

"From so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved."

Center for Human Evolutionary Studies

CHES Officers 2013-2014

Ryne Palombit, Director
Susan Cachel, Executive Board
Robert Scott, Executive Board
Erin Vogel, Executive Board



Mark your calendars: On **September 19th** this Fall, CHES will hold an **Open House** in the Life Sciences Atrium to inform all of our supporters about the important work we have done over the past few months – more details to follow!



Prof. Jinchuan Xing

NEWS

The past year has been filled with much excitement and many new developments. The year kicked off with a CHES Open House at the Douglass Dean's Residence. The event was an opportunity to share student and faculty research as well as some stories and photos from summer field work. **Prof. Erin Vogel** gave a short presentation on the CHES mission and graduate student **Sarah Hlubik** presented briefly on her inquiry into the earliest evidence for humanly controlled fire. The Open House was such a success that we have decided to make it an annual affair. *Mark your calendars for September 19, 2013 for the next Open House - this time in the magnificent Life Sciences Atrium on Busch Campus.*

Prof. Jinchuan Xing who joined the Department of Genetics as an Assistant Professor at Rutgers in January 2012 was elected as the newest CHES member in November 2012. Dr. Xing is a human/primate geneticist and received his Ph.D. from Louisiana State University in 2005. After spending an additional year at LSU

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“Our research into Oldowan stone tool technology is adding a new dimension to how we understand early human behavior. Now we can compare how stone tools were made across East Africa.”

Dr. Jay Reti



Mareike Janiak



Stan Kivai

as a postdoctoral fellow, Dr. Xing moved to the University of Utah as a postdoctoral fellow and studied human population genetics and natural selection until 2011. Dr. Xing's long-term research interest is on the mechanisms and consequences of human genomic variation and he has extensive experience in analyzing genomic data in this context. His previous projects involve elucidating human population history and genetic adaptation at both global and regional scales, with or without disease implication. Dr. Xing's current projects include studying genetic/phenotypic adaptation in a Mongolian population living on the Qinghai-Tibetan plateau, and investigating human evolutionary history in South Asia.

Prof. Rob Blumenschine retired in January 2013 and **Prof. Jack Harris** retired in June 2013. Both continue their research and remain Associate Members of CHES.

Jay Reti and **Lisa Danish** both successfully defended their dissertations in February and March 2013. Jay's dissertation was entitled, “Methods for Determining Differential Behaviors in Stone Tool Production and Application to the Oldowan Of Olduvai Gorge, Tanzania and Koobi Fora, Kenya.” Jay has accepted a position as Lecturer and Research Associate at the University of California Santa Cruz. Lisa's dissertation was entitled, “‘Following,’ an Alternative Mating Strategy of Male Olive Baboons (*Papio hamadryas anubis*).” Lisa was awarded the American Association of Physical Anthropology Sherwood Washburn Prize for her work and she moves on to a position at the German Primate Center funded by the German Academic Exchange Service.

Funding that essential pilot phase of graduate student research has always been a cornerstone of the CHES mission and advisees of CHES Members have always competed for Research Grants. The relationship of these students with CHES was formalized in May 2013 when CHES advisees were inducted with the new status of CHES **Graduate Affiliates**.

2013 ZELNICK AWARD

The Zelnick Award goes each year to support the research of second-year CHES graduate affiliates. This year there were two recipients: **Stan Kivai** and **Mareike Janiak**. Stan's research is on the mechanical and nutritional constraints of exploiting fallback foods consumed by the Tana River mangabeys in lower Tana River, Kenya. Specifically, he will focus on how juveniles respond to

the mechanical and nutritional challenges posed by fallback foods. Mareike is also interested in how primates and hominins adapt to dietary challenges posed by food. Her focus is on genetic variation in pepsinogen genes in howler and spider monkeys with differing diets. These genes may influence digestion and can potentially tell us about dietary adaptation.

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Students on Rutgers Primateology, Wildlife Ecology, and Conservation Field School

GRADUATE AFFILIATES

Shahin Alavi, **Liz Ballare**, and **Tim Bransford** are all conducting pilot dissertation research at the Tuanan Orangutan Field Station (Central Kalimantan, Borneo) this summer. Shahin's research focuses on the role of orangutans in facilitating nutrient cycling in a peat-swamp habitat. Tim is focused on completing the Tuanan orangutan nutritional database and collecting orangutan urine to look at individual health status. His research will also focus on the energetic costs of lactation and motherhood in wild orangutans. Tim has already leveraged a CHES Award and been awarded a grant by the American Society of Primatology. Liz is examining the overall health of rehabilitated and released orangutans. She will compare the health of the released orangutans with the wild population studied at Tuanan. In addition to these graduate students, undergraduate **Pawel Sieradzy** is spending the summer at Tuanan after completing an Honors thesis based on research he did as part of the Kenya Primatology Field School.

Catherine Beck is conducting research on decadal and sub-decadal climatic cycles in lacustrine sediments in the Turkana Basin, Kenya. Her focus is on lacustrine outcrops representing three time periods - the Holocene Lake Turkana highstand, the Pleistocene Lorenyang Lake, and the Pliocene at Lonyumun. She is studying their

laminations and collecting sediment samples for lithologic, geochemical, mineralogical, and microfaunal study. Lakes are important high-resolution recorders of terrestrial climate and they can illuminate how short order climatic events influenced hominins.

Melanie Crisfield is part of the Rutgers Newark Vacone Archaeological Field School in Italy this summer. She is serving as Osteological Finds Supervisor (excavating and recording of burials discovered this field season). Melanie will mentor honors student **Devin Ward** in the analysis of a juvenile skeleton recovered during the 2012 excavation. Melanie was awarded the RASTL Fellowship for 2013-2014 and will be part of a select group of graduate researcher-teachers focused on excellence in undergraduate education. Melanie's research on kinematics and bipedalism has been funded as a part of a \$5 million grant from the State of New Jersey to Dimitris Metaxas (Computer Science).

Susan Coiner-Collier presented preliminary results from her dissertation research on the relationship between primate feeding behavior and the internal structure of the jaw at the 2013 meeting of the American Association of Physical Anthropology. She found a significant relationship between feeding time and bone density. This is an exciting result that holds the potential to yield new information about early hominins: how much time did they spend feeding compared to other activities?

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Rene Studer-Halbach is spending six weeks this summer working at the Research Laboratory for Art History and Archaeology at Oxford University, learning the laboratory techniques required for stable isotope analyses. His research will apply stable isotope techniques to improving our understanding of the Laetoli site in Tanzania.

Pam Weis will use this summer to complete her dissertation proposal on how evolution is communicated in high school introductory biology classes, a project that brings together the intellectual traditions of evolutionary and cultural anthropology. Additionally, she will be updating the CHES website.

FACULTY UPDATES

Prof. Robin Fox was recognized as a founder of modern biosocial science and elected to the National Academy of Sciences.

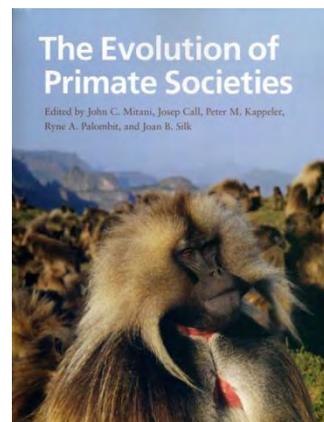
Prof. Carmel Schrire is hoping to start work with colleagues on the vast and complex problem of the origin of cattle in South Africa. The work is made possible by the successful extraction of the genome of a Khoekhoe cow Prof. Schrire excavated at Oudepost I. Prof. Schrire will identify new specimens with known stratigraphy for further genetic study.

Prof. Robert Trivers has just completed four extremely productive months at the Institute for Advanced Studies in Berlin. In particular, he wrote one paper on species selection and another appearing in *PLoS One* on knee symmetry predicting sprinting speed 14 years later in Jamaican children.

Prof. Susan Cachel has a book review in press in *PaleoAnthropology*. The review is of *Early Miocene Paleobiology in Patagonia: High-Latitude Paleocommunities of the Santa Cruz Formation*. Prof. Cachel and Melanie Crisfield are submitting a paper to *The Anatomical Record* on "Ape Models for the Origins of Bipedality."

Prof. Lee Cronk has been on leave this year at Princeton's Center of Theological Inquiry, an institution for advanced research that is rooted in theology but open to all branches of inquiry. CTI's theme for the year has been "evolution and human nature." Prof. Cronk has spent his time at CTI engaged in many lively dialogues

with both scientists and theologians on that and many other topics. In addition, Prof. Cronk and his co-author Beth L. Leech hosted a meeting on "Synthesizing the Evolutionary and Social Science Approaches to Human Cooperation" at the National Evolutionary Synthesis Center in Durham, NC. The meeting was inspired by their recent book, *Meeting at Grand Central: Understanding the Social and Evolutionary Roots of Cooperation* (Princeton, 2013). More than thirty scholars from around the world were in attendance, including quite a few with links to CHES: **Drew Gerkey** (alumnus), **Padmini Iyer** (graduate affiliate), **Montserrat Soler** (alumna), and **Rolando de Aguiar** (graduate affiliate). In May, Prof. Cronk visited Stanford University's Center for Advanced Study in the Behavioral Sciences to work with his collaborator Athena Aktipis on the evolutionary underpinnings of generosity and risk-pooling. This summer Prof. Cronk is using CHES funds to travel to Tanzania in order to do additional work on risk-pooling.



Prof. Ryne Palombi published, with his collaborators, *Evolution of Primate Societies* (University of Chicago Press). Many years in the making, the new book compiles 32 chapters by 44 leading authorities in the field. They provide an up-to-date synthesis of the current state of understanding of primate behavioral ecology, organized around four major adaptive problems primates face as they grow up in a difficult and dangerous world, find mates and rear offspring, negotiate complex social worlds, and employ cognitive strategies for coping with life's challenges. Chapters on human behavior at the end of each section are novel aspects of the book and remind us what we can learn about ourselves through cutting edge research on non-human primates. Prof. Palombi's research project on olive baboons continues in Kenya, and he is collaborating with Prof.

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Jessica Rothman and graduate student Caley Johnson of Hunter College in a comparative study of nutritional ecology of baboons. To better understand how feeding and nutritional adaptations evolve, Caley will be collecting data on Palombit's baboons in the arid thornscrub of Kenya and in the tropical forests of Uganda.

Prof. Craig Feibel is in the field working on several projects including renewed excavations and geological study at Kanapoi, the type locality for *Australopithecus anamensis*, which will focus on the evidence for accumulation, burial, and preservation of the hominin assemblage.

Prof. Rob Scott and **Prof. Erin Vogel** traveled to Indonesia this summer as part of their USAID-funded project on orangutan ecology, biodiversity, and conservation at the Tuanan Orangutan Research Station. Together with Indonesian faculty members who are their partners on the USAID initiative, they taught a field course at Tuanan on Primate Behavioral Ecology to Indonesian and Rutgers undergraduate and graduate students. In addition, Prof. Vogel presented a decade of research on orangutan dietary ecology at a 10-Year Anniversary Retrospective Tuanan symposium in Jakarta. She also spent time at the research station advising graduate students and collecting data on orangutan health and nutrition. During this time, they celebrated the 3-year anniversary of the start of a community-based environmental education program funded by U.S. Fish and Wildlife that takes place at several local schools within proximity to the research station. Prof. Scott visited Halimun National Park in Java to explore new research and education opportunities while Prof. Vogel met with USAID representatives and other governmental agencies to discuss research projects and future funding opportunities. Prof. Vogel participated in a Wenner-Gren-funded workshop at Arizona State University's Institute of Human Origins titled, "Reconstructing Dietary Adaptations in Human Evolution" and Prof. Scott will be a panelist in October as part of the "Food and Human Experience" project.

Prof. Jason Lewis continues research and fieldwork focused on the taphonomy and zooarchaeology of Plio-Pleistocene sites in Africa and Middle and Late Pleistocene sites in France. Prof. Lewis is co-director (with Dr. Sonia Harmand of Stony Brook and the CNRS, France) and paleoanthropologist of the West Turkana Archaeological Project in Northern Kenya. Prof. Lewis is also co-director (with Dr. Ludovic Slimak of the CNRS) of excavations at the Middle Pleistocene site of Orgnac 3 and the Late Pleistocene site of Le Grand Abri aux Puces (both in Southeastern France).

ALUMNI UPDATES

Dr. Briana Pobiner (Ph.D. 2007) is a research scientist and educator with the Smithsonian's Human Origins Program where she continues her research on hominin diet with a focus on the origin and evolution of meat-eating by examining fossils with butchery marks at Olorgesailie, Kenya and modern animal bones chewed by carnivores at Ol Pejeta, Kenya. She is also leading an NSF-funded education project working with high school AP Biology teachers to create curricula that use human examples to teach evolutionary concepts – as well as teaching strategies that help them become more comfortable and confident presenting these materials in their classrooms.

Prof. Michael Pante (Ph.D. 2010) is now an Assistant Professor of Anthropology at Colorado State University.

Dr. Luca Morino (Ph.D. 2012) begins postdoctoral research on the evolution of lateralized behaviors and their implications for the evolution of complex communication at the Primate Research Institute of Kyoto University in the Fall of 2013. This summer he will lead the Rutgers Primatology, Wildlife Ecology, and Primatology Field School in Kenya.

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Selected Recent Publications by CHES Members and Affiliates:

Rothman, J.M., **Vogel, E.R.**, and Blumenthal, S.A. (2013) Diet and nutrition. In Sterling, E., Bynun, N., and Blair, M.E. (eds). *Primate Ecology and Conservation: A handbook of techniques*. Oxford University Press.

Lewis, J.E. (2012) Genetics in Archaeology. In: Silberman, N. et al. (eds). *The Oxford Companion to Archaeology, 2nd Edition*. Oxford University Press, pp. 596-603.

Wagh, K., Bhatia, A., Alexe, G., Reddy, A., Ravikumar, V., Seiler, M., Boemo, M., Yao, M., **Cronk, L.**, Naqvi, A., Ganesan, S., Levine, A.J., and Bhanot, G. (2012) Lactase persistence and lipid pathway selection in the Maasai. *PLoS ONE* 7(9): e44751.

Trivers, R., Hopp, R., and Manning, J.T. (in press) A longitudinal study of digit ratio (2D:4D) and its relationships with adult running speed in Jamaicans. *Human Biology*.

Manning, J.T., Kilduff, L.P., and **Trivers, R.** (2012) Digit ratio (2D:4D) in Klinefelter's Syndrome. *Andrology*, doi: 10.1111/j.2047-2927.2012.00013.x



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