INSIDE:
Study abroad in Ghana
Neanderthals
Ancestry estimation
The bow and arrow in Eastern North America

Interviews, photo essays, and more...
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COVER PHOTO: Lucas demonstrating how to basket weave for students visiting Ghana as part of a winterim study abroad program. (Photograph by Jillian Cullen)
A Dedication to Dr. Patricia Whelehan

From the Collegiate Anthropologist editorial staff

We would like to dedicate the 2014 edition of the Collegiate Anthropologist to Dr. Patricia Whelehan, professor of Anthropology, for her significant contributions to our publication over the years. During her 36-year career at SUNY Potsdam, Dr. Whelehan has mentored numerous students through the research process, encouraging them to succeed beyond their own expectations. Her standards of excellence have led to the contribution of a myriad of high quality submissions to this journal. This year’s issue, again, offers more examples of her excellent mentorship; Adam Rumpf and Christopher Beebe’s reflection on Senior Seminar, Corey Field’s position paper on sociological parenting, and Amy Stark’s HIV/AIDS internship in Africa are all a product of Dr. Whelehan’s commitment to student success. We will greatly miss her presence in the department and contributions in the years to come as she enters into retirement. Thank you so much, Dr. Whelehan.
A Note from the Editor

Another year has passed and as the spring semester comes to a close, we are all ready to chuck our textbooks and breathe a sigh of relief now that summer is finally here. But don’t give up on academia too soon! Check out this year’s edition of the *Collegiate Anthropologist* and take the summer to learn more about the exciting work our students have done this past year. Let this edition inspire your next project; and then envision your work within these pages, because next year you, too, could be featured in our publication!

This past year, the *Collegiate Anthropologist* has continued to adjust after last year’s shift to an annual publication. With an extended timeline, we have expanded our edition with more features, two photo essays (in color!), and quality academic articles. We also have had more time to explore what it means to be an anthropologist and how we, as anthropologists, have a responsibility to critically review our research and results by looking beyond our data and focusing on our influence on our audience. As editors, it is not only our responsibility to clean up grammar and sentence structure, it is our job to look at the big picture of each submission and decipher the author’s approach to their subject matter. We often ask questions such as: How well was the hypothesis constructed? How credible is the evidence used to support the conclusions? Was the author mindful to note other possible outcomes?

In addition, we should ask: did our authors critically evaluate their position in the creation of their data and results? As anthropologists, we inherently display a hierarchy between ourselves and our subject matter. And, the way we disseminate our results about our research sets the stage for others’ understanding of that subject matter. Therefore, it is imperative that we take a critical look at the relationship that exists between researchers and the people that they study. Through the editing process, we take care to thoroughly examine this power relationship, and we are all highly invested in each submission and are excited about this publication.

It has been my pleasure to have served as editor-in-chief of the *Collegiate* this year. I have enjoyed working with all of our editors, whose dedication has not only enhanced our edition, but my experience as well. Most importantly, I would like to thank our faculty adviser Dr. Kruczek-Aaron for her dedication and guidance throughout this process – she continuously inspires us as writers and editors and pushes us to contribute high quality work. I would also like to thank all of our authors for their tireless work. I am very impressed with this year’s edition and hope you enjoy the articles. Happy reading!

Sincerely,
Nicole Cline, Editor-in-Chief
The *Collegiate Anthropologist* Interview:
Dr. Julie Hunter, Ethnomusicologist

ERICA KUTIK

For Crane professor Dr. Julie Hunter, it was a study abroad trip to Ghana while an undergraduate that changed the course of her academic career. While there, she “became intrigued with their culture,” and she soon shifted her interest from music performance to research that would allow her to blend her love of other cultures and music. This led her to ethnomusicology, which she defines as the study of “people making music.”

Dr. Hunter has been sharing her knowledge of ethnomusicology with Potsdam’s students since 2012, when she joined Crane’s faculty. I recently interviewed Dr. Hunter to learn more about how she developed an interest in the field, what her current research is, what her fieldwork has entailed, and what classes she regularly teaches at Crane.

**How it all started**

While an undergraduate student at Vanderbilt University, she took a class with Gregory Barz on African music and became very interested in this topic. She then studied abroad in Ghana prior to her senior year in college and conducted ethnomusicological fieldwork for her senior honor’s thesis on music in urban youth groups in Accra. After graduating from Vanderbilt with a Bachelor’s of Music with High Honors in music history and literature, she moved on to Brown University, where she earned a Master’s and Ph.D. in ethnomusicology with a specialization in African music.

**Research**

Dr. Hunter’s current research is looking at the rise of the new phenomenon of women’s drumming in Ghana. She documents the lives, music, and roles of contemporary female drummers, and through this work she explores the connection between the social, political and economic contexts of communities and gendered music making. As part of her ethnographic research, she attends events, conducts interviews, makes field recordings and video of performances, learns to perform musical repertoire, writes field notes, and takes lots of photographs. Once she compiles her data, her work involves analyzing the meanings of lyrics and organization and processes of performances, editing videos/music,
collaborating with musicians on applied music projects and on ways to improve the life of the community.

**In the Field**

Dr. Hunter has travelled to Ghana six times, and her fieldwork has focused specifically on Accra, Ghana. While in the field, she gets the opportunity to study music and those who make it using a great deal of anthropological methodology. This includes: participant observation to gain an understanding of how music is made and the context of it; learning the language of the group she is studying to understand the music and their culture; and carrying out various forms of data collection. Reflecting on her methods, Dr. Hunter shared that “anthropologists have a different way of approaching situations from many musicologists and theorists, understanding the context of what is going on, and this is reflected in the kinds of questions they ask while in the field.” By becoming a part of their community, she makes connections that have created a wonderful network for

*Bobo Habobo, a music association, in Klikor, Ghana in 2006 (Courtesy of Julie Hunter).*
her to continue her research.

**Here at SUNY Potsdam**

At Crane, Dr. Hunter teaches a variety of classes, such as World Music Cultures, Introduction to Ethnomusicology, Global Pop Music and Urban Culture, and West African Drum and Dance Ensemble. She notes that “each class is different, but in all the classes students will gain a greater appreciation for diverse styles of music and their contexts. And they will develop a deeper understanding for concepts and issues which are significant to anthropology, such as globalization, tradition, authenticity, cross-cultural influence, the African diaspora, religious, political and social structures, sustainability, and applied ethnomusicology.” In the West African Drum and Dance Ensemble, there is opportunity to create music and learn different styles of dancing and drumming. In Introduction to Ethnomusicology, you learn the history and current social and political issues of research in ethnomusicology, and at the end of the course you create a mini ethnography of a music community on campus or in the Potsdam area. World Music Cultures looks at the music of various peoples and explores how they make the sounds we call music, what each sound means and signifies to those people, how they organize that music, and how music reflects the cultures and places from which it originates.

Dr. Hunter expressed that ethnomusicology plays off anthropology quite a bit, and there are not many classes offered that provide students with the opportunity to strictly explore the cultural aspect of music. The classes that she teaches are giving students that chance. She hopes these classes will encourage anthropology students to come and be involved in music activities at Crane, and foster collaboration and conversation among students of both music and anthropology.

**About the Author**

**Erica Kutik** is a senior with an anthropology major and biomedical anthropology minor. Her interest in the field includes mental illness, sexual health and education, and Roma. Once she graduates, she hopes to enter into the health field and eventually attend graduate school.
Neanderthals: Threatening Thugs or Kindhearted Caregivers?

*How burial practices and evidence of trauma disprove common misconceptions*

**Julia Watson**

Since the first specimen was unearthed in 1856 in Neander Valley, Germany, Neanderthals have been the topic of intense debate and scrutiny. According to some, *Homo neanderthalensis*, as coined by Marcelin Boule and similar critics, are considered “brutish” in nature due to their outward stocky appearance. What they ignore, however, is that their sturdy exteriors actually serve an important purpose. These critics also assume that, since this species is so “uncivilized,” there is absolutely no way they could be even slightly related to our species, *Homo sapiens*. These common misconceptions, however, can easily be shattered upon looking at evidence recovered from the fossil record. Neanderthal fossils, like the ones found in Shanidar and La Chappelle Aux Saints, can show just how much these early hominids are similar to us, both genetically and culturally. For instance, in every current human culture, we care for our sick, injured, and deceased. We even go as far as spending entire life-savings to properly bury our dead, but why? Simply put, it is because we care. Our attachment to these people, even when they pass away, is because of how much they mean to us. Taking care of our deceased is merely a way of honoring them further in the afterlife. Yet, *Homo sapiens* are not the only species that utilize complex burial practices. Neanderthals also demonstrated this kind of behavior which further exemplifies just how “human” our ancestors really were.

In 1908, Neanderthal remains were discovered in La Chappelle aux Saints, France and Pierre Marcellin Boule a French Paleontologist was one of the first to study this species. Lucky for Boule, he was actually commissioned to reconstruct this Neanderthal individual, yet his analysis was far from groundbreaking. Instead, what this reconstruction actually did was set the stage for later negative portrayals of Neanderthals. According to the *Smithsonian Institute* (2012a), “Boule reconstructed this skeleton with a severely curved spine indicative of a stooped, slouching stance with bent knees, forward flexed hips, and the head jutted forward. He thought the low vaulted cranium and the large brow ridge, somewhat reminiscent of that seen in large apes such as gorilla, indicated a generally primitive early human and lack of intelligence.” What Boule disregarded, however, was that the way these individuals were structured actually did not denote crudeness.

Due to the environment that Neanderthals had to face on a daily basis, there are certain aspects of their anatomy that developed in order to survive their constant stresses. Chiefly, the supposedly “stocky” stature that Boule illustrated in his reconstruction is actually due to an adaptation to survive the cold. Looking at their lower-limb morphology, specifically the femur (thigh bone), it is apparent that they are much shorter when compared to anatomically modern humans. This shorter stance is what most likely influenced
Boule’s interpretation of the La Chapelle Neanderathal as “stooped”. Their shorter stature indicates shorter limb bones, allowing for heat to be kept in the body for longer. This idea is further rectified by Bergman’s rule (Porter 1999: 54), which basically states that larger animals or individuals live in colder climes, while smaller, more gracile ones live in hotter climates. Similarly, vasoconstriction (i.e. the constriction of blood vessels) also keeps heat inside the body. The blood vessels constrict causing ligaments to bulge out, pulling at the bones where they attach, which can be seen on more than one, if not all Neanderthal specimens that contain the long bones. Besides the environment, other factors contribute to the ruggedness of Neanderthal lower limbs.

Neanderthal leg bones illustrate just how hard this particular species worked in the terribly tough environment they lived in. Again, the femur, which is bowed, shows rugged muscle markings inferring an over exertion of muscles. Their daily activities included a lot of quick spurts of movement and walking in order to survive. Hunting, for one, required Neanderthals to exhaust every single muscle in their body chasing after large prey. Gathering also required a lot of energy due to the amount of ground this species covered when out foraging (Hardy et. al. 2013: 35-36). The other leg

Model of Shanidar IV Neanderthal burial (Photograph by John Connell; https://creativecommons.org/licenses/by-nc-sa/2.0/legalcode).
bones also show this “ruggedness” in addition to thicker diaphyses (the main middle section or shaft), and overall, a more robust structure in order to withstand the tension exerted upon them. Even with this anatomical evidence, however, popular culture still tends to spin a story about how “primitive” Neanderthals were.

Portrayals of Neanderthals in media and literature were colored by Boule’s reconstruction and other errors from similar research. In popular culture, media, and literature, Neanderthals are constantly depicted as uncivilized and unintelligent beasts. For instance, the Geico Insurance commercial promises that signing up for their product is “so easy a caveman could do it,” while also depicting a stereotypically hairy and stooped “caveman” (GEICO, 2011). Another much earlier example is from a short story called “The Grisly Folk” by the renowned English author H.G. Wells. In this story, the human characters are driven out of their homeland, stalked by a monstrous Neanderthal creature, and in the end, are forced to annihilate the entire species based solely on the fact that they (these humans) are “superior”. In fact, according to Wells (1921), these beings were, “still savages, very prone to violence and convulsive in their lusts and desires”, which vividly establishes just how terribly facts from actual scientific research were misconstrued. These representations that brutalize Neanderthals are instantly shattered upon looking at evidentiary support from the fossil record.

The most abundant site of Neanderthal burials in the fossil record is called Shanidar Cave located in the Zagros Mountains of northeastern Iraq. Here, nine individuals were found, ages varying from childhood to adult in fluctuating degrees of preservation. Each individual died due to different circumstances, yet they were all buried entailing that their death was significant to at least someone. In addition, “for any burial to occur there must be planning. The decisions include; the location to bury the remains of the dead member of the community, the depth of the grave, what goods accompany the individual” (Malit, 2013: 12), and with this sort of planning there has to be a lot of effort put forth. If no one cared for the individual, there would be no burial. Neanderthals were constantly physically active and to put aside vital time used for hunting or other major uses of energy is extremely significant. A specific burial from Shanidar exemplifies this notion of forethought and just how much effort Neanderthals actually exuded.

Shanidar IV, commonly referred to as the Neanderthal ‘flower burial’ is the best example of burial ritual amongst these early hominids. This individual suffered solely from a broken rib, which...
"the discovery of a Neanderthal skeleton in apparent contact with so much flower pollen prompted the immediate speculation about the cognitive powers of Middle Paleolithic humans," (Sommer, 1999: 127). Shanidar IV is not the only example from the fossil record of a burial ritual; in fact, several other sites also show evidence of this kind of behavior. Burials in the Balkans, Southern France and other areas of the Middle East show a different kind of ritualistic burial. There is evidence of embellishments such as flowers, tombstones or grave markers, and/or other grave-goods, which certainly entails that the deceased were not simply tossed away like rubbish (Malit, 2013: 24). Interment also indicates the possibility of other beliefs, perhaps, for example, a “belief in the afterlife, at least; or some kind of religion,” (Malit, 2013: 24). In summation, what we can gather from both the Shanidar and La Chapelle sites, is that Neanderthals used forethought and buried their dead deliberately. The degree of diligence that was undoubtedly taken in order to entomb the deceased shows that the Neanderthal’s deceased kin was beyond just a corpse to them. They cared if their dead were out of harm’s way from animals or the elements, hence burials in graves that required planning. These burials were not simply shallow pits in the ground, but deep graves that took time to dig. Unmistakably, Neanderthals were capable of a line of cognitive thinking that allowed them to think in such a symbolic and perhaps abstract manner. On the other hand, there are some that do not believe Neanderthals were capable of forethought to that extensive of a degree.
Neanderthals

Upon analyzing the soil from the entirety of the Shanidar site, there are some that do not believe the “flower burial” and perhaps other burials like it are the best indicators of altruism in Neanderthals. For instance, Solecki (1972) explains how animals could have actually disrupted the soil around the skeleton, displacing the bones and depositing traces of pollen. Around the time these individuals were interred, there lived a specific burrowing rodent, Meriones tersicus, capable of such displacement. In fact, this kind of activity was actually seen throughout the entirety of the layer in all of the burials from Shanidar. Solecki also believes that the soil samples taken from the site for testing were lacking (169-172). Pettitt (2013) tends to agree with this criticism, “This is not a comprehensive soil sample... to my knowledge, no details of the palynological contents of other samples have been published, one simply cannot claim that the pollen is restricted to a discrete place around Shanidar IV,” (125). Though both Pettitt and Solecki make plausible arguments, there is one line of compelling evidence that they seem to ignore: trauma.

Trauma is the perfect indicator in determining how a person died, for it always leaves a mark or lesion. Besides trauma, degenerative diseases also leave their mark on the skeletal structure. Lesions occur as a result of physically applied trauma from an outside source or degenerative diseases that affect the body internally. When there is evidence of healing lesions on Neanderthal remains, one can deduce that the deceased was cared for prior to their death. The remains aforementioned from La Chapelle-aux-Saints, nicknamed "The Old Man", is the perfect candidate to show this kind of treatment. The Old Man is essentially just a mandible (jaw) with missing teeth. However, this Neanderthal survived to the estimated age of fifty, an incredibly commendable age for such a trying time. The rugged edges of extremities where the muscles were once attached show just how much stress Neanderthal muscles were put under. Furthermore, in order for this Neanderthal male to have survived with hardly any teeth indicates that he either had to cook his food or have someone break it down for him.

It would seem that, “the sanguine view would be that the Neandertals represent a population who had human compassion and cared for their sick and the elderly,” (Malit, 2013: 14), which seems increasingly possible. In a progressively deteriorating state, according to the Smithsonian National Museum of Natural History, his community may have assisted him throughout the remainder of his life. (Smithsonian Museum, 2012a). The fact that he was also buried supports this theory, for if no one cared for this individual he would have been left to fend for himself and die alone. Similarly, individuals from a site in the Middle East also show lesions and evidence of trauma.

Shanidar I, the first specimen from the Shanidar Cave is a prime example of what kind of trauma actually occurred. Not only did this Neanderthal have arthritis, which undoubtedly left lesions, but he also had a fractured foot, fractured arms, a cut scalp, and received a crushing blow to the
head, incapacitating him for life. The strike simultaneously damaged the delicate bones of his left orbit (possibly his eye as well, resulting in partial blindness) and a section of the frontal lobe that was responsible for the function of the right side of his body. This caused severe nerve damage that lead to the deterioration of his right arm and the potential paralysis of his right leg. These injuries ultimately healed to some extent, indicating that they were not the cause of this individual’s death. In fact, he survived to the age of roughly forty-five years old. According to the Smithsonian, “he would probably not have been able to survive without the care of his social group,” (Smithsonian, 2012b).

Other individuals from the Shanidar site, Shanidar II and Shanidar III, were buried in the same grave as Shanidar I, however, they sustained very different injuries. Shanidar II died as a result of a rockslide or a similar event for his skull and bones were all entirely crushed. Clearly, with the injuries he had sustained, Shanidar II was unable to heal at all. The individual, Shanidar III, however, was slightly more fortunate. He sustained a deep cut to his left side implemented by a very sharp object. This wound showed partial healing, yet according to Rick Potts, director of the Human Origins Program at the Smithsonian, “This cut would have been deep enough to collapse his lung,” (Edwards, 2010) so it is more than plausible that this wound eventually led to this individual’s death. Still, even though these two individuals did not survive their injuries, the fact that they were interred speaks greatly to Neanderthal character.

The legitimacy of the relationship between Homo sapiens and Homo sapiens neanderthalensis is still argued though there is evidentiary support stacked up against the opposition. Their “stooped” and apparently stocky appearance is actually due to evolutionary adaptations and does not in any way indicate “primitiveness”. Their robust stature is due to years of stress that was exerted upon them in order to survive, not because they are savage creatures. In the fossil record, sites like La Chapelle-aux-Saints and Shanidar give us clear examples of trauma, which indicates that these individuals endured their traumas exclusively due to the support of their community and kin groups. Likewise, since these individuals were buried, the idea that Neanderthals showed sympathy towards their suffering kin is further exemplified. That being said, it is plain to see that Neanderthals were not the brutes that they are made out to be. Neanderthals were capable of much more than some give them credit for. They were compassionate and endured a lifetime of immense difficulties whilst caring for their incapacitated.
Neanderthals

share about 99.7 percent of genetic material with these ancestors, so how can one still exasperate the issue? We should be proud to call Neanderthals our ancestors; after all, isn’t altruism a trait of humanity?

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About the Author

Julia Watson is currently a junior with an anthropology major and a biological anthropology minor. Her academic interests include the anthropology of food and osteology, as well as anything to do with Neanderthals. In the future she hopes to find a job in the field of forensic anthropology, perhaps working for a human rights organization or some kind of NGO - as long as she gets to travel!
Learning Ancestry Estimation Using Skeletal Remains

LINDEN MONTAGUE

Introduction

Imagine walking along a bike path and coming across a disarticulated pile of clothing. When you move closer, the pile of clothing reveals a grizzly truth: a fully clothed skeleton. Some bones are missing, possibly due to animal activity. However, the bones that still remain can reveal what may have happened and most importantly who the person was. When unknown human skeletal remains are found in burials or a crime scene, it is important to identify the demographic characteristics of the remains such as sex, age, stature, and most importantly -- ancestry. Determining ancestry of a deceased individual will build a personal profile of that person, which provides information about that individual’s appearance, helps to limit a search, and perhaps shortens an investigation (Byers, 2011).

Estimating ancestry is a difficult task, so law enforcement officers often hire trained biological anthropologists, or bioanthropologists. A bioanthropologist is someone who studies human biological variation evident in human skeletal remains and to ultimately arrive at a scientific assessment of demographic and personal characteristics to aid law enforcement (Byers, 2011). In order to learn the methods that are employed by bioanthropologists, I traveled to Cleveland, Ohio, to study and record non-metric characteristics of 6 known specimens from the Hamann Todd Collection housed in the Cleveland Natural History Museum. The Hamann Todd Collection contains over 3,000 skeletal remains whose ancestry and sex are known. I then used the data gathered from the known specimens and applied the techniques learned with the Hamman Todd Collection to investigate the ancestries of 2 unknown specimens from the bioanthropology lab located at SUNY Potsdam.

It is common that people associate the word “race” with “ancestry.” However, bioanthropologists prefer the use of the term “ancestry” instead of “race” because the two words carry different meanings. Biological anthropologists debate that race is a social construct and widespread scheme that has no biological basis. Ancestry, on the other hand, considers historical population origins, which do have a biological basis (Steadman 2009). For instance, despite the significant variation that exists within the population, people of African origins may display different biological and physical traits compared to people of non-African origin. These biological traits have evolved as adaptation to differing environments. So how can a person tell the ancestry of an individual if the skull, or even the thigh bone (femur), is the only thing that remains in a burial or crime scene? Studies have shown that skulls, and even post cranium remains (elements below the cranium), have certain characteristics that can help biological anthropologists distinguish one ancestry
from another. In fact, these characteristics can be very distinct and can be assessed with various techniques. The first technique is the use of non-metric, or anthroposcopic traits. The second technique that is often used is osteometric data, or measurements of skeletal elements. Anthroposcopic traits simply mean traits that are observed holistically with the human eye (such as high cheekbones), while osteometric data are recorded measurements of skeletal elements. Forensic anthropologists use these two methods to identify ancestral characteristics for those of European, Asian, and African origin. These techniques were learned in the Human Osteology course at SUNY Potsdam. The Simon Fraser University Museum of Archaeology and Ethnology interactive guide to discovering ancestry was consulted for further information about the anthroposcopic techniques used in this study (Winter 2010). The purpose of this study is to estimate the unknown ancestry of two crania from the bioanthropology lab at SUNY Potsdam, in addition to 7 femoral remains from the Hamann Todd Collection using non-metric techniques.

Materials and Methods

The Crania

The materials in this research project included 7 human crania. SUNY Potsdam professor Dr. Malit requested that these crania’s ancestries be investigated. Two crania belonged to the bioanthropology lab at SUNY Potsdam. The other individuals (5 human crania and 8 human femuri) belonged to the Hamann Todd Collection. The specimens from the Hamann Todd Collection are of known ancestry but were judged blindly for non-metric characteristics, or anthroposcopic traits, found on the cranial elements of the skeleton to prepare for the analysis of the unknown specimens. The nose, face, vault, and jaw of the human crania were used to estimate ancestry in all cases.

The first and most important feature that distinguishes one ancestry from another is the nose. There are 5 structures that can vary between individuals of African and European descent. The first structure of the nose is what anthropologists call “the root.” The root (Figure 1: c) is generally high in those with European ancestry and moderately low in individuals of African descent (Byers 2011). The second structure of the nose is the bridge. If the bridge is pronounced and projecting, then it is called a “high” bridge and is generally associated with European individuals (Figure 1: g). If the bridge is not projecting then it is called a “low” bridge, which is commonly seen in individuals of African descent (Winter 2010). The third nose structure is called the spine. The spine is the part that appears as if the bone were pinched into a pointy projection. Individuals of European descent predominantly show a very sharp and projecting spine while those of African descent show a very small projection (Figure 1: h and g). The fourth nose structure is called the lower border. The lower border is always challenging to distinguish without turning the skull diagonally. It usually forms a distinct sill in those of European origin and is flat in individuals of African origin. The final structure is the width of the nose opening. Those of African origin tend to have a very wide nose opening and individuals...
Table 1. Anthroposcopic characteristics based on Byers (2011)

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<th>Structure</th>
<th>European</th>
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<tr>
<td>Root</td>
<td>High, narrow</td>
<td>Low, rounded</td>
<td>Low, ridged</td>
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<tr>
<td>Bridge</td>
<td>High</td>
<td>Low</td>
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<tr>
<td>Spine</td>
<td>Pronounced</td>
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<tr>
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<td>Guttered</td>
<td>Flat, sharp</td>
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<td>Palate shape</td>
<td>Parabolic</td>
<td>Hyperbolic</td>
<td>Elliptical</td>
</tr>
</tbody>
</table>

Individual of African descent HTH2494

Individual of European descent HTH2774

Figure 1. a.) Small browridge b.) Rugged suture lines c.) Low rounded root d.) Small spine e.) Projecting face f.) Large browridge g.) High rooted bridge h.) Sharp spine i.) Smooth sutures (Photographs by Linden Montague).
Ancestry estimation

Figure 2: The cranium on top is an individual of European descent who is showing angular oval eye orbits and a high narrow nasal cavity. The cranium on the bottom is an individual of African descent who is showing a wide nasal cavity and rectangular eye orbits (Photographs by Linden Montague).

of European descent a very narrow opening (Figure 2) (Byers 2011).

The other facial features that can distinguish one ancestry from another are the face, vault, and jaw. The face has two structures that can help to determine possible ancestry: the profile and the eye orbit. The profile of a cranium can be seen in its lateral or side position, and when in this position, one can tell whether the face projects or not, which is also known as facial prognathism. Individuals of African origin tend to have an increased facial prognathism while individuals of European origin do not (Figure 1: e) (Smithsonian Institution, 2009-2011). The other facial feature is the eye orbital, otherwise known as the eye socket. If the eye socket looks rectangular then the individual is showing African characteristics. On the other hand, if angular oval eye sockets are present, the individual is most likely of European origin (Figure 2) (Byers 2011). Next in order is the cranial vault, which is the part of the skull that holds the brain. The cranial vault has many sutures, or rugged lines. These rugged lines divide the skull into different parts, such as the temporal bone, parietal bone, frontal bone, occipital bone, and so forth. What many people do not know is that these sutures may hold clues about a person’s ancestry. For example, if the sutures are very rugged looking, then the cranium most likely belongs to an individual of African origin. On the other hand, if the sutures are very smooth, then the cranium most likely belongs to a person of European origin (Figure 1: i and b). The last facial structure that can give clues about ancestry is the jaw. The jaw is one of the most important skeletal structures in vertebrate history because the constricting, or shrinking, of the jaw gave more room in the cranial vault for a bigger brain size, which caused the evolution of our species known as Homo sapiens sapiens. The jaw is particularly helpful in determining individuals of African descent due to the unique shape seen in the population. Those of African descent tend to have a large hyperbolic, or rectangular, jaw while those of European descent have a small parabolic, or U-shaped, jaw (Byers 2011).
Postcranial Remains: the Femur

Although using postcranial skeletal remains to distinguish ancestral groups is limited, there are other non-metric methods, most notably the study of femur curvature, which can be utilized. Generally, those of African descent tend to have straight femur shafts and those of European descent tend to have a slight curve on the shaft.

Results and Discussion

The results of my analysis of all of the specimens are summarized in Table 2 and described below.

The Cranial

The two unknown specimens – BALHC009A and BALHC0011A – showed African, European, and Asian traits. Although Asian traits were not explained earlier, they are generally classified as intermediate between European and African. The first unknown specimen BALHC009A, was most likely an individual of African origin because the nose and face structures collaborated with the anthroposcopic, non-metric, traits in Table 1. The only structures that did not collaborate with Table 1 were the vault and the jaw. The cranial vault showed smooth and simple structures, not characteristic of an individual of African origins but rather an Asian or European individual. The jaw was also quite small and parabolic shaped.

The second unknown specimen, BALHC0011A, was presumably an individual of European origins. The nose, vault, and jaw collaborated with Table 1. However, the face structure did not. The face structure appeared to be projecting, the specimen’s eye orbits were rounded and its lower eye border was projecting, characteristic of an Asian individual. Despite that, however, we can reasonably say that the individual was of European origin because there were more characteristics that pointed to an individual of that origin.

The Femur

Table 3 presents the curvature scores of all the femurs, and their estimated ancestry.

Differences between ancestries in anthroposcopic and osteometric data for postcranial bones, such as the femur, may be related to climate. The morphological differences would appear over a very long period of time due to rapid climate change and when ancient species of humans migrated out of Africa into Northern climate zones. There are a few theories that can be suggested. One theory that it can be explained by is “Bergmann’s rule” and “Allen’s rule,” which suggest that the higher the latitude, the more bone density and fat an individual may have. The increasing amount of fat cells deposited in the leg over time due to rapid climate change may slightly curve the femur; this trait most often appears in European individuals (Cowgill et al. 2012). These rules also suggest that people in hotter climates generally have very straight bones, which helps them accommodate such temperatures: the straighter the bone, the less tissue, and the less likely one is to overheat.

The evolution of emerging ancestries is still a mystery and researchers are still trying to discover why people from different climates have different anthroposcopic traits. One way to research such a question could be to compare molecular biology between
Table 2. Results of analysis

<table>
<thead>
<tr>
<th>Specimen</th>
<th>HTH2494</th>
<th>HTH2424</th>
<th>HTH2877</th>
<th>HTH2673</th>
<th>HTH1957</th>
<th>HTH2763</th>
<th>BALHC009A</th>
<th>BALHC0011A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nose</td>
<td>Low, rounded</td>
<td>Low, rounded</td>
<td>Low, rounded</td>
<td>Very low</td>
<td>Low, rounded</td>
<td>Low, rounded</td>
<td>Low, rounded</td>
<td>High, narrow</td>
</tr>
<tr>
<td>Root</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Bridge</td>
<td>Small</td>
<td>Pronounced</td>
<td>Pronounced</td>
<td>Pronounced</td>
<td>Small</td>
<td>Pronounced</td>
<td>Small</td>
<td>Pronounced</td>
</tr>
<tr>
<td>Spine</td>
<td>Indistinct</td>
<td>Sharpened</td>
<td>Indistinct</td>
<td>Indistinct</td>
<td>Indistinct</td>
<td>Sharp</td>
<td>Flat, sharp</td>
<td>Sharp</td>
</tr>
<tr>
<td>Lower Border</td>
<td>Very wide</td>
<td>In between</td>
<td>Narrow</td>
<td>Wide</td>
<td>Wide</td>
<td>In between</td>
<td>Wide</td>
<td>Medium</td>
</tr>
<tr>
<td>Width</td>
<td>Face</td>
<td>Profile</td>
<td>Eye orbit</td>
<td>Face</td>
<td>Profile</td>
<td>Eye orbit</td>
<td>Face</td>
<td>Profile</td>
</tr>
<tr>
<td>Spine</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Lower Border</td>
<td>Small</td>
<td>Pronounced</td>
<td>Pronounced</td>
<td>Pronounced</td>
<td>Small</td>
<td>Pronounced</td>
<td>Small</td>
<td>Pronounced</td>
</tr>
<tr>
<td>Width</td>
<td>Very wide</td>
<td>In between</td>
<td>Narrow</td>
<td>Wide</td>
<td>Wide</td>
<td>In between</td>
<td>Wide</td>
<td>Medium</td>
</tr>
<tr>
<td>Face</td>
<td>Projecting</td>
<td>Straight</td>
<td>Projecting</td>
<td>Straight</td>
<td>Straight</td>
<td>Projecting</td>
<td>Projecting</td>
<td>Projecting</td>
</tr>
<tr>
<td>Eye orbit</td>
<td>Intermediate</td>
<td>Angular</td>
<td>Angular</td>
<td>Rectangular</td>
<td>Intermediate</td>
<td>Angular</td>
<td>Rectangular</td>
<td>Angular</td>
</tr>
<tr>
<td>Vault</td>
<td>Browridge</td>
<td>Small</td>
<td>Heavy</td>
<td>Heavy</td>
<td>Small</td>
<td>Heavy</td>
<td>Heavy</td>
<td>Small</td>
</tr>
<tr>
<td>Muscle markings</td>
<td>Rugged, complex</td>
<td>Smooth</td>
<td>Smooth</td>
<td>Smooth</td>
<td>Smooth</td>
<td>Smooth</td>
<td>Smooth</td>
<td>Rugged</td>
</tr>
<tr>
<td>Post-bregma</td>
<td>Depressed</td>
<td>Slightly depressed</td>
<td>Straight</td>
<td>Depressed</td>
<td>Straight</td>
<td>Straight</td>
<td>Straight</td>
<td>Straight</td>
</tr>
<tr>
<td>Jaws and teeth</td>
<td>Jaws</td>
<td>Small</td>
<td>Large</td>
<td>Large</td>
<td>Large</td>
<td>Small</td>
<td>Small</td>
<td>Small</td>
</tr>
<tr>
<td>Palatal shape</td>
<td>Hyperbolic</td>
<td>Parabolic</td>
<td>Parabolic</td>
<td>Parabolic</td>
<td>Parabolic</td>
<td>Parabolic</td>
<td>Parabolic</td>
<td>Parabolic</td>
</tr>
<tr>
<td>Estimation</td>
<td>African</td>
<td>European</td>
<td>European</td>
<td>African</td>
<td>African</td>
<td>European</td>
<td>African</td>
<td>European</td>
</tr>
<tr>
<td>Sex</td>
<td>Female</td>
<td>Male</td>
<td>Male</td>
<td>Male</td>
<td>Male</td>
<td>Male</td>
<td>Male</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

NOTE: The red cells indicate that the specimen was not consistent with the anthroposcopic characteristics described in Byers (2011).

Table 3. Summary of Hamann-Todd femur specimen analysis

<table>
<thead>
<tr>
<th>Specimen #</th>
<th>Ancestry based off records from collection</th>
<th>Femur Curvature</th>
<th>Femur Ancestry Estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTH0730</td>
<td>European</td>
<td>3</td>
<td>European</td>
</tr>
<tr>
<td>HTH0736</td>
<td>African</td>
<td>1</td>
<td>African</td>
</tr>
<tr>
<td>HTH087</td>
<td>European</td>
<td>2</td>
<td>African</td>
</tr>
<tr>
<td>HTH0697</td>
<td>African</td>
<td>1</td>
<td>African</td>
</tr>
<tr>
<td>HTH1764</td>
<td>European</td>
<td>4</td>
<td>European</td>
</tr>
<tr>
<td>HTH1706</td>
<td>African</td>
<td>1</td>
<td>African</td>
</tr>
<tr>
<td>HTH1995</td>
<td>European</td>
<td>5</td>
<td>European</td>
</tr>
<tr>
<td>HTH1827</td>
<td>African</td>
<td>3</td>
<td>African</td>
</tr>
</tbody>
</table>

NOTE: The red cell indicates that the specimen was not consistent with the anthroposcopic characteristics described in Byers (2011).
ancestries, or to look at the underlying genetics, which may determine which genes are “turned on” or “turned off” in the human population.

Conclusion and Acknowledgements
Overall, the research conducted proved to be successful in determining ancestries from one individual to another. Generally, we know that people of African descent show contrasting anthroposcopic traits compared to people of European descent. My time spent in Ohio gave me extensive knowledge of how skeletal collections are managed, treated, and stored. I learned that although estimating ancestry is a difficult task, it can be easily accomplished when you have a skull of known sex and ancestry to compare it to. I sincerely thank Lyman Jellema, the collections manager at the Cleveland Natural History Museum, as well as Dr. Nasser Malit, my biological anthropology professor at SUNY Potsdam, for helping me discover how to apply osteological techniques to real-world examples.

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Winter, Barbara

About the Author
Linden Montague was born in Potsdam but grew up in the picturesque state of Alaska. She is headed into her junior year at SUNY Potsdam and is pursuing a degree in biology (B.S) and archaeological studies with minors in biomedical anthropology and art history. Linden hopes to become a top researcher in the fields of biological anthropology, genetic and biomedical sciences, paleopathology, and archaeology.
Photo Essay I: The Cultural Rhythms of Ghana

Jillian Cullen

During the winter of 2014, I attended a month-long course that took me various places throughout Ghana. I spent most of my time in urban Nungua, at the Kusun center, located only about 40 minutes from the Accra airport. During my last week, I spent time in the more rural town of Medie. In both locations, I was taught the different arts of drumming, dancing, singing, dyeing, and weaving. Since Ghana is located just above the equator, it was their dry season, and we were able to have all of our activities outside. Each morning, during the week, we would finish breakfast by 8 a.m. and then have classes until 4 p.m. This trip was an important step for me to connect everything I have learned in my coursework and to start making connections and become immersed in different cultures. The following photos were taken during my trip.

LEFT: Some of the family members I lived with at Nungua. Left to right: Tetteh, Dede (Tyra), and Okoe (Aaron). Okoe is the uncle of Tetteh and Dede.

RIGHT: Okoe took me to his hometown of Teshie, where I was able to spend time with his cousin’s children. All the children called me Obruni which is the Twi word for foreigners.

LEFT: Mercy, a cousin of Tetteh and Dede, is showing me how to make fufu. Fufu is a staple food made from cassava and pounded into a dough ball. Then pieces of it are torn off and dipped into a soup or sauce.

RIGHT: Artisans putting the finishing touches on a Djembe, a West African Drum, for me at the arts center in Accra.
LEFT: Here is some Adinkra cloth that mixes traditional and modern symbols. On the blue cloth, the symbol above the picture of President Obama means the supremacy of god; the one below means strength.

RIGHT: Dancers at Cape Coast Slave Castle performing a dance about how the men in the society had to dress up as women in order to end a drought.

LEFT: Pictured is Bernard Woma[playing on the right], my host for the last week of my trip.

RIGHT: The home we stayed at in Medie was next to a school. I attempted to participate in a couple of classes including a Twi language class. Twi uses a slightly different alphabet than our own.

RIGHT: We were taught how to make batik, which involves using a wax-resist dying technique.

LEFT: The Canopy walk at Kakum National Park. It was established at the initiative of the local people and not by the State Department of Wildlife, which is responsible for wildlife preservation.
Photo Essay II: The Archaeology and Geology of Mexico

SARAH SKINNER

During the summer of 2013, SUNY Potsdam offered a study abroad course to Mexico covering topics in both archaeology and geology. The trip lasted two weeks during which students majoring in archaeology and geology travelled throughout the state of Hidalgo and Mexico City. The state of Hidalgo is located within central Mexico, northeast of Mexico City, and is one of 31 states making up the country. Our group was hosted by the Universidad Autónoma del Estado de Hidalgo in Pachuca City, where we stayed for the majority of the trip. A few students from this university accompanied us in our exploration of significant geological and archaeological locations. Some of these locations include the basalt prisms in Santa María Regla and a green obsidian source located within the Highlands of Central Mexico. One of the more memorable events we witnessed was a small eruption of the Popocatépetl volcano. After the geology portion of the trip, we travelled to various archaeological sites including: Teotihuacán, Tenochtitlan, Cholula, Cuicuilco, El Tajín, and Tula. Visiting these localities allowed us to experience the grand scale on which they were constructed, something that is not easily portrayed in pictures. The experience was well worth it and gave us a firsthand look into Mexico and its culture.

LEFT: Our group overlooking Pachuca, the capital of Hidalgo with a population of over 250,000.

RIGHT: The “Danza de los Voladores” (Dance of the Flyers) is an ancient Mesoamerican ceremonial dance performed to end a drought.

LEFT: The view of the Pyramid of the Sun at Teotihuacán, from the top of the Pyramid of the Moon. Both pyramids mimic the surrounding mountains. The Pyramid of the Sun is the third largest pyramid in the world.

RIGHT: A depiction of a feathered serpent deity at Teotihuacán. The symbolism behind this deity here is still unknown, but the Aztec associate the feathered serpent with Quetzalcoatl, a creator god.
LEFT: Tlacoyos, a Mexican dish of fried corn dough topped with Nopal, a cactus found throughout central Mexico.

RIGHT: The out-gassing of Popocatépetl volcano. We were fortunate enough to catch this glimpse, minutes after arriving at our destination.

ABOVE LEFT: Many Mexican churches are elaborate in both color and design, and they incorporate both local and traditional designs. Missionaries began spreading Christianity throughout Mexico beginning in the early 16th century.

ABOVE RIGHT: A few of the numerous pyramids found at El Tajín. This is a pre-Columbian site located along the Gulf of Mexico and was built by the Veracruz culture. This site was known for its numerous ballcourts.

LEFT: The Pyramid of the Niches at El Tajín. Portions of this temple were reconstructed after its rediscovery in 1785. There is still more of this city yet to be uncovered.
The Bow and Arrow and Its Effects on Native Lifeways in Eastern North America

TRAVIS HANSON

Introduction

The development of a new form of technology can have huge societal impacts, and in this paper I will consider how the bow and arrow affected the lives of early Native Americans. Though it can be difficult to quantify that impact, there are ways that we can see cultural changes in the archaeological record that relate to the arrival of this technology. Some of these changes include shifts in hunting practices, flint knapping practices, and an increase in conflicts, which, in turn, necessitated changes in settlement patterns, as well as many other aspects of prehistoric culture in Eastern North America.

Background

In order to understand the significance of the bow and arrow, it is important to begin by understanding how and when this technology came to be developed. Because of the somewhat ambiguous nature of projectile points, a wide variety of archaeological finds and evidence have been used to support several different theories about the bow and arrow’s arrival in Eastern North America. For example, Odell suggests that, because of the increased frequency of what have been identified as arrow points that have been found in sites dating to the Woodland Period, the bow and arrow may have been used earlier than previously thought, as early as A.D. 1(in Nassaney 1999). In contrast, another theory has the introduction of the bow and arrow placed at around 9,000 years ago, a significantly earlier time. (Nassaney 1999).

However, many other researchers dispute both of these claims, and some argue that archaeologists face considerable challenges when trying to answer these questions. First, looking at the U.S. alone, there is such a large amount of space that it is entirely possible that the bow and arrow evolved separately in multiple locations. Given the fact that there were a number of groups across the U.S. at the time, they would not necessarily all have adopted the technology at the same time. Another aspect that makes it so difficult is the fact that the preservation of the organic components of projectiles, like arrows, is so rare. Because of this, the only way to come up with a date for the bow and arrow’s arrival is to analyze the inorganic projectile points that are preserved (Odell 1988). However, this too can be challenging as it can be difficult to differentiate what is an arrowhead and what is a dart point, as many experts believe that the two were most likely used in combination. For this reason, pinning down a specific date for the introduction of the bow and arrow into Eastern North America as a whole is incredibly hard to do.

This problem has been addressed by a few different researchers who have come up with methods for differentiating the two. One method is Thomas’s function, one of the more common methods for classification, which uses a combination of the maximum length, width, thickness, and neck width to differentiate what is an arrow and a dart point.
(Shott 1993). However, even this method for identifying points may not always be accurate, as studies by archaeologists like Shott have found that there may have been a gradual decrease in size of projectile points during the first millennium A.D. rather than an abrupt change, as some had previously thought (Nassaney 1999). This point is furthered by observations that many of the earliest, alleged, arrow points are just smaller versions of their predecessors (Railey 2010).

Another reason that it can be difficult to give the bow and arrow a specific date for its introduction is because it may not have been uniformly adopted in the region. In the past, it was suggested that the bow and arrow may have had a unilateral entrance into North America from Asia and then diffused throughout the rest of the continent. This hypothesis has been challenged, since as Nassaney and Pyle point out, there is some evidence that “the small triangular and notched points that appear in the Late Woodland period in Illinois and other regions of the eastern United States may be due to a reworking within the dart point tradition and not necessarily a diffusion from other groups” (Nassaney and Pyle 1999:256). This is to say that the arrow points that were used by early people may have been merely a change in the projectile points that they were already producing rather than just something they picked up from other groups.

Due to this possibility, clarifying the timing of the bow and arrow’s arrival in the East is complicated since it likely did not happen at any one point in time. However, even with all of this controversy over how and when specifically the bow and arrow was introduced into Eastern North America, most experts agree that the bow and arrow was not completely adopted in the region until about A.D. 500 - 700. This date is supported by the fact that even though it is at times difficult to differentiate between arrow points and dart points, most experts hold the presence of “small, symmetrical, bifacial points” (Nassaney 1999:244) as sufficient evidence of the adoption of the bow and arrow, and these types of points are not consistently seen in the archaeological record until about this time period (Nassaney 1999).

**Cultural Change: Hunting Practices**

Though there is some debate about the timing of the very first appearance of the
bow and arrow, one thing that is fairly clear is the fact that after AD 500-700 the bow and arrow had been widely accepted and with its acceptance came tremendous cultural impacts. The shift in technology towards a wider and more frequent use of bows and arrows had a wide variety of effects on the people of Eastern North America as well as North America as a whole. One way that this can be seen is in the shift in hunting practices that is associated with greater use of the bow and arrow. One such change that could potentially be attributed to the bow and arrow is the shift in location of where prehistoric people were fixing their points. Odell notes that there seems to be a large increase in the proportion of functional projectile points found in the archaeological record as time progresses. This increase could suggest that a change occurred in the location of where points were being repaired. He continues to note that this increase and change of location could be attributed to a greater frequency of hunting in this time period. Given the evidence for the large use of nuts and other plant materials, however, he does not think that this is the case. Instead, he proposes that this increase could be a reflection of a change in hunting techniques that either needed more projectile points or required points that were spent to be brought back to camp in greater quantities. He argues that both of these could have been a result of the introduction of the bow and arrow (Odell 1988).

The bow and arrow also may have changed what kind of animals prehistoric peoples were hunting. Many experts agree that the bow and arrow did not immediately replace the atlatl as the dominant hunting tool of ancient people, and they were most likely used in combination. This would most likely have occurred because both the bow and arrow and the atlatl were beneficial to the hunters who were using them, albeit in different ways. For example, the bow and arrow would have had several advantages over the atlatl, including the fact that it was lighter and therefore easier to carry over great distances. This may have been a desirable characteristic for them because of depleted populations of the animals that they generally hunted; this is believed to have occurred based on the analysis of hunting camps of the middle Ohio Valley (Milner 2004). Another impact on diet is that bow and arrow technology would have allowed for people to make more opportunistic kills of small animals and birds as they were tending their crops of domesticated plants.

“...Bow and arrow technology would have allowed for people to make more opportunistic kills of small animals and birds as they were tending their crops of domesticated plants...”
These opportunistic kills may have contributed to a wider variety of animals being consumed. Shott (1993) described other advantages of the bow and arrow, including the fact that arrows are better for close quarters firing, are quicker to shoot, can be made more easily and with fewer raw materials. In general, anthropologists have observed that the bow and arrow became more heavily favored than the atlatl, though the latter was still used for some time after the bow and arrow was introduced. This may be explained by the observation that the atlatl was more effective against large game, whereas the bow and arrow could be used more effectively for a greater diversity of prey, including smaller animals (Shott 1993). As a result, it likely was beneficial for hunters to use a combination of these two hunting tools based on what the situation required.

Cultural Change: Flint Knapping

In addition to hunting, flint knapping techniques also would have been affected by the increased use of bow and arrow technology. Flint knapping, which created the tools needed for group survival, changed because of the special material requirements of these new small tools. As Railey (2010) explained, in general arrow points were made with fewer raw materials than larger projectile points. Thus, once people used the bow and arrow more frequently, they could use a wider variety of resources in the production of these smaller points. Railey addressed two main changes that occurred as a result of the bow and arrow, the first being that people no longer needed as much stone to work with in order to make projectile points, which could also mean that they had the ability to make more. He also noted that because of this shift in the amount of material needed, a wider variety of materials could be used (Railey 2010). This would have had a significant impact on the culture of the early people, as access to flint knapping materials would have been an important factor in where people lived, and with this increased variety they would have been able to expand their areas of habitation.

Flint knapping also may have changed in terms of the actual method used to make the points. For example, some experts have pointed out that through the analysis of lithic debitage at various stages of production, we can infer that different techniques may have been used to make either an arrow or dart point (Nassaney 1999). This change would have involved a shift from the core tool manufacturing method that would have been used for the production of dart points, to the flake tool manufacturing method that would have been used for the production of arrow points and is evident through the analysis of the lithic remains of these production methods (Nassaney 1999). This particular shift was noted after the examination of lithic debitage found in Central Arkansas. Though it may be true for this area, however, it may not
be true for the entirety of Eastern North America, as this change in technique may be a reflection of how the bow and arrow came into this particular region (Nassaney 1999).

**Cultural Change: Warfare**

The emergence of the bow and arrow also may have resulted in increased conflict and even actual warfare between groups. By the end of the first millennium A.D., conflict increased between native groups. This is evidenced by the increase in the remains of people who appear to have been victims of violence. In these cases, arrow points have been identified with human bodies (Milner 2004). The increase in violence also seems to correlate with the adoption of the bow and arrow in the area, and it most definitely could have been used as a weapon. Milner explained: “while extremely useful for hunters, bows and arrows doubled as ideal weapons for warriors who skulked around the villages of their enemies...” (Milner 2004:121). Based on this observation, it seems entirely possible that the adoption of the bow and arrow could have contributed to an increase in violence between native groups.

This increase in warfare may have contributed to the further diffusion of bow and arrow technology since the increased warfare would have encouraged groups who did not use the bow and arrow to adopt it in order to protect themselves from any neighboring groups that had already done so (Nassaney 1999). The increase in violence that may have occurred due to the advent of the bow and arrow also may have had a significant impact on the settlement patterns of native peoples. To be more specific, this increase in violence may have contributed to the need for things like palisades and more defensively-minded living situations, for which there is some evidence (Milner 2004).

**Conclusion**

Even though the bow and arrow was not the only significant technological development that occurred in the history of Eastern North America, it is perhaps one of the most important. As shown in this paper, archaeological evidence demonstrates that the development of the bow and arrow impacted the lives of the people of Eastern North America by changing their hunting and flint knapping methods, and by increasing the scale of violence experienced during warfare. All of this evidence points to the fact that technology and other aspects of culture are intimately connected. And thus, by studying technology, we can learn much more about how past peoples lived their lives.

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Milner, George R.


About the Author

Travis Hanson is a sophomore archaeological studies major with a minor in classical studies and that is the area that he intends to focus on. After graduating from SUNY Potsdam, he hopes to attend graduate school for a Ph.D.
Introduction

When it comes to being a parent, few things seem to reinforce the concept more than biological ties to one’s child. In other words, there’s a perception within American culture that your child is not “truly” your own unless your genes reside within her or him. In contrast, sociological parenting is about fulfilling the roles of “mom and dad;” it is not about the genetic component. Here, a parent is not close with her or his child merely because they share genes – it is because of the responsibilities, love, and care that went into fulfilling their role as “mom” or “dad.” Sociological parents are not mutually exclusive, as they can also be the biological, adoptive, and fictive kin parents – a form of kinship that is based on neither blood-related nor marital ties. While sociological parents can also be biological parents, it is generally seen as lesser if they merely possess the sociological component; the emphasis and priority is largely placed on biology in American culture.

This conventional message, which the majority of Americans have internalized through sources such as media, poses a troublesome effect on both infertile heterosexual couples and same-sex couples that wish to have children. Same-sex couples, while not necessarily infertile individually, possess an infertile relationship dynamic: a male-male or female-female couple is incapable of producing a child entirely on their own, regardless of individual fertility. The conservative notion of genes being the genuine connection to one’s child diminishes the legitimacy of sociological parenting for either heterosexual or same-sex parents. Within this paper, I will explore notions on sociological parenting from the perspective that it is just as valid as biological.

Biology vs. Sociology

These messages on the superiority of biology and the effect they have on couples are apparent. Within same-sex couples, each co-parent has the potential to be her or his child’s biological parent and unequal biological ties to children may cause feelings of jealousy between co-parents. To alleviate and counter this problem, increasing numbers of lesbian couples have been using in-vitro fertilization (IVF) to biologically co-mother, using the eggs of one partner and the womb of the other. Although not common, this method can affect the emotional dynamics between the co-mothers and their children (Pelka 2009). If the sociological roles of “mom and dad” were seen as just as valid as their biological counterparts (i.e., considering adoption as opposed to IVF), perhaps co-parents among same-sex couples would not experience these feelings of envy and resentment.

However, there are arguments inferred from a study conducted by Fitzgerald, Thompson, and Whitaker (2010) that suggest that the dominance of biological ties is innate. Their research conducted on altruism (defined by the authors as: the unselfish concern for the well-being of others)
- and its cost was correlated to genetic relatedness and emotional closeness. The data suggests that when the cost of altruism is low, individuals are more likely to help non-kin (i.e., friends and romantic partners) than kin. This trend is believed to reflect the fact that people tend to be emotionally closer with friends and romantic partners than kin. On the other hand, when the cost of altruism increases, altruistic preference shifts to genetic relatedness (i.e., kin). In high-cost conditions, the study’s two-hundred participants’ estimated altruistic tendencies were stronger toward siblings and romantic partners who have a biological child than toward romantic partners with no children and partners with adopted children (Fitzgerald, Thompson, and Whitaker 2010).

On the other hand, a study carried out by Hamilton, Cheng, and Powell (2007) proposes a contradicting assertion about adoptive parents. Opposing conventional views, the results of a national study suggest that adoptive parents – or sociological parents – invest more time and financial resources in their children compared with biological parents. This challenges the presumption often found in social and legal debates that children are better off with their biological parents. Although only 2 to 4 percent of households in the United States include adopted children, researchers expect this number to grow. The findings of the study revealed that adoptive parents not only spend more money on their children, but they invest more time, such as reading to them, talking with their children about their problems, or eating meals together. The authors argue that when individuals focus on the sociology of the family and employ non-biological means to have children, they compensate for the lack of biological ties (Hamilton, Cheng, and Powell 2007).

Infertility Solutions: ART or Adoption

Even though the validity of sociological parenting is supported by academic research, infertility remains a grave concern to many couples and individuals who wish to be parents. Due to the aforementioned infertile relationship dynamic between same-sex couples, gay men and lesbians who wish to have biological children must resort to assistive reproductive technology (ART). ART is a method utilized to achieve pregnancy via artificial or partially artificial means. Examples include IVF, intracytoplasmic sperm injection (ICSI), cryopreservation, and intrauterine insemination (IUI). ART is a growing multi-billion dollar annual industry that serves an increasing number of patients. However, not only is ART subject to little state regulation, there are several risks involved with multiple gestations (Americans United for Life 2012). This presents a dicey precedent for prospective parents that is not found comparably within the process of adoption.

Rather than counter (or prevent) the issue of co-parenting jealousy due to unequal biological ties, many same-sex couples choose ART instead of adoption. In the U.S., there are approximately 94,627

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households with children that have same-sex parents. Of that number, 72.80% are biological children while 21.20% are step or adopted children (Lifelong Adoptions 2014). Each ART procedure can cost upwards of $10,000 to $15,000 or more per cycle, whereas adoption can cost anywhere from $5,000 to $40,000 depending on the ethnicity and sex of the child. While ART may seem potentially less expensive initially, many cycles of IVF are often required to create a pregnancy that goes full term. The rate of success for women aged 38-40 is 15 to 20 percent, and is as low as 6 percent for women over 40. Furthermore, there are potential medical complications (such as infection, bleeding, damage to the bowel, bladder, or a blood vessel) that can accrue more costs. Surgery to repair any potential damage caused by ART procedures can also be very expensive (Walsh 2010).

In lieu of ART procedures, it can be deduced that adoption is less costly and less physically risky than ART on the whole. However, this is not preventing couples from resorting to ART when adoption is even more feasible economically. This calls into question the motives of many would-be parents: is it the role of being a parent that they crave or is it the desire to pass on their genes? Furthermore, is one of the reasons that ART makes such staggering annual profits the internalization of the message that “biology is better?” In the U.S., there are 15 states that offer State Infertility Insurance Laws, which offer varying ranges of coverage for procedures such as IVF. While the policies and actual coverage amount is different from state to state, financial incentives are still offered for biological solutions to infertility while none are offered for adoption (American Society for Reproductive Medicine 2014). One should consider whether the ART industry has influenced the passing of these laws to promote a particular ideal or if these laws are a reflection of American society’s preference for biology.

Conclusion

New research findings contest claims by evolutionary psychologists that parents are meant to dote on their biological children more than their adoptive children. This calls the motives of prospective parents into question: are they solely about passing on their own genes when it comes to raising children? While there is conflicting research on the importance of biological ties versus sociological ones, it can still be surmised that the parenting playing field has been leveled on a cultural standpoint – it cannot be definitively stated that one takes precedence over the other, regardless of policies or laws. Conventional ideas and viewpoints on what is essential to genuine parenthood need to be re-evaluated, so that the messages on such can also change.

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About the Author

Corey Field graduated from SUNY Potsdam in December 2013. He was an art studio major with a minor in sociology, concentrating in women’s & gender studies. He is currently assuming a publishing internship in New York, and plans to attend graduate school in California.
Where are they now?
Alumna Amy Stark in Focus

Corinne Gabriele

This semester SUNY Potsdam alum Amy Stark returned to campus to share her experiences as an intern in Kenya during the summer of 2013. Stark graduated from Potsdam in 2012, majoring in photography with a minor in biomedical anthropology. Her talk, titled “AIDS: A Global Perspective,” was sponsored by SUNY-Potsdam AIDS Education Group (SUNY-PAEG), with many anthropology students in attendance.

Background research and preparation
During her time at Potsdam, after taking several anthropology courses, she discovered an interest in the effects of HIV and AIDS in Africa. Having her heart set on travelling, she spoke with Dr. Malit and Dr. Whelehan extensively to help prepare for this trip. On top of general knowledge about HIV, some of her research interests related to how women with HIV in Kenya are viewed in their society, and the effect of the illness on their children. In order to prepare for this research and the fieldwork itself, for example, Stark spent time talking with Dr. Malit about cultural differences in Kenya: How were women viewed? How should she expect to be treated being lighter-skinned? What certain American mannerisms would be best to avoid while in the area? There was much preparation before Stark finally found what she was looking for.

The Global Volunteer Network put her in contact with an organization called Living Positive Mlolongo. The program specifically services women living with HIV. Volunteers like Stark conduct interviews and work to offer counseling to help promote the women’s independence. Through the interviews, they hope to identify a pattern in order to determine what is a contributing factor to the spread of HIV. One of the largest factors is poverty. The women have no access to medicine, and education about safe sex is lacking. Living Positive Mlolongo works to improve these conditions.

Culture shock
Just outside of Nairobi, Mlolongo is a small village—“smaller than Potsdam,” Stark claimed, getting a chuckle from the audience. Travelling to such a remote area evoked a huge culture shock for Stark. One of the first things she mentioned was her popularity among the people. “Mzungu” was a term often called out to her, which is a name in Swahili that references her skin

Women are given jobs through the program. For example, some sew dresses to sell at the market and online (Photograph by Amy Stark).
in the home (they grew their own). The culture also focuses on a very rice-based diet. A popular meal was to mix “ugali,” a dish made of flour paste and served with vegetables.

Stark also discussed the amount of effort it took to simply shower. Most of us take for granted the instant hot, clean water in our homes. Because there was no running water in Mlolongo, you had to boil the water.

color. Stark explained that she was viewed as something like a “commodity” or an “attraction.”

Food also provided an insight into different cultural practices. As a vegetarian, Stark at first struggled with being offered meat. Due to its inaccessibility in Mlolongo, the offer is viewed as a way to impress someone. Aside from that, Stark commented on the freshness of fruits and vegetables.
beforehand and bathe out of that bucket.

Something else that she noted was the “docile” nature of the Kenyan women she met. Gender roles played an important role in Stark’s research while in Mlolongo. Sex is not openly discussed in the culture, and HIV is highly stigmatized. Women in this culture are not even in a position to ask their male counterpart to use a condom. During the interviews, Stark mentioned how the volunteers had to be careful not to push these social boundaries. Many times, after it was discovered that the women were infected with HIV, husbands would abandon them, forcing them to fend for themselves. Because the disease is so taxing on the body and the only types of work women are able to find are labor intensive, earning income becomes a daunting task. Unfortunately, women can’t even turn towards their families for help because of, once again, how HIV is stigmatized. In an already poverty-stricken area, it is difficult enough to pay rent, let alone to acquire the proper medicine.

Lessons from the work

The Living Positive Mlolongo programs set up employment to help these women earn money. The women sew dresses to sell at the market but also online after volunteers teach them how to utilize the Internet. The program also provides women with a safe environment in which they can learn about sex and condom use. The women in the program learn how to stop the spread of their disease. The counseling sessions directed by the volunteers also give the women an ally--someone to talk to who will understand how much they are struggling. It was harder for Stark and her peers to reach out to older women, who were rooted in tradition. Younger girls were much more receptive to the program.

Children of parents with HIV are also greatly affected by the culture’s shameful view of the disease. If the parents pass away due to HIV, the children are usually left abandoned, uncared for by family members. Many are usually taken by strangers into the city for labor or sex-trafficking. Because of their fear and because they only speak their tribal language, it is hard for volunteers to approach the children to help them. Stark reflected on how hard it was to not intervene. She noted that these children are “intelligent and deserve a chance at life, but probably aren’t going to get it.”

Because of the cultural ideologies and stigma of the disease, the spread of HIV is not going to be a simple problem to fix. Stark plans to study at the University College at London for her MA and PhD. She hopes to continue her research on women’s sexuality in South America and Thailand to help make a difference.

***For more information about the Living Positive Mlolongo program visit: http://livingpositivemlolongo.wordpress.com/

About the Author

Corinne Gabriele is a sophomore at SUNY Potsdam and this is her second year editing for the Collegiate Anthropologist. She is majoring in archaeological studies and pursuing a double minor in museum studies and history.
The Life of a Senior Seminar Student

ADAM RUMPF AND CHRISTOPHER BEEBE

Introduction
Whether an anthropology student or not, everyone has his or her own personal experiences with group projects. They are infamously known for quickly evolving into a conundrum of miscommunication and chaos. If everyone in the group was given the opportunity to take Professionalism in Anthropology with Dr. Hersker, this miscommunication and chaos could potentially be avoided. Senior Seminar offered the opportunity to work with our peers within a group setting, applying the knowledge, skills, and abilities gained from Professionalism. Completing this capstone course usually ends with graduation and future Senior Seminar students rarely get the opportunity to hear these past student’s perspectives. We have both completed Senior Seminar and have written this essay in order to share our experiences with future senior seminar students in hopes of extinguishing some of their anxieties and fears.

Senior Seminar
The goal of Senior Seminar was for our class to collaborate and produce three research projects that brought an anthropological perspective to challenging and controversial issues. Each project had to provide a thorough and holistic understanding of the topic, culminating in applicable recommendations for the alleviation of human suffering. The topics chosen by Dr. Whelehan for the class were hunger in the North Country of New York State, human trafficking, and child labor. For each of these projects, the final reports were over 45 pages and required extensive lessons in time management, teamwork, and organization. It was a professional assignment with Dr. Whelehen as our “boss,” and she expected us to carry ourselves in a fully professional manner.

From the beginning, we knew we would have to be very well organized to ensure our collaborative work would be comprehensible and completed in a timely manner. Our class collectively decided to create an outline with four sections and four sub-sections within them, in order for each of the sixteen students to be able to choose one sub-section of interest to concentrate on. We then divided into the four-person groups that comprised our section, with each group choosing an editor for its section of work. The class also agreed upon one person to be the head editor for the entire project. This strategy was established at the beginning of the first project, and, with improvements, it worked for the following two projects as well.

The first project on hunger in the North Country presented some unique challenges because we were all too laid-back. Most of us in the class had known each other from previous classes, but few of us had ever worked on a group project together let alone a project of this scale. We began to realize that we each worked at our own rate and had unique approaches to the project. The lack of structure created some long nights of chaos before the submission of our first draft. We barely managed to get it in on time and struggled to deal with the varying degrees of commitment from our colleagues. This left the main editor with a majority of the
responsibility in piecing together everyone’s work into a clear and comprehensive final product.

As a class, we revised our approach for our second project on human trafficking. To give the project more structure, the class imposed stricter deadlines. Even though these were set by fellow students and had little consequence if missed, they still provided a better structure to get work done and allowed more time to prepare the final product for submission. This system worked at alleviating the main editor’s work load.

Human Trafficking is a sensitive and emotional topic; it was easy for us to get carried away with the sensationalism of it. Our intended final product used inflammatory language and lacked the anthropological objectivity expected by Dr. Whelehan. This led to a stern reprimand for the class, which resulted in heavy revisions of the second project and a reorientation of our approach to the final project.

Our project on child labor was to be the culmination of all that we had learned throughout the semester. We set strict deadlines and made the group editors more like group leaders to provide the guidance needed to create a comprehensive and cohesive final project. The group editors also became more involved in the process of formatting the final report; this served to spread the workload even further. After many long nights and group meetings, our project was a success. We were all thoroughly relieved when it received Dr. Whelehan’s approval. She thought the report was worthy of being published on the anthropology department’s web page. Unfortunately, the semester did not provide time for the further edits that would be required before it could be published.

By the end of Senior Seminar, we were no longer students working on a group project—we were researchers working together as a team. We could successfully call upon our collective experiences to approach serious social issues from an anthropological perspective. We were organized and coordinated enough to produce well researched holistic reports. This would not have been possible without the leadership contributions of students willing to step up to the challenge. This experience will serve us in the long run since learning to work as a member of a team and the opportunity to lead others are essential skills and abilities needed in the professional world.

**Publication Process**

Fortunately, we were not graduating that May, which provided us the time to see the project through to the end. At the beginning of the Fall 2013 semester, Dr. Whelehan contacted us and asked if we would be
willing to edit the report for publication on the website. We convened and decided that this opportunity to work with Dr. Whelehan would provide us with experiential learning and academic recognition that could not be acquired elsewhere. Being that we had worked well together on the same section of this project, we decided that we would edit the report together as well. Neither of us had any experience in editing but we were eager for the chance. We began meeting with Dr. Whelehan on a weekly basis. We worked diligently and submitted several rounds of revisions before deciding that it was ready for the website.

The experience that we gained in editing has helped us to improve our own writing abilities and has been a great addition to our resumes. It has also opened the door to other potential career opportunities, publishers are regularly seeking experienced editors for employment. In addition to this, learning about this publication process will be useful in graduate school, given that the majority of work done in graduate school is targeted towards publication. But the best reward has been the chance to collaborate with Dr. Whelehan within a more professional context. She has become a mentor for both of us, offering advice with other projects and helping us to prepare for our post-graduate lives.

Prior to taking Senior Seminar, neither of us had ever anticipated we would have gotten editing experience out of our college careers. Through this course, we (as a class) were able to not only use the knowledge, skills, and abilities we learned in Professionalism and apply them anthropologically to significant social issues, but it also widened our knowledge of further career opportunities.

**Conclusion**

Senior Seminar requires the application of the knowledge skills and abilities gained in Professionalism. It was a rewarding experience with invaluable teamwork and leadership abilities gained. Dr. Whelehan’s impeccable leadership and knowledge provides a framework for unparalleled success. If students so choose, it can open the door to opportunities beyond their typical classes. We would like to thank Dr. Whelehan for her dedication to our class and for the opportunity to allow us to advance our collegiate careers in a direction we never thought possible.

**About the Authors**

**Adam Rumpf** is an anthropology major with a biomedical anthropology minor and a certificate in applied anthropology. After graduating in May 2014, Adam plans to go to graduate school for counseling.

**Christopher Beebe** is a recent graduate of SUNY Potsdam, where he earned his B.A. in anthropology with a minor in sociology. Chris currently works as a teaching assistant at the Potsdam Middle School and hopes to return to graduate school for a Master’s in the future.
Collegiate Anthropologist Editing Team

EDITOR-IN-CHIEF

Nicole Cline is a senior anthropology major and a Presidential Scholar. Through the Presidential Scholars Program she researched how Hurricane Irene affected community relationships in Keene, NY. Her research interests include regional planning, community planning, and tourism. She intends on continuing her research in the Adirondacks after graduation.

FEATURES EDITOR

Jillian Cullen is a senior history and archaeological studies major with minors in Africana studies, museum studies, and anthropology. She has been an editor on the Collegiate for six semesters. After she graduates, she hopes to pursue a career as an ethnoarchaeologist in East Africa.

ASSISTANT EDITORS

Allison Applegate is a junior anthropology major with a biological anthropology minor. This is her second year as an editor for the Collegiate. Allison is also vice president of the Anthropology Club and a student ambassador for the college. Allison is interested in forensic anthropology and wants to go into that field after graduation in May 2015.

Corinne Gabriele is a sophomore at SUNY Potsdam and this is her second year editing for the Collegiate Anthropologist. She is majoring in archaeological studies and pursuing a double minor in museum studies and history.

Erica Kutik is a senior with an anthropology major and biomedical anthropology minor. Her interest in the field includes mental illness, sexual health and education, and Roma. Once she graduates, she hopes enter into the health field and attend graduate school in the future.

Adam Rumpf is an anthropology major with a biomedical anthropology minor and a certificate in applied anthropology. After graduating in May 2014, Adam plans to go to graduate school for counseling.

SUBMISSION INSTRUCTIONS

Anthropological research papers, personal reflections or journals on internships and study abroad programs, photo essays, and generally anything pertinent to the study and experience of anthropology is welcomed for submission. Papers should be submitted in electronic form (.doc or .docx please) to collegiateanthropologist@yahoo.com. Electronic submissions on cd-rom are also welcomed via mail to the following address: Collegiate Anthropologist, Anthropology Department, SUNY Potsdam, Potsdam, NY 13676.
El Tajín, a pre-Columbian site located along the Gulf of Mexico, features numerous palaces, temples, and pyramids. Twenty ballcourts have been discovered at this site with more yet to be uncovered (Photograph by Sarah Skinner).