Human Osteological Collection housed at the Cleveland Natural History Museum. The final sample is prehistoric and is housed at the Center for American Archeology. I was unable to replicate Iscan and Derrick's reported accuracy of 96-100%.

**ANNA ALIOTO**; *Western Michigan University*

[Directional and Bilateral Asymmetry of the Upper Limb among Historically Documented Populations \(1913-1935\).](#)

Keywords: bilateral asymmetry; 20<sup>th</sup> century America; directional asymmetry

Abstract:

Studies indicate that right side-biased directional and bilateral asymmetries in the upper limb are found in contemporary and historic populations. The Hamann-Todd Osteological Collection (n=60) was utilized to understand how the American lived experience impacted upper limb symmetry of these individuals. The objectives were to investigate directional and bilateral asymmetry on the upper limb using maximum lengths and enthesal changes to determine if a right side-biased asymmetry exists as well as determine whether the variables; sex, biological affinity and geographic origin impact this. Directional and bilateral asymmetry was calculated for each individual, scored using

standard methodology and interpreted as evidence of stress related life experiences and biological variability. Results indicate that a right-biased directional asymmetry exists in the population however, there were few statistical results that demonstrated significant differences. Lastly, individual profiles were created for selected cases, demonstrating that while populations remained consistent, certain individuals experienced drastically different life experiences.

**CHRISTOPHER K. BARRETT**; *Washtenaw Community College* AND **THOMAS MAST**; *Eastern Michigan University*

Comparing Short and Long Term Stress Among the Inupiat of Point Hope Alaska and the Chiribaya of Southern Peru.

Keywords: developmental stress; dental fluctuating asymmetry; enamel defects

Abstract:

Enamel defects and estimates of dental fluctuating asymmetry (DFA) provide short and long term measures of stress experienced during growth and development, respectively. Here we compare estimates of stress for the Chiribaya Baja of the Osmore River Valley (900-1300 AD) to the prehistoric Inupiat of Point Hope, Alaska (1200-1700 AD). Chiribaya estimates of DFA exceed those of the Inupiat for early developing teeth (I1 and I2) while Inupiat estimates of DFA for later developing teeth (P3, P4) exceed those of the Chiribaya. Total counts of perikymata within enamel defects and counts on the occlusal walls of each defect were higher among the Inupiat, suggesting that the duration of stress and period of recovery were greater than among the Chiribaya. These results suggest that the Chiribaya were exposed to less stress during early development, had more effective means for mitigating stress, or a combination of both factors.

**SARAH BRUCKLER AND MEGAN MOORE**; *Eastern Michigan University*

A Possible Case of Poliomyelitis: A Bioarchaeological Differential Diagnosis.

Keywords: polio; bioarchaeology; medieval remains

Abstract:

The objective of this study was to determine the likeliest cause of pathology observed in the lower limbs of a female skeleton excavated from an early medieval cemetery in Saleux, France. Bilateral deformation of the acetabulae, bilateral coxa vara, deformation of both femoral heads, extreme gracility of the lower limbs bones, and significant widening of the pelvis were observed. Upper limb bones were significantly more robust than lower limb bones, suggesting the individual was non-ambulatory during life. Congenital growth disorders and neurological afflictions such as poliomyelitis, cerebral palsy, and congenital hip dysplasia were researched and compared to develop a differential diagnosis. While a specific diagnosis is not possible without further access to and testing of the remains, this study suggests poliomyelitis was a more likely cause of deformation and paralysis than other congenital or infectious conditions.

**JOHN CLAGGETT**; *University of Missouri- St. Louis*

Sacral Abnormalities in 19<sup>th</sup> Century St. Louisans.

Keywords: spina bifida; cleft neural arch; bioarchaeology

Abstract:

The broad term “spina bifida” is finally being re-examined in bioarchaeology research. Spina bifida should be a narrower diagnosis under the umbrella term ‘cleft neural arch,’ which describes the unfused openings of the posterior arches of vertebrae. These terms are not interchangeable. Spina bifida refers specifically to unfused openings in the posterior vertebral arches as a result from neural tube defects. However, do the published methods for spina bifida (Eubanks and Cheruvu, 2009) and cleft neural arch (Barnes, 1994) produce different diagnosis? The sacra of 75 individual human skeletal remains were assessed for the presence of spina bifida, and the results showed that all of the sacra can be diagnosed with having both spina bifida and cleft neural arch. This suggests a more comprehensive methodology for all subsets of cleft neural arch needs to be developed and explains why the term “spina bifida” is so widespread in the bioarchaeological parlance.

**TABITHA DORSHORST AND JORDAN KARSTEN; *University of Wisconsin Oshkosh***

**Frequency Distribution of Individual Traits Within and Between Populations of Different Ancestry.**

Keywords: ancestry; non-metric traits; forensics

Abstract:

One of the most important demographic variables a forensic anthropologist can estimate for law enforcement is ancestry, which is typically interpreted by the medicolegal community as race. Forensic anthropologists typically use an experience-based approach to examine traits of the skull in order to determine the ancestry of a deceased individual. However, the frequency at which individual traits occur within ancestral populations is unknown. Using the Hamann-Todd Human Osteological Collection at the Cleveland Museum of Natural History in Cleveland, Ohio the frequency distribution of specific individual traits between and within populations of different ancestry can be determined by using the standard methods outlined by Steven Byeres (2011). Several of the non-metric traits examined, such as prognathism and nasal shape, show significant differences between samples of whites and blacks. For example, prognathism is expressed in 78% of blacks, while it is only expressed in 11% of whites.

**DANIEL EHRLICH**

**New Insights into the Shenks Ferry People from Dental Morphology.**

Keywords: dental morphology; biodistance; mid-Atlantic

Abstract:

From approximately 1300-1600 c.e. the Lower Susquehanna Valley of Pennsylvania was occupied by the people of the Shenks Ferry culture. Little is known about these people, yet ceramics, settlement patterns, and mortuary practices all serve to distinguish Shenks Ferry sites in the archaeological record. A biodistance study using dental non-metric traits provides an additional, previously unexplored, line of evidence to understand the Shenks Ferry people. Adult dentitions of Shenks Ferry remains (n=111) were analyzed and results show significant differences in dental morphology between some Shenks Ferry sites. This

calls into question the notion of a single Shenks Ferry people, as defined by the archaeological record, and suggests greater biological diversity than previously thought. Alternatively, it may indicate that some remains were erroneously attributed to the Shenks Ferry culture. In both cases, this research demonstrates the utility of bioarchaeology in providing new data to reevaluate traditional archaeological interpretations.

**EMILY GILHOOLY AND GWYN MADDEN;** *Grand Valley State University*

Metadata Analysis on Sex Determination Methods.

Keywords: metadata; sexing methods; Buikstra and Ubelaker

Abstract:

The following metadata study was conducted at the end of 2015 to analyze sexing methods being used in publications in the journals of *Current Anthropology*, *American Anthropologist*, and *International Journal of Osteoarchaeology*. From these journals, articles were selected that pertained to human skeletons to assess what form of sex estimation was being employed. The intent was to analyze the journals to see if the Buikstra and Ubelaker (1994) standardized sexing methods were being used as a standard. The articles observed were from the years 2005 to 2015. The *International Journal of Osteoarchaeology* showed a statistically significant increase of the usage of Buikstra and Ubelaker's (1994) sexing method from 2005 to 2015, ranging from 25% to 45% in usage annually. In *Current Anthropology* and *American Anthropologist* the number of articles that involved human sexing was very minute, but of the ones that did there was a small increase in the use of Buikstra and Ubelaker (1994). Another aspect analyzed was that of the other sexing methods used by researchers in the *International Journal of Osteoarchaeology*. Overall there were thirteen other methods used. This project sheds light on the use of standardized sexing methods and the problems still inherent when different methods of sexing are employed.

**ARYSA GONZALEZ, JESSICA DROKE AND CHRISTOPHER W. SCHMIDT;** *University of Indianapolis*  
Nuances in the Dental Microwear Texture Analysis from the Nancy Kerlin Barnett Family Cemetery.

Keywords: teeth; diet; subsistence

Abstract:

Dental microwear texture analysis (DMTA) reconstructs diet using a white-light confocal profiler to examine microscopic wear features on molar facets. In this study, DMTA is used to evaluate and contextualize the diets of the Nancy Kerlin Barnett family cemetery, a pioneer site that dates to approximately 1830-1850. Three adults and two subadults had teeth suitable for DMTA. Molar casts were analyzed following standard procedures with emphasis on three variables: complexity (Asfc), anisotropy (epLsar), and textural fill volume (Tfv). Results were compared to other historic and pre-contact agriculturalist sites in North America. Mean values for each of the three variables are consistent with agriculturists for all but two individuals. These two, an adult male and subadult female(?), have complexity values comparable with a harder food diet. The results

indicate that diet was not homogenous among this population, possibly due to factors like seasonality and individual preference.

**TIFFANY HANSEN; *Illinois State University***

Mortuary Pattern of Discoidal Stones in the Chickamauga Basin of East Tennessee.

Keywords: Mississippian Period; mortuary pattern; discoidal stones

Abstract:

Discoidal stones (chunkey stones) contain various styles with concave or convex sides and made from chert, quartz, sandstone, and other lithic materials. Although discoidals appear during the Late Woodland and Mississippian Periods, archaeologists presume discoidal stones have a link to the historic game “chunkey.” In chunkey, a person would roll a discoidal stone across a level playing field. Two opponents would throw spear-like sticks at the stone and whoever’s stick was closest would win. Sex estimations from eight sites in the Chickamauga Basin of east Tennessee were reassessed using measurements of the humeral and femoral head diameter, capitates, second metacarpals, and calcanei. These sites consist of socio-political distinct phases: Dallas (A.D. 1300-1600) and Mouse Creek (A.D. 1400-1600). Through grave good analysis, 96 discoidal stones were interred in 59 burials of female, male, and subadult individuals. Furthermore, the analysis suggests additional cultural differences between the Dallas and Mouse Creek sites.

**THOMAS JASKOWIEC AND KYLE D. WALLER; *University of Missouri***

Bigger and Better? Stature and Body Weight in the Mogollon Southwest.

Keywords: Paquimé; Mogollon; bioarchaeology

Abstract:

Paquimé was the economic and political capital of the Casas Grandes region of Chihuahua, Mexico from 1200-1450 A.D. The site was first excavated in the 1960s, but recent reanalysis of skeletal materials provides deeper insight into the economic and social system of the time. New techniques allow better estimation of biological profiles for remains, making it possible to compare the Paquimé population with other contemporaneous Southwestern groups. We explore the relationship between stature and body weight within the context of nutritional availability, and examine differences between contemporaneous agricultural groups.

**TRISHA JENZ, KAYLA KUBEHL AND JORDAN KARSTEN; *University of Wisconsin Oshkosh***

Tripolye Trepanation?: A Study on the Possibility of Trepanation on a Late Neolithic Individual from Ukraine.

Keywords: trepanation; blunt force trauma; Ukraine

Abstract:

Trepanation is defined as the scraping, cutting, or drilling of an opening (or openings) into the cranium for various motivations. This type of cranial surgery can be found worldwide and as far back as 5100BC. Misidentification of trepanation can occur, for example, in individuals that have cranial trauma or have been poorly preserved. In this study we examined a single female Tripolye individual from the mortuary site of Verteba

Cave outside of Bilche Zolote, Ukraine. This individual is dated to 3800-2600BC based on <sup>14</sup>C dating techniques and shows a piece of missing posterior-lateral parietal, oval in shape. The posterior cranium has evidence of a depressed fracture indicative of blunt force trauma to the squamous portion of the occipital bone and possible decapitation at the mastoid process. Following the publication of commentary suggesting this individual underwent trepanation, we conducted analyses to examine this possibility, and found this to be unlikely.

**SKYLAR JOSEPH, JAN R. DADOUR, AND GARY W. REINECKE;** *Boston University School of Medicine*  
**Suitcase Concealment: An Interdisciplinary Analysis of the Taphonomic Processes and their Effect on PMI Estimation.**

Keywords: concealment; decomposition; postmortem interval (PMI)

Abstract:

In cases of homicide, suitcases provide concealment and sometimes ease transport of a body with minimal likelihood for detection. In order to create a postmortem interval estimate (PMI), it is first necessary to understand the unique taphonomic processes that occur when a body is concealed within a suitcase. In this study, the experimental samples consisted of pig (*Sus scrofa*) heads, which were concealed within either hard shell plastic suitcases, or fabric suitcases; the control pig heads were left on the surface of the ground to decompose naturally. Starting on day three of each study period, and continuing every other day until day 15, three suitcases of each type were removed from the field for analysis. All control samples mummified within days, while all of the experimental samples experienced wet decomposition often resulting in skeletonization by day 15. The study was repeated twice, once in May and once in August 2016.

**ADAM KOLATOROWICZ AND PRATISHTHA CHHABRA;** *Lincoln Memorial University-DeBusk College of Osteopathic Medicine* AND **ADAM AWAD;** *Ross University School of Medicine*  
**Using the Posterior Deep Temporal Nerve Groove for Sex and Ancestry Estimation.**

Keywords: forensic anthropology; ancestry and sex estimation; non-metric traits

Abstract:

The posterior deep temporal nerve (PDTN) crosses the roof of the infratemporal fossa to innervate the temporalis muscle and may lie within a bony groove. This groove is sexually dimorphic and varies according to ancestry in Polynesian and Southeast Asian populations. The current study examines the utility of the PDTN groove as a macromorphoscopic trait for ancestry and sex estimation in an American population. PDTN groove depth was examined in 227 modern adult crania from the Bass Collection. Asymmetry in groove depth was found, but no significant differences exist in depth according to sex or ancestry. However, males and European American individuals display a greater average depth compared to females and African American individuals. No association was found between groove depth and basicranial angle, refuting a spatial packing explanation for observed differences. The PDTN groove may aid in constructing the biological profile if other parts of the cranium are absent.

**MEGAN KUNST**; *Edinboro University of Pennsylvania*

A Comparison of Forensic Facial Reconstruction Methods.

Keywords: facial reconstruction; forensics; three-dimensional printing

Abstract:

Forensic Facial Reconstruction involves creating an approximation of a person's face based on their skull metrics, for the purpose of identification. I created two reconstructions by adding clay to two 3D-printed copies of a human skull. A CT scan was provided by the Smithsonian Institution with cadaver photographs to assess the final reconstructions. After processing the scan with imaging software to prepare it for printing, I completed each reconstruction using different traditional methods. My faculty advisor and I developed a list of aspects of each method that were more reliable and considered the advantages/disadvantages of using a 3D-printed skull instead of the actual skull (traditionally used). This allowed us to cultivate recommendations, as the field of facial reconstruction lacks methodological standardization. The recommendations can aid in the development of a best practices protocol to improve the facial reconstructions done by forensic artists, improving the likelihood of identification of unknown individuals.

**JESSICA LACERTE**; *Eastern Michigan University*, **CHRISTOPHER BARRETT**; *Washtenaw Community College*, AND **MEGAN MOORE**; *Eastern Michigan University*

Scanning Electron Microscopy Detection of Linear Enamel Hypoplastic Defects among a Late Archaic Sample from Ohio.

Keywords: dental anthropology; scanning electron microscopy; Late Archaic Ohio

Abstract:

Linear enamel hypoplasias (LEH) form due to the interruption of amelogenesis during crown formation. LEH are frequently examined to determine the timing and periodicity of childhood stress events. Scanning Electron Microscopy (SEM) was used to image dental casts from two terminal Late Archaic (1000-500 BC) sites in Ohio (Boose and Duff). Our goal is to determine whether SEM technology can aid in detecting macroscopically unobservable, short-term (>12 days) LEH, and refine the estimated frequency of amelogenic interruptions in the Late Archaic sample. LEH frequency by sex was calculated from three Late Archaic sites (Boose: N = 8; Kirian-Treglia: N = 8; Duff: N = 27). Females represented 59.2% of the total number of LEH in the sample, males= 27.0% and individuals of indeterminate sex= 13.4%. Initial SEM analysis of several dental casts suggests that the number of observable LEH using this method is greater than previously recorded for this sample.

**SARAH A. LACY**; *University of Missouri-Saint Louis*

(Necro)politics in the Bioarchaeology Lab.

Keywords: necropolitics; pedagogy; skeletal curation

Abstract:

The field of physical anthropology tries to distance itself from its origins in race science, including its rebranding as 'biological anthropology'. Both the historical legacy and current effects of systemic discrimination continue to impact our research and curation.

Our bioarchaeological labs are populated with skeletal remains of people who experienced intersectional oppression, and unfortunately their identification is often distilled down to just these discriminating identities: race, sex, and age. To do justice to these individuals and our students, we can take the necropolitical conditions that contributed to the formation of our collections into account and, also where necessary, remove them from research. Programs like NAGPRA attempt to address this, but cover only a limited number of identities. Students bring their own histories into the bioarchaeological lab, and the language and methodologies we use on the human remains in our care should reflect a pedagogy that is sensitive to this.

**DUSTIN LLOYD**; *Illinois State University*

Activity Patterns and Division of Labor at Toqua.

Keywords: enthesal changes; division of labor; Toqua

Abstract:

Enthesal changes (EC), formally musculoskeletal stress markers, are the recordation of osteophytic change at an enthesis (any muscular origin or insertion). Study of EC is valuable in decoding past life activities, social dynamics, and health through the identification and quantification of reactive osseous changes at sites of entheses. The current study assesses EC to ascertain the degree or presence of division of labor at the Late Mississippian Dallas Phase (~1300-1550 AD) site of Toqua, aboriginally located in the lower Little Tennessee River Valley of East Tennessee. Toqua was a multiple mound, palisaded settlement of maize-intensive agriculturalists. The subsistence strategy may have required intense and possibly specialized labor of the upper arms and shoulders. This study compares enthesal scores of 96 individuals at the biceps brachii, triceps brachii, supraspinatus, infraspinatus, deltoideus, and pectoralis major on the humerus, scapula, radius, and ulna of male (n=48) and females (n=46) separated into three age groups: Young Adult (14-25), Middle Adult (26-35), and Old Adult (36-45+).

**CAITLIN MONESMITH**; *University of Illinois-Chicago*

Patterns of Decay: Oral Pathology at Ancón, Peru.

Keywords: dental anthropology; pathology; bioarchaeology

Abstract:

This paper details the results of an oral health survey of the Ancón collection, a skeletal assemblage from Peru housed at the Field Museum of Natural History. The survey looked at the prevalence and development of dental calculus and the incidence of carious lesions within this population, focusing on general trends in dental health and accounting for varying levels of dental pathology. Carious lesions were of especial interest, as this project is a pilot study for a greater investigation of the relationship between changing diet and the oral health of the Ancón population during the transition between the Middle Horizon and Late Intermediate period. In addition to scoring the extent of calculus buildup, abscesses, bone remodeling, and other oral pathologies, carious lesions were scored for prevalence and severity to come to a better understanding of the impact of oral pathologies within this population.



**CHRISTOPHER NICOSIA**; *Illinois State University*

Red Ochre: A Closer Look at its Mortuary Uses Across Archaic Sites in West-Central Tennessee.

Keywords: red ochre; west-central Tennessee; infants

Abstract:

Across human prehistory, the meaning and usages of red ochre (i.e. medicinal, art and paint, ritual, etc.) varied among societies. In the west-central Tennessee, the Middle (~6,000–2500 BC) to Late Archaic (~2500–100 BC) periods, the sites of Eva, Ledbetter, Kays Landing, and Cherry, yielded 14 individuals (14/326, 4 percent) who were interred with red ochre. Seven were adults (7/326, 2 percent) and eight were subadults (8/326, 2 percent). The 14 person sample is comprised of infants (n=4), older subadults (n=4), young female adults (n=3), and indeterminate adults (n=3). All individuals were assessed for patterns of burial orientations, cardinal directions, and location on/near the body. Located in the American Midwest many Red Ochre culture sites exhibited numerous cases of individuals buried with red ochre, while the sites in west-central Tennessee exhibited selective red ochre interments, most often in the graves of children and adolescent individuals. Previous research on red ochre infant interments from the Late Archaic, which included the results from the Eva site, interpreted the context as infant sacrifice. The west-central Tennessee sample was carefully examined for cut marks and the sacrifice-diagnostic prone burial position. Except for the presence of ochre, the infant interments are not consistent with infanticide, but may be possibly more associated with social significance and protection.

**PAUL ODER**; *Youngstown State University*

Lead Exposure from the 16<sup>th</sup>-21<sup>st</sup> Centuries: Implications for Wealth and Social Status.

Keywords: lead poisoning; measuring bone lead levels; history of lead contamination

Abstract:

Lead, a naturally occurring compound, was a widely used natural resource; since the Roman Empire, it was a popular additive in paint, dishware, medicine, and spirits. Despite noted physical and behavioral effects, lead continued to be widely used through the 20th Century. This study reviews the history of lead poisoning focused on the 16th through 21st Centuries. Populations examined included: Colonial America, enslaved populations of Barbados, and modern populations. This study is crucial for understanding how culture and money affected the routes and levels of lead exposure and how it reflects in postmortem skeletal analysis. The physiological and physical effects of lead poisonings, as well as ways lead exposure can be quantitatively measured in skeletal remains were examined. The Colonial America, Barbados, and modern populations reveal a notable difference in skeletal lead levels based on wealth and free vs enslaved.

**MARIA PANAKHYO**; *Southern Illinois University*

Evaluation of Degenerative Joint Disease amongst 20th Century Northeastern Thais.

Keywords: Thailand; degenerative joint disease; economic growth

Abstract:

The objective of this research project was to assess the effects of economic growth occurring in Thailand after World War II on skeletal health, particularly, the presence and development of Degenerative Joint Disease (DJD). One hundred and seventy-two individuals (female n=71, male n=101) from the Human Skeleton Research Collection in Khon Kaen University, Khon Kaen, Thailand, were categorically assessed for the presence and degree of severity of DJD in the synovial joints and spinal column. Comparisons between individuals born before and after the war, and between males and females, indicate statistically significant differences between Pre-WWII and Post-WWII DJD in the temporomandibular joint ( $p=0.016$ ), carpals ( $p<0.001$ ), proximal metacarpals ( $p=0.002$ ), distal metacarpals ( $p=0.003$ ), and between males and females in the shoulder joint ( $p=0.013$ ). These findings suggest there may have been changes in joint mechanical loading since the Thai economy grew and diversified in the 1950s.

**ROSE PERASH AND CHRISTA KELLY; *University of Indianapolis***

A Bioarchaeological Approach to Pioneer Juvenile Life Histories: The Nancy Kerlin Barnett Family Cemetery.

Keywords: subadult; osteometrics; development

Abstract:

The Barnett family cemetery contains 7 individuals from the early to mid 19<sup>th</sup> century, a time during the beginning of Indiana's statehood. The 3 subadults within this cemetery provide an opportunity for a bioarchaeological analysis and understanding of juvenile life history. Previous studies have found that dental development is less likely to be disrupted by environmental factors than skeletal development. Therefore, diaphyseal long bone lengths were compared to dental formation and no difference in estimated age was found. Additionally, there was a lack of skeletal pathological lesions or antemortem trauma, leading us to hypothesize that acute phenomena or infectious conditions are more likely responsible for the premature demise of these subadults. Therefore, these findings suggest that preconceptions of early pioneer living conditions as squalid are inaccurate, as no chronic disease conditions or malnourishment appear to have impacted normal growth and development.

**KATE PETERSON; *Western Michigan University***

Museum CT Scanning of Egyptian Mummies in the Midwest: A Case Study and Overview.

Keywords: Egyptian mummy; computed tomography; museum

Abstract:

There is a long history of the involvement of museums in mummy research and collection. A current trend even among provincial museums is to have their mummy(ies) Computed Tomography (CT) scanned for research and exhibition purposes. The Grand Rapids Public Museum (GRPM) of Michigan recently CT scanned their Third Intermediate Period (2,000-1700 BC) Egyptian mummy. Determinations on the health and internal

anatomy of this mummy were made using professional hospital work stations as well as free PC software programs. Both Two dimensional views and three dimensional models of CT slices were created and studied. A pilot study of the use of this technology within Midwest museums was conducted through questionnaires and website research. Together, this case study and Midwest data highlight the benefits of a popular technique to both the museum and bioarchaeology fields.

**CHRISTOPHER W. SCHMIDT, JESSICA GREGORY; JESSICA DROKE; ROSE PERASH; ARYSA GONZALEZ; FATMA ZALZALA; ROBIN QUATAERT; CHRISTOPHER MOORE; LEAH COURTLAND; *University of Indianapolis***

The “Grave in the Road”: Excavation of the Nancy Kerlin Barnett Cemetery.

Keywords: public archaeology; osteology; Indiana

Abstract:

Known as the “Grave in the Road,” the Nancy Kerlin Barnett cemetery is a local attraction in Johnson Co., Indiana. Featured in books and television shows, the grave was located in the middle of a county road. According to lore, the grave, which dates to 1831, was left in place when the county put a road through the cemetery circa 1912 because a descendant used a shotgun to disallow her relocation. The grave remained in a small rise in the road median until 2016 when the county lowered it because of safety issues and recent exposure of human remains. UIndy faculty and students excavated the median and located 2 adults and 4 children in addition to the grave thought to be Barnett. After analysis, all were reburied in the median in a crypt below road grade. Overall, this case serves as a sound example of successful public archaeology efforts.

**SARAH SCHRADER; *University of Notre Dame***

On the Edge of Empire: An Examination of Osteoarthritis in an Egyptian Imperial Frontierspace.

Keywords: Nubia; activity patterns; imperialism

Abstract:

The Egyptian Empire conquered and colonized Lower Nubia during the Middle Kingdom Period (2,050-1,650 BC); using a bioarchaeological approach, I examine local lifeways of Nubians who inhabited the Egyptian imperial frontier, otherwise known as the C-Group (n=77). I compare the presence and severity of osteoarthritis between the C-Group and another rural, non-imperial, Nubian population that lived farther south (4th Cataract sample; n=42). There are multiple significant differences in osteoarthritic lipping, porosity, and eburnation, between the two groups; the C-Group sample consistently had higher rates of these skeletal indicators of osteoarthritis than the 4th Cataract sample. I explore some potential explanations for this disparity in osteoarthritis, including imperial influences on manual labor primarily in the form of extractive quarrying and mining. Forms of resistance to this imperial system are also considered.

**CLAIRE SIGWORTH AND MICHELE BUZON; *Purdue University***  
Promoting Bioarchaeological Research in Sudan.

Keywords: public outreach; Nubia; Sudan

Abstract:

The Tombos archaeological project in modern-day Sudan, with ongoing fieldwork and analysis supported by the National Science Foundation, has made public outreach a priority. This poster presents the activities designed and implemented in 2016. Our target audience included: the modern Tombos community, other archaeologists, as well as other interested persons. The final products included pamphlets, in both English and Arabic, as well as two websites (using Adobe InDesign, Photoshop and Wordpress). The pamphlets were printed and distributed in Sudan, and listed the project goals, active research, and community involvement. The first website is focused on the Tombos site, consisting of blog updates, photos, team information, and publications. The second website is for Dr. Michele Buzon with information about her research and students. The project will continue into the next year, as we will focus on creating educational materials about the Tombos site for the local school and community.

**DOUGLAS K. SMIT**; *University of Illinois- Chicago*, AND **TERREN K. PROCTOR**; *Vanderbilt University*

"The Sickness of Huancavelica": Mercury Poisoning and Indigenous Labor in Colonial Peru.

Keywords: osteology; labor; mercury

Abstract:

Located in the Central Peruvian Andes, Huancavelica was the largest source of mercury in the Western Hemisphere and a critical source of wealth for Spain's colonial empire. Indigenous burials ( $n = 8$ ) outside the main entrance to the mine were analyzed to infer the types of physical activities engaged in by this group. Results indicate that all adolescent and adult individuals ( $n = 5$ ) had high enthesal remodeling scores, presented in two distinct patterned arrays, suggestive of a division of labor. These results indicate a high level of physical activity, even at a young age. Multiple samples from each individual was then analyzed using a Niton PXRF to assess the levels of mercury. By comparing the osteological analysis with the mercury analysis, we can suggest how different types of labor produced distinct contamination profiles in this early historic population.

**ABIGAIL STONE**; *Loyola University Chicago*

Dental Microwear Texture Analysis of a Fort Ancient sample.

Keywords: diet reconstruction; bioarchaeology; aboriginal American

Abstract:

Dental microwear texture analysis was completed to directly document subsistence strategies of a Fort Ancient sample from Taylor Mound and Village Site in southwestern Ohio. Evidence of a maize-based diet was expected because the sample displayed a high prevalence of dental pathological lesions and enamel defects. High-resolution casts were scanned with a white-light confocal profiler and encompassed a work area of  $204 \times 276 \mu\text{m}$ . Resultant data from individuals that preserved microwear ( $n=8$ ) were characterized using Toothfrax and SFrax SSFA software packages and compared to a variety of hunter-gatherer and agricultural samples in the DENTALWEAR project database.

Average anisotropy and complexity values were significantly higher than documented agricultural groups. In fact, the microwear data were most similar to documented foraging groups. These results indicate that the Fort Ancient individuals sampled here may not have relied primarily on a maize-based agricultural subsistence strategy and were more flexible with their dietary strategies.

**LORI A. TREMBLAY CRITCHER;** *The Ohio State University*

The Biological Impact of Structural Violence in a Late 19th-Early 20th Century Population from Milwaukee, Wisconsin.

Keywords: bioarchaeology; structural violence; MCIG

Abstract:

This aim of this study was to investigate the biological impact of social and socioeconomic inequality, using a structural violence framework, on a late 19<sup>th</sup>-early 20<sup>th</sup> century population from Milwaukee County, Wisconsin. The Milwaukee County Institution Grounds Poor Farm Cemetery, a burial ground for the indigent and homeless of Milwaukee County, Wisconsin was excavated in 1991-1992. A subsample (n=106) of the adult burials recovered was used for this study. Evidence of physiological stress in the form of dental disease, trauma, and other pathological conditions were obtained via anthroposcopic analysis. The high rates of some of these physiological stress markers were due to differential access to resources that can be attributed to the socially constructed barriers to those resources.

**KYLE D. WALLER;** *University of Missouri*

Cultural Affinity of the Paquime Trophy Skulls.

Keywords: skeletal processing; biodistance analysis; ritual displays

Abstract:

The site of Paquime, located in northwestern Chihuahua, Mexico, shows greater influence from Mesoamerica than any other prehispanic site throughout the Greater Southwest. Amongst these influences is a set of crania, inferred by the excavators to be trophy skulls. While Mesoamerican trophy skulls were often from defeated enemies, several archaeologists have suggested that the Paquime trophy skulls may reflect ancestor worship or other ritual displays. Two sets of analyses are conducted to investigate these possibilities. First, the context in which the trophy skulls were recovered is compared to other sites where similar trophies were recovered. Second, craniometrics measurements of the trophy skulls are compared to a large database from Southwestern and Mesoamerican sites, to assess the cultural affinities of the trophy skull. The results suggest that the trophy skulls were from local populations, and were a deliberate attempt by local elites to use highly visible Mesoamerican rituals.