

## 6th Annual Graduate Student Research Symposium

- Graduate Students in Anthropology -

February 11, 2022

- 9:00 Emma Zblewski:** *Biosociality and subjectivity: an opportunity for mixed methods in medical anthropology*
- 9:15 Masako Fujita:** *Exploring how maternal infection and malnutrition during breastfeeding may influence immune content in mothers' milk*
- 9:30 Jeffrey Burnett:** *Archaeological Investigations of the Shoudy Site (20BE614) Berrien County, Michigan (JN130008)*
- 9:45** Break 1 (time for one-on-one Q&A)
- 10:00 Kelsey Wagner:** *Art as Ethnography; Trash as Portraiture*
- 10:15 Joseph Hefner:** *Biological Distance, Population Affinity, and Typology with Particular Consideration to the US-Mexico Border*
- 10:30 Nikki Klarmann:** *Beneath Monroe: Plans for Archaeological Excavations at Brown v. Board of Education National Historic Site*
- 10:45** Break 2 (time for one-on-one Q&A)
- 11:00 Alex Goots:** *When a Reanalysis Changes Everything: A Cold Case Study of a Possible Gender-Variant Individual*
- 11:15 Emily Milton, Sarah Meinekat, and Kurt Rademaker:** *Fire and Water in Thin Air: Experimental Archaeology in the Andes*
- 11:30** Break 3 (time for one-on-one Q&A)
- 11:45 Rhian Dunn and Micayla Spiros:** *The Effects of Various Maceration Techniques on Human Fetal Bone*
- 12:00 Aubree Marshall and Gabriel Wrobel:** *Marco Gonzalez: Insights into Ancient Maya Coastal Living*

## PRESENTATION ABSTRACTS

**9:00 Emma Zblewski:** *Biosociality and subjectivity: an opportunity for mixed methods in medical anthropology*

The concept of biosociality was originally proposed by Paul Rabinow in the 1990s to describe groups of people united by their shared genetic predispositions to health problems. This term has since been applied to those united by chronic illness diagnoses and experiences, leading many of them to form communities on Facebook. The groups function of Facebook has been noted by scholars to foster an emergent space for biosocial interaction and identity formation. These spaces, often “private,” have memberships ranging from hundreds to tens of thousands. Members utilize these groups to share and request practical information and experiential knowledge, and to seek support and understanding. From a research standpoint, these digital spaces are rich sites for interaction between biosocial community members that may never coexist in a physical locale; members of these groups live around the globe and opportunities for in-person congregation are rare if they exist at all. Postural orthostatic tachycardia syndrome (POTS) is an autonomic nervous system disorder that has spawned multiple large biosocial groups on Facebook, as has chronic kidney disease (CKD) [see forthcoming paper from Durham, Zblewski, and Howard]. In examining the subjective, experiential knowledge of persons with this chronic illness experience, digital ethnography and discourse analysis of the texts produced in these spaces are invaluable. I see biosocial communities as an important avenue for investigating identity formation and subjectivity, and a group necessitating mixed methods research. Digital ethnography in this sense, including long-term observation of online communities, and analysis of group discourse and individually published texts, is essential but not sufficient for understanding what a biosocial identity means. Subjectivity in medicine is usually only assigned to patients. Observations of the physicians or medical staff are considered to be objective, and more valuable. To thoroughly explore the subjectivities of POTS as constructed by patients and those constructed by healthcare professionals, mixed methods are necessary. I will conduct digital ethnography and discourse analysis, in-person observations at clinics serving POTS patients, and in-depth interviews with both patients and physicians to better explore how a biosocial identity is constructed communally, experienced individually, and understood medically through a biomedical lens.

*Keywords:* biosociality, methods, medical anthropology, Postural Orthostatic Tachycardia Syndrome (POTS), ethics

**9:15 Masako Fujita:** *Exploring how maternal infection and malnutrition during breastfeeding may influence immune content in mothers' milk*

Lactoferrin, a multi-functional, iron-binding glycoprotein, is known for immunomodulatory effects when present in milk, protecting infants against infection by binding with many bacteria, viruses, and fungi, aiding infant pro-inflammatory immune responses, and coordinating multiple immune system functions. At the Biomarker Laboratory for Anthropological Research, we recently explored how maternal infection and nutrition may influence maternal delivery of milk lactoferrin. We expected that lactoferrin delivery would be elevated with maternal inflammation or infection (likely indicative of infectious disease processes), decreased with maternal iron deficiency (if lactoferrin were an iron transporter), and elevated for young/male infants who may be

particularly vulnerable to infectious diseases or malnutrition. We analyzed milk specimens and metadata from Ariaal mothers of northern Kenya (n = 203) to evaluate the associations between lactoferrin and maternal inflammation/infection, anemia/iron deficiency, underweight, infant age/sex, and the mother-infant variable interactions in multivariate regression models adjusted for milk total protein. We found that maternal inflammation was associated with higher lactoferrin content but only for younger infants. Maternal anemia/iron deficiency was not associated with lactoferrin. These results suggest that mothers deliver more lactoferrin when they have inflammation/infection but only for younger infants. This fits with our expectation for vulnerable young infants but falls short of our expectation of elevated lactoferrin for older infants of mothers with infection. It may be that sustained elevation of lactoferrin is energetically costly for mothers or hazardous for infants. Lactoferrin appears unaffected by maternal nutrition. Research is needed to understand how milk lactoferrin variation relates to health outcomes in infants.

*Keywords:* human biology, infection, nutrition, biomarker, Kenya

**9:30 Jeffrey Burnett:** *Archaeological Investigations of the Shoudy Site (20BE614) Berrien County, Michigan (JN130008)*

In this paper I discuss the archaeological investigations of a mid 19th century home in Berrien County, Michigan, that reveals insights into the class and gender performance of American settlers from Eastern states who migrated to Michigan.

*Keywords:* Michigan, 19th century, archaeology, gender, class

**10:00 Kelsey Merreck Wagner:** *Art as Ethnography; Trash as Portraiture*

Activist art, also known as “artivism”, has emerged as a powerful mechanism for relaying critical information about social and environmental issues to broader public audiences around the world. Artivism has been particularly effective for visualizing data about climate change, biodiversity loss, and trash pollution. This presentation will begin by sharing examples of artivism and exploring how anthropologists have investigated the importance of artivism in a variety of contexts, as well as how this will inform my upcoming dissertation research. This will be followed by an overview of my current project titled “[Loom & Doom](#)”, a series of recycled trash weavings that I have created using plastic sourced from my social network. Each of these weavings are made from hundreds of plastic bags and function as a portrait of a person’s consumer habits, illuminating the ways in which plastic and trash are part of our material culture. While this art series began as a personal project, I will conclude the presentation by sharing my plans to continue this project in a community-engaged capacity during my fieldwork.

*Keywords:* Visual anthropology; environmental anthropology; material culture; art; plastic use

**10:15 Joseph Hefner:** *Biological Distance, Population Affinity, and Typology with Particular Consideration to the US-Mexico Border*

The estimation of ancestry, or population affinity, in forensic anthropology has received renewed attention and much deserved reassessment, all in an effort to separate anthropology, particularly biological anthropology, from its racist roots. This reassessment has included a moderate wave of criticism directed at cranial nonmetric morphologies and

whether these traits are typological (DiGangi and Bethard 2020; Ross and Williams 2021). The typological species concept considers a group of organisms, in this case, populations of anatomically-modern *Homo sapiens* who share a common morphological plan that is static and non-variable. By definition, then, any method that is typological considers any variation in that morphological plan—again, in this case, human variation—uncharacteristic and abnormal. This is not a distinction relegated to academic discussions in an Anthropology Department’s mailroom, but has roots in evolutionary biology and Mayr’s (1959) distinction between “typological” and “population” thinking, terms he coined to contrast problematic (and generally misguided metaphysical, anti-evolutionary) typological commitments (i.e., body plans and morphological types) to the more constrained study of evolutionary forces, variation, alleles, and genotypic/phenotypic expression in populations and species (Wagner 2014; Witteveen 2018). Using data derived from the Alameda-Stone Cemetery in Tucson, Arizona, we explore ancestry estimates as typology- and population-based approaches to human variation to assess the distribution of human variation as a product of evolutionary forces, including gene flow, founder’s effect, and natural selection, on the predictable ecogeographical patterning identifiable in a robust statistical framework. This two-pronged approach is important to illustrate the distinction between types used to define a group and the application of captured variability to estimate population affinities.

*Keywords:* biological distance, population affinity, typology

**10:30** **Nikki Klarmann:** *Beneath Monroe: Plans for Archaeological Excavations at Brown v. Board of Education National Historic Site*

In 2022, the annual Kansas Archeology Training Program field school will focus on the Brown v. Board of Education National Historic Site (BRVB) in Topeka, Kansas, partnering with the park and the National Park Service’s Midwest Archeological Center (MWAC). The National Historic Site is the location of the Monroe Elementary School (built 1927) and the former location of the Monroe School (built 1874), both segregated schools for Black children until the 1954 court decision. The school property was a part of the Ritchie Tract, purchased by John Ritchie in 1856 with plots sold predominately to African Americans. Early Sanborn maps and census records are vital in understanding the history of the property and creating a clear timeline of owners, what buildings stood when, and what the surrounding area looked like over time. The excavations will expand our knowledge of the early life of the Monroe School property from when it was purchased by John Ritchie and up to the time when the current Monroe Elementary School was built. We want to better understand the lives of people living in the Monroe School neighborhood by exploring the remains of some of the structures that are buried on the property, using archaeology to help tell the story of the people who lived there.

*Keywords:* Kansas, Archaeology, National Historic Site, Brown v. Board, African American History

**11:00** **Alex Goots:** *When a Reanalysis Changes Everything: A Cold Case Study of a Possible Gender-Variant Individual*

When reanalyzing a forensic cold case, an important first step is to determine whether the original analysis is accurate. These re-analyses may reveal past mistakes that can help explain why a case has remained unresolved for a significant length of time. It is not only valuable to ameliorate these issues from a case resolution standpoint, but also to

understand the circumstances that contribute to these inaccuracies, which may provide insight into broader issues in the field. One such circumstance is the biasing effect of gendered clothing on sex estimation in forensic casework. A study of cognitive bias in sex estimation found that gender-stereotypical clothing associated with unambiguous skeletal remains had substantial biasing power, leading to inaccurate sex estimation despite the remains clearly expressing characteristics of a particular sex.

During a reanalysis of cold cases in the Michigan State University Forensic Anthropology Laboratory (MSUFAL), the authors identified a case in which the reported sex was female, but the remains themselves appeared more ambiguous. Notably, the decedent was found with stereotypically “feminine” personal effects, including a bra, a wig, and high-heeled shoes. In the reanalysis, substantial disagreement between several anthropological methods resulted in an overall “indeterminate” estimation of sex. Ultimately, nuclear STR DNA analysis was used to identify the sex of this individual; the presence of X and Y chromosomes in the decedent’s DNA are consistent with a sex estimation of male. However, the stereotypically “feminine” personal effects in this case suggest that the decedent’s gender expression may have differed from their sex assigned at birth. Therefore, this case provides an example of the biasing power of extraneous information on skeletal analysis, and the importance of thinking outside the gender binary in forensic casework.

*Keywords:* Cognitive Bias, Sex Estimation, Gender Variance

**11:15 Emily Milton, Sarah Meinekat, and Kurt Rademaker:** *Fire and Water in Thin Air: Experimental Archaeology in the Andes*

This talk presents the recent experiments conducted during Emily Milton, Sarah Meinekat (Ph.D. Student, U. Tübingen) and Dr. Kurt Rademaker’s January 2022 field season. For the first study, we explored variance in temperature and burn-duration for three Andean fuel sources. In the second study, we examined possible effects of cultural practices on the isotopic composition of drinking water. This talk will include many pictures of the Andes, alpacas, and happy archaeologists returned to the field after almost 3 years of a pandemic.

*Keywords:* Andes, Experimental Archaeology, Isotopes

**11:45 Rhian Dunn and Micayla Spiros:** *The Effects of Various Maceration Techniques on Human Fetal Bone*

Forensic anthropologists are called upon for their expertise in skeletal analysis. Working with cases that vary in stages of decomposition, human remains often require maceration—the process of removing soft tissue from skeletal elements—for forensic analysis. Maceration techniques and methods vary between laboratories and procedures for maceration of fetal remains is lacking in the literature. This study evaluates the use of three maceration techniques on fetal remains (23 gestational weeks). These techniques include: cold water bacterial maceration, warm water enzymatic maceration, and dehydration. Before this study, dehydration had been previously unpublished for human skeletal remains. Scoring systems were adapted from Steadman and colleagues (2006) to rate ease of maceration, effect on bone quality, and utility for forensic casework and/or donated remains. Results indicate that all three techniques were easy to implement and did not reduce bone quality. Steadman and colleagues (2006) recommend warm water enzymatic maceration for forensic casework, as it will not degrade DNA. This study

corroborates their recommendation, finding that fetal remains can be macerated with minimal cooking (<2 hours). We found that cold bacterial water maceration and dehydration are preferred for donated remains. Cold bacterial water maceration is low maintenance, minimally malodorous, and preferable for disarticulated teaching materials as it prevents the possible heat-induced warping of fetal bones. Dehydration is preferred for the preservation of articulated elements for comparative studies in donated collections. This study demonstrates that several techniques are possible for fetal maceration, but provides guidelines for practitioners depending on various desired outcomes.

*Keywords:* Maceration, donation, skeletal preparation

**12:00 Aubree Marshall and Gabriel Wrobel:** *Marco Gonzalez: Insights into Ancient Maya Coastal Living*

Dr. Gabe Wrobel is beginning a new collaborative research project focusing on ancient coastal Maya communities. Fieldwork will focus on Marco Gonzalez, a trading hub located on Ambergris Caye in Belize. The project will provide new insights into the lived experiences of Maya coastal populations and include collaboration with colleagues working at sites across Belize and Mexico. This presentation will describe the project and what the future work will look like.

*Keywords:* Maya, Belize, Coastal populations