

**ABSTRACTS of the 11th Annual Meeting of the
Midwest Bioarcheology & Forensic Anthropology Association
University of Oklahoma, Norman, Oklahoma
October 29 & 30, 2004**

Abstracts are given in alphabetical order by senior author; all papers are podium presentations unless noted otherwise.

(1) BATEY, Trey. "Subadult Skeletal Growth at Heirakonpolis, A Working-Class Cemetery of Predynastic Egypt."

This study investigates diaphyseal long bone growth of a subadult sample from the predynastic, labor-class cemetery HK43 at Hierakonpolis, Upper Egypt. Six variables (diaphyseal lengths of the clavicle, humerus, radius, ulna, femur, and tibia) were considered in a sample of individuals, aged birth to 19 years (n = 41). The Hierakonpolis sample does not exhibit a "mid-childhood" growth spurt, as cited for Nubian samples (Armelagos et al., 1972, 1984); however, a dramatic increase in tibial length after about 12 years was observed. The humerus shows a nearly 30% increase in length from the 5 - 10 year and 10 - 15 year age groups. The results of this analysis suggest that living conditions for the working class at Hierakonpolis provided sufficient nutritional stability for normal skeletal growth.

(2) BEMENT, Leland, Ernest LUNDELIUS, & Richard KETCHUM. "5000 Year Old Bison Skull with Embedded Projectile Point."

A bison skull frontal removed from the Arkansas River near Tulsa, Oklahoma, contained the remains of a Calf Creek style projectile point. CT scan of the skull revealed the damage to the projectile point and to the skull. This single find provides incontrovertible evidence that these broad-bladed bifaces were employed as projectile points and the Calf Creek peoples hunted bison.

(3) BOYLE, Catherine. "Maceration and Preparation of Mammal Skeletons for Long-Term Curation." (poster presentation)

Animal skeletons are very useful in the teaching of vertebrate anatomy and also for identification of unknown specimens. The preparation of skeletons for long-term curation and study entails plenty of effort but does not involve difficult techniques or expensive materials. This poster describes the step-by-step process and documents the preparation of a bobcat and a fox acquired from a trapper in Texas. The specimens were boiled to loosen the soft tissues, which were then removed manually. Additional simmering in borax helped to break down cartilage and collagen, followed by soaking in xyol to remove residual fats. Upon completion, these specimens were labeled and added to the collections at the University of Indianapolis Archeology & Forensics Laboratory. (NOTE: this poster was originally presented at the 16th Butler University Undergraduate Research Conference, Indianapolis IN, April 2004.)

(4) BUEHLER, Kent, Harvey PRATT, & Gordon YELLOWMAN. "That We May Know His Face: The Use of Forensic Techniques to Reconstruct the Likeness of the Sandman." (poster presentation).

The Sandman (34Wd47) is a probable Cheyenne burial dating to approximately the 1840s. Excavated in 1973, it was not until the late 1990s that in-depth analysis was done. An adult male, the Sandman, as named by the original excavators, was buried with an extremely large number of grave goods and items of personal adornment. As such, it is one of the best documented historic burials in the Southern Plains. Throughout the project, it was the desire of both the researchers and the Cheyenne tribe that Sandman's humanity not be lost in the process of analysis. Toward this end, Cheyenne artist and Oklahoma State Bureau of Investigation (OSBI) forensic sculpture Harvey Pratt undertook a facial reconstruction. Thus, we are assured that the image of the Sandman will stay with us even though his remains and possessions have now been repatriated and reburied. The process and final result of the facial reconstruction are presented in this poster paper. (NOTE: this poster was originally presented at the 57th Annual Plains Anthropological Conference, Sioux Falls SD, 1999.)

(5) CAMPBELL, Meadow, & Peer MOORE-JANSEN. "Morphological Variation and Sexual Dimorphism in the Skeletal Elements of the Human Elbow."

Previous research of the upper appendage has addressed separately the efficiency of the humerus, the ulna, and the radius in identification, but much less attention has been afforded the components of all three bones that comprise the elbow region. The present study is a quantitative assessment of the morphological variation of the distal humerus and the proximal ulna and radius in the human skeleton to elucidate quantifiable measures of sexual dimorphism in elbow-region size and shape. Thirty-one measurements were recorded on a sample of 160 white and black females and males from the Hamann-Todd Comparative Osteological Collection. Summary statistics were generated for the purpose of univariate assessments and a stepwise discriminant procedure with a MAXR option was applied to the data to generate a multivariate assessment of the sex discriminating ability of the proposed recording protocol. The results of this study document sexual dimorphism in the bony elements comprising the elbow.

(6) CAMPBELL, Ryan, & Peer MOORE-JANSEN. "The Application of the 3-D Digitizer on the Quantification of Human Skeletal Morphology."

The introduction of the 3-D digitizer in craniometric research represents a diverse alternative to the standardization and recording of osteometric data in the human skeleton. This paper addresses issue of technique and application of data gathered using a 3-D digitizer. We also discuss matters of data conversion from 3-D coordinate data to traditional two-dimensional data sets. To demonstrate the effectiveness of this tool, a small sample of crania from the Hastings Museum in Nebraska were analyzed by collecting points in a three-dimensional graphic program and then exporting that data to a spreadsheet that calculated the measurements for the Howells (1973) data set. The new form of data that is collected via the digitizer can more accurately tell us something about the location of landmarks and the shape of the skull. Additionally, the data sets can be visually confirmed and tested, and additional measurements can be calculated from any combination of coordinate points.

(7) DABBS, Gretchen, & Peer MOORE-JANSEN. "Age Effect in the Human Scapula."

This paper addresses the recognition of morphological change resulting from age in the human scapula. Previous research identifies age changes using qualitative measures. The quantification of potential age change in scapula size, shape, and especially thickness is less commonly addressed. The present study addresses the age effect on size and shape variation in the human scapula in a recent historic skeletal sample. Standard and newly devised measurements are recorded on a sample of 301 whites from the Hamann-Todd Comparative Osteological Collection housed at the Cleveland Museum of Natural History. The data recording protocol includes 5 dimensions characterizing the general size and shape of the scapula and 11 additional measurements designed to elucidate variation in thickness and robusticity. An additional 12 measurements are recorded to identify further detail of shape of the body and the glenoid fossa. Data was recorded using GPM spreading, and sliding calipers. Descriptive and multivariate statistics are generated to assess patterns of morphological change in scapula skeletal morphology. The particular question of the potential for quantifying atrophy in the scapula is discussed.

(8) GRUBER, Jana. "Subadult Age Analysis at the MacDuffee/Soday 684 Site: Methods and Problems."

The MacDuffee/Soday 684 site (Arkansas Archaeological Survey number 3CG21) from northeastern Arkansas is a Middle Mississippian mound site housed at the Gilcrease Museum. The MacDuffee site was excavated from 1964 - 1968 and then later inventoried by Frank Soday, Madison Grant, and a group of avocationalists. The sample consists of 139 adults and 79 age-able subadults. This study focuses on the subadult population from the MacDuffee site and their contribution to the overall demographic profile of the skeletal population. The methodology utilized for assessing subadult ages based on dental, cranial, and post-cranial elements is presented. In addition, the problems of subadult aging and differential results from dental and skeletal aging techniques are discussed. Based on these significant differences between long bone and dental ages the potential conditions producing these results are examined. One major hypothesis is that these subadults experienced stressors that affected their health, growth, and development.

(9) KENNEDY, Jason. "A Comparison between Woodland and Oneota Human Osteological Populations." (poster presentation)

The focus of this paper is to explore differentiation in human stature reflected through osteological remains between Woodland and Oneota human populations. This paper concentrates on osteological analysis of specific individuals from both cultural groups, where males and females are used in comparison between cultures and within traditions to explore dimorphism. The analysis for this thesis focuses on the long bones to establish stature through equations used by Gleser and Trotter (1970). A second aspect of this study incorporated dentition to portray possible growth disruptions. Based on the samples analyzed Oneota people were found to be shorter in stature than the preceding Woodland population.

(10) KILEY, Sarah, Amy MUNDORFF, & Thomas GIBSON. "Diagnosing Degenerative Pathologies in an Unidentified Skeleton." (poster presentation)

This poster illustrates the challenge of diagnosing pathological conditions in the skeleton by presenting the analysis of an unidentified individual recovered in 1997 on Staten Island, New York.

Diagnostic features of both tuberculosis of the spine (Pott's disease) and ankylosing spondylitis are evident. (NOTE: this poster was originally presented at the 56th Meeting of the American Academy of Forensic Sciences, Dallas TX, February 2004; for a complete abstract, see Proceedings of the American Academy of Forensic Sciences, 10:306-307).

(11) MARQUEZ, Samuel, D. ERDSTEIN, G. MANN, & K. MOWBRAY. "The Effects of Intentional Cranial Deformation on Paranasal Sinus Morphology."

Intentional cranial deformation, ICD, is a cultural phenomenon that intentionally disrupts normal skull growth during the earliest stages of life implicitly through the application of external forces. The duration, degree, and type of applied force can induce considerable shape changes to the neurocranium that have profound ontogenetic consequences in adult cranial morphology. This study examines the likely developmental effects on three of the four paranasal sinuses (PNS) generated by ICD. Changes in the bony morphology of the neonatal face and cranial base, where the PNS begins prenatally, the application of ICD procedures should have some affect on their morphological growth trajectories. This study examines a cross sectional ontogenetic series of intentionally deformed (n = 20) and non-deformed dry crania (n = 40) from distinct Bolivian and Peruvian indigenous populations that were selected from the Division of Anthropology at the American Museum of Natural History. The crania were CT scanned (150 kV, 140mA) and craniofacial linear measures (e.g., nasal breadth and height) along with volumetric determinations (e.g., maxillary sinus (MS) and endocranial volumes) were obtained. Preliminary results from PNS 3-D reconstructed images revealed differences in angulation of the clivus and orientation of pituitary stalks and that size and shape differences exist in the frontal and sphenoid sinuses between intentionally deformed and non-deformed crania, but MS dimensions remain unaffected by ICD techniques. This suggests that ICD procedures more readily affect the dual organizational structure of the extrasplanchnocranial components of the infant and adult faces as detected by external linear measures than the intrasplanchnocranial dimensions, as reflected by internal measures of MS volumes.

(12) NAWROCKI, Stephen, & Robert GOBETZ. "An Analysis of Media Coverage of the Fox Hollow Farm Serial Homicide Case."

Beginning in 1996, the University of Indianapolis assisted with the recovery and analysis of the remains of 11 victims of serial killer Herbert Baumeister. The case generated a firestorm of local, state, and national media interest. In this presentation we examine how the newspapers, magazines, and television covered the case, and we compare the perspectives of the forensic scientists to those offered by the press. Topics to be addressed include the methods used by the press to obtain information, the accuracy of the reporting, the choice of issues for publication, differences between print and television coverage, media portrayal of the suspect and the victims, and the use of outside "experts." While admittedly an extreme case, the lessons learned here are generally applicable to situations that forensic anthropologists must navigate on a regular basis. Juggling media, public, private, and scientific interests is not an easy task, and the anthropologist is well-advised to have considered these issues long before encountering a national-level case.

(13) PARR, Nicolette, Bethany ERHART, & Stephen NAWROCKI. "Recovery and Analysis of Recent Human Remains from a River Bank in Allen County, Indiana."

In March of 2004, the University of Indianapolis assisted with the recovery and analysis of a decomposed and partially mummified human body found on the banks of the Maumee River in Fort

Wayne, Allen County, Indiana. The individual was quickly identified as a middle-aged white male who had disappeared two year prior to the recovery. The torso was covered with a thick layer of adipocere ("grave wax") indicating that it had been submerged for some time. Surprisingly, a pair of prescription eyeglasses that the decedent had purchased a month before he had disappeared were still in place on his face, and the prescription was matched by an optometrist to the original specifications, providing an additional source of identification. This presentation will examine the recovery methods used at the scene and will discuss the skeletal analysis conducted in the laboratory.

(14) PESTLE, William. "Evidence of Brucellosis in Middle Woodland Illinois?"

Osteological examination of an assemblage of nearly 2,000 year old skeletal remains in Romeoville, southwest of Chicago, Illinois (11WI1186) has revealed two possible cases of vertebral brucellosis. The apparent presence of this pathological process in these remains is noteworthy given the paucity of domesticated animals, the most common vectors for brucellosis, in the Middle Woodland period of Illinois' prehistory. Following a discussion of the legitimacy of, and differential diagnoses for, the observed vertebral lesions, this work will examine the pre-contact distribution of species of the genus *Brucella* in North America, and will then offer several potential explanations for the observed human case(s) of brucellosis. It is hoped that the combined lines of cultural, epidemiological, and archaeological evidence will yield novel insight into the nature of disease and health in the Middle Woodland period of the American Midwest.

(15) PYE, Jeremy. "Reflections of Social Status at a Late Nineteenth Century Kansas Cemetery."

Throughout the years that people have practiced archeology, one hypothesis has often been supposed, that elaborate burials correlate to a high status individual or family group. This does not hold true to current research undertaken at a late nineteenth century cemetery in northern Kansas. Excavations at the Meadowlark Hills Retirement Community Abandoned Cemetery Site revealed burials with coffins adorned with elaborately designed hardware. One might assume that the artifacts collected from the excavations reflect the high status of the individuals interred on the grounds. However, the industrialization, which was taking place in the country in the mid-nineteenth century, resulted in the mass production of said funerary accouterments. The flooded market resulted in a low cost for creating an elaborately decorated coffin. Therefore, in the case of the Meadowlark Cemetery, elaborate coffin hardware found on the coffins does not necessarily reflect high social status.

(16) SMITH, Holly. "The Forgotten Ones: A History of Meadowlark Cemetery."

Proposed expansion on the property of Meadowlark Hills Retirement Community in Manhattan, Kansas, allowed the opportunity for archaeological excavations of a late 19th century abandoned cemetery. The burials initially seemed to contradict local lore that the property was the site of a private orphanage/poor farm in the last quarter of the 19th century, as intact coffins with ornamental hardware and, in one case, a viewing glass, were uncovered. However, a search of newspapers from the period and excavations at other 19th century poor farms seems to support the possibility that the property was used in this capacity, as do the age and sex assessments of the interred individuals. I will discuss the history of the site, the excavation, and the results of the analysis thus far.

(17) SMITH, Maria. "Proto-historic Cherokee Community Health: Implications from Paleopathology."

Biological information about the proto-historic/historic native populations of east Tennessee is essentially non-existent. Only a small skeletal sample (n= 157) of early contact (e.g., 18th century) Overhill Cherokee, exhumed from several sites in the 1970s was permitted to be examined before repatriation. This material was initially briefly described but no thorough assessment was ever undertaken. This is partly due to problematic preservation, but it was also because an inadequate comparative sample of maize agriculturalists was available. Today, a number of late prehistoric samples from east Tennessee belonging to the Dallas and Mouse Creek phases (circa A.D. 1200 - 1600) of east Tennessee are available for comparison. These two phases differ in levels of social stratification and some reported health problems mirror these sociopolitical differences. Therefore, the health patterns can be effectively compared and contrasted with the Overhill Cherokee sample.

(18) WAITE, Gigi, & Linda SPURLOCK. "Facial Reconstruction: Methods and Applications." (poster presentation)

The 3-D and 2-D craniofacial reconstruction methods, as taught by B.P. Gatliff and K.T. Taylor, are summarized and illustrated. The authors applied these methods to several cold cases and to more current ones as well. When the authors worked on the same cases they worked independently. Interesting differences and similarities between the faces they generated are discussed.

(19) WHITLEY, Catrina. "Multiple Myeloma, Treponematosi, and Possible Tuberculosis at Pot Creek Pueblo."

This paper presents evidence of multiple myeloma, treponematosi, and possible tuberculosis at Pot Creek Pueblo, NM. Multiple myeloma is suspected in the calvaria of an adult male 35 - 45 years containing multiple sharply demarcated lytic lesions present in the endocranial surface of the skull. Multiple button osteomas are also present on the frontal bone and parietals. A young female exhibits cranial and post-cranial lesions characteristic of treponematosi including a radial scar on the right parietal and symmetric bilateral lesions on the humeri. Interestingly, periosteal formations found on the facial bones are more commonly associated with yaws. Visceral and sternal periosteal lesions in ribs 3 to 10 and kyphosis of thoracic 8 suggest the possibility of tuberculosis and differential diagnoses include juvenile osteomalacia with complications of pulmonary disease, or pulmonary disease with unassociated congenital disorder of the vertebrae.

(20) WHITLEY, Catrina. "Possible Eosinophilic Granuloma of a Child from the American Southwest."

The burial of a five year old child from the 12th century Chaves-Hummingbird Pueblo revealed traumatic injuries, possibly from eosinophilic granuloma, and a unique burial practice. Lesions include a compression fracture of cervical vertebra 5 and 6 (healing present), Calves disease (vertebra plana) in thoracic vertebra 8, a lytic lesion in the right parietal, and developmental delay of the skeleton. Malnutrition/malabsorption, evident by the presence of dental hypoplasia, occurred after vertebral collapse and resulted in rickets and osteoporosis. It is also probable that the child suffered from limited mobility and sever pain as a result of the injuries. The burial was located in a an abandoned room block, cut through layers of ash, adobe wash/fill, and capped with rocks. What is peculiar about this burial is the offering of a plant seed, probably corn, placed within the mouth of the young child,

which sprouted and grew through the cranial lesion.

(21) YORK, Heather. "Epilogue to War: Unlikely Graves in the Wells, Lakes, and Caves of Bosnia-Herzegovina."

Forensic anthropologists and archaeologists are increasingly called upon to aid in the recovery, identification, and repatriation of victims of violence in international conflicts. This presentation is an account of work done in Bosnia and Herzegovina by a Forensic Monitor and Consultant with Physicians for Human Rights following the 1992 - 1995 war. It was hoped that the presence of international observers would help prevent the information gathering process from fueling additional animosity between the formerly warring factions. Working with local Serb, Croat, and Bosniak investigative teams, scientists with Physicians for Human Rights encountered a wide variety of disturbed, destroyed, and hidden grave sites. Many of these presented novel challenges in working toward the recovery of some 20,000 individuals who remained unaccounted for following the end of the war, 16,000 of whom are still considered missing.

(22) YORK, Heather, & Linda SPURLOCK. "The Mock Crime Scene: An Inferential Exercise for Students and a Creative Opportunity for Instructors." (poster presentation)

Students studying biological anthropology and archeology often become interested in forensics as they learn about bones and excavation techniques. Crime scene analyses and identifications can be vivid examples for problem solving via special knowledge, inference, and careful procedures. The authors attempted to teach a group of students a sufficient amount of forensic anthropology and archeology to successfully investigate a carefully constructed mock crime scene. We instructed students in basic osteology, trauma analysis, archaeological recovery techniques, and taphonomic processes. The course culminated with two teams of students excavating "bodies" that had been extensively traumatized and then buried for several months, along with various kinds of evidence indicative of their identity, the identity of the "killers," and the manner of death. After recovery, students spent several weeks analyzing evidence in the laboratory, demonstrating a surprising degree of accuracy in their reconstruction of the crimes, particularly with regards to weapons used in inflicting trauma.

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