

**5th Annual Graduate Student Research Symposium**  
Graduate Students in Anthropology  
February 7, 2020



- 8:45** Light breakfast
- 9:15** **Jeff Burnett:** Starting Slow: Community Informed Background Research
- 9:30** **Micayla Spiros:** Eye Tracking to Assess Decision-Making in Cranial Macromorphoscopic Trait Evaluation: Implications of Education and Training in Method Application
- 9:45** **Marcela Omans McKeeby:** Transpacific Discourses in Tijuana, Mexico
- 10:00** Break (*time for one-one-one Q&A*)
- 10:15** **Kelsey Wagner:** Mitigating Human-Elephant Conflict in Sumatra, Indonesia
- 10:30** **Alex Goots:** Confronting Cognitive Bias in Forensic Anthropology: Michigan's Craigslist Killer Case
- 10:45** **Rhian Dunn:** What Forensic Taphonomy Can Do For You: A Case Study in Rural Pennsylvania
- 11:00** Break (*time for one-on-one Q&A*)
- 11:15** **Cara Jacob:** Broken Pipes and Broken Trust: Infrastructural Failure and Contested Expertise in Flint, MI (Preliminary Findings)
- 11:30** **Anna Christina Martinez-Hume:** “No Magic Pill Treats a Social Disease”: Empowerment and NGO Worker Subjectivity in Chimaltenango, Guatemala
- 11:45** **Elena Watson & Alex Goots:** Findings on Malaria and Migration from an Early Middle Ages Cemetery in Tuscany
- 12:00** Lunch (*time for one-on-one Q & A*)
- 1:00** **Emily Milton & Kurt Rademaker:** Using rocks and isotopes to trace human movements during the settlement of South America

**1:30 Carolyn Isaac:** The Repository for Antemortem Injury Response (REPAIR): An Invaluable Online Resource of Known Age Fractures for Comparison and Research

**1:50** Break (*time for one-on-one Q&A*)

**2:05 Xuhui Wang:** People's Productivity and Its Limitation: Technical Innovation as a Mass Movement of Anshan Steel Factory in Socialist China (1949-1966)

**2:25 A.L. McMichael:** Byzantine Visual Evidence and the Pedagogy of 3D Technologies

**2:45 Joseph Hefner & Rebecca Redfern (*Museum of London, UK*):** The Marginalized in Medieval London

**3:00** Break (*time for one-on-one Q & A*)

**Keynote Speaker:**

**3:15 Gabriel Sanchez:** Indigenous Stewardship of Marine and Estuarine Fisheries?: Reconstructing the Ancient Size of Pacific Herring Through Linear Regression Models

## PRESENTATION ABSTRACTS

### 9:15 **Jeff Burnett:** *Starting Slow: Community Informed Background Research*

Little archaeological research has been conducted on the historic black communities of Martha's Vineyard, Massachusetts despite the long history of African and African American life on the island. This paper discusses potential archaeological sites related to African American presence in the town of Oak Bluffs, formerly Cottage City, the results of archival and oral historical research, and the researcher's work with local historical experts and descendant community members to identify potential sites of archaeological significance and appropriate research questions. This research refocuses archaeology as a resource for a community interested in their past, which may or may not be appropriate depending on situations, actors, and circumstances. Topics explored will be landownership, conceptions of freedom and success, and community construction. The conclusions of this preliminary research will be used to explore the viability of an archaeology project focusing on the community of Oak Bluffs, Massachusetts in the 19th and early 20th centuries.

*Keywords:* Community Archaeology; Heritage; Pre-Dissertation Fieldwork

### 9:30 **Micayla Spiros:** *Eye Tracking to Assess Decision-Making in Cranial Macromorphoscopic Trait Evaluation: Implications of Education and Training in Method Application*

This presentation demonstrates how eye-tracking technology grant further insights into the application of anthropological methods. In this study, ten individuals with various levels of education and experience assessed skulls using the macromorphoscopic (MMS) scoring procedure while wearing eye-tracking glasses. Data from the glasses allowed the analysis of eye fixation patterns including: time recorded for each MMS trait, time spent on each skull, and overall time of analysis where time was used as a proxy for confidence. Individuals were assigned distinct groups: 1) education level, 2) MMS experience, and 3) a combination of both education and experience. Interclass correlations coefficients (ICC) were used to measure interobserver reliability of the scores. When analyzing the median overall time to score both skulls, a Kruskal-Wallis rank sum test indicates individuals with <2 years and >2 years of method experience differed significantly ( $p = 0.01052$ ). The results of interobserver error using the single fixed rater ICC between each individual indicates moderate agreement (ICC=0.72-0.74), groups sorted by education level indicate good agreement (ICC=0.86) and MMS experience show good to excellent agreement (ICC= 0.86-0.92) demonstrating that experience is the key to higher reliability between assessors. Using the time data created from the eye gaze patterns, eye tracking technologies allow researchers to visualize where variance may be occurring between assessors to identify critical parts of decision-making process. Through empirical decision-making studies, forensic anthropologists can move forward and improve practice by decreasing observer differences by targeting

problematic aspects of a method to support the improvement of method development and training.

*Keywords:* Forensic Anthropology; Macromorphoscopic; Decision-Making

**9:45 Marcela Omans McKeeby: *Transpacific Discourses in Tijuana, Mexico***

This paper will explore discourses on Chineseness in Tijuana, Mexico. In the past few decades, Latin America has received an influx of Chinese diplomacy efforts, investment, goods, and peoples which has reinvigorated the transpacific relations that have connected the regions for centuries. This is particularly salient in a coastal border town like Tijuana, MX which has long served as a transpacific hub for immigrants, capital, and politics. However, the notions of China, Chinese people, and Chinese companies in Tijuana, MX leads to these complex networks of relations to be essentialized into broad talking points and opinions that are circulated in everyday conversations. While these new narratives may not follow traditional orientalist tropes, the othering and juxtaposition of the Chinese against the rest of the wider community suggests new notions of orientalism that are emerging from these changing transpacific relations. Ultimately, investigating these narratives has the potential to reveal the ways in which the complex histories of Chinese-Mexican transpacific relations and lived experiences of the Chinese community in Tijuana are historically informed and contemporarily reconfigured.

*Keywords:* Mexico; China; Chineseness; Discourse

**10:15 Kelsey Wagner: *Mitigating Human-Elephant Conflict in Sumatra, Indonesia***

Across Asia, neoliberal exploitation of resources is causing deforestation, land-use change and urbanization, resulting in shifting elephant migration patterns and increased conflict between local farmers and elephants. Government support of/leniency towards multi-million dollar corporations privileges profit over people (and animals) and causes uneven development that affects the environment that local communities need for their livelihoods and homes. Because humans and elephants are in direct conflict for resources (habitat, food, water), violence between the two species has detrimental effects on the ecosystem and can build opposition to conservation projects. How is the spatiotemporal relationship between Southeast Asian farmers and elephants changing in light of deforestation, land-use change and urbanization? How can conservation programs improve human perceptions of elephants and encourage communities to engage in protecting them? To what extent are expertise and local knowledges incorporated into conservation decision-making? Answering these questions requires an in-depth analysis of the complex webs of connections between humans, elephants, and the ecosystems they share. This paper consists of a literature review of Sumatran ecology and elephant conservation, and outlines critical social theory and framework necessary to my research. Using Elinor Ostrom's Social-ecological systems framework, I organize cultural and ecological phenomena related to HEC on the Indonesia island of Sumatra. This paper contains critical resources for my dissertation research, and serves as a preliminary proposal for further research and funding.

*Keywords:* Interspecies Relations; Community-Based Natural Resource Management; Conservation; Cultural Anthropology; Southeast Asiaing

**10:30** **Alex Goots:** *Confronting Cognitive Bias in Forensic Anthropology: Michigan's Craigslist Killer Case*

When forensic anthropologists undertake casework, it is their goal to minimize bias that may subconsciously alter their analyses. This presentation will discuss a case analyzed at the Michigan State University Forensic Anthropology Laboratory (MSUFAL) wherein cognitive bias, introduced by superfluous conjecture from law enforcement about the sex and ancestry of the decedent, had the potential to derail the investigation.

In March 2019, human remains were brought to the MSUFAL for an anthropological analysis, including estimation of the biological profile, a trauma evaluation, and a personal identification. At the time of evidence transfer, law enforcement agents volunteered the information that the cranium belonged to a white female. Thereafter, the MSUFAL attempted to make a number of comparisons between the unidentified individual and missing white females in Michigan. However, after further analyses, it became clear that the information initially provided by law enforcement was inaccurate, leading to a new direction in the case and, ultimately, to an identification.

This presentation will provide the case background, an overview of forensic anthropological methods, and a discussion of the thought processes that underlie forensic examination. After this presentation, attendees will understand that forensic anthropologists should: (1) consciously limit the biasing information obtained before anthropological analysis; (2) utilize metric or statistical methods of constructing the biological profile when possible to minimize biasing effects; and (3) continue to estimate ancestry, as it can substantially decrease the pool of missing persons and lead to a timelier resolution of cases.

*Keywords:* Forensic Anthropology; Cognitive Bias; Cold Case; Biological Profile

**10:45** **Rhian Dunn:** *What Forensic Taphonomy Can Do For You: A Case Study in Rural Pennsylvania*

Forensic anthropologists are often called upon by medicolegal personnel for assistance in the identification of unknown individuals, such as through the estimation of the biological profile (i.e., age, sex, ancestry, and stature). However, forensic anthropologists are uniquely equipped to aid in another aspect of medicolegal investigations: outdoor crime scene recovery. The use of archaeological methods and techniques, consideration of forensic taphonomy, and a comprehensive understanding of human skeletal remains and decomposition enables forensic anthropologists to reconstruct past events in situ that inform later laboratory examination. Without that context from the outdoor scene, forensic anthropologists lose vital information that may clarify analyses, such as the estimation of a postmortem interval. In order to highlight the importance of outdoor

crime scene recovery, a case from Pennsylvania is presented. This case was part of an investigation into a potential double homicide due to suspicion that reports of a couple dying in a vehicle collision were falsified. For this case, law enforcement requested the assistance of the Mercyhurst University Forensic Scene Recovery Team (M-FSRT) for both the scene recovery and for subsequent laboratory evaluation. During initial recovery efforts, three immediate scenes, each with thermally altered skeletal remains, were found on the property, prompting questions concerning the order and manner of the death event. Through careful analysis of evidence gathered from the scene and the laboratory, the M-FSRT were able to confirm the identity of the two individuals, the method of deposition (including the manner and order of burning), and the likely cause of death. Due to the dispersed, fragmented, and thermally altered state of the remains, it is unlikely that past events could have been reconstructed to such a degree without evidence from both the recovery and laboratory analyses.

*Keywords:* Forensic Anthropology; Forensic Archaeology; Forensic Taphonomy

**11:15** **Cara Jacob:** *Broken Pipes and Broken Trust: Infrastructural Failure and Contested Expertise in Flint, MI (Preliminary Findings)*

The water crisis in Flint, MI captured the attention of the world in 2014. According to the state, the crisis is over, but the narrative of Flint's citizens tells a different story. I draw on photovoice and interview data to understand how citizen's narratives about the infrastructural failure in Flint contest state expertise and begin to construct their own. Analyzing women's testimonies, this study speaks to how citizenship is contested and reformulated, interrogating what access to basic water infrastructure means in a context of resource insecurity and denial of democracy, and outlines the impact of differential narratives on trust between Flint's citizens and the state.

*Keywords:* Citizenship; Flint; Water Security; Feminist Methods

**11:30** **Anna Christina Martinez-Hume:** *"No Magic Pill Treats a Social Disease": Empowerment and NGO Worker Subjectivity in Chimaltenango, Guatemala*

In Guatemala, which has the largest rate of maternal mortality, chronic malnutrition, and childhood stunting in all of Latin America, Indigenous women are often the targets of health interventions aimed at addressing the social inequities that keep communities from living healthy lives. In a country saturated with over 10,000 non-profits, grassroots NGOs often take up such interventions. As parts of a larger whole, NGO workers, like Ynez, possess varying positionalities that are continuously re-made through their institutional and intersubjective interactions. Subjectivity illuminates the competing nature of one's unique attributes and environments that lead individuals to act in particular ways. Based on my research with multiple health-focused NGOs in Guatemala, this paper explores the unique subjectivities of NGO workers and how factors such as identity, indigeneity, and institutional legacy may impact the health interventions designed and implemented in Maya communities. NGO workers in this study are simultaneously individuals who possess profound connections to the communities in which they work, and who are also

actors immersed in NGO rhetorics of what it means to “do good.” I argue that these subjectivities impact workers’ abilities to perform their roles in health intervention, and ultimately shape the NGO’s collective understanding of empowerment.

*Keywords:* NGOs; Medical Anthropology; Subjectivity

**11:45 Elena Watson & Alex Goots: *Findings on Malaria and Migration from an Early Middle Ages Cemetery in Tuscany***

Over five consecutive field seasons, our research team analyzed the human skeletal remains excavated from an early Middle Ages cemetery (6th/7th to 12th centuries CE) in the ancient city of Roselle, Italy. This presentation discusses the findings of two major research questions that contribute to the archaeological narrative of this site. First, was malaria present at Roselle over the early Middle Ages, and if so, how prevalent was it? Second, who lived at Roselle, and were there non-local migrants interred in this cemetery? Paleopathological and craniometric biodistance analyses were used to investigate these questions. Results suggest the presence of malaria and non-local individuals in this community during the early Middle Ages. The cemetery at Roselle offers a unique window into the history of this region in central western Italy between the Late Antique and early Medieval periods.

*Keywords:* Bioarchaeology; Italy; Malaria; Migration; Medieval Period

**1:00 Emily Milton & Kurt Rademaker: *Using Rocks and Isotopes to Trace Human Movements during the Settlement of South America***

The settlement of the Americas represents the most extensive and rapid biogeographic expansion of our species. After 16,000 years ago, humans settled one-third of Earth’s terrestrial land area within 3000 years. Our working group is studying how this extraordinary settlement process took place in western South America by using rocks and isotopes as tracers for human movements. We integrate results from provenance analysis of obsidian and other lithic sources and from analysis of stable isotopes in the bones and teeth of early humans, their prey animals, and water sources in a diverse landscape spanning the Pacific Coast to the high Andes. Ultimately, we aim to understand migration routes, processes of adaptation in extreme environments, and inter-zonal connections in the Andean world.

*Keywords:* Andes; Provenance; Stable Isotopes; Terminal Pleistocene; Early Holocene; Inter-zonal Connections

**1:30 Carolyn Isaac: *The Repository for Antemortem Injury Response (REPAIR): An Invaluable Online Resource of Known Age Fractures for Comparison and Research***

The Repository for Antemortem Injury Response (REPAIR) is an online database for the collection of fracture samples of known age and use as a comparative tool in cases of cranial fracture repair. The genesis of the cranial fracture healing project began as a persistent call for understanding and interpreting cranial injuries within the context of

accidental versus non-accidental trauma. As such, the goals of the project are to simultaneously create a method for human cranial fracture histology, build a database of cases with known injury times, conduct an evaluative intra- and interobserver study to create a histomorphologic tool for evaluating cranial fracture healing, and provide an interpretive framework for inferring time-since-injury of cranial fractures.

*Keywords:* Fracture; Antemortem Injury; Time-Since-Injury; Database

**2:05** **Xuhui Wang:** *People's Productivity and Its Limitation: Technical Innovation as a Mass Movement of Anshan Steel Factory in Socialist China (1949-1966)*

This presentation takes Anshan Steel Factory as a typical case and focuses on the production practice of a Chinese state-owned enterprise. Through the analysis of technical innovation process of Anshan Steel Factory from 1949 to 1966, it discusses the micro mechanism of effective integration of R & D of technologies, technical management and technical operation and its unique social and political consequences. The study found that Anshan Steel Factory achieved effective integration among different organizational levels within the enterprise through Mass Technical Innovation Movement. Managers, technicians and workers worked together on the technical difficulties of production frontline, constituting an important experience in the technical innovations. Under the influence of the community consciousness of the factory as the home, Anshan Steel Factory advanced the technical cooperation and comprehensive technical competitions through mass movements, initially achieved the technical supporting network between different factories, mines, departments and personnel. Furthermore, Anshan Steel Factory formed a special technical community that relied on the common people. On the one hand, different technical modules and all the organizational units were closely connected depending on multiple technical links. On the other hand, the technical divisions between different subjects within this large state-owned enterprise also resulted in a technical hierarchy and differentiation of interests. The superiority of People's Productivity faced the challenge of technical involution. In a word, the technical community should be integrated at a higher and avoid the political domination from the state.

*Keywords:* Technical Innovation; Socialist China, Mass Movement, Technical Involution

**2:25** **A.L. McMichael:** *Byzantine Visual Evidence and the Pedagogy of 3D Technologies*

Scholars often rely on 3D imaging techniques such as photogrammetry (making models out of photographic data) to document extant monuments or archaeological sites. The technique falls short, however, when a site is no longer extant, has significant damage, or has seen varying patterns of use over a long period of time. Using vector imaging techniques (e.g., CAD software or tools like SketchUp) offers an alternative way to assert visual data where there is no material evidence to document or where there are gaps in the record. I discuss vector drawing methodology as a kind of data visualization that offers untapped opportunity for scholarly research as well as a means of helping students develop empathy for past peoples using historical sources.



In this talk I will show how I use 3D imaging to examine Byzantine monuments in the region of Cappadocia (central Turkey). I will also discuss my current work with students wherein they are tasked with visualizing a Byzantine community and its relationship to the landscape using SketchUp and Google Earth. The project and these techniques provide new avenues for students to utilize imagination, creativity, and empathetic reasoning when interpreting material and spatial evidence.

*Keywords:* 3D Modeling; Visualization; Monuments; Architecture; Teaching

**2:45** **Joseph Hefner & Rebecca Redfern (*Museum of London, UK*):** *The Marginalized in Medieval London*

The evidence for Medieval lives obtained by bioarchaeological, palaeogenomic (ancient DNA) and other scientific analyses has become increasingly incorporated into historical scholarship. These techniques and those in forensic anthropology are not limited to understanding funerary practices, health and disease, as the evidence they provide for population diversity is a crucial line of independent data in this period. The study of mobility and migration, particularly through enslavement has long been of interest in Medieval studies, but only recently have archaeological human remains been re-visited to investigate population diversity, and to connect those results with light stable isotope and ancient DNA with skeletal evidence for migration and population affiliation. Our research introduces how population diversity (or ancestry) is studied in archaeological human remains using techniques developed in forensic anthropology, and demonstrates this with a case-study from Medieval London.

*Keywords:* Medieval London, Ancestry, Marginalized Groups, Bioarchaeology, MMS Traits, Human Skeletal Biology

## **Keynote Speaker**

**3:15** **Gabriel Sanchez:**

*Indigenous Stewardship of Marine and Estuarine Fisheries?" Reconstructing the Ancient Size of Pacific Herring Through Linear Regression Models*

Linear regression models constructed from modern fish skeletal collections and applied to archaeological fish remains have a long history in archaeological practice. These data are often employed by researchers to understand ancient human impacts on ichthyofaunas, to consider changes in fishing technologies and techniques, and the effects of environmental change. In this study, I build and apply linear regression formulae of Pacific herring (*Clupea pallasii*), a keystone and umbrella forage fish to faunal materials from Point Reyes National Seashore on the central California coast, which date to the Late Holocene. Through the application of these formulae to archaeological Pacific herring skeletal elements, I reconstruct the standard length of ancient Pacific herring. The findings are compared to Pacific herring standard length data gathered by the California

Department of Fish and Wildlife within Point Reyes and Bodega Bay. These data suggest that Coast Miwok fishers may have used standardized net mesh size to capture Pacific herring selectively. These findings are consistent with expectations from the indigenous coastal management and ecological literature.

*Keywords:* Pacific Coast of North America; California; Historical Ecology; Archaeobiology; Indigenous Fisheries