BIOARCHAEOLOGISTS’ NORTHEAST REGIONAL DIALOGUE

6TH ANNUAL MEETING

hosted by
SUNY-Oneonta

BNRD

OCTOBER 29
2016
The Bioarchaeologists’ Northeast Regional Dialogue (BNRD) Conference was established in 2010 to initiate dialogue among bioarchaeologists in the Northeast United States and to provide a semi-formal venue in which students and faculty can present current research in subfields of biological anthropology including, but not limited to, human osteology, paleopathology, paleodemography, dental anthropology, forensic anthropology, and bone taphonomy.

The 2016 conference is being hosted by Dr. Tracy Betsinger of SUNY–Oneonta. It is funded by the SUNY–Oneonta Anthropology Department, Dr. Venkat Sharma, Dean, School of Natural & Mathematical Sciences, Dr. Susan Turell, Dean, School of Social Science, the Grants Development Office, Oneonta Auxiliary Services, the Provost Office, and the Office of Alumni Engagement.

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<th>2016 Conference Committee</th>
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<td>Lauren Hosek</td>
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<td>Brittany Kenyon</td>
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<td>Alanna Warner</td>
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<td>Amandine Eriksen</td>
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<td>Sarah Ledogar</td>
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<td>Jessica Campbell</td>
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<td>Dr. Tracy Betsinger</td>
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contact: bnrd.conf@gmail.com
SCHEDULE

9:30 am – 10:30 am...........Welcome Reception & Registration
10:30 am – 12:15 pm...........Session One
12:15 pm – 1:15 pm............Lunch
1:15 pm – 2:15 pm..............Keynote Lecture
2:15 pm – 2:45 pm..............Undergraduate Poster Session
2:45 pm – 3:00 pm..............Afternoon Break
3:00 pm – 4:15 pm..............Session Two
4:15 pm – 4:30 pm..............Closing Remarks
5:00 pm – 7:00 pm.............Happy Hour at Roots Brewery

175 Main St. Oneonta, NY 13820

LOCATION

Conference Center: Craven Lounge, located in the Morris Complex

Parking: please park in “commuter” areas only!

ENTRANCE
ABOUT OUR KEYNOTE SPEAKER

Dr. Jaime Ullinger
Assistant Professor of Anthropology, Quinnipiac University

Dr. Jaime Ullinger is a bioarchaeologist studying skeletal remains as a means to understand health, genetic relatedness, and mortuary practices in past populations. Dr. Ullinger serves as the Co-Director of the Bioanthropology Research Institute and also teaches several courses in biological anthropology at Quinnipiac University in Hamden, CT. Her research interests include paleopathology, dental anthropology and mortuary archaeology. Since receiving her PhD from Ohio State University, Dr. Ullinger has analyzed skeletal remains from the Bronze and Iron Ages in the Middle East, on which she has published extensively, in addition to working in Hungary, Egypt and the American Southwest. She is currently investigating how humans responded to urbanization in the Early Bronze Age Near East (ca. 3500-2000 BC), as well as mortuary practices in Eastern Europe in the Bronze Age.

KEYNOTE LECTURE

New Approaches to the Bioarchaeology of Cremations

The study of cremations is vital to understanding past mortuary practices, as they have been in use across the globe, and for at least 40,000 years. Traditionally the purview of mortuary archaeology, study of ancient cremations has also benefited from work conducted by forensic anthropologists. Research combining both disciplines can present a more holistic understanding of funerary behavior. I will present my own work with the bioarchaeology of cremations using case studies from Bronze Age Jordan and Hungary, where new techniques have been applied to develop sampling strategies, examine color and fracture patterns in bone (among other variables), and encourage undergraduate participation in research.
Have the Babies Been Thrown Out with the Bath Water? Insights from Perinatal Mortuary Patterns
Tracy K. Betsinger, Michaelyn Harle, & Maria O. Smith – SUNY-Oneonta

Perinatal remains (6 months in utero–1 month postnatal) have not always been included in mortuary archaeology or bioarchaeology for a variety of reasons including issues of preservation or lack of inclusion in public cemeteries. However, a focused examination of the funerary treatment of perinates can provide insight to social identity and ontology. By comparing the treatment of perinates, including body position, funerary accompaniments, and burial location, with that of post-neonates (1 month–1 year), and young children (1-4 years), it can be determined whether perinates received specialized burial, which may reflect a distinct identity and/or a lack of personhood. A sample of more than 500 prehistoric East Tennessee perinates, post-neonates, and young children were included in the study, representing Woodland period (900 BC-900AD), Late Mississippian Dallas phase (AD 1300-1550), and Late Mississippian Mouse Creek phase (AD 1400-1600). Statistical analyses conducted include within site comparisons among the three age groups, comparisons between contemporaneous sites, and temporal comparisons, which enables conclusions to be drawn regarding variations in perinatal identity and personhood.

A Liburnian Necropolis: Preliminary examination of newly excavated material from Nadin, Croatia
Tisa Loewen – Department of Anthropology, New York University

Occupancy at the Gradina (Hill Fort) archaeological site in the village of Nadin, Croatia spans from the 2nd millennium BCE to the Ottoman expansion. Below the Gradina lies a flat Iron Age Liburnian necropolis, with single and multiple occupancy burials of the Adriatic peoples dating between ~600 -100 BCE. Previous osteological assessments have compared the necropolis with nearby Liburnian burial mounds, concluding that changes in frequency of subadult remains, dental caries, and other pathologies suggest times of hardship and shifting economics in the 5th century BCE when Liburnia was struggling with Hellenistic factions (Anterić et al. 2011). Conversely, it has been suggested that the Liburnians had a higher standard of living as isotopic data shows the seafaring and pastoral communities also ate millet (Lightfoot et al. 2015).

A team from Zadar University has resumed excavation of the necropolis and preliminary investigation finds similar patterns to previous studies. Nine in 12 graves contain subadult remains. Pathologies are present in 50% of examined graves with vertebral osteoarthritis and osteophytic development in 5 of 12 graves. Also, cribra orbitalia and dental caries or abscesses are present in 25% and 33% respectively, which may be due to the higher carbohydrate intake. Ongoing work will establish detailed MNI and may clarify previous assessments, though the remains are heavily commingled and fragmentary. Urbanization, migration, and cultural assimilation are also being explored as factors influencing the morphology. This continuing collaboration has encouraging potential for insights into the commonly named Liburnian cult of the dead.
Preliminary Paleopathological Observations and Comments on Human Skeletal Remains from Plaza San Marcos, Quito, Ecuador

Tony J. Chamoun¹ & Victoria Domínguez S.² – ¹Department of Anthropology, Syracuse University; ²Historic Sites Archaeology, Ecuador

We present preliminary paleopathological observations of commingled and fragmentary skeletal remains from the church cemetery of Plaza San Marcos, Quito, Ecuador (1840-1905), and we comment on future research plans. These remains were uncovered during a church reconstruction event and excavations were conducted in 2007. In 2016, the primary author began preliminary observations of the remains, which are housed in Centro de Investigaciones y Museo Slango, Salango, Ecuador. While making reference to cases of fracture, dental pathology, infection, joint disease, and habitual activity, we focus on 13 specimens, subadult and adult, which indicate postmortem manipulation. Based on the presence of kerf marks, incisions, striations, and break away spurs, 11 of these specimens exhibit evidence indicative of dissection or autopsy. Two adult tibiae specimens have metal embedded at or near joint surfaces, with accompanying green bone surface discoloration, suggestive of use as teaching specimens.

We comment on future research plans, which include sorting and matching of individuals, determining MNI, constructing demographic profiles, and investigating these individuals' life and death courses. Situating these remains in broader historical contexts, we discuss the potential of a feminist-Marxist analysis, as well as feminist theories surrounding social (dis)ablement in our research plans. Further, we highlight the nascent development of historical bioarchaeology in Ecuador, as well as the few works that discuss similar postmortem manipulation in South American contexts (e.g., Ubelaker and Ripley 1999).

The Bronze Age Körös Off-Tell Archaeology (BAKOTA) Project: Student Research on an NSF-REU Field School in Hungary

Julia I. Giblin – Quinnipiac University

Significant population increases, the intensification of craft production, and new forms of agricultural output characterize a major transition between the 18th and 17th century BC in Eastern Hungary. Many archaeologists consider these changes hallmarks of an emerging social class in Bronze Age Europe. Yet research from different parts of Eastern Europe suggests that societies were organized in a variety of ways during this regional florescence. This paper describes recent investigations into a Bronze Age community buried at the cemetery of Békés Jégvermi-kert (Békés 103) in Eastern Hungary by the Bronze Age Körös Off-Tell Archaeology (BAKOTA) Project. The project includes an international team of undergraduate students funded by the National Science Foundation Research Experience for Undergraduates Program and the Central European Institute at Quinnipiac University. During the 2016 summer lab season a team of 11 students conducted independent research projects on a range of datasets from the cemetery and surrounding area, focused on understanding patterns in trade, identity, and cremation burial practice. This paper will highlight key findings and provide information for how interested undergraduates can apply to participate the 2017 summer research team.
Bioarcheology holds great potential for highlighting aspects of the human past, including insight into complex phenomena such as the creation and maintenance of human identities. Conceptualizations of identity and ethnicity, having contemporary ramifications and holding great importance to people today, often start at points in history. Using human skeletal remains to study ethnicity and identity provides us with new tools for analyzing these phenomena. Starting in 2015, a regional analysis of cemeteries from European Ottoman sites has sought to better understand the individuals living in these communities during the brief time when the Ottoman Empire expanded into territory now in modern-day Romania and Hungary. This period of history was distinct from the preceding and subsequent centuries, as the Islamic power brought new people, religion and ways of life into the region. As history debates whether these communities were comprised of European converts or migrating individuals (from Anatolia or elsewhere), the bioarchaeological records offers new insight. Biodistance research comparing Ottoman skeletal remains to individuals that lived in the region prior to the arrival of the Ottomans seeks to better comprehend the biological makeup of these groups. This regional analysis, which will expand into Croatia this winter, is looking to see how biological distance data can help us better understand historical communities. As Ottoman history was a contributing factor to social and political problems in the Balkans in recent decades, this research offers the potential to provide a biological viewpoint to questions of modern identity rooted in the past.
Investigating early life stress and risk of death through growth disruption in a medieval Polish sample
Ariel Gruenthal-Rankin¹,², Marissa Ramsier², Arkadiusz Koperkiewicz³, Marek Polcyn⁴ – ¹Department of Anthropology, Binghamton University-SUNY; ²Department of Anthropology, Humboldt State University; ³Institute of Archaeology, University of Gdansk; ⁴Department of Anthropology, Lakehead University

The use of non-specific stress indicators to assess early-life stress has risen in popularity in recent years. Growth disruptions, such as vertebral neural canal (VNC) diameters and terminal adult height, are particularly well-suited for this endeavor. Previous studies have found that decreased transverse (TV) diameters in the lower thoracic and lumbar vertebrae are associated with risk of early mortality, even when terminal adult height does not demonstrate significant disruption. The present study analyzed terminal adult height, antero-posterior (AP) and TV neural canal dimensions from the second cervical vertebrae (C2) through the first sacral vertebrae (S1) for association with risk of death, by age class, in 27 individuals from a medieval (mid-14th-mid 15th century) Polish site at Bezławki, Poland. Results demonstrated that those in the 16-25 age class had smaller TV VNC diameters in T4-6 and T12, first lumbar, and first sacral vertebrae. No correlation was found across age classes with regard to AP VNC diameters or terminal adult height. These results support previous findings that transverse diameters of lower vertebrae are more affected by early life stress, likely due to prolonged growth periods. However, these results also reveal a unique pattern of stenosis, occurring higher in the thoracic vertebrae, which may suggest a different age at insult in this particular sample. Larger sample sizes are necessary to determine whether this pattern holds for the youngest age class (10-15). The lack of correlation between age-at-death and terminal adult height supports previous studies that have emphasized the importance of catch-up growth.

Session 1 Questions and discussion
12:00 pm – 12:15 pm

Lunch
12:15 pm – 1:15 pm
Physical Sciences Building – Atrium

Keynote Lecture
1:15 pm – 2:15 pm
Dr. Jaime Ullinger, Quinnipiac University
Inventory and Assessment of the *Pan troglodytes* (Blumenbach 1799) skeletal collection housed at the Yale Peabody Museum
Gary P. Aronsen & Megan Kirkham – Department of Anthropology, Yale University

Museum collections are critical resources for examination of comparative anatomy, developmental biology and life history hypotheses. Skeletal collections can illuminate spatiotemporal-, species-, population- and individual-level variation associated with environmental, social and epidemiological history. For endangered species such as primates, these collections provide data that are now nearly impossible to replicate.

Here, we provide the first in a series of papers reviewing the great ape collection of the Yale Peabody Museum (YPM). Our paper describes the *Pan troglodytes* skeletal collection. Although the majority of the collection is from Central Africa’s Atlantic Coast, multiple *Pan troglodytes* subspecies are present in the collection. Multiple age and sex classes are present, and craniodental and postcranial elements are available for each age class. All material was assessed for developmental, disease, trauma, and socioecological indicators. Multiple indicators of metabolic stress are present, and likely associated with nutritional and/or epidemiological factors. Instances of trauma and injury, ranging from antemortem to perimortem events, are described. For some individuals, these injuries are likely associated with intraspecific and intrasexual competition and violence, whereas others are suggestive of infanticide attempts. Other injuries are associated with interspecific violence, and are of value for forensic examination.

Our evaluation of the YPM collection provides a baseline for future research and testable hypotheses for alternate techniques, such as isotopic analyses of calculus and noninvasive genetic testing. Museum collections continue to provide new insights into taxonomic and individual variation and environmental cues, and ultimately allow for comparisons between modern and historic environmental and behavioral variables.
The reliability of sexing the pelvis by factoring in age: A pilot study
Rachel E. Kalisher & Madelynne M. Dudas – Department of Anthropology, Human Skeletal Biology Program, New York University

While the human pelvis has been established as the most reliable element for determining sex, it also undergoes constant morphological change during development into adulthood. Current research on the discrete traits used to sex an individual have been assessed for accuracy but have not been validated by age. Our study combines popular sexing and aging methods to assess if the accuracy of sexing the pelvis is reliant on pelvic maturity.

We conducted a pilot study consisting of 28 individuals of known age and sex from the Human Skeletal Collection at the American Museum of Natural History (AMNH). Artificial age categories of 18-25(A), 26-35(B), and 36+(C) years were used to characterize and encapsulate the gross morphological changes which occur within these age ranges. In order to keep the study blind, all sex and age information marked on the museum boxes and cabinets were concealed to the observer. For all age groups the absence or presence of the preauricular sulcus had the highest percentage of accuracy (A=100%, B= 81.25%, C= 84.38%). The greater sciatic notch proved an average accuracy (A=66.66%, B=68.75%, C=58.80%) and the Phenice suite (ventral arc, subpubic concavity and ischiopubic ramus) exhibit the lowest accuracy in group B. Due to the small sample size of the youngest group (n=3), all final conclusions will be withheld until a larger sample size can be obtained.
Comparison of cranial shape between normal and pathological specimens from modern Thai skeletal group using geometric morphometrics

Hyunwoo Jung¹, Eun Jin Woo², & Noreen von Cramon-Taubadel¹ – ¹Department of Anthropology, University at Buffalo-SUNY, ²Division in Anatomy & Developmental Biology, Department of Oral Biology, BK21 PLUS Project, Yonsei University College of Dentistry, Seoul, Korea

The purpose of this study is to compare cranial shape between normal and pathological specimens. It was postulated that pathological specimens with abnormal upper palates will have distinctive facial shapes but not distinctive chondrocrania and vaults because these cranial regions are not directly affected by pathology. For this study, a modern Thai skeletal group from Chulalongkorn University was analyzed using geometric morphometrics. 92 cranial landmarks were digitized using a MicroScribe G2X. Normal specimens comprised 66 adults (33 males and 33 females) and 8 sub-adults. These were compared with two pathological adults with abnormal upper palates. Procrustes analysis was conducted on the face, chondrocranium, and vault using MorphoJ. Cranial shape was explored using principal component (PC) analysis and size was compared using Mann-Whitney U tests. Regression analysis was conducted between shape variables and centroid size in adult specimens to assess allometry.

Pathological adults had significantly smaller crania than normal adults (p<0.05) but did not have significantly different cranial size than sub-adults (p=0.844). However, pathological specimens did not show distinctive chondrocranial shape from normal adults, while one pathological specimen had distinctive face and vault shape on PC 1. Moreover, this pathological specimen showed similar facial and vault shape to sub-adult specimens but a distinctive chondrocranium. Furthermore, allometric regression analysis in adults found statistically significant effects only in the face (p<0.01) and the vault (p<0.05), but not the chondrocranium (p=0.51). In conclusion, the results indicate that pathological adults may have distinctive face and vault shapes in relation to size but not distinctive chondrocrania.
Sweet and Consuming Divisions: The Role of Sugar in Dietetics and Political Reform in Nineteenth Century New York City
Cristina Watson – Syracuse University

Food and eating have often been viewed narrowly, in terms of the biological functioning of the body; however, their effects on the body and personhood have emerged as a subject of discussion within archaeology and anthropology more generally. In the nineteenth century, food became central to notions of the body and the autonomous self, and the ingestion of certain substances were key to defining and maintaining one’s status as citizen. Sugar, as both commodity and substance, exhibited a variety of ingestible forms, each with its own association with regards to one’s gender, class, religion, race, and political stance. In this paper, I call attention to the site of the mouth in New York City during a period of intense biopolitical reform where preoccupations with sugar took center stage. At the site of the mouth, sugar could be either proxy or potentiate, and it was believed to make visible the hidden mental and moral state of the person. Choosing to associate between different forms and quantities of sugar affected not only cleanliness and comportment, but also reflected one’s capacity to attain and handle constitutional rights as citizens. Consumption therefore played a direct role in the negotiation of the sociopolitical atmosphere of the fledgling nation. Through analyzing various nineteenth century treatises published by reformers, this case study aims to shed light on the perceived ability of lived bodies to transform and mobilize precarious substances such as sugar at the site of the mouth. I will examine the relationships between sugar and citizenship within the lived context of the congregants of the Spring Street Presbyterian Church and their materialization into the very bones and teeth that bioarchaeologists examine.

Session 2 Questions and discussion
4:00 pm – 4:15 pm

Closing Remarks
4:15 pm – 4:30 pm

Networking Happy Hour
Roots Brewery
175 Main St. Oneonta, NY 13820
5:00 pm – 7:00 pm
**Poster Abstracts**

**Bone Calcination in Cremation Burials from Bronze Age Hungary**  
Heleinna Abigael Cruz, Jaime Ullinger, & Julia Giblin – Quinnipiac University

It has been proposed that larger population sizes, agricultural intensification, and the production and trade of high prestige goods during the European Bronze Age was associated with increasingly complex and unequal societies. Excavations at the Békés 103 site, a Bronze Age cemetery located in Southeastern Hungary, aim to evaluate whether there is evidence for differences in mortuary treatment based on age, sex, or status. Little is known about the funerary customs in this region, and excavations so far indicate that a majority of the burials in the cemetery were cremated. In this study, we use color analysis (identified by *Munsell Soil Color Charts*) of the burned human bone from 11 cremation urns to determine whether burning temperatures varied across the cemetery. Differences in color patterns were compared between subadults and adults, and preliminary results show a possible difference in burning temperature between these two age categories. These results may illustrate different funerary customs for different ages in the Békés 103 community.

**Mandibular Asymmetry and Oral Pathologies in a Forensic Specimen from Louisville, NY.**  
Haley Lankau & Nasser Malit – SUNY-Potsdam

The common misconception that bone is static is rooted in its unmalleable appearance to the untrained eye. However, as a living organ, bone is as reactive and changeable as its soft tissue counterparts. This study documents oral pathologies in a forensic specimen from Louisville, NY. The mandible used in this study exhibits a fair degree of asymmetry that could be attributed to pathologies that affected the individual pre-mortem. This study aims to document the relationship between periodontal diseases and the resorption of alveolar bone leading to asymmetry.

To document asymmetry, digital calipers were used to measure the corpus height and thickness from the left and right sides of the jaw to compare the dimensions. It is hypothesized that the jaw will show differences in the height and/or thickness measures. This study also documents various pathologies observed on the jaw. These include dento-alveolar pockets, loss of alveolar bone, mandibular exostoses, increased instances of calculus below the cemento-enamel junction (CEJ), localized dental carries as well as advanced wear characterized by the considerable amount of molar deterioration. A greater degree of resorption of the alveolar bone supports the hypothesis that asymmetry is due to periodontal disease and other functional forces. The information gathered from this study is valuable in understanding the mechanisms involved in bone behavior.
Inflicted projectile points are unequivocal evidence of interpersonal violence. Inflicted projectile points are not uncommon in prehistoric East Tennessee, as there are documented cases from the Archaic (8000–900 BC) through the Late Mississippian (AD 1300-1600). Two cases of inflicted points from the Early Woodland period (900 BC-AD 200) are part of the skeletal collection at the Frank H. McClung Museum, Knoxville, Tennessee. This period is characterized by hunting-gathering and horticultural populations, which were small, semi-sedentary, and engaged in regional trading. Projectile points were utilized on spears; bows and arrows were not used at this time. The first case is from the Del Rio site (40CK7) in Cocke County in eastern Tennessee and involves a projectile point embedded in the iliac fossa of the right os coxa of a probable adult male (Burial 51). The embedded projectile point has barbed shoulders and a straight stem made of gray chert. Based on the location of the projectile point, it is likely the victim was on the ground, with the spear pierced through the left side of the abdomen, embedding in the right ilium. The second case is from the Bible site (40CK11), also in Cocke County. This case involves an inflicted point proximal end on the posterior surface left ulna of an adult of indeterminate sex (Burial 174). The projectile point is broken at the surface of the bone, leaving only the tip embedded. The location of the inflicted point suggests the individual was blocking a blow with his/her arm.