7th Annual Meeting of the
BIOARCHAEOLOGISTS’
NORTHEAST REGIONAL
DIALOGUE

October 7, 2017
Hosted by Jaime Ullinger
Quinnipiac University
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 2017 conference is hosted by Dr. Jaime Ullinger of Quinnipiac University. It is funded by the Quinnipiac University College of Arts and Sciences, Quinnipiac University Department of Sociology, Criminal Justice, and Anthropology, the Quinnipiac University Society for Anthropological Research, and the Quinnipiac University Bioanthropology Research Institute.

### 2016 Conference Committee

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<td>Lauren Hosek</td>
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**contact:** bnrd.conf@gmail.com
CONFERENCE INFORMATION

Location

Conference proceedings will take place in the Carl Hansen Student Center, Rooms 119 and 120, and in the piazza adjacent to these rooms.

A networking happy hour immediately following the conference will occur at Eli’s on Whitney, 2392 Whitney Ave, Hamden, CT 06518

Parking

Free parking is available to attendees in the Buckman/Tator lots. Simply place a note on the windshield that says “BNRD Attendee.” Alternatively, you can pick up a parking slip at the BNRD registration desk in the Carl Hansen Student Center to display in your car.

Directions

From I-91N or I-91S, take the exit for Route 40 (the Mt Carmel Connector). At the end of the connector, turn right onto Whitney Ave (Route 10). Travel north on Whitney Avenue until you reach Mt Carmel Ave. The university’s address is 275 Mt Carmel Ave, so you will be able to get to this point using a GPS. Turn right on Mt Carmel Ave. At the first stop sign, turn right onto New Road. At the first road on the left, turn left. This is called “Bobcat Way,” and you will see brick gates that say “New Road Entrance.” After turning left, turn into the first left, which is a parking lot.

Wifi

Wifi is available to conference attendees. The network is QUGuest. There is no password, but attendees will need to provide an email address to log on.
SCHEDULE

9:00-10:00 am..................Welcome Reception & Registration
10:00 am - 11:15 ..................Podium Session One
11:15 am - 12:30 pm..................Podium Session Two
12:30-1:15 pm........................Lunch
1:15 - 2:15 pm.......................Keynote Lecture
2:15 - 3:00 pm......................Undergraduate Poster Session
3:00-4:15 pm.......................Podium Session Three
4:15 pm - 4:45 pm..................Faculty Panel
4:45-4:50................................Closing Remarks
5:00 pm - 7:00 pm..................Happy Hour at Eli’s on Whitney

BNRD 2018

Are you interested in getting involved with BNRD? We are always looking for future hosts and committee members. For more information, drop us a note at bnrd.conf@gmail.com!
ABOUT OUR KEYNOTE SPEAKER

Dr. Deborah Blom

Associate Professor of Anthropology, University of Vermont

Dr. Deborah Blom is an Associate Professor of Anthropology at the University of Vermont. She has undertaken bioarchaeological research in Mesoamerica, Andean South America, and the U.S. While residing in Vermont, Blom has also been active in reporting on human burials from Native and European American cemeteries that have been disturbed through construction or slated for repatriation. Dr. Blom’s primary research addresses questions of health and nutrition, diversity, identity, colonization, and migration within ancient Tiwanaku society, as well as earlier and later developments. Her research has been funded by The H. John Heinz III Fund, the Wenner Gren Foundation for Anthropological Research, the Tinker Foundation, the Hewlett Foundation, and the National Science Foundation. These pursuits have led to publications and conference papers on human sacrifice, mortuary ritual, population movement, health and diet, social complexity, trade, and human body modification as a means of expressing identity. Her recent, National Science Foundation-funded study investigates cultural constructions of Andean childhoods in ancient Tiwanaku society (AD 500-1100) in Peru and Bolivia.

KEYNOTE LECTURE

Bioarchaeology of Childhood: Perspectives and Insights from the South American Andes

Although the archaeology of childhood has been a recognized field since the 1980s, little attention has been paid to childhood and the roles of children in the ancient Andes in general. I will discuss advances in the field drawing from case studies, including those from my current multidisciplinary project on childhoods in the Tiwanaku state, which flourished in the South Central Andes between ca. 500-1100AD through migration and culture contact across parts of modern-day Bolivia, Peru, Chile and Argentina. Using multiple lines of evidence, the project concentrates on the formation and transformation of social identities, the life experiences of children, and constructions of childhood in the Tiwanaku state. Data include ethnographic and ethnohistoric sources, bioarchaeological data on cranial modification, paleopathology, and funerary patterns, as well as biogeochemical indicators of paleodiet and paleomobility. This research on Tiwanaku shifts the debate from the traditional questions about the manifestations of state power in the public sphere to considerations of the state in the private sphere, through the perspective of childhood.
CONFERENCE PROGRAM

Podium Session 1
10:00 am – 11:00 am

10:00–10:15 am

Embodied Discrimination: The Lives and Deaths of Black Women in the Huntington Collection
Aja Lans - Syracuse University

The Huntington Collection contains the skeletal remains of some 3,600 individuals who died in New York City between the years of 1893 and 1921. The majority of these individuals died of infectious diseases in various poorhouses and public hospitals throughout the city. Over half of the collection consists of immigrants while the rest are classified as native-born whites and blacks. These individuals were likely members of the marginalized classes of society, whose debts to society, it was argued, could be repaid by having their corpses dissected and curated for the sake of medical knowledge. Using a structural violence framework, I explore how discrimination based on factors including socioeconomic status, race, and gender contributed to the death, dissection, and curation of the individuals in the collection. Specifically, I focus on individuals who have been labeled as black females, combining skeletal and archival resources to consider how structural violence came to be physically embodied both during life and after death.

10:15-10:30 am

The representation of human skeletal remains in a museum
Safa Akhtar - Monmouth University

I present a case study on the Mütter Museum, a medical history museum which displays human skeletal remains with a range of diseases and abnormalities. Visitors flock to the museum to get a taste of the ghoulish side of human biology. Many staff members state that they want the remains to be treated with respect as they are there to improve our understanding of human biology. However, the comments made by a majority of the visitors speak more to the fascination of the unavoidable grotesque nature of some of the remains than to their educational qualities. Why is there a disconnect between what the staff wants and what the visitors perceive? Why is this disconnect a problem? In order to assess this, I conducted a pilot project over the course of 14 weeks. I noted comments and reactions visitors had towards certain exhibits. Additionally, I interviewed and surveyed some visitors and some staff members. So far, my results show that the public's attitude towards certain remains stems from the preconceived notions and stereotypes they hold towards living. The comments and reactions of visitors towards human skeletal remains in a museum is a window into how misconceptions and stereotypes about the living transfer to the dead. Although these preconceived notions are the results of decades of cultural misunderstandings, museums inadvertently reinforce them. By acknowledging a disconnect exists, the museum's staff can allow the remains to educate the public about our biological past instead of becoming subject to current cultural prejudices.
**Persistent Contagion and Ephemeral Traces: Skeletal, Memorial, and Spectral Remains from a 19th Century Cholera Epidemic**

Alanna Warner-Smith - Syracuse University

In the 1850s, a cholera epidemic moved through much of the Caribbean, killing thousands from the Bahamas to British Guiana. Reports circulated of individuals abandoned in their homes and others buried alive. With shortages of able-bodied gravediggers, infectious corpses accumulated, triggering shifts in burial and funerary practices. The epidemic thus drastically altered the social and material landscape. The remains—skeletal, memorial, spectral—of the epidemic continue to exert force, as some claim that it shapes collective identities and histories in the Caribbean today.

In this paper, I present research conducted in the U.S. Virgin Islands, the Bahamas, Barbados, and Guyana (formerly British Guiana), bringing together archival research, site visits, and oral history. Key to my discussion are bodies and burials. Their presence, and more often, their absence, become marked with notions of contagion and are entangled in broader post-colonial contexts and politics of race. Furthermore, many of the known cholera sites have become associated with other uneasy places and uses today. In discussing this persisting contagion, I question the definition of the mortuary site, as the properties of the dead—particularly the property of contagion—emerges with other materials and their properties on the landscape, moving beyond the grave itself.

**Diet, Disease, Diversity, and Death: Discoveries within the Yale Peabody Museum African Ape Collection.**

Gary P. Aronsen, Ryan McRae, and Megan Kirkham - Department of Anthropology, Yale University

Museum collections are critical resources for examining comparative anatomy, developmental biology and life history hypotheses. Evaluation of skeletal collections provides insight into spatiotemporal, species, population and individual variation associated with environmental, social and epidemiological history. For endangered species such as primates, these collections provide data that are nearly impossible to replicate today.

Here we describe aspects of the African Ape skeletal collection within the Peabody Museum of Natural History at Yale University. Our exhaustive review of Pan and Gorilla skeletal material identifies taxonomic diversity and distribution across captive and wild environments. Multiple age and sex classes are present, with craniodental and postcranial elements 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 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 and predation. Markers of violence are of value for wildlife and human forensic examination. Our evaluation of the Yale Peabody Museum 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 historical environmental and behavioral variables.

**Podium Session 1 Questions and Discussion**

11:00-11:15

**Podium Session 2**

11:15-12:15

11:15-11:30 am

**Violence in the Prehistoric American Southwest: A Consideration of Mimbres and Mogollon Trauma**

Kathryn M. Baustian, PhD - Skidmore College

Interpersonal conflict, social control, and culturally sanctioned violence are all potential modes of effecting change amongst human groups. This research investigates the complex relationship between interpersonal violence, human skeletal biology, and social identity among prehistoric agricultural communities in the American Southwest. The data presented in this study reveal patterns that can be used to better understand how violence is utilized or avoided. Bioarchaeology is well suited to investigate violence because it integrates the most direct evidence of conflict (traumatic skeletal injury) with detailed archaeological reconstructions of past human experiences. A biocultural assessment of Mogollon health, activity, and interpersonal violence was completed using biological data from a sample of 247 adult burials from 17 Late Pithouse (AD 550-1000) and Pueblo (AD 1000-1300) Mimbres sites and 187 adult burials from Grasshopper Pueblo (AD 1275-1400). The findings presented demonstrate broader patterns for interpretation of community experiences that have not been as well described in previous studies. Nonlethal cranial trauma affected 10.5% of adults in the Mimbres region and 33.4% of adults at Grasshopper Pueblo. The range of healed injuries throughout the Mogollon temporal span presents an opportunity to investigate the differences in violence within the social contexts of the region.

11:30-11:45 am

**Childhood Mortality Risk During the Industrial Era**

Sarah Reedy - Anthropology, Quinnipiac University

Exposure to poor environments, malnutrition, and labor during childhood can lead to an increased risk of mortality. Studies of skeletal samples from Industrial Era Europe show stunted growth and increased morbidity when compared to Medieval samples, suggesting harsher conditions. While poor conditions can negatively impact the survivability of all children, boys may be particularly disadvantaged, because girls can reserve nutritional components buffering them during times of stress.
This study examines the effects of environmental stress on the survivability of children (0-18 years) in three Industrial European skeletal samples from varied SES backgrounds. Stress markers (CO, PO, LEH, and periostitis) were scored and Kaplan-Meier analysis was used to test the following hypotheses. H1) Lower SES children will exhibit greater risk of mortality than higher SES children. H2) Boys will exhibit greater risk of mortality than girls. H3) Those who display evidence of stress will have a higher risk of mortality than those who do not.

Surprisingly, results show that low SES children displayed the greatest survivability compared to middle and high SES children. Boys do exhibit a greater risk of mortality though results were not statistically significant. As expected, those with CO and PO had a greater risk of mortality than those without. However, children who display LEHs had the greatest survivability. These results suggest those who survive early childhood stress have greater overall survivability.

11:45 am -12:00 pm
A case of osteomyelitis in a Prehispanic adult female of Chile’s Semiarid North: a descriptive assessment of infectious, non-specific pathology on the skeleton.
Maria A. Rosado1, Patricia Castillo2, and Anna Getler2
1 Sociology and Anthropology Department, Rowan University
2 Biological Sciences Department, Rowan University

The Museo Arqueologico de La Serena, Chile houses a large collection of human skeletal remains representing maritime hunter-gatherers and agriculturalists of Chile’s semiarid north’s littoral ranging in time from 3000 to 600 years ago. Because the taphonomic conditions of the remains are excellent, where many of the skeletons have almost complete anatomical representation and are intact, detailed paleopathology identification and analysis to document disease expression on bone is possible. Among the interesting paleopathological conditions observed is an osteomyelitis infection affecting an adult female. The documentation of ancient diseases can be a significant contribution to the understanding of health issues experienced by ancient populations. By understanding in the past the impact of disease on the human skeleton we can also suggest why and how these pathologies are still relevant today. The treatment of disease and how the individual’s life changes as a result of disease process in the past and the present can have vast differences. In regards to Chile’s semiarid north, studying paleopathology permits us to trace the evolution of disease hundreds and thousands of years ago, and better understand correlations to cultural adaptations such as hunting, gathering, agriculture, and use of marine resources in this part of the world (Rosado and Vernaccio, 2006; Rosado and Urizar, 2014).

12:00 - 12:15 pm
The effect of leprotic infection on the risk of death in medieval rural Denmark
Kirsten S. Kelmelis, Michael Holton Price, and Jim Wood - Pennsylvania State University

Paleopathological studies of leprosy in Danish skeletal collections show that many individuals suffered from this stigmatized disease during the Middle Ages. This study examines the risk of death associated with leprotic infection in individuals from the Danish rural cemetery of Øm Kloster (AD 1172-1536). Specifically, we modeled the influence of leprotic infection on age-specific
mortality accounting also for sex and social status. The sample consisted of 311 adult individuals from the Øm Kloster skeletal collection housed at the Institute of Forensic Medicine, University of Southern Denmark (ADBOU). We modeled morbidity and mortality using a three-state illness-death model the following parameterizations for the three transition hazards: (1) non-lesioned to lesioned: constant; (2) non-lesioned to dead: Gompertz-Makeham; and (3) lesioned to dead: Gompertz-Makeham, directly proportional to the hazard of the well to dead transition. The mortality hazard of lesioned individuals exceeded that of non-lesioned individuals by a factor of 40 percent. Lesioned individuals of the lay persons class experienced a higher risk of death, but lesioned females appeared to have a more elevated risk of death. Overall, 15 percent of the sample died with skeletal manifestations of leprosy, though it is likely that a higher percentage of the population carried the bacterium. This study improves understanding of past health and population dynamics focusing on a chronic infectious disease. The methods employed could informatively be applied to larger analyses of community health from skeletal collections by incorporating more than one disease into the multistate model and inferring individual frailty using various skeletal markers.

Podium Session 2 Questions and Discussion
12:15-12:30

Lunch
12:30-1:15

Keynote Lecture
1:15-2:15
Dr. Deborah Blom, University of Vermont

Undergraduate Poster Session
2:15-3:00
Abstracts listed at end of the program in alphabetical order of first author.

Podium Session 3
3:00-4:00
The Progression of Vertebral Osteoporosis: the Correlations between Vertebral Pathologies and Sociodemographic Risk Factors
Jennifer Kroll, B.S, and Sean Tallman, PhD - Boston University School of Medicine

To better understand how certain vertebral pathologies relate to one another, this study examines the possible correlations between vertebral osteoporosis, spondylolysis, Schmorl’s nodes, vertebral osteoarthritis, osteophytosis, and laminal spurs. Further, this study examines the effects of sex, age, ancestry, and occupation on the vertebral pathologies. A total of 238 individuals (54 African Americans and 184 randomly selected European Americans) from the William M. Bass Donated Skeletal Collection at the University at Tennessee, Knoxville were analyzed; all of whom have known demographic information. A complete examination of the vertebrae of the skeletal remains was recorded based on vertebral pathologies, sex, age, ancestry, and occupation. Vertebral osteoporosis and the vertebral pathologies were examined using visual morphometric scoring methods following: Genant et al. (1996), Knusel et al. (1997), and Lovell (1994). It is hypothesized that this study will show a positive correlation between osteoporosis and vertebral pathologies. Additionally, it is hypothesized that there will be a positive correlation between these pathologies and strenuous occupations. The author also hypothesized that there will be a difference in the prevalence in the development of vertebral pathologies between European American and African American ancestries due to African Americans having a higher bone density than European Americans (Aloia 2008). The data from this study will provide information regarding vertebral pathologies, and determine who are more susceptible for developing these pathological conditions among age, sex, ancestry, and occupation.

The Effects of Household Corrosive Acids on Restored and Non-Restored Teeth
Brittany Trapp, B.A. and Sean Tallman, Ph.D. - Boston University.

A gap in the literature exists regarding the chemical effects of household acids at different concentrations on restored and non-restored dentition. The present study examines the effects of household products on human dentition. A total of 105 adult teeth consisting of restorations composed of silver amalgam, porcelain fused to metal, and teeth with no restorative material were used. The household products utilized were hydrochloric acid (Clorox® Bleach Cleaner and The Works®) and sulfuric acid (Drano® Drain Opener and Watchdog® Battery Acid), along with one control base (Biz® Detergent). Teeth were radiographed before and after exposure to the products and were removed from the solutions after 1, 2, 4, 8, 24, 72, 120 and 264 hours. Documentation included mass, mesiodistal and buccolingual crown measurements, ordinal scoring of alterations, and photography.

The results indicate 86 (82%) of the teeth could be positively identified by radiographs after exposure. Hydrochloric acid had the most destructive effects to teeth without restorations and
those with silver amalgam restorations, but had a minimal effect on the porcelain fused to metal samples. Sulfuric acid minimally altered the restored teeth and deteriorated some parts of the enamel and dentin of the non-restored samples. Exposure to the detergent resulted in no change. The results of this study demonstrate that various household corrosive substances can affect the morphology of teeth, and in some cases, destroy teeth, which could mask the identification of an individual. However, the restorations were minimally affected by corrosive agents, and can therefore be used for positive identifications.

3:30-3:45 pm

**Metric Sex Determination Between Modern Thai and Native American Populations**
Meredith Patterson B.A., Sean Tallman, Ph.D - Boston University School of Medicine

Historically, metric and morphological standards used in forensic anthropology and bioarcheology have been derived from individuals of European and African descent. However, it is unlikely, that standards developed on Europeans, Africans, or Native Americans can be accurately applied to Asian populations. Due to different population histories, it is assumed hypothesized that ancient Native American and modern Thai individuals are metrically distinct. This study investigates the metric differences in the determination of sex between 102 Native American (American Museum of Natural History) and 100 modern Thai individuals (Khon Kaen University) 17 to 96 years of age. A total of 26 cranial as well and 57 postcranial measurements were collected and used in Spradley and Jantz’s (2011) American Black and White sex determination equations to see how equations derived from non-Asian populations perform on Native American and Thai individuals, and to ascertain if population differences exist in the expression of sexual dimorphism.

The results of this study show that the equations created by Spradley and Jantz (2011) often fail to correctly classify the Native American and Thai individuals. In particular, the equations derived from American Black and White individuals frequently classified modern Thai and Native American males as females. Conversely, three American White equations and eight American Black equations classified more females as males for both populations. Therefore, the metric sex determination methods developed on non-Asian populations do not adequately classify Native American and Thai individuals, and populations specific equations will be present here.

3:45-4:00 pm

**Positive Identification of Mycobacterium tuberculosis in dental calculus from the Smithsonian’s Huntington Collection.**
Soleil Young and Alanna Warner-Smith - Syracuse University

Diagnosing tuberculosis (TB) is challenging for bioarchaeologists, as not all who are infected form associated bone lesions. Currently, the only way to diagnose tuberculosis in skeletal remains using molecular techniques is to drill and sample bone, an invasive and destructive procedure. However, like bone, dental calculus can also trap and preserve DNA. In this poster, we present the first confirmation that TB can be diagnosed through analysis of dental calculus. Following established aDNA procedures, we analyzed dental calculus from seven unaccessioned mandibles from the Smithsonian Institution’s George S. Huntington Anatomical collection. This collection is comprised
of individuals collected between 1892 and 1920 in New York City. Associated vital records allow researchers to assess which individuals died of TB, and this archival evidence was compared with results from molecular analysis. We performed DNA extractions from decalcified calculus to target the IS6110 insertion sequence in the Mycobacterium tuberculosis 16sRNA gene, which is species-specific and present throughout the genome. Calculus collected from two mandibles tested positive for the presence of IS6110, demonstrating that it is possible to amplify and isolate Mycobacterium tuberculosis from historic dental calculus. We also discuss an expanded study, which examines the dental calculus from six Irish individuals in the Huntington collection, two of whom are recorded as having died of tuberculosis. Samples were also processed in a dedicated aDNA lab at ASU, but positive re-identification was not possible. This indicates that certain tests may be more sensitive for identifying M. tuberculosis in dental calculus, as well as the potential limitations of this method.

Podium Session 3 Questions and Discussion
4:00-4:15

Faculty Panel
4:15-4:45
Panelists:
Valerie Andrushko, Southern Connecticut State University • Kathleen Blake, SUNY Oswego • Kathryn Baustian, Skidmore College

During this open panel, faculty will address topics of relevance to individuals pursuing education and careers in bioarchaeology and related fields. Conference attendees are encouraged to think of questions they would like to ask the panel. Questions may be written down and handed directly to Dr. Katie Baustian during the conference or emailed to kbaustia@skidmore.edu in advance of the panel, up to 30 minutes prior to its starting time. Examples of topics include, but are not limited to: tips for applying to graduate school, advice for making the most of your Bachelor’s or Graduate degrees, navigating the academic job market, and the realities of academic/non-academic careers.

Closing Remarks
4:45-4:50

Networking Happy Hour
Eli’s on Whitney
2392 Whitney Avenue, Hamden, CT 06518
5:00 pm – 7:00 pm
**Poster Abstracts**

**Performative Violence in the Ancient American Southwest: Hobbling and Extreme Processing of Skeletal Remains**
Alexandria A. Armstrong and Kathryn M. Baustian - Skidmore College

Violence in the prehistoric American Southwest is well-documented and was a frequent aspect of life for some Ancestral Puebloan communities. Small-scale raiding was common during the Pueblo IV period (AD 1300-1450) when resource stress and large migrations created stress for much of the region. Extreme violence occurred at several points in prehistory, however, and the motivations for such events do not seem to have been related to environmental stress. Rather, other social circumstances were at work. This project identifies bioarchaeological evidence of violence as a performance aimed at communicating aggressors’ messages to victims and witnesses. Data are explored at the ancient sites of Sacred Ridge and Cowboy Wash with particular focus on extreme processing of human remains and foot hobblling as a form of torture.

**Microscopic Comparative Analysis of Human and Non-Human Trabecular Bone Structure for the Purposes of Forensic and Bioarchaeological Identification**
Maximilien Bielsa¹ and Maria A. Rosado²
¹Mathematics Department, Rowan University (undergraduate student)  
² Sociology and Anthropology Department, Rowan University (faculty)

By comparing trabecular bone of known animals (e.g., cow, dog) and human (e.g., cranium, femur) at 10X magnification, a diagnostic criteria has been established based on variable trabecular chamber structures by which unidentified, fragmentary spongy bones can be compared. Animal trabeculae display more elongated, prismatic/sharp edged chamber structures resulting in a grid-like arrangement; Human trabeculae display a more circular/oval form resulting in a more scattered-like arrangement. Trabecular structure has been applied to identify: known fragmented animal and human (Diaguita culture, ca. 500 YBP, Museo de La Serena, Chile); and known present-day animal samples. A random sample was obtained from a python program which assigned each trabecula photo with a value of 1 (true) or 0 (false). The pictures then had the number of shapes counted and summed up into four categories of circle, rectangle/oval, triangle, and other. Circles were shapes that seemed to be circular and the radius r from center to edge could not equal 1.5r at another side. Ovals/rectangles failed to be circles and were more than 1.5r or more elongated and had two approximately parallel sides, which both looked similar. Triangles had at least two sides that seemed straight and one side that was either straight or slightly curved and seemed triangular. Finally, the structures not forming the aforementioned shapes were grouped together. A chi-square test for independence was used to prove that there exist differences between the proportion of structures involved in the spongy bone samples for archaeological humans vs. animals (dogs, and llamas). The chi-square test resulted in proving that the structures were statistically significantly different. Another statistic was done on the area of the
trabecular bone structures with a two sample t-test comparing humans to animals. In the end the areas were proven to not be statistically significant.

**Bioarchaeological Interpretation of Spanish Colonialism in the Americas**
Madeleine L. Callanan and Kathryn M. Baustian - Skidmore College

It is well known that historical accounts of contact and conquest are written almost exclusively by the victors. Archaeological approaches to colonialism have attempted to balance these biased accounts through studies of material culture that explore the perspectives of both coloniser and colonised. Yet these accounts have often only scratched the surface of the impact of colonialism documented in the bioarchaeological record. Typically relegated to discussions of negative pathological consequences, these syntheses offer incomplete reconstructions of the colonial past. This research explores how bioarchaeology can give insight into colonial experiences of both those colonized and the colonizers. Focusing on numerous case studies, this research incorporates a biocultural approach to consider environmental, cultural, and biological data and to interpret skeletal and mortuary effects of Spanish colonization in the Americas.

**Sex Differences in Oral Health at the Greek Colony of Himera**
Erika B. Danella¹², Britney Kyle³, Laurie J. Reitsema⁴, Chelsea Batchelder⁴,
¹Department of Biological Sciences, Quinnipiac University
²Department of Sociology, Criminal Justice, and Anthropology, Quinnipiac University
³Department of Anthropology, University of Northern Colorado
⁴Department of Anthropology, University of Georgia

In the archaeological record, females tend to have worse oral health than males due to differences in diet, resource availability, and/or social position; there are also possible biological factors that negatively influence female oral health. This study examines potential structural violence between males and females at the Ancient Greek colony of Himera. We hypothesize that females will have worse oral health than males, possibly due to strict domestic gender roles and cariogenic diets evidenced by material culture and historical documents. To assess oral health, we determined the prevalence of caries in 239 individuals, and prevalence of abscesses and ante-mortem tooth loss (AML) in 227 individuals from Himera. A total of 5384 teeth were evaluated for the presence of caries and 4305 tooth positions were evaluated for the presence of AML and abscesses. Chi-square and Fisher exact analyses demonstrate that male and female individuals at Himera had an equal chance of developing at least one oral pathology, but females were more severely affected by caries and abscesses. Preliminary carbon and nitrogen isotope analysis indicate that males and females at Himera were eating the same types of foods in the same quantities. Therefore, differences in female oral health at Himera are possibly due to biological factors, such as early dental eruption or cariogenic saliva, rather than nutritional deprivation. In the future, we should examine other skeletal stress indicators rather than diet when characterizing potential male and female stratification in Ancient Greece.
Skeletal Tissue Project: Obtaining, Processing and Cataloguing Skeletal Material to Form a Teaching Collection
Hannah Kruse, Christopher Gomez, and Dr. Kathleen Blake - SUNY Oswego

This research sought to develop a collection of skeletal material at State University of New York at Oswego. Students within the Department of Anthropology, under the guidance of the resident Forensic Anthropologist and Osteologist, processed samples provided by the Anatomy Gifts Registry either by maceration and boiling or use of Dermestid beetles. Once the remains were clean, the samples were observed for pathologies. Progress in this research thus far has yielded 11 samples, including femora, scapulae, pelves, entire knee joints, and lower limbs (tibia, tarsals, metatarsals, and phalanges). One of these samples contained an intact knee replacement. While the final goal of this research was to develop a skeletal collection, the primary outcome has been the experience students gained from the project. Through the undertaking of this research, students participated in practical applications of the fields of Forensic Anthropology and Osteology that enhanced their classroom experience at SUNY Oswego. In particular, the exposure to soft tissue and opportunity to process the remains from maceration to skeletal preservation provided students an experience in dealing with flesh and muscular tissue typically unavailable to undergraduate students.

A New Therapy?: An Osteobiography Examining the Effects of Labor Therapy and Structural Violence at the Nineteenth-Century Oneida County Asylum
Danielle Schaf - Syracuse University

In the United States, institutions for the mentally ill emerged in the nineteenth century. The purpose of these institutions was to attempt to reform the inmates for possible return to society. The Oneida County Asylum, which was located in Rome, New York, operated from 1856 to 1892, and became one of the largest county asylums in upstate New York. At the Oneida County Asylum, like many institutions in the latter-half of the nineteenth century, labor therapy was practiced. Labor therapy subjected individuals to routinized, difficult, and labor-intensive work. The intent of labor therapy was to revert inmates “back to normalcy” and acclimate them into mainstream society; however, this “cure” was never achieved, meaning lifetime exposure to the asylum environment.

In this poster, I present research on Burial #3 from the Oneida County Asylum, from the skeletal collection in the Physical Anthropology Lab at Syracuse University. For this research, I performed an osteobiography, investigating the effects of labor therapy on skeletal remains of Burial #3 through analysis of entheseal change and pathology on the upper body, and vertebrae. Further, I utilized historical documentation, and examined the structural violence, and the oppressive and exploitative rhetoric from and within the Oneida County Asylum. Through the analysis of the human remains of Burial #3, I identified that this individual is not only a reflection of an environment of intense, nineteenth-century labor therapy, but also a reflection of an environment of structural violence—an analysis synthesized by the discipline of Historical Bioarchaeology.
Determining Sex on Metatarsals
Whitney Wachtarz, Leah Hess, and Jaime Ullinger - Quinnipiac University

Identifying sex of unknown individuals is a key component of bioarchaeology; however, the most reliable bones for identification (skull and os coxae) are not always present or well preserved. For this reason there is need to research an alternative, which can potentially be discovered in the measurements of metatarsals. A sample of 726 metatarsals from 140 individuals who were buried during the 19th-century in St. Bride’s Church, London were examined. To determine the sex, six measurements on metatarsals from both right and left feet were taken. We used regression equations to identify sex from the measurements. After identifying the sex of the human remains from the measurements taken, they were then compared to the known samples of the skeletal collection. Most of the measurements determined the sex correctly; however, some of the outcomes were ambiguous and others predicted the opposite sex. This is primarily based on equations determined by the study of Robling and Ubelaker (1997).

Cultural Taphonomy: A comparative study of mummification processes among the early Egyptian and Inca Cultures.
Emma Williams - SUNY Potsdam

This research will employ controlled laboratory experiments to compare the desiccation rates in natural and artificial mummification techniques. The artificial mummification techniques include those used by the early Egyptian and Inca cultures. Rat carcasses will be used as models in place of human cadavers. Lab protocols will be established in order to compare the taphonomy of mummified tissues. This project will also explore the cultural context of mummification as a funerary practice.

The desiccation method for natural mummification will include alternate artificial heating and cooling of the carcass buried in a sandy matrix contained in a clay pot. A thermometer will be used to monitor the temperature of the sand during the experiment in order to mimic desert temperatures during the day. Egyptian mummification will require the carcass to be eviscerated, treated with alcohol to limit bacterial activity, and buried in a matrix of natron for desiccation. On the other hand, the Inca mummification requires evisceration and skinning of the carcass, use of alcohol to control bacterial activity, then leaving the specimen in open air dry. The process, duration, and stages of mummification for the carcasses will be documented in all cases. This experiment will provide protocols that can be utilized in future desiccation related taphonomic experiments. The project will produce knowledge of the cultural context of mummification as a funerary practice and emphasize the need for cultural context to always be considered in taphonomic studies. The understanding of the taphonomy of desiccated tissues is directly relevant in bioarchaeological applications.