FAC Celebrates 30th Anniversary

The Forensic Anthropology Center (FAC) at UT continues to be the global leader in forensic anthropological research and training as we celebrate our 30th anniversary.

We have increased and expanded the scope of research aimed directly at assisting the police and medical examiners in locating and identifying missing persons, as well as estimating the time since death. Recent research activities include developing new bone measurements to increase the reliability of metric sex, stature and ancestry estimations, and investigating how bacteria (microbes), both in the soil and on the human body, can be used to estimate time since death.

In addition, we just initiated our first living subjects research project whereby some pre-registered donors in our Body Donation program are participating in a biometrics project. This project will assist in the development of improved tools to better identify individuals from their irises, faces, and fingerprints. Finally, we continue to expand our training programs for our students and law enforcement agencies around the world.

We are immeasurably grateful to the individuals and their families who donate their bodies to the FAC for such important scientific research and training. To learn more about our Body Donation program, visit us at fac.utk.edu.

NEW BEGINNINGS

This fall, faculty, staff, and students in the Department of Anthropology begin a new semester in a new, state-of-the-art building – Strong Hall. Our department, located on the fourth and fifth floors, shares the new facilities with the Division of Biology and the Departments of Chemistry and Earth and Planetary Sciences. It is a landmark move for a department that has been in the bowels of Neyland Stadium since the early 1970s.

Archways from the original Sophronia Strong Hall tie a small portion of the history of the first women’s dormitory on campus to the present-day science facility. If you have yet to see the new building, I invite you to visit. It is an astounding structure filled with light and state-of-the-art lecture halls and laboratories. Display exhibits in the atrium will include live updates from a Martian rover mission in the future. An exquisitely landscaped setting with trees, pedestrian walkways, and two outdoor labs in the form of wildflower and rock gardens complete this unique, academic masterpiece.

“I’m settling into my wonderful new office and lab area,” wrote Associate Head David Anderson in an email to me this summer. “The department’s new facilities are fabulous…I can’t believe how fortunate we are to be in this building. I thought I would miss the stadium, but don’t at all!”

Strong Hall is a resounding success, but it also provided archaeological opportunities between the cottage and the new building near White Avenue — not quite above the Civil War trench of General Longstreet’s army while trying to retake Knoxville, but nevertheless a great deal of historical architecture of the early dormitory.

Perhaps the most striking feature of the new building, with great thanks to Benjamin Auerbach, associate professor, who helped design it and oversee the move, is the laboratory space. Nearly every...
faculty member has an individual lab across the hall from her or his office. This means separate historical and prehistoric/contact period archaeology labs, an ancient DNA lab, forensic anthropology labs, isotope archaeology labs, and more. Collection storage areas include sets of moveable shelving, which are centrally located near the offices and labs. These collections include the faunal research collection developed by Professor Walter Klippel, which is one of the most exhaustive collections of archaeological animal bones in the country and widely used by visiting researchers.

This year is also a year of considerable transition in faculty. One big piece of news is that after 40 years of service to the department, Professor Walter Klippel is retiring. Read more about his legacy on page five. After 10 years of service as associate head, Professor David Anderson will hand over this role at the end of the fall semester. He generously offered to stay one last semester to help this new department head get his feet! I am thrilled and honored to start this year as the new head of the department after two years at the University of Houston and 14 years in anthropology and archaeology departments at British universities. UT is a place I remembered fondly ever since I interviewed here in 2002 for a junior faculty position. I never gave up the dream! I inherit a well-oiled machine from previous heads Jan Simek, Andy Kramer, and Bill Bass, as well as a collegial, all-star faculty. I gather it helped at my job interview to point out I would not try to “fix what ain’t broke”! Finally, Associate Professors Trish Hepner and Ben Auerbach are on research sabbaticals this year.

I look forward to welcoming you in 2017 when you visit Knoxville for a football game or just to reconnect with your old college town and alma mater.

- Alex Bentley

DDHR Uganda Update:

Understanding the Dimensions of Improper Burials

During the 22-year war between Lord’s Resistance Army rebels and the government in Uganda, both the state military and rebels abducted civilians and killed them far from their homes. Despite a 2006 ceasefire, the conflict left bitter legacies of violence, trauma, and displacement for survivors.

Throughout a region in northern Uganda known as Acholiland, mass graves and other war-time burials have disrupted farming, perpetuated spiritual and social unrest, and aggravated conflicts over land. Many Acholis believe that without proper burial of remains and rituals of reincorporation into clans and kin groups the spirits of the dead continue to wander, bringing misfortune and suffering on the living, especially when the dead are either unknown or died violently. In order to achieve meaningful peace and post-war justice, these needs must be addressed for the dead left in mass graves, displacement camp burials, and the remains of those killed and left in “the bush.”

Since 2012, faculty and students in the Disasters, Displacement, and Human Rights (DDHR) program in the Department of Anthropology at UT have worked with survivors in Acholiland to understand the spiritual, political, economic, social, and legal dimensions of these improper burials. “Spirits of the Dead and Transitional Justice in Northern Uganda” is a multi-year team project led by Tricia Hepner, associate professor, and Professor Dawnie Steadman, in collaboration with UT alumna Jaymelee Kim and graduate students Julia Hanebrink, Hugh Tuller, Wilfred Komakech, and Lucia Elgerud, with the indispensable support of Acholi colleagues Joshua Oballim Jr., Jeffrey Opiyo, Godfrey Okot, Willy Okeny, and Deo Komakech.

The intensive ethnographic research of the DDHR team informs potential forensic and archaeological investigations. The first task is to understand the implications of the graves and possible solutions from the perspective of the survivors. A related question is how archaeological excavation and identification could aid survivors. The third task is to survey and map the sites of atrocities in specific communities – from pit latrine mass graves to individual displacement camp burials. The scale and complexity is staggering. Bones are everywhere, and most survivors do not know where their abducted kin might be located. Since most people are unfamiliar with forensic science, the DDHR team has worked with chiefs, elders, and families to teach them the basics of forensic investigation.
Dog Skull Discovered at Topper Site

Professor David Anderson, PhD student Martin Walker, and team of students and volunteers spent May of 2017 leading a mini-term field school at the Topper site in South Carolina, where for the last three years they have been examining Late Woodland deposits dating from ca. AD 800-1200 in an 85-square-meter block excavation (IMAGE, TOP LEFT).

While bone preservation is poor in the sandy soils, one of the unique finds (IMAGE, TOP RIGHT) was the fragmentary remains of a dog skull with several pieces of white chert. As an unusual specimen of pre-European dog, the team reported the information to one of the British directors of the world dog DNA project. This pre-contact, early North American dog will serve as an important addition to their worldwide collection for mapping the genetic prehistory of dogs and their domestication.

In addition to this unique discovery, the team located dozens of features, thousands of pottery sherds, over a hundred arrow points and associated stone flake debris, several pipe fragments, and numerous paleobotanical remains, with maize and other domesticates identified in several features.

New Technology Used to Map Coan Hill

The 2017 archaeological field school in historical archaeology took place at Coan Hall, located on a tributary to the Potomac River in Northumberland County, Virginia.

The purpose of the multiyear project is to explore the headquarters of Chicacoan, the first permanent English colonial settlement on Virginia’s Northern Neck. Participants document and interpret 17th- and early 18th-century architecture, landscapes, and artifacts to trace cultural and environmental changes in the context of the wider Atlantic world.

Directed by Barbara Heath, associate professor of anthropology, the field school brings together UT undergraduate and graduate students and volunteers from a variety of cultural and educational institutions, including Mary Washington University, The Thomas Jefferson Foundation at Monticello, the Fairfield Foundation, and the Archeological Society of Virginia. Descendants and local community members also lend a hand.

This year, archaeologists uncovered and documented structural elements of the Coan Hall house, circa 1640s, including exterior brick walls, structural post holes, the central H-shaped masonry chimney, a large brick- and stone-lined cellar, and a bulkhead entrance. They also traced a ditch from a fence or palisade line that predates the house and may be associated with an earlier structure that stood temporarily on the site before the manor house was constructed. Archaeologists documented the site with aerial photography, which provides precise data for planimetric mapping, and the use of photogrammetry - all funded by a student/faculty research award through the Graduate School. Brian Crane, who served as a consultant for the project, is creating a 3-D photogrammetric model of the site that will be featured on the forthcoming Coan Hall web page.
Simek Rejoins Faculty Ranks
Jan Simek, Distinguished Professor of Science, finished his last day as interim head of the anthropology department July 31, 2017. During his three years of service in this role, he oversaw the move to Strong Hall and the hiring of several new faculty and staff.

“It has been my honor to have served as interim head of this fine group,” says Simek, who sees exciting prospects on every angle of the horizon for anthropology and looks forward to rejoining the department faculty.

Simek, however, has not lost a step on his research on the Native American cave art and archaeology of Eastern North America. A renowned expert on Old World Paleolithic archaeology, Simek has discovered and documented a wealth of new rock art in Tennessee and throughout the region – in caves and on the open landscape – with a remarkable range of different repertoires. Simek is researching the sacred meanings of pre-Columbian art not just from the paintings, but how the many thousands of these paintings are created using a range of analytical techniques, as well as how they are distributed on the Tennessee landscape, high and low.

Faculty Focus
Lofaro Hired, Curates Collections
In the fall of 2016, Ellen Lofaro, who received her PhD from the University of Florida in 2016, joined the UT community to curate the archaeology and osteology collections housed by the Department of Anthropology. The majority of the collections are from excavations dating from the 1970s to the early 2000s directed by faculty members, now professors emeriti, including William Bass, Boyce Driskell, Charles Faulkner, Richard Jantz, Walter Klippel, and Gerald Schroedl. These collections range in age from 100 to 13,000 years old. Many are from Tennessee or the Southeastern United States.

Together with Timothy Baumann, curator of archaeology at the McClung Museum, Ellen directs the coordination of the Native American human skeletal remains and funerary objects that fall under the purview of the Native American Graves Protection and Repatriation Act (NAGPRA). Currently, Ellen works with representatives of the Cherokee Nation, the Chickasaw Nation, the Eastern Band of Cherokee Indians, and the United Keetoowah Band of Cherokee Indians in Oklahoma, who have requested the return of human skeletal remains and funerary objects from sites curated by the faculty in anthropology department.

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Walter Klippel devoted his life to the study of animal remains from archaeological sites in order to understand past human behavior and the way in which archaeological remains are preserved over time.

Over the past 40 years, Professor Klippel has been an essential part of archaeology at UT, building its strong national reputation in southeastern prehistory, historical archaeology, and subsistence and taphonomic studies focused on zooarchaeology. These fields attract many high-quality undergraduate and graduate students who have gone on to careers in academia, museums, government, and cultural resource positions.

An internationally recognized authority in the field of zooarchaeology, Klippel’s research covers prehistoric and historic sites in the Southeast and Middle Atlantic regions of the United States, the Caribbean, and in the Eastern Mediterranean. Klippel was the primary person overseeing training in the identification and analysis of animal remains within the department, using technical methods and equipment critical to modern research. Over the years, he has trained hundreds of our archaeological and biological anthropological students, including in the area of forensics.

Working with the Forensic Anthropology Center, Klippel served on many graduate student committees and used the anthropological research facility for many of his taphonomic experiments. In a lasting contribution to forensic anthropology, Klippel discovered that evidence for squirrel gnawing can be used to help estimate time since death because squirrels do not gnaw on bones for at least a year after death. He also showed that raccoons, rats, squirrels, and opossums all leave distinctive, recognizable signatures.

Among his other contributions to the anthropology department, Klippel oversaw and expanded the extensive research collection of animal bones (first established by Paul Parmalee) now curated by others in the anthropology department and housed at the McClung Museum. The collection, which spans early prehistory to the 20th century, enriches the training of UT students and attracts visiting researchers from around the country and the world. The zooarchaeological materials in the Department of Anthropology, including over 11,000 skeletons in excellent condition, are regarded as one of the finest comparative research collections in Eastern North America, continually in use by students and outside researchers, and for TBI, FBI, and NCIS training in association with the Forensic Anthropology Center.
MELANIE BEASLEY is a biological anthropologist interested in human-environment interactions throughout the hominin lineage. She arrives at UT as the Haslam Postdoctoral Fellow at the Forensic Anthropology Center after receiving her PhD from the University of California, San Diego in 2016.

Melanie uses isotope geochemistry to investigate the role of environment in human history at different time periods. The first is the paleoenvironment when seasonal changes in resources, such as water and food, impacted our evolutionary history and selection for morphological changes – bipedalism, for example. The second is prehistoric California when humans had greater impact on the surrounding environment in terms of hunting for resources, which resulted in wider diet-breadths and possible changes in health. Finally, Melanie investigates modern forensic applications when the environment a person inhabits prior to death imprints distinct isotopic signatures in their biological tissues that can be used for identification.

Melanie works with Director Dawnie Steadman, the FAC team, and the donated skeletal collection on new geochemical techniques to understand to how elements in water can act as unique tracers for use as an exclusionary tool for forensic identification. Understanding known offsets between modern environments and biological tissues of elements in water is critical to apply new geochemical techniques to the archaeological and fossil record, specifically to reﬁne the deﬁnition of “mosaic” environments early hominins occupied.
The Digital Index of North American Archaeology (DINAA) national archaeological database, developed by David Anderson and a number of colleagues, received enthusiastic endorsements from the presidents of the Society for American Archaeology, the Society for Historical Archaeology, and the American Anthropological Association. DINAA is directed to integrating or, more accurately, rendering interoperable archaeological site file data, while providing links to information about specific sites in other databases, collections, and publications using the formal site number as the common referent, or indexing tool. To date, information on over half a million sites from nearly 20 states have been compiled with the long-term goal of developing a continental database and research tool to simplify obtaining archaeological information.

DAWNIE STEADMAN, professor and director of the Forensic Anthropology Center, has been named a Betty Lynn Hendrickson Professor in the College of Arts and Sciences. This two-year honorific title recognizes the great contributions that Dawnie makes to the department, college, and university in research, teaching, and service. The award is richly deserved.

Steadman is a skeletal biologist who specializes in forensic anthropology, bioarchaeology, and human rights investigations. She is a Board Certified Forensic Anthropologist and consults for medical examiners and law enforcement across the nation. Her edited book, Hard Evidence: Case Studies in Forensic Anthropology, is in its second edition and emphasizes the multidisciplinary, collaborative nature of the forensic sciences. Specific forensic research foci include quantifying statistical probabilities of personal identification from osteological evidence and validation studies of aging methods.

She has worked on both prehistoric and historic cemetery sites, including poorhouse cemeteries. Recent bioarchaeological work includes an NSF-funded study of warfare and community health in prehistoric Tennessee (with co-PI Charles Cobb), the epidemiological modeling of prehistoric diseases, and the application of population genetic models to prehistoric populations. She has been involved in human rights investigations in several countries, most recently in Spain and Uganda.
Studying every aspect of the human condition.

Students in our department have the opportunity to learn about the breadth and diversity of anthropology by studying cultural, biological, and archeological anthropology because of support from our generous friends and alumni. Learn more about how you can support our ongoing legacy at UT by visiting anthropology.utk.edu.