

**19th Annual  
Lambda Alpha Symposium  
Wichita State University**



Abstracts  
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WSU Department of Anthropology

**CJ Barringer** *The Heterozygote Cystic Fibrosis Advantage over Cholera*

It has been hypothesized by many scholars that the high frequency of Cystic Fibrosis (CF) is due to a selective advantage within the gene's heterozygous state. The pathophysiology, population genetics, molecular genetics, and epidemiology of the disease are believed to be key components when assessing the carrier advantage of CF over cholera. While this theory has been supported in molecular experimentation, the historical significance and epidemiology do not support the theory. By thoroughly examining all the evidence and research provided, this paper will show how further testing is needed for an in-depth look into the study of genetics and pathological diseases.

**Carissa Speck** *Maasai Beadwork: Empowering Women and Challenging the Gender System*

The Maasai are pastoral community located throughout Kenya and Tanzania. Gender inequality is evident in this society however, the increase of capitalism has led the Maasai people to earn income in other ways. Tourism has had a massive impact on the Maasai community economically. With the large influx of people visiting Kenya and Tanzania, anthropologists have and selling of traditional jewelry. This paper will show how capitalism is having a beneficiary and cultural impact on the Maasai community's rigid gender structure

**Amanda Cline** *Effects of Disease on Bone*

Disease can create a wide variety of effects that can be seen on the human skeleton. This paper will focus on the analyses and presentation of Rheumatoid Arthritis, Osteoarthritis, Osteoporosis, and Osteopetrosis on bone pathology. While there are a few similarities, each disease manifested in unique ways regarding bone pathology. This research will show the varying responses seen from these eleven diseases.

**Sapphire Garcia** *Cultural Revitalization and Resistance and Prenatal Care Service Delivery in Hawaii County, Hawaii*

Understanding the relationship between Hawaiian cultural revitalization, provider retention, and prenatal care in Hawaii has a value for clinicians and public health professionals seeking to deliver culturally competent prenatal care. Three focus groups were interviewed to discuss any linguistic, paralinguistic, or sociolinguistic challenges that they felt they faced in their pursuit of prenatal care. Emerging themes suggest that the dynamics of provider retention, patient satisfaction, and service delivery show a reflective change in cultural paradigm. The research presented focuses on regional trends in revitalize traditional practices including the expectation of a culturally competent prenatal care.

**Allie Ferguson** *Osteoarthritis and Associated Risk Factors: An Assessment of the Relationship between the Body Mass Index and Osteoarthritis of the Knee Joint*

Osteoarthritis is a chronic degenerative condition that has been observed in all populations worldwide so far. It results in pain and diminished quality of life for those afflicted, and there is currently no known cure. Obesity is thought to be the most strongly associated modifiable risk factor for osteoarthritis. Obesity impacts the expression of osteoarthritis in the

knee joints of both men and women due to several implications of obesity upon the body. Additionally, metabolic factors due to the differential hormone levels in obese individuals compared to non-obese individuals are now thought to trigger inflammation and degradation associated with osteoarthritis. The aim of this study is to contribute to the existing literature published in recent years ascribing obesity as a risk factor for osteoarthritis. The scope of this study will deal with whether or not there is a correlation between obesity and osteoarthritis of the knee joint, and whether or not the strength of this correlation differs between males and females.

**Claire Weatherall & Camryn Berry** *Sex Determination Using Metric and Non-metric Traits*

The use of metric and non-metric traits can be employed when attempting to estimate or determine the sex of an individual. However, both methods vary in reliability depending on the traits being analyzed. The research presented employs the use of using metrics to assess sexually dimorphic traits in the long bones of archaeological specimens. Non-metric traits were applied when assessing the skull and pelvis in an attempt to determine sex. While this research is promising, it is necessary for further studies to be conducted in order to determine whether there is a relationship between metric and non-metric traits as well as the possible correlation with epigenetic traits.

**Brent Kennedy** *Graffiti: Clans, Tribes, Nations, and Wannabes*

By using visual images collected from New Orleans, LA; Hawaii Island, HI; Wichita, KS; and Novi Sad, Serbia, as well as archaeological and historical records, this presentation focuses on the semiotics of modern graffiti. This research will show how modern graffiti can be viewed as a fundamental human behavior. By focusing on participant encoding within and outside tourscapes, this study demonstrates graffiti as a multi-layered information exchange and not just a straightforward territorial marker or soft-power rebellion.

**Audra Howe & Justine Ely** *Environmental Effects of Weathering on Saw Marks on Bone*

This research presents the current findings of an ongoing experiment which focuses specifically on the effects of weathering found on kerf marks made by different kinds of handsaws. This particular study follows Dr. Symes research on kerf marks using different types of handsaws for the purpose of identifying weapons used in forensic cases. The experiment seeks to measure and quantify the weathering of kerf marks in the hope that assistance will be given in the estimation of the duration of exposure.

**Megan Fuller** *The Revitalization of Hand Tapped Tattoos in Hawaii*

In the 1800s, missionaries outlawed tattooing in Hawaii in order to better enforce the native Hawaiians to adhere to. Despite the fact that tattooing is no longer illegal, years of lost knowledge and modern regulations on the art still hindered the revival of the traditional Hawaiian method of tattooing. With the sovereignty movement and cultural renaissance of Hawaiian tradition, hand tapping is coming back into practice. Hand tapping represents not only cultural ties to the past, but the ancestors who possess the knowledge previously. This research will focus on the methods of Tonga and Samoa as well as look into older revitalization movements associated with Hawaiian culture and hand tapping tattooing.

**Ryan Frome, Brittany Bingham & Brian M. Kemp** *Carbon and Nitrogen Isotopic Analysis of Humans and Animals in the American Southwest*

Stable isotopes undergo a process known as fractionation, in which isotopic ratios are altered as they move through the biosphere. By studying the influences of fractionation on carbon, it is possible to determine from bone collagen the percentage of maize consumed by that human over other plants present in the area. Similarly, by studying the influences of fractionation on nitrogen, it is possible to determine which level of the trophic scale humans are on in comparison to animals and plants of the same area. This research focuses on are stable isotope analyses in academic literature to determine the diets of humans in comparison to domesticated animals, with an emphasis on better understanding the disparity between the expected diets and actual data collected of humans and turkeys in the American Southwest.

**Jessica Aldrich & Jacob Griffith and Peer H. Moore-Jansen** *Use of Computer Vision and Machine Learning Techniques to Determine Age-at-Death of Human Crania*

Age estimates of crania found in the field are currently done subjectively with limited precision and accuracy which limits the creation of a biological profile for the deceased. Current methods involve visual cranial suture analysis, specifically the Meindl and Lovejoy method. This method attempts to quantify the qualitative data collected about the skull by assigning values (from 0 to 3) based upon the perceived percentage of suture closure. While this method is often considered the gold standard in cranial suture analysis, its subjective nature is a primary limitation. Through the use of machine learning and computer vision techniques, this study is working to quantify the amount of light penetration through the cranial suture joints. The results yielded an accurate estimation within  $\pm 10$  years of the actual age of the skull. The development of this method may provide the foundation for a quantitative approach to determining the age-at-death for skulls found in the field.

**Walker Burgett** *Secrets of the Human Leg: Sex and Group Affiliation in Skeletal Measurements of the Lower Appendicular*

Research in forensic science over the last century has made it possible to identify an array of individuals from skeletal remains alone. Within the field today there are a number of methods including sexing, aging, stature, and group affiliation that researchers have identified based on examining skeletal features and measurements of known individuals. This project examines skeletal measurements of the lower appendicular which include the femur, tibia, fibula, and patella. A series of standard and non-standard measurements will be used on these bones to identify morphological traits, specifically sexual dimorphism, and group affiliation, also commonly referred to as ancestry. What we do in this life is scribed on our bones forever, with research like this and others it can be possible to bring the mystery of the dead back to life unfolding a history that was once lost.

**Morgan Kruger & Cheyenne Stillinger** *Time of Death: Looking at Visible Deterioration of Cut and Fracture Patterns After Exposure*

Estimating time since death by looking at a skeleton with severe injuries can create difficulty for forensic scientists. This research project focuses on the time required for bones

with inflicted trauma, to deteriorate when exposed to environmental elements. Using deer remains, the data was collected and analyze to determine accuracy in estimating time since death by looking at the visible deterioration of cut and fracture patterns after exposure.

**Hannah Whipple** *Salina: Revitalizing Removal Techniques of Skeletal Remains*

This research focuses on Wichita State University's skeletal specimen Salina.M-J2012. Incased in a closed frame, this specimen is coated in a varnish/mortar substance preventing observers from conducting a proper forensic analysis of the skeletal remains. Salina.M-J2012 shows how poor techniques in preservation of skeletal remains can have detrimental effects on human bone. By conducting a chemical analysis with Dr. Doug English of Wichita State University Chemistry Department, this research will demonstrate how acids and bases can have beneficiary effects in extracting the enclosed skeletal specimen. This research is leading into a further chemical analysis surrounding the composition of the human skeleton and how the enduring effects of bone density holds up against acids or bases at varying pH balances.