

NEWS

Anthropologists get jazzed for science in New Orleans

1 | INTRODUCTION

From the jazz to the jambalaya, New Orleans was a perfect location to host the annual meeting of the American Association of Physical Anthropologists (AAPA), which took place April 19–22, 2017. Record numbers of anthropologists came together this year to discuss the latest research and to march for science. The session topics ranged from primate conservation to early hominins, with room for a few beignets in between.

2 | HOMININS AND HABITATS

Rhonda Quinn (Seton Hall) organized a podium session devoted to early hominin paleoanthropology that covered topics from fossil Bovidae to Lucy's knee. Laurence Dumouchel (George Washington) discussed the reconstruction of paleoecological conditions of early hominin sites using fossil Bovidae. Her results indicate distinct habitat types across various sites from the Omo-Turkana basin. Michelle Drapeau (Montréal) presented a reinvestigation of the Yellow Sands locality. This type locality of the Mursi Formation is over 4 Ma and corresponds to the *Ardipithecus*–*Australopithecus* transition. This study improved stratigraphic detail at the site, discovered previously undocumented taxa in the formation, and, for the first time, established a stratigraphic correlation between the locality and the Cholo Tuff.

Peter Fernández (Stony Brook) presented a study of the evolution of the hominin forefoot. Results of comparative 3D geometric morphometric and phylogenetic analyses indicate that fossil hominin forefeet exhibit mosaic patterns of evolution, with the lateral forefoot evolving toward a more human-like configuration before the medial forefoot. Phylogenetic comparative methods were also used by Mark Grabowski (AMNH), who presented a model of size evolution in extant and extinct primates. These data indicated a gibbon-like hominoid last common ancestor optimum and showed that the hominin lineage underwent varied adaptive shifts. Forensic analyses of “Lucy” (A.L. 288-1) were presented by John Kappelman (Texas at Austin). Using high-resolution CT scan imaging and cross-disciplinary collaborations with medical experts, Kappelman argued that the distal portion of Lucy's left femur exhibits evidence of a high-energy compressive epiphyseal fracture. He proposed that this injury may have occurred as a result of a fall from considerable height. William Kimbel (Arizona State University) re-examined the craniofacial morphology of the juvenile *Australopithecus sediba* fossil (MH1) in the context of ontogenetic growth series and concluded that many aspects of MH1's affinities with *Homo* are due

to its immaturity. They pointed to the shared morphologies between *Au. sediba* and *Au. africanus* to suggest that these two South African taxa may be uniquely related to one another.

3 | FUNCTIONAL MORPHOLOGY OF THE JAW, PELVIS, AND (ALMOST) EVERYTHING IN BETWEEN

Functional morphologists came together for an invited poster symposium on the axial skeleton. This symposium was organized by Ella Been (Tel Aviv) and Alon Barash (Bar Ilan University). Presenting an assessment of bilateral symmetry and asymmetry in hominoid lumbar vertebrae, Katherine Whitcome (California Northstate) indicated the need for methodological care when quantifying total zygapophyseal area in load transfer studies. Eric Castillo (Harvard) contributed a kinematic perspective to the symposium, presenting data about the role of lumbar lordosis in shock attenuation during locomotion. His results suggest that Neanderthals, with their less lordotic lumbar spines, may have experienced an adaptive trade-off between stability and shock absorption capacity.

The functional anatomy of the pelvis, limbs, and jaw was discussed during a podium session chaired by Marcia Ponce de León (Zurich). Marta Pina (Institut Català de Paleontologia Miquel Crusafont) used finite element analysis to examine the patellar functional morphology of *Epipliopthecus vindobonensis* and *Pierolapithecus catalaunicus*. The results suggest a diverse positional behavioral repertoire for *Epipliopthecus*, and a great-ape-like repertoire for *Pierolapithecus*. Sharon Kuo (Missouri) also discussed the hind limb, presenting a proof-of-concept demonstration that x-ray reconstruction of moving morphology (XROMM) can be used to visualize subastragalar joint movements in cadaveric macaques. Delving deeper into skeletal morphology, internal bone anatomy was discussed by Lily Doershuk and Timothy Ryan (Penn State), who presented research about trabecular bone structure in the proximal humerus and femoral head of various human populations and primate species. Humeral results indicated that foraging and agricultural populations have higher bone volume fraction and thicker trabeculae than do members of medieval and post-industrial populations.

Marisa Macias (AMNH) and Kari Allen (Washington University) organized a poster symposium entitled “Adaptation: Identifying Form-Function Relationships in the Fossil Record.” This symposium featured presentations on a wide range of topics, including brains, diet, chewing, fossil hominins, experimental studies of primate and human locomotion, and primate communities.

4 | DISCOVERIES IN PRIMATE EVOLUTION

Christopher Gilbert (CUNY) reported on the recent discovery of a stem hominoid from the Lower Siwaliks deposits of India. This tooth, tentatively dated to 11-14 Ma, has possible affinities with *Hylobates*. Gilbert and colleagues concluded that the recovery of additional specimens from this region are needed to illuminate the phylogenetic position of this species. Paul Morse (Florida) presented findings on shifts in dental topography between earlier and later species of *Teilhardina* from the Bighorn Basin, Wyoming. Given that other mammal groups underwent changes in body size and diet associated with the Paleocene-Eocene Thermal Maximum (PETM), Morse set out to assess whether *Teilhardina* responded with a similar shift. While the shift in body size was in the opposite direction to that observed in other mammals, dental results suggested that *Teilhardina* coped with the post-PETM cooling and associated vegetation changes by altering its feeding ecology. Chris Beard (Kansas) reported on fossil material dated to 43-44 Ma from the middle Eocene deposits in the Orhaniye Basin, Turkey. Beard's team found that this site contained a highly endemic fauna unlike any middle Eocene faunas from Asia or Africa. The unique composition of this site suggested that, except for the occasional arrival of mammals from Africa and Asia, northern Anatolia remained isolated from Eurasia for long periods of time.

A poster symposium organized by Gregg Gunnell (Duke), Erik Seifert (USC), Ellen Miller (Wake Forest) and Prithijit Chatrath celebrated the 40th anniversary of the Division of Fossil Primates, Duke Lemur Center, which was founded by the late Elwyn Simons.

5 | PRIMATE CONSERVATION

Primate conservation and the implications of studying primates in anthropogenic landscapes were key topics in a session organized by Fernando Campos (Tulane). Anna Nekaris (Oxford Brookes) examined, in west Java, the introduction to the agroforest landscape of novel agricultural bamboo frames inhabited by Javan slow lorises (*Nycticebus javanicus*). While the frames now comprise 12% of the researched landscape, they have not significantly altered the lorises' home range size. Interestingly, the lorises in this study were even shown to use frames to travel. Malcolm Ramsay (University of Toronto) also explored primate navigation of human structures by examining the effect of roads on mouse lemur movement in northwest Madagascar. Using capture-mark-recapture techniques, Ramsay noted significantly decreased movement alongside roads, as well as a greater prevalence of males than females at roadside sites. Both Nekaris and Ramsay emphasized the importance of understanding the direct impact of human structures on primate movement and ranging, highlighting primate resilience and adaptability, as well as the negative effects such structures may impose.

Understanding and tracking the sustainability of primate population shifts is a difficult task, yet research presented at this year's meetings demonstrated that this can be achieved through long-term data and modeling techniques. Fernando Campos (Tulane) explored the

influence of biotic, abiotic, and human-induced factors on the sharp decline of a mantled howler (*Allouatta palliata*) population in northwest Costa Rica. By combining primate census data from a long-term research project with climatic, phenological, and anthropogenic data, Campos concluded that nonanthropogenic factors were the likely cause of howler decline, suggesting the influence of excessive rainfall and potential mosquito-borne diseases. Christopher Shaffer (Grand Valley State) explored the sustainability of Waiwai hunting practices in Guyana and its effect on native primate species. Models showed that current bow and arrow use did not trigger unsustainable over-harvest in the next twenty years; shotgun use had a larger impact. This study highlighted the importance of multidisciplinary and human-based data sources while specifically noting the effects of various technologies on primate hunting sustainability.

6 | PRIMATE SOCIAL BEHAVIOR AND SIGNALS

The podium session on primate social behavior, chaired by Adrian Jaeggi (Emory), started with sex-related topics and ended more generally with social bonds and grooming. Anthony DiFiore (Texas at Austin) discussed findings on male spider monkey cooperative territory defense, suggesting that spider monkeys could provide a useful comparative model for the type of male cooperation found among chimpanzees and humans. Rebecca Lewis (Texas at Austin) discussed the evolution of male dominance in order to examine the so-called "lemur syndrome."

Michael Muehlenbein (Texas at San Antonio) organized an invited podium symposium that addressed primate signals in an evolutionary and ecological context. Constance Dubuc (Cambridge) and James Higham (NYU) examined red facial-skin coloration in the rhesus macaque as a visual signal. They concluded that this signal probably is under independent sexual selection in both sexes. Christine Drea (Duke) discussed how lemur olfactory signals are sex- and condition-dependent, at least in chemical diversity. In addition, David Puts (Penn State) presented research on the human male voice as an auditory signal. His results indicated that this has been shaped by sexual selection and may be a deceptive signal.

7 | DRUNKEN MONKEYS

Nathanial Dominy (Dartmouth) and Robert Dudley (UC Berkeley) organized a session entirely dedicated to primate consumption of ethanol in fruits and nectar. Laura Hernandez-Salazar (Universidad Veracruzana) discussed her finding that the olfactory bulb in spider monkeys can detect the "green odor" of young leaves, which is produced by C₆ alcohol and aldehydes. The spider monkey was found to have a higher threshold for these smells than either humans or laboratory mice. Christina Campbell (California State) evaluated the "drunken monkey" hypothesis in spider monkeys. She found that although more than 85% of the fruit consumed by spider monkeys contained alcohol, the monkeys did not become intoxicated. This indicates that ethanol plumes

may serve as an important cue for frugivorous primates, since ethanol has more calories than sugar does. Nathaniel Dominy discussed the preference of some strepsirrhine primates for alcohol. In the wild, both aye-ayes and lorises have been observed consuming nectar. At the Duke Lemur Center, slow loris and aye-ayes strongly preferred high concentrations of alcohol over low concentrations. An A294V mutation in the ADH4 gene was suggested as a potential explanation. Kimberley Hockings (CRIA Portugal) studied tools that chimpanzees use for consuming alcohol. Chimpanzees at Bossou were found to use handmade tools to drink the fermenting palm sap out of plastic containers installed by local people making palm wine. Unlike the spider monkeys discussed by C. Campbell, chimpanzee individuals would occasionally drink enough to elicit behavioral changes.

Anthropologists took a scheduled recess from the meeting to participate in the New Orleans chapter of the March for Science. Following speeches by Susan Antón and Agustin Fuentes, conference attendees were led by a New Orleans band (see supplemental video) in the march to support science. The officers of the AAPA executive committee (Susan Antón, Leslie Aiello, Josh Snodgrass, and Anne Grauer) released the following statement regarding the march:

"AAPA joins with the March for Science to celebrate our passion for rigorous, non-partisan, evidence-based science. We aim to:

- Promote science education that teaches critical thinking and scientific rigor
- Foster open and honest science communication and inclusive public outreach
- Champion evidence-based decision making
- Protect funding for scientific research and its applications
- Acknowledge that science does not have borders and that the free movement of international scientists and students is necessary to achieve our best results

Science serves the common good. *We celebrate this mission and these goals.*"

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BOOKS RECEIVED

Armelagos, George J. & Van Gerven, Dennis P. 2017. *Life and Death on the Nile: A Bioethnography of Three Ancient Nubian Communities*. Gainesville: University Press of Florida. 244pp. ISBN: 9780813054452, \$95.00 (hardback).

Berger, Lee & Hawkes, John. 2017. *Almost Human: The Astonishing Tale of Homo naledi and the Discovery that Changed Our Human Story*. Washington, DC: National Geographic. 240pp. ISBN: 9781426218118, \$26.00 (hardback).

Corral, José. 2017. *Survival and Altruism: A Universal Principle of Ethics*. Spain: Letras De Autor. 126pp. ISBN: 9788417101107, \$11.37 (paperback).

Flynn, Lawrence J. & Wu, Wen-Yu (eds.) 2017. *Late Cenozoic Yushe Basin, Shanxi Province, China: Geology and Fossil Mammals*. New York: Springer. 237pp. ISBN: 9789402410495, \$139.00 (hardback).

Gat, Azar. 2017. *The Causes of War & The Spread of Peace: But Will War Rebound?* Oxford: Oxford University Press. 302pp. ISBN: 9780198795025, \$34.95.

Held Jr., Lewis I. 2017. *Deep Homology: Uncanny Similarities of Humans and Flies Uncovered by Evo-Devo*. Cambridge: Cambridge University Press. 272pp. ISBN: 9781316601211, \$39.99 (paperback).

Redfern, Rebecca C. 2017. *Injury and Trauma in Bioarchaeology: Interpreting Violence in Past Lives*. Cambridge: Cambridge University Press. 340pp. ISBN: 9780521115735, \$79.99 (hardback).

Scott, James C. 2017. *Against the Grain: A Deep History of the Earliest States*. New Haven: Yale University Press. 312pp. ISBN: 978030018291, \$26.00 (hardback).