Introducing Biological Anthropology Professor: Dr. Rafaela Takeshita

Dr. Takeshita earned a B.Sc. of Veterinary Medicine at the Universidade Federal Rural da Amazônia in Brazil. She then moved to Japan and completed both a Master’s and Ph.D. At Kyoto University. Her dissertation research focused on steroid hormone regulation in Japanese macaques and orangutans. Her postdoctoral position, as a Research Associate, provided additional experience at the Primate Research Institute of Kyoto University. Dr. Takeshita has extensive laboratory and field experience, in addition to her veterinary expertise. Her current research focuses on adrenarche, and how adrenarche may interface with brain evolution.

Introducing Archaeology Professor: Dr. Michelle Bebber

Dr. Bebber earned undergraduate degrees in both Anthropology and Studio Art from the University of Akron. She then completed a Master’s and Ph.D. from Kent State University. Her dissertation research applied experimental methods to analyzing the evolutionary trajectory of ancient material cultures. Dr. Bebber combines her expertise in fine arts and science to tackle evolutionary questions in new and unique ways. Her current research involves early metal technologies, ancient ceramic production and function, and the material properties of stone tools.

Did you know?

Lowry Hall is named for the man who introduced the Lowry Normal School Bill in 1910. This Bill authorized the creation of two new normal schools, Kent being one of them. Lowry Hall was originally named ‘Walden Hall’ due to the picturesque setting and also because founding president, McGilvrey, was a devotee of Henry David Thoreau.

From: A History of Kent State University, 1998
Introducing Research Associate: Dr. Melissa Edler

Dr. Melissa Edler earned undergraduate degrees in Psychology and Rhetoric & Communication, followed by a Master’s degree in Anthropology and a Ph.D. in Neuroscience from Kent State University. She then completed a postdoctoral fellowship in the Department of Pharmaceutical Sciences at Northeast Ohio Medical University. Her research focuses on aging and neurodegenerative processes, and she received significant media attention for her 2017 discovery that chimpanzees are the only species, other than humans, to spontaneously develop both hallmarks (plaques and tangles) of Alzheimer’s disease pathology. Dr. Edler is currently working on a project examining manganese toxicity in macaque monkeys in collaboration with Florida International University and is funded by the NIH.

Meet Visiting Researcher, Dr. Fernando Diez-Martin

Dr. Fernando Diez-Martin of the University of Valladolid, Spain, a colleague of Dr. Metin Eren's, came to Kent State University's Anthropology Department for a six month sabbatical. Dr. Diez-Martin and Dr. Eren worked together in East Africa for several years at Olduvai Gorge, Mumba Rockshelter, and Sonai Rockshelter. Dr. Diez-Martin’s visit was funded by the Salvador de Madariaga program of the Spanish Ministry of Science, Innovation, and Universities. In addition to learning about North American archaeology and the Pleistocene Peopling of the Americas, Dr. Diez-Martin participated in a number of field projects and studied several archaeological collections. His work at Kent State has resulted in several research projects, and the first of several peer-reviewed papers was submitted for publication in October 2015.
The 88th meeting of the American Association of Physical Anthropologists (AAPA) was held at the Huntington Convention Center in Cleveland, Ohio. A special symposium honoring the scientific contributions of Dr. C. Owen Lovejoy was part of this year’s program. The symposium, organized by Philip Reno, Michael Selby, Scott Simpson, Robert Tague, and Robert Walker, included 19 posters that demonstrated the breadth and depth of Dr. Lovejoy’s contributions and research interests. Topics included biomechanics, bone development, comparative morphology, fossil interpretations, forensic applications, primatology, and neurochemistry. Discussants included Dr. Lovejoy’s former students, Bruce Latimer, Richard Meindl, Phil Reno, Scott Simpson, Bob Tague, Mike Selby, and Rob Walker. They were joined by Dr. Milford Wolpoff (University of Michigan), Dr. Nina Jablonski (Penn State), and Dr. James Blank (Dean, College of Arts and Sciences, Kent State University).

From the meeting program: Professor C. Owen Lovejoy has had a long and distinguished scientific career that began in the late 1960s and continues unabated to this day. His numerous scholarly contributions span a diversity of interests, notably the application of biomechanics, developmental biology, and comparative functional anatomy to the understanding of hominin locomotion (especially Australopithecus africanus, *Au. afarensis*, and *Ardipithecus ramidus*), development and revision of skeletal aging techniques and their application in paleodemography, and modeling of hominin origins, among many other facets of biological anthropology. This body of research has had a determinative and lasting impact on our understanding of the course and nature of human biology and evolution and have been omnipresent at the AAPAs. These achievements have been recognized by his peers by election as a fellow to the American Association for the Advancement of Science and the American Academy of Arts and Sciences and to the National Academy of Sciences. While still a graduate student, Professor Lovejoy accepted an academic position at Kent State University (Kent, Ohio) where he continues as an active and engaged faculty member. His efforts were seminal in the formation of the Biological Anthropology Ph.D. program at Kent State University, which has gone on to become among the most productive in the field. During that span of time, he has taught and mentored many students who continue their scientific careers based on the lessons learned while at Kent State University. To honor Professor Lovejoy, former and current students, collaborators, and colleagues will gather and present research and engage in an open discussion that reflects the broad and deep scholarly foundation he built.
Department of Anthropology Endowed Fund for Graduate Student Research - UPDATE

The 2018-19 research award from the Endowed Fund was granted to doctoral students Danielle Jones. The Endowed Fund for biological anthropology doctoral students was fully endowed in 2016, an effort spearheaded by Bob Tague (Ph.D. ’86) and supported by numerous alumni, faculty, and friends.

Danielle’s dissertation research focus is the neurobiology of social behavior. The title of her project is An epigenetic investigation of social style and dominance in Japanese and rhesus macaques. The aim of this project is to test for associations between social rank and species, and degree of methylation at various gene loci. Methylation is an epigenetic modification that is characterized by the addition of a methyl group (CH3) to DNA, most often at cytosines. Functionally, methylation acts to silence gene transcription. Once thought to be primarily involved in development and cell differentiation, methylation has more recently been recognized as temporally dynamic, occurring in response to various environmental stimuli throughout the life of an organism. Particularly relevant to my research focus, hyper- and hypomethylation have been associated with anxiety and stress in rodent, nonhuman primate, and human studies. My project will use DNA samples from 16 rhesus and 16 Japanese macaques for which social rank information is available. I will examine degree of cytosine methylation in the regulatory region of several genes that have been found to be differentially methylated in neurobiology studies related to stress, social behavior, and brain function. I will use Methylated DNA Immunoprecipitation (MeDIP) followed by rt-PCR. MeDIP is a technique that uses antibodies specific to methylated cytosines to capture methylated DNA fragments. The enriched DNA products can be used against positive and negative controls in rt-PCR analysis to measure degree of methylation at specific loci. Danielle will use the money to purchase the MeDip kits.

We want to continue increasing the amount of the principal in the account (and, more importantly, increasing the amount of awards to doctoral students). Our long-term goal is to augment the fund by $10,000 every seven years. We can achieve this target if 15 people donate $100 each year. Please consider being one of the 15 people. You do not have to donate every year, but consider doing so once every other year. Here is information on how you can help. Checks should be made payable to: Kent State University Foundation. You can also pay by Mastercard or Visa; call the Foundation Office at 330-672-2222. Include our account number – 34363 – on your check or letter accompanying your payment. The title of our account is “Department of Anthropology Endowed Fund-Graduate Student Research.” The postal address is: Kent State University Foundation, P.O. Box 5190, Kent State University, Kent OH 44242.
Humans and our hominin ancestors have used stone as a raw material for tools for over 2.6 million years, and lithic artifacts are by far and away the most abundant specimens archaeologists dig up from the most primeval periods. As such, archaeologists must squeeze as much information as possible from these ancient implements to understand the evolution of technology. One avenue of stone tool study involves the “quality” of the rocks that were used to make tools. Toolstone quality is based on a rock’s internal and external properties. Internal properties include brittleness, homogeneity, hardness, elasticity, granularity, and isotopy. External properties encompass factors such as size, shape, surface regularity, and cortex presence. All of these factors would have played a role in the prehistoric skill necessary to produce tools, the cultural transmission of stone tool techniques, and the pace of technological evolution. One aspect of stone tool quality that has been neglected, however, is material strength, or, in other words, the amount of force required to chip a toolstone. Dusty's M.A. thesis has conducted a series of archaeological experiments -- using standardized chert specimens purchased by the Mark F. Seeman Fund -- to robustly assess this variable for the first time using the Kent State University Experimental Archaeology Laboratory Instron Universal Materials Tester. The reason why this is important is because a higher fracture force would require the toolmaker to have a faster hammer blow to chip the rock – reducing hand-eye coordination, and chipping accuracy. Prehistoric people may thus have selected rocks that possessed lower fracture forces.
Numerous developments in the Kent State – Kyoto University collaboration!

The previous year included significant expansion of our relationship with friends at the Primate Research Institute (PRI) of Kyoto University, Japan. Last November, we welcomed PRI neuroscientist Dr. Katsuki Nakamura to Kent for a two day visit. Our relationship with Dr. Nakamura began in 2015, when he kindly received KSU graduate student and NSF-EAPSI awardee, Emily Munger, for a summer internship in his laboratory.

Later in November, we invited officers from the Japan Society for the Promotion of Science (JSPS), Washington Office, to visit Kent State and give a seminar outlining fellowships available to U.S. citizens interested in developing academic and research collaborations in Japan. Dr. Kohji Hirata, Director of the Washington Office, and Mr. Masahiro Ueda, International Program Associate, visited Kent for two days. They described fellowships at all academic levels (graduate students, postdocs, faculty) to an audience of nearly 150 members of the Kent State community. Following their lecture, Cody Ruiz and Danielle Jones, recipients of previous joint JSPS/NSF awards, gave presentations on their summer research experiences in Japan. A few months later, Dr. Anthony Tosi visited the JSPS and NSF offices in Washington. He met with officials from the international research branches of both organizations and sought advice on programs that might support the expansion of our collaborations with the PRI.

In April, PhD students Rose Leach and Heather Lawrentz were fortunate to receive research fellowships from the JSPS. They spent the summer working with Dr. Masato Nakatsukasa and Dr. Takeshi Nishimura of Kyoto University, experts in the functional morphology and evolution of the primate skeleton. Under the guidance of Dr. Nakatsukasa, Heather collected forelimb and hindlimb measurements from specimens of *Ateles* and *Colobus* – genera which have independently lost the thumb over the course of evolution – to determine the relative expression of various *Hox* genes during development. Continued on next page....
Kent State – Kyoto University collaboration

Under the guidance of Dr. Nishimura, Rose used morphometric analysis and pQCT scan data to examine long bone plasticity in Northern and Southern populations of the Japanese macaque (Macaca fuscata). The results of her project will contribute to our understanding of the effects of colder temperatures on long bones, and how they relate to determining the basis of morphological differences between anatomically modern humans and Neanderthals. At the end of the summer, all of the JSPS fellows met in Tokyo for a closing ceremony, and one representative from the nominating authority of each country was selected to give a presentation of their research. Rose Leach was selected on behalf of the United States group!

Drs. Tosi, Raghanti, Meindl, and Lovejoy, received a National Science Foundation, International Research Experience for Students (NSF- IRES) grant for $298,000. This grant provides support for 18 graduate students to conduct internships (six students for each of the next three summers) at the PRI. Nearly 20 of the PRI faculty have agreed to accept KSU students for a wide variety of research projects, including studies in primate neuroscience, genetics, morphology, physiology, cognition, and behavior. This program benefits our students in ways far beyond just learning new scientific expertise. They will develop international collaborations early in their career; they will expand their global job market opportunities; they learn how science is conducted in a different country; and, perhaps most importantly, the immersion in a foreign culture will broaden their world view. Two KSU faculty traveled to the PRI this summer. Dr. Tosi went to the Institute to discuss further details of the new program with members of the Center for International Collaboration and Advanced Studies in Primatology (CICASP) – the international affairs branch of the PRI. At the same time, Dr. Wilson Chung (Kent State, Biology) visited the PRI for a JSPS-funded summer collaboration with neuroscientist Dr. Takao Oishi. Together they studied the molecular mechanisms in the brain that control mammalian reproduction. Dr. Tosi introduced the two researchers in 2016.

Finally, in September, FIVE members of the Kent State community were invited to speak at the 12th International Symposium on Primatology and Wildlife Science, jointly hosted by the PRI and Japan Monkey Centre in Inuyama City, Japan. The international affairs office of the PRI very kindly provided support for the visits of Drs. Richard Meindl, Anthony Tosi, and Wilson Chung, and PhD students Cody Ruiz and Danielle Jones. All five gave presentations on their most recent research, which included studies in primate biodemography, hybridization genetics, neural mechanisms of reproduction, spermatogenesis, and neuroanatomy. During the three-day symposium, the Kent State group happily met again with their PRI collaborators and also enjoyed meeting other researchers from across Japan and several other countries.
Barbara Davis, Anthropology’s Administrative Secretary honored with President’s Award!

President Warren presented Barbara with her award on October 31st, 2018. Barbara exemplifies Kent State’s core value of respect, kindness, and purpose in all she does. Barbara is our department secretary, but she is truly more than that. On behalf of faculty and students alike, I am confident in stating that Barbara is the heartbeat of our department. There is no task too large or small, especially if it benefits students. Barbara routinely goes above and beyond, and will even reach out to students that she perceives to be struggling in some way to offer support or help.

Her dedication to the department, especially our students, is nearly palpable. "Students first" is THE PRIORITY for Barbara.

Barbara identifies and solves problems, often before we are even aware of them. When problems arise, Barbara handles them with impeccable professionalism. She is also an intellectual- she is excited about the work and research of the undergraduate and graduate students and faculty.

We are lucky to have Barbara here, and we are deeply indebted to her! Congratulations again on this honor!

Trivia question: What bird is featured in KSU’s official seal? (Answer on last page)
From PBS Newshour: “Have you ever heard of an archaeologist who burns, hammers or smashes artifacts? That’s what Metin Eren does, except it’s with replicas. Eren is a rising star in the field of experimental archaeology. In his lab at Kent State University, he tests recreations of early stone tools, trying to understand their purpose and design—and what those meant for human development. Nsikan Akpan reports.”

And… in case you missed it-

Journal of Archaeological Science: Reports
Volume 77, October 2019, 102002

Experimental replication shows knives manufactured from frozen human feces do not work

Metin I. Eren a,⁎, A.Ri. Michelle R. Bobber b, James D. Norris c, Alyssa Penrose b, Ashley Rutkowski b, Michael Wilson b, Mary Ann Raghanti a

Highlights
• An ethnographic account states an Inuit man made a knife from his own frozen feces.
• We experimentally tested knives manufactured from frozen human feces.
• Knives manufactured from frozen human feces do not work.

Why scientists tried — and failed — to make a knife out of frozen poop

Anthropologist Metin Eren reverse engineered a blade out of his feces to test a legendary survival story

CBC Radio - Posted: Sep 13, 2019 5:39 PM ET | Last Updated: September 17
We already mentioned the Japan Society for the Promotion of Science (JSPS) awards received by Ph.D. students Rose Leach and Heather Lawrentz to conduct summer research in Japan as well as the NSF IRES awarded to Anthony Tosi (P.I.), Richard Meindl, Owen Lovejoy, and Mary Ann Raghanti (co-P.I.s) that will support graduate student research internships with Kyoto University. We also mentioned the NIH subaward that Dr. Melissa Edler is working under as well as the funding from the Spanish Ministry of Science that supported Dr. Diez-Martin’s visit.

In ADDITION to the above, five of our graduate students received research awards from KSU’s Graduate Student Senate (Emily Munger, Cody Ruiz, Melia Romine, Heather Smith, and Morgan Chaney).

Ph.D. student Morgan Chaney (pictured left) was also awarded an NSF DDIG ($30,000) AND a small research grant from the American Society of Primatologists.

But wait – there’s more! Mary Ann Raghanti received funding from NSF to continue investigating the neurochemical hypothesis of human origins as well as NIH funding to continue a noninvasive examination of Alzheimer’s pathology in chimpanzees (with collaboration with Bill Hopkins at MD Anderson)

ALSO- Metin Eren is co-P.I. with Alistair Key (P.I.) and Marie Sorressi (co-P.I.) on a major grant from the European Research Commission Marie Curie Fellowship Program that will bring Dr. Key back to Kent State (he has visited as a post doc in previous years).

Metin has also received funding from the Portage Park District and the Ohio History Connection to support local excavations and analyses.

There’s ACTUALLY MORE exciting stuff going on than we can fit in this newsletter! It’s an exciting time for anthropology, and the KSU Department of Anthropology is hopping!!
“Doctor Bob” Mensforth

Dr. Robert P. (“Bob”) Mensforth has held the “title” of being one of the first graduates of the Biomedical Sciences Program at Kent State. He has carried out extensive biological anthropological research in the Eastern United States, with specializations in palaeodemographic reconstruction of past populations, and has combined this with traditional forensic work. His law enforcement activities have concentrated in Northeastern U.S. and especially Ohio, where he has worked extensively with various coroner’s and medical examiner’s agencies.

He has been a major contributor to much of the work that has emanated from Kent State over the years, made possible by his decision to concentrate his career at Cleveland State University, which he joined in 1987. He has always taken a special interest in student guidance and has almost constantly directed their education by aiding them in carrying out a multitude of research projects on the Hamann-Todd Collection at the Cleveland Museum of Natural History where is a Research Associate. One of his well-known past-times has been organized research trips to distant universities and museums. With his direction, many of his students have joined him as coauthors of numerous published reports of these various projects. “Bob” has been consistently brilliant at posing good research questions, and has always been generous in sharing his knowledge and ideas for these various projects. During his many years at Cleveland State he has been even often overly generous with personal sponsorship of students including purchasing new items for the Cleveland State labs and by donating to archaeological societies. At times he has even helped students with finding a place to live, even in his home, if their need was great.

His classroom/lab has always been a place of wonder. Piled high with books to borrow, bizarre photographs and posters on the walls, at least 14 guitars and music stands, skeletons wearing funny hats, on-going osteological projects laid-out, big boxes of donuts, and the coffee pot always gurgling...this is where the students learned. He is an excellent musician and often played the blues in between classes. He is also a talented artist and comedian (tends to favor puns) and has always used art and humor in his teaching. It is notable that he has never used Powerpoints, preferring to draw everything on the board, building up the images in colored chalks and showing beautiful, complex relationships. “Bob” retired as a Professor Emeritus in 2015.

Contributed by Drs. Linda Spurlock & Owen Lovejoy

If you would like to make a donation to the Mark F. Seeman Fund for Archaeological Research or the Endowed Fund for Graduate Student Research or the Robert J. and Lauren E. Patten Endowment, visit our website to follow the link to make a donation or contact David Grober at dgrober@kent.edu or 330-672-5297