Activity	Room	Time	Session #	Session type
Wednesday, Evening				
American Association of Physical Anthropologists				
Training the Next Generation	Ballroom Foyer	8 p.m.-11 p.m.	1	Poster
Integrating Research into Teaching: Examples from Biological Anthropology	Ballroom Foyer	8 p.m.-11 p.m.	2	Poster
What is a 'Vulnerable Population?' Agency, Intimacy, and Protections in Biological Anthropology	Ballroom Foyer	8 p.m.-11 p.m.	3	Poster
Thursday, Morning				
AAPA and PPA				
Bioarchaeology of Transition: Health and Changing Environments	Bissonet	8 a.m.-12:15 p.m.	4	Podium
American Association of Physical Anthropologists				
Anthropological Genetics, Origins, Migrations, and Introgression	Balcony I/J	8 a.m.-12:15 p.m.	5	Podium
Primate Social Behavior	Studio 1/2/3	8 a.m.-12:15 p.m.	6	Podium
Paleoanthropology - Early Hominins	Studio 7/8/9	8 a.m.-12:15 p.m.	7	Podium
Child Health and Identity in Bioarchaeology	Balcony K	8 a.m.-noon	8	Poster
Back to the Root: The Use of Dental Cementum in Anthropology	Studio 4/5	8 a.m.-noon	9	Poster
Skeletal Ageing: Factors Affecting Population Variation in Rates of Bone Degeneration	Studio 6	8 a.m.-noon	10	Poster
Primate Nutrition/Foraging	Carondolet	8 a.m.-1 p.m.	11	Poster
Primate Reproduction, Parentage, and Life History II	Carondolet	8 a.m.-1 p.m.	12	Poster
Human Biology and Beyond	Carondolet	8 a.m.-1 p.m.	13	Poster
Paleoanthropology: Early Homo II	Carondolet	8 a.m.-1 p.m.	14	Poster
Functional Anatomy: Jaws and Teeth	Carondolet	8 a.m.-1 p.m.	15	Poster
Human Skeletal Biology: Isotopes, Subsistence, and Mobility	Carondolet	8 a.m.-1 p.m.	16	Poster
Thursday, Afternoon				
AAPA and AAAG				
Collaborations Across Anthropology and Genetics: Examples of Transdisciplinary Work	Bissonet	2:30 p.m.-6 p.m.	17	Podium
American Association of Physical Anthropologists				
Primate Nutrition and Foraging	Balcony I/J	2:30 p.m.-	18	Podium

		6:30 p.m.		
Primates and Evolution	Studio 1/2/3	2:30 p.m.-7 p.m.	19	Podium
Human Skeletal Biology: Life Experience, Violence, and Disease	Studio 7/8/9	2:30 p.m.-6:45 p.m.	20	Podium
Diversity, Variation, and Paleoecology: A View of Hominin Complexity from the Middle Pliocene of Eastern Africa	Balcony K	2:30 p.m.-6:30 p.m.	21	Poster
Foreign Affairs: Bioarchaeological Approaches to Ethnicity, Identity, and Interaction in The MENA Region	Studio 4/5	2:30 p.m.-6 p.m.	22	Poster
The Anthropology of Islands: Evolution, Variation, and New Research Directions	Studio 6	2:30 p.m.-6:30 p.m.	23	Poster
Primate Ecology and Conservation	Carondolet	1:30 p.m.-6:30 p.m.	24	Poster
Human Biology and Genetics I	Carondolet	1:30 p.m.-6:30 p.m.	25	Poster
Paleoanthropology: Late Homo	Carondolet	1:30 p.m.-6:30 p.m.	26	Poster
Bioarchaeology and Paleopathology: Stress, Frailty, and Inequality	Carondolet	1:30 p.m.-6:30 p.m.	27	Poster
Human Dental Anthropology: Health, Disease, and Other Cool Stuff with Teeth	Carondolet	1:30 p.m.-6:30 p.m.	28	Poster

Friday, Morning

American Association of Physical Anthropologists				
Human Skeletal Biology: Shape, Selection, Integration, and Kinship	Balcony I/J	8 a.m.-12:15 p.m.	29	Podium
Paleoanthropology: Early Homo	Bissonet	8 a.m.-12:15 p.m.	30	Podium
Primate Ecology, Cognition, and Conservation	Studio 1/2/3	8 a.m.-12:15 p.m.	31	Podium
AAPA and HBA				
Human Biology: Evolutionary Perspectives on Reproduction, Development, and Health	Studio 7/8/9	8 a.m.-12:15 p.m.	32	Podium
American Association of Physical Anthropologists				
Here Comes the Sun: Evolutionary Responses to Solar Exposure	Balcony K	8 a.m.-noon	33	Poster
Adaptation: Identifying Form-Function Relationships in the Fossil Record	Studio 4/5	8 a.m.-noon	34	Poster
Anthropological Stories of Bone Histology and Remodeling: An Invited Session in Honor of Samuel D. Stout	Studio 6	8 a.m.-noon	35	Poster
Primate Social Behavior II	Carondolet	8 a.m.-1 p.m.	36	Poster
Human Biology and Genetics II	Carondolet	8 a.m.-1 p.m.	37	Poster
Functional Anatomy: Ontogeny	Carondolet	8 a.m.-1 p.m.	38	Poster
Primates: Methods and Morphology	Carondolet	8 a.m.-1	39	Poster

		p.m.		
Forensic Anthropology and Bioarchaeology: Collections, Ancestry, and Age at Death	Carondolet	8 a.m.-1 p.m.	40	Poster

Friday, Afternoon

American Association of Physical Anthropologists				
Beyond Visibility: How Academic Diversity is Transforming Scientific Knowledge	Balcony I/J	2:30 p.m.-5:45 p.m.	41	Podium
Signals in Evolutionary and Ecological Context	Bissonet	2:30 p.m.-6:15 p.m.	42	Podium
Human Skeletal Biology: Mobility, Isotopes, Diet	Studio 1/2/3	2:30 p.m.-6:15 p.m.	43	Podium
Primate Genetics and Adaptation	Studio 7/8/9	2:30 p.m.-6 p.m.	44	Podium
The Evolution of Form and Function in the Hominin Pelvis	Balcony K	2:30 p.m.-6 p.m.	45	Poster
The Axial Skeleton: Morphology, Function, and Pathology of the Spine and Thorax in Hominoid Evolution	Studio 4/5	2:30 p.m.-6 p.m.	46	Poster
Biological Investigations of Nomads: Developments and Innovations	Studio 6	2:30 p.m.-6 p.m.	47	Poster
Primate Cognition and Ecology	Carondolet	1:30 p.m.-6 p.m.	48	Poster
Human Biology and Genetics III	Carondolet	1:30 p.m.-6 p.m.	49	Poster
Paleoanthropology: Early Hominins II	Carondolet	1:30 p.m.-6 p.m.	50	Poster
Human Skeletal Biology: Morphology, Variation, and Environment	Carondolet	1:30 p.m.-6 p.m.	51	Poster

Saturday, Morning

American Association of Physical Anthropologists				
Humans as Holobionts: The Microbiome as a Biological System in Human Evolution	Bissonet	8 a.m.-12:30 p.m.	52	Podium
Primate Reproduction, Parentage, and Life History	Balcony I/J	8 a.m.-12:15 p.m.	53	Podium
Functional Anatomy of the Pelvis, Limbs, and Jaws	Studio 1/2/3	8 a.m.-12:15 p.m.	54	Podium
Later Homo Evolution	Studio 7/8/9	8 a.m.-12:15 p.m.	55	Podium
Anthropological Demography, Well-being, and the Osteological Paradox: A Symposium in Honor of James W. Wood	Balcony K	8 a.m.-noon	56	Poster
Skeletal Standards: Documentation Software, Databases, and Online Digitization Resources Available to Researchers	Studio 4/5	8 a.m.-noon	57	Poster
Broadening Forensic Anthropology: Bringing East and Southeast Asia to the Forefront	Studio 6	8 a.m.-noon	58	Poster
Human Biology and Genetics IV	Carondolet	8 a.m.-1 p.m.	59	Poster

Fossil Primates and Environments	Carondolet	8 a.m.-1 p.m.	60	Poster
Bioarcheology and Paleopathology: Violence, Activity, Infection, and Congenital Conditions	Carondolet	8 a.m.-1 p.m.	61	Poster

Saturday, Afternoon

American Association of Physical Anthropologists				
Primates and Dietary Ethanol: Evolutionary Outcome, or Modern Accident?	Bissonet	2:30 p.m.-6 p.m.	62	Podium
Up Goer Five PhysAnth Edition: Communicate Your Science Using English's Ten Hundred Most Common Words	Studio 7/8/9	4:45 p.m.-5:30 p.m.	63	Podium
Human Adaptive Variation/Integrative Approaches	Balcony I/J	2:30 p.m.-6 p.m.	64	Podium
Primate Evolutionary Morphology	Studio 1/2/3	2:30 p.m.-6:15 p.m.	65	Podium
Division of Fossil Primates, Duke Lemur Center – 40th Anniversary Symposium	Balcony K	2:30 p.m.-6 p.m.	66	Poster
The Paleobiology of Upper Paleolithic / Later Stone Age Humans	Studio 4/5	2:30 p.m.-6 p.m.	67	Poster
Stable Isotope Advances in Studies of Stress and Disease	Studio 6	2:30 p.m.-6 p.m.	68	Poster
Functional Anatomy of the Limbs	Carondolet	1:30 p.m.-6 p.m.	69	Poster
Human Skeletal Biology: Population History and Beyond	Carondolet	1:30 p.m.-6 p.m.	70	Poster
Forensic Anthropology and Bioarchaeology: Sex, Comingling, Postmortem Interval, and Decomposition	Carondolet	1:30 p.m.-6 p.m.	71	Poster

Wednesday, Evening sessions.

Session 1: Training the Next Generation

Invited Poster Symposium. Chair: April Sievert, Teresa Nichols.

Co-organizers: April Sievert, Indiana University.

Ballroom Foyer.

This symposium aims to create a space for professionals, at various stages of their careers, to reflect on core knowledge and skills that the next generation of bioanthropologists need to address - with focus on the ever-broadening research questions and methodologies available to the scientific community. A parallel area of discussion encourages educators to consider what content they are focusing on in their courses, in their field schools or laboratories, and during mentoring. The study of humanity necessitates an engagement with the ethics of conducting research on human subjects and research that holds profound implications for different human populations. As the AAPA Ethics Committee becomes a standing committee and is developing a fellows program and case studies initiative for teaching purposes, this is an important moment to reflect broadly about the central values that should be supported in the up and coming generation of professionals.

This symposium offers a variety of perspectives, tackling issues ranging from the importance of inclusive learning environments to professional skills a career bioanthropologist might need. Furthermore, it encourages professionals to reflect on the many stakeholders who are interested and affected by research questions and methods, as well as new possibilities for collaboration. We hope that educators and students alike will be engaged in these reflections on pedagogical and disciplinary values and the challenges and opportunities that lie ahead.

1 **What SLACS might lack: Teaching Biological Anthropology and ethics at a small liberal arts college.** A.M. KAKALIOURAS.

2 **Engaging Undergraduate Students in Research.** S.R. WILLIAMS.

3 **What Biological Anthropology Can Teach Us about Conflict and Social Inequality: Teacher and Student Reflections.** R.P. HARROD, N.M. JOHNSON, A.A. HANNIGAN, M.A. KINCAID.

4 **Growth and opportunities in graduate education: A student's perspective.** B.M. HOLLISTER.

5 **Advancing ethical literacy through case studies.** K.M. ZARENKO, J. EYRE.

6 **Engendering Identity to Anatomical Collections: Using History, Embodiment Theory, and Ethics to Humanize Skeletons.** C.M. DE LA COVA.

7 **Human remains and vodou pracititioners in northern Haiti: Ethics and research design in ethnobioarchaeology.** P.L. GELLER.

8 **Anthropology education in the age of NAGPRA: Where we stand and where we might go.** A.K. SIEVERT, T. NICHOLS.

9 **Building Bridges: Learning to Use Science and Indigenous Knowledge to Create Productive Partnerships.** D.A. BOLNICK, R.S. MALHI.

10 **NAGPRA in Practice: Moving from the Classroom to Collaboration.** J. THOMAS.

11 **Communicating early career research: The importance of outreach.** J.A. RAFF.

Session 2: Integrating Research into Teaching: Examples from Biological Anthropology

***Invited Poster Symposium*.** Chair: Laurie Kauffman, Kerry Dore.

Co-organizers: Kerry Dore, University of Texas at San Antonio.

Ballroom Foyer.

The Anthropologists outside of Anthropology departments, Contingent, and Teaching-focused faculty (AACT) Task Force, under the umbrella of the Committee on Diversity, was formed at the 2014 annual meeting of the American Association of Physical Anthropologists. This group began in order to serve the needs of AAPA members outside of traditional research faculty roles. Each year since its inception the group has sponsored a poster session or panel discussion on topics of interest to our members. This poster session is the group's event for 2017. Many members of the AAPA are affiliated with academic institutions of higher learning with some teaching responsibilities, and increasing numbers of AAPA members are employed with teaching as their primary responsibility. In addition, current research demonstrates that inquiry-based learning, active learning, and participation in undergraduate research helps students succeed in higher education. All of these methods make students responsible for their own learning, help them create knowledge, and give them broader skills needed for successful careers. Further, more and more biological anthropologists are becoming involved in the scholarship of teaching and learning, which provides evidence-based solutions to teaching problems. This symposium showcases how biological anthropologists integrate teaching and research through diverse methods. Here we present examples of teaching and research working together, from scholarship on teaching and

learning done in the classroom, to integrating research with classes in liberal arts and small college environments, to managing undergraduate researchers. This symposium will serve as a space for biological anthropologists to gain inspiration and acquire tools to help them integrate research into their classrooms.

1 **Student Biological Anthropology Research in the Liberal Arts Environment: What to Do Without a Zoo?** V.K. BENTLEY-CONDIT.

2 **Integrating Major Original Research Projects into Undergraduate-level Courses.** L. KAUFFMAN.

3 **Students as Scholars in the Field, Lab, Archive, and Table: Models of Undergraduate Research in Biological Anthropology.** B.M. USHER.

4 **No monkeys on campus? Engaging undergraduates using local natural history.** M. BEZANSON, T. GROVES.

5 **Does a notecard "cheatsheet" help bio anth students on exams?** J.L. WESTIN.

6 **From Foundational Concepts to Critical Reflection: Building Student Understanding in Introductory Courses.** E. SOLURI.

7 **Teaching Critical Thinking Skills through the Scientific Method: A Comparison of Different Levels of Active Engagement.** M.S. SCHAEFER.

8 **Cultivating collaboration through student-centered independent study.** J. DANZY CRAMER.

9 **Crossing the divide: co-teaching human diversity and evolution to advanced biology and anthropology undergraduate students through the use of interdisciplinary research groups.** D.E. BLOM, A.L. YONAN.

10 **“What makes us human?” A question to engage students, the public, and research.** A.R. ELLER, K.M. DORE.

Session 3: What is a ‘Vulnerable Population?’ Agency, Intimacy, and Protections in Biological Anthropology

***Invited Poster Symposium*.** Chair: Kathryn B. H. Clancy, Ripan Malhi, Alejandra Núñez-de la Mora.

Co-organizers: Kathryn Clancy, University of Illinois at Urbana-Champaign; Ripan Malhi, University of Illinois at Urbana-Champaign; Alejandra Núñez- de la Mora, Universidad Veracruzana.

Ballroom Foyer.

‘Vulnerable’ is often used to discuss the populations we conduct research on, ranging from small forager groups to pregnant women to orphans. This label carries with it a number of challenges. First, the label of ‘vulnerable’ used by many Institutional Review Boards comes from a specific Western context that may not match participants’ views of themselves. This at times complicates IRB protections, and sometimes calls into question whether the concerns of IRBs are the appropriate concerns for non-Western participants. Second, this label can deny agency to the participants with whom we work and keep them from being involved in the scientific research conducted in their homes and on their bodies. Collecting biological materials and conducting interviews on sensitive topics are intimate experiences where we can find ourselves becoming paternalistic, rather than egalitarian, stewards of the data we collect and people we collect it from. Finally, we need to acknowledge that research success is sometimes predicated on participants staying ‘vulnerable’ – for instance, that traditional foragers remain foragers rather than transition to a market-based economy, orphans remain unadopted, some portion of the pregnant women we study have complications. How do we acknowledge the difficult moments we measure and document while creating opportunities for improvements in the lives of our participants? In recent years, biological anthropologists have borrowed and devised several research models in order to

balance on the tightrope of providing adequate research protections and prioritizing the agency of research participants. To what extent are these models working? To what extent are they influencing communities in which they are used? Are there ways in which our research invades or influences their contexts? We offer a symposium of scholars who are directly engaged with these questions in their research, as well as in their roles on IRBs and funding agencies.

9:00 **Discussants: Alejandra Núñez-de la Mora and Kathryn B. H. Clancy.**

1 **Community-based approaches to genomic research with Indigenous peoples of North America.** R.S. MALHI, A.C. BADER, M.P. ROGERS.

2 **Vulnerability: Going Beyond the Physical to the Spiritual to Understand Indigenous Health in the Amazon.** P.S. TALLMAN.

3 **Agency and objectivity: Working together towards better science.** H. SHATTUCK-HEIDORN.

4 **Zika, Maternal Stress and Prematurity in Puerto Rico: Navigating Unforeseen Vulnerabilities.** M. CHEYNEY, H. HORAN.

5 **Evolutionary perspectives on dementia and the marginalization of the elderly.** M. FOX.

6 **Considering Vulnerability in War-affected and Forcibly Displaced Populations.** P.F. CLARKIN.

7 **The Wrong Side of the Tracks: How Sociocultural Expectations Produce Vulnerability and Risk for Urban Mobile Home Dwellers.** A. FORMANACK.

8 **Reflecting at 99: Engaging Ethics in the AJPA.** J.K. WAGNER.

Thursday, Morning sessions.

Session 4: Bioarchaeology of Transition: Health and Changing Environments

Invited Podium Symposium. Chair: Brittany S. Walter, Sharon N. DeWitte.

Co-organizers: Sharon N. DeWitte, Department of Anthropology, University of South Carolina.

Bissonet.

Changing environmental conditions have the potential to affect human health. Numerous bioarchaeological studies have addressed the health consequences of transitional periods in the past, particularly those accompanied by the emergence of greater social and economic complexity; they have often produced contradictory results. For example, it has been argued that the shift from foraging to agriculture precipitated changes in nutrition, population density, and disease load that resulted in worsened health - which was reflected in increased frequencies of lesions in agricultural skeletal assemblages. However, others argue that these skeletal data could also be reflective of potential improvements in health after the transition. These and other contradictory findings suggest that inferences about secular changes in health in the past require approaches that move beyond relatively simple tests of association between changing environments and frequencies of pathologies in skeletal assemblages. Bioarchaeologists must take into account population heterogeneity, evolution of pathogen virulence, migration, diet, cultural variability, and changes in fertility, among other factors. Bioarchaeologists should also incorporate analytical approaches that accommodate multiple interacting factors and integrate several lines of evidence (e.g. stable isotopes, primary documents, and archaeological material) to construct comprehensive interpretations of health during periods of change. This symposium showcases research on how human health has changed in response to transitional contexts in the past, such as agricultural intensification, urbanization, contact, colonization, industrialization, and globalization. Research investigating these transitional periods could reveal information about the evolution of human

health, how different groups experience transitional environments, and could potentially be valuable for living populations currently undergoing transitions. The symposium ultimately aims to show how the effect of transitional periods on humans is not necessarily uniformly detrimental to health; it may be experienced differently by subpopulations (e.g. age groups, the sexes, socioeconomic statuses), and should thus be investigated comprehensively and within an appropriate context.

8:00 **Biosocial Changes in Health before Agriculture: The Case of the Natufian Hunter-Gatherers.** A.J. STUTZ, F. BOCQUENTIN.

8:15 **Adaptation and Resiliency in Hunter-gatherers: Approaches to Environmental Variation in Prehistoric Hunter-gatherers of the Jomon Period.** D. TEMPLE.

8:30 **Site dissection as a tool for microscale inferences of health and dietary transitions.** A.R. HOFF, C.M. STOJANOWSKI.

8:45 **The Development of the Mid-Continental U.S. Vacant Quarter: The Impact of Aggregation, Warfare and Climate Change on Late Pre-Columbian Population Dynamics.** J.J. WILSON.

9:00 **Reproductive Value across the Holocene: 8,000-years of Transitions.** R.R. PAINE, J.L. BOLDSEN.

9:15 **The Earliest Urban Environment in Precolumbian Mesoamerica: Transitions through Time in Health and Morbidity in the Residents of Teotihuacan, Mexico.** R. STOREY.

9:30 **4,000 Years of Cultural and Adaptive Transitions in Lambayeque: Skeletal Biology, Ecology, and Sociopolitical Interplays in Ancient Peru.** H.D. KLAUS.

9:45 **Urbanizing Medieval London: Temporal Changes in Survivability.** B.S. WALTER.

10:00 **Break.**

10:30 **Alms for the Poor? Poverty, stress, and mortality in industrial-era Albany, New York.** G.M. HUGHES-MOREY.

10:45 **Isotopic Evidence for Diet in Iron Age and Roman Apulia – Conformity in the Face of Major Social Change?** T.L. PROWSE, L. SEMCHUK.

11:00 **Modeling dietary variability in Middle Period San Pedro de Atacama, northern Chile.** W.J. PESTLE, C. TORRES-ROUFF, M. HUBBE.

11:15 **Let them eat corn: Cause-specific mortality and prehistoric population dynamics in transitional environments.** A.L. WARREN, L. SATTENSPIEL, A.C. SWEDLUND.

11:30 **Treponematosis in indigenous North America: Bioarchaeological perspectives on the epidemiological landscape of a spirochete disease.** P.M. LAMBERT.

11:45 **Ancient Parasites and Transition: Using Intestinal Infections to Track the Impact of Human Lifestyle Change.** P.D. MITCHELL.

12:00 **Discussant: Jane Buikstra .**

Session 5: Anthropological Genetics, Origins, Migrations, and Introgression

Contributed Podium Presentations. Chair: Verena J. Schuenemann.

Balcony I/J.

8:00 **Y-chromosome STR analysis of ancient individuals from British Columbia.** A.C. OWINGS, J.S. CYBULSKI, R.S. MALHI.

8:15 **A mitochondrial DNA study of the Beothuk and Maritime Archaic, extinct aboriginal populations from Newfoundland and Labrador.** A.T. DUGGAN, A. HARRIS, S. MARCINIAK, I. MARSHALL, V. GRIMES, H. POINAR.

8:30 **Genetic structure of populations of the Aleutian Archipelago based on 750,000 SNPs.** M.H. CRAWFORD, S.D. ALDEN, R. DAVID, K.G. BEATY.

8:45 **Migration, admixture and genetic continuity in pre and post-contact Puerto Rico.** M.A. NIEVES-COLON, W.J. PESTLE, J. BENN-TORRES, A.C. STONE.

9:00 **Analysis of Mexican American full genome DNA sequences identifies 137 SNPs of unique Native American origin.** S.D. NIEDBALSKI, J.C. LONG.

9:15 **The Genomic History of the First Australians.** A. MALASPINAS, M.C. WESTAWAY, S. SUBRAMANIAN, J. WRIGHT, L. DAVID, E. WILLERSLEV.

9:30 **Studying Population Genetics in War Time: Syria and Iraq According to *Genographic* Database.** M. SHAMOON-POUR, G. VILSHANSKY, M.G. VILAR.

9:45 **Ancient Egyptian mummy genomes suggest an increase of Sub-Saharan African ancestry in post-Roman periods.** V.J. SCHUENEMANN, A. PELTZER, W. HAAK, S. SCHIFFELS, J. KRAUSE.

10:00 **Break.**

10:30 **Levantine and southern Arabian populations share many Neanderthal SNPs.** D.N. VYAS, A. AL-MEERI, C.J. MULLIGAN.

10:45 **Diverse Patterns of Neanderthal Introgression in Western Asia.** R.O. TASKENT, D. ALIOGLU, E. FER, H.M. DONERTAS, M. SOMEL, O. GOKCUMEN.

11:00 **Archaic hominin introgression in Africa contributes to functional salivary *MUC7* genetic variation.** D. XU, P. PAVLIDIS, N. ALACHIOTIS, C. FLANAGAN, R. BLEKHMAN, S. RUHL, O. GOKCUMEN.

11:15 **Simultaneous Estimates of Archaic Admixture and Ancient Population Sizes.** A.R. ROGERS, R.J. BOHLENDER.

11:30 **Neolithic familial migration contrasts Bronze Age male migration inferred from ancient X chromosomes.** A. GOLDBERG, T. GUNTER, N.A. ROSENBERG, M. JAKOBSSON.

11:45 **Ancient DNA Analysis of a Late 17th Century Plantation site in Delaware Yields Considerable Matrilineal Diversity and Relatedness in Early Colonists.** R.E. FLESKES, F. WEST, G.S. CABANA, T.G. SCHURR.

12:00 **Dynamics of clans in Human Unilineal populations: a genetic approach.** B. ALARD, G. LY, R. LAURENT, S. LAFOSSE, C. MONIDARIN, G. DIFFLOTH, O. EVRARD, F. BOURDIER, S. PAVARD, R. CHAIX.

Session 6: Primate Social Behavior

Contributed Podium Presentations. Chair: Adrian V. Jaeggi.

Studio 1/2/3.

8:00 **Adolescent Male Aggression toward Adult Females represents Dominance Striving, not Sexual Coercion, in wild Chimpanzees.** D.K. ENIGK, M. EMERY THOMPSON, Z.P. MACHANDA, R.W. WRANGHAM, M.N. MULLER.

8:15 **Reciprocity can Explain Grooming, but not other Forms of Cooperation, among Female Bonobos at LuiKotale, DRC.** A.V. JAEGGI, L.R. MOSCOVICE, L.G. GOLDSTONE, G. HOHMANN, B. FRUTH.

8:30 **Female Strategies during Intergroup Aggression among Tufted Capuchin Monkeys (*Sapajus nigritus*).** C.J. SCARRY.

8:45 **Male Ranging Behavior and Cooperative Territorial defense in White-bellied Spider Monkeys (*Ateles belzebuth*).** A. DI FIORE, A. LINK.

9:00 **Evolutionary patterns of intersexual power: The rise of male dominance in primates.** R.J. LEWIS, E. KIRK, A.D. ASHLEY GOSSELIN-ILDARI.

9:15 **Impact of Behavioral traits on Diversification Rates in Primates.** A. LASERNA, J.P. HERRERA.

9:30 **Adolescent male chimpanzees form strong and differentiated social bonds with maternal brothers and old adult males.** A.A. SANDEL.

9:45 **The link between social networks and gut microbial composition in black-and-white colobus (*Colobus vellerosus*).** E.C. WIKBERG, D. CHRISTIE, F.A. CAMPOS, P. SICOTTE, N. TING.

10:00 **Break.**

10:30 **Attention to Social Grooming among Immature East African Chimpanzees (*Pan troglodytes schweinfurthii*) of the Kanyawara Community at Kibale National Park.** K. SABBI, M. EMERY THOMPSON, M.N. MULLER, Z. MACHANDA, E. OTALI, R.W. WRANGHAM.

10:45 **Socializing by vocalizing: a test of the vocal grooming hypothesis in the gelada (*Theropithecus gelada*).** E.T. TINSLEY JOHNSON, N. SNYDER-MACKLER, T.J. BERGMAN, J.C. BEEHNER.

11:00 **Dual rank attainment strategies by male chimpanzees in Gombe National Park, Tanzania.** J.T. FELDBLUM, E.E. WROBLEWSKI, R.S. RUDICELL, Y. LI, B.H. HAHN, C. KRUPENYE, A.E. PUSEY, I.C. GILBY.

11:15 **Group augmentation explains territorial boundary patrolling by male chimpanzees at Ngogo.** K.E. LANGERGRABER, D.P. WATTS, L. VIGILANT, J.C. MITANI.

11:30 **Dispersal is socially, but not energetically costly, in female chimpanzees of Gombe National Park.** K.K. WALKER, C.M. MURRAY, A.E. PUSEY.

11:45 **Coping with Death: Behavioral Mitigation of the Loss of an Alpha Male by Female Chacma Baboons in South Africa.** S. CHOWDHURY, L. SWEDELL.

12:00 **Examining Social Stress through Self-Directed Behavior in Wild Orangutans.** C.A. O'CONNELL, C.D. KNOTT.

Session 7: Paleoanthropology - Early Hominins

Contributed Podium Presentations. Chair: Rhonda L. Quinn.

Studio 7/8/9.

8:00 **Calcar Femorale Development in *Orrorin tugenensis* Femora Provides Further internal Evidence for Bipedal Locomotion.** A.J. KUPERAVAGE, S. CHAVANAVES, R. ECKHARDT.

8:15 **Paleoecological reconstructions of c.4 Ma hominin sites from the Omo-Turkana Basin using fossil Bovidae.** L. DUMOUCHEL, R. BOBE.

8:30 **Reinvestigation of the ~4 Ma Yellow Sands of the Mursi Formation.** M.S. DRAPEAU, J.G. WYNN, D. GERAADS, L. DUMOUCHEL, C.J. CAMPISANO, R. BOBE.

8:45 **Oxygen isotopic correlates of diet and drinking behavior in extant mammals from Laikipia, Kenya: implications for gauging Pliocene Turkana hominin paleoecology.** R. QUINN, C. RYDER, J. LEWIS, B. POBINER, O. MWEBI.

9:00 **Functional morphology and evolution of the early hominin forefoot.** P.J. FERNÁNDEZ, C.S. MONGLE, B.A. PATEL, M.W. TOCHERI, W.L. JUNGERS.

9:15 **A chimpanzee-sized ancestor of the earliest hominins and unusual patterns of body size evolution in the hominid clade.** M. GRABOWSKI, W.L. JUNGERS.

9:30 **Lucy's Knee: Evidence of a High-energy Dislocative Compressive Epiphyseal Fracture.** J. KAPPELMAN, R.A. KETCHAM, S. PEARCE, L. TODD, W. AKINS, M. FESEHA, S.J. MATTOX, A. WITZEL.

9:45 **Jaw kinematics in South African Plio-Pleistocene hominins inferred from maxillary molar root morphology: Implications for species identification.** K. KUPCZIK, V. TORO-IBACACHE, G.A. MACHO.

10:00 **Break.**

10:30 **A new reconstruction of the Sts 14 pelvis supports a human-like birth mechanism in**

***Australopithecus africanus*.** J. EYRE, S.A. WILLIAMS.

10:45 **The evolutionary and ontogenetic context of fossil hominin scapulae.** D.J. GREEN, T.A. SPIEWAK, J.P. KELLY, B.C. SEITELMAN, J.R. KRECIOCH, P. GUNZ, Z. ALEMSEGED.

11:00 **Micro-CT Evaluation of Femoral Neck Cortical Distribution in South African Fossil Hominins.** A.G. CLAXTON, K.J. CARLSON.

11:15 **Dental pathology, wear, and developmental defects in South African hominins.** I. TOWLE, J.D. IRISH, I. DE GROOTE.

11:30 **Discrete dental traits differentiating *Australopithecus africanus* and *Paranthropus robustus* evaluated from the perspective of a Great Ape Dental Scoring System.** V.C. PILBROW.

11:45 **Effect of Cusp Number on the Structural Integrity of Early Hominin Teeth.** P.J. CONSTANTINO, M.B. BUSH, A. BARANI, B.R. LAWN.

12:00 ***Australopithecus sediba* and the Origin of *Homo*: Questionable Evidence from the Cranium of the Juvenile Holotype MH 1.** W.H. KIMBEL, Y. RAK.

Session 8: Child Health and Identity in Bioarchaeology

Invited Poster Symposium. Chair: Mary Lewis, Sian Halcrow, Rebecca Gowland.

Co-organizers: :Sian Halcrow (University of Otago) and Rebecca Gowland (University of Durham).

Balcony K.

A child's skeleton provides a rich repository of information relating to their physical and social worlds. This evidence, when properly contextualised, may be successfully harnessed by bioarchaeologists to explore such diverse aspects of childhood, including care and cultural constructions of the life course, the fluidity of gender and status identity with age, local disease ecologies, activities such as play and occupation, and even cases of physical abuse. Children have emerged as important social actors in the past as individuals who exercise considerable agency, and whose presence and societal contributions are vital to properly consider when interpreting the archaeological record. Bioarchaeologists are increasingly aware of the importance of younger members of society in our understanding of past cultures and lifeways. Children, particularly perinates and infants, are now regarded as crucial to assessing maternal health, adult morbidity patterns and longevity. Exposure to malnutrition or infectious diseases during the early stages of our development are recognised to have detrimental effects on health during adulthood and for our offspring. As vulnerable members of a society, wholly dependent on the care of others, understanding the survival of infants has the potential to provide an accurate measure of a population's ability to adapt to their particular environmental circumstances. Our questions are becoming ever more sophisticated as we broaden our focus away from issues of representation of children and mortality rates to questioning specific issues that surround a child's identity from infancy to adolescence, and the unique circumstances that influence their health and survival.

10:30 **Discussant: Sian Halcrow.**

1 **Stressful Starts: Investigating the impact of 'stressors' on fetal, perinatal and infant health and growth through time.** C.M. HODSON, R.L. GOWLAND.

2 **Childhood Survival and Perinatal Stress: A Case Study from Northern Peru.** J.A. THOMAS, D.H. TEMPLE, H.D. KLAUS.

3 **Growing up is hard to do: growth in urban and rural non-adults from Roman Britain.** A.J. ROHNBOGNER.

4 **Mouths to Feed: Subsistence Transition and Childhood Health in the Ancient Atacama Desert, Northern Chile (*ca* 5,500 – 1,500 BP).** A.E. SOHLER-SNODDY, S.E. HALCROW,

H.R. BUCKLEY, V. STANDEN, B. ARRIAZA.

5 **Life in the shadows: the impact of social status, geographic location, and vitamin D deficiency on child health in 18th-19th century England.** S.L. NEWMAN.

6 **Indentured: Bioarchaeological Evidence for Pauper Apprentices in Nineteenth Century Yorkshire, England.** R.L. GOWLAND, A. CAFFELL, M. ALEXANDER, L. QUADE, A. MILLARD, M. HOLST, P. YAPP, C. BROWN.

7 **Invisible transitions: the search for new osteological signatures of menarche.** M.E. LEWIS, F. ELAMIN.

8 **Plagiocephaly and the maternal-fetal interface at Harappa.** G. ROBBINS SCHUG.

9 **A Comparative Growth Analysis of African Child Slaves in 15th to 17th Century Portugal.** L. SPAKE, M. FERREIRA, H.F. CARDOSO, S. WASTERLAIN.

10 **Small but healthy? The Shape of Childhood.** S.Y. STARK, S. MAYS, J.R. SOFAER, S.R. ZAKRZEWSKI.

11 **When to wean? The complex interaction between weaning behaviour, physiological stress and individual decision-making in the children of the Atacama Desert.** C.L. KING, S.E. HALCROW, A.R. MILLARD, D.R. GRÖCKE, V.G. STANDEN, B.T. ARRIAZA.

12 **Agriculture in the Atacama Desert: Implications for Human Health and Development.** G.E. ELLIOTT, S. HALCROW, H. BUCKLEY, A. GRAY, V. STANDEN, B. ARRIAZA.

Session 9: Back to the Root: The Use of Dental Cementum in Anthropology

Invited Poster Symposium. Chair: Stephan Naji, William Rendu, Lionel Gourichon.

Co-organizers: Rendu, William, CNRS, NYU-CIRHUS; Gourichon, Lionel, Université Cote d'Azur, CNRS-CEPAM.

Studio 4/5.

Tooth enamel and dentin are the most studied hard tissues used to explore hominin evolution, life history, diet, health, and culture. Surprisingly, cementum (the interface between the alveolar bone and the root dentin) remains the least studied dental tissue even though its unique growth, which is continuous throughout life, has been acknowledged since the 1950's. However, the hypothesized seasonal cementum increments have been successfully used to estimate accurate age and season at death in over 70 mammal species including human,and has opened a range of invaluable interpretative opportunities. Yet archaeological applications have been particularly limited by the lack of understanding of cementogenesis and the controversial nature of the observed increments. Following our initial meeting in 2013 on cementum studies, this symposium is the first attempt to bridge the gap between faunal and human analyses and to illustrate the growing multidisciplinary uses of cementum in anthropology. The recent implementation of synchrotron x-ray imaging technologies in fluorescence mapping and micro-tomography provides new insight into cementum microstructure. Bioarchaeology and forensic age and season at death estimations now benefit from standardized protocols, as well as a greater understanding of taphonomic alterations and how to deal with them in archaeological and forensic samples. Finally, paleoanthropology can profit from nondestructive virtual cementum analyses to explore dental sexual dimorphism and morphology in hominin remains. With the recent advances in microbiology imaging technologies, and the consequent renewed awareness of cementum growth potentials, anthropologists are finally going back to the root.

10:30 **Individual poster presentations and discussion led by Daniel Antoine.**

1 **Cementum ultrastructure, a comparative perspective from synchrotron x-ray scanning: fluorescence and diffraction.** S. NAJI, W. RENDU, L. GOURICHON, Z. CAI, S. STOCK.

2 **Taphonomy in cementochronology.** W. RENDU, A.J. STUTZ, L. GOURICHON, S. NAJI, M. VUILLIEN, C. SÁNCHEZ-HERNÁNDEZ, E. PUBERT.

3 **New insights on Broad Translucent Annulations.** T. COLARD, M. DUBOIS, A. DE BROUCKER, B. BERTRAND.

4 **Computerized cementochronology - taking the (16)bit between the teeth.** B. BERTRAND, J. RAMOS MAGALHAES, T. COLARD.

5 **Imaging cementum in primate deciduous teeth using synchrotron phase contrast micro-tomography.** A. LE CABEC, M. TOUSSAINT, D.R. BEGUN, P. TAFFOREAU, C. DEAN.

6 **Sexual dimorphism in dental cementum microstructure: potential for sexing hominin remains.** K. ROBSON BROWN, E. NEWHAM, P. BAYLE, I. CORFE, P. GILL.

7 **Synchrotron x-ray microtomography for non-destructive adult age-at-death estimation: visualizing cementum annulations in a historical human assemblage.** N. TANG, A. LE CABEC, S. HILLSON, P. TAFFOREAU.

8 **Development of Dental Cementum Increment Analysis for Age at Death Determination within the Identification Process of Unaccounted-for US Service Members.** K. KOEL-ABT, N.D. WILSON, K.N. SCHMIDT.

9 **The Utility of Dental Cementum Increment Analysis for Estimating Season-of-Death in Naturally Decomposed Skeletons.** L.A. MECKEL, D.J. WESCOTT.

10 **Determination of Season at Death Using Dental Cementum Increment Analysis to Assist in the Identification Process of Unaccounted-for US Service Members from Past Conflicts.** N.D. WILSON, K. KOEL-ABT, K.N. SCHMIDT.

11 **Out of the Mouths of Babes: Cementum Annulations in Human Deciduous Teeth.** V.L. WEDEL, K.P. HERMSEN.

12 **Cementochronology to the rescue: Osteobiography of a Middle Woodland woman with a combined skeletal dysplasia.** A.A. CORMIER, J.E. BUIKSTRA, S. NAJI, T. COLARD.

13 **Cementochronology and Palaeodemography: A New Method to Assess the Probable Age Distribution of Immatures.** L. LANTERI, B. SALIBA-SERRE, B. BIZOT, J. GAUDART, M. SIGNOLI, A. SCHMITT.

14 **Assessing Age-Related Mortality at Petra, Jordan Using Cementochronology and Hazard Modeling.** A.S. PROPST, M. PERRY.

15 **Seasonality and Neanderthal hunting strategies.** L. GOURICHON, W. RENDU, S. NAJI, M. HASSANI, E. PUBERT, C. SANCHEZ-HERNANDEZ.

Session 10: Skeletal Ageing: Factors Affecting Population Variation in Rates of Bone Degeneration

Invited Poster Symposium. Chair: Vanessa Campanacho, Andrew T. Chamberlain.

Co-organizers: Andrew T. Chamberlain, School of Earth Sciences, University of Manchester, UK.

Studio 6.

A persistent problem in physical anthropology is the lack of accuracy in age estimation for adult skeletons, especially when analysing macroscopic degenerative changes at joints of limited movement. To improve the accuracy and precision of age estimation methods a great deal of emphasis has been placed on improving the methodological components. Revised methodologies have re-arranged the number of phases and scoring procedures for morphological traits, and have applied different statistical approaches including Bayesian and maximum likelihood inference. However, these revisions have contributed only slight improvements in the accuracy of age estimation. Tests of established age estimation methods have indicated that bone ageing rates may not be uniform across populations, and it has been suggested that such differences may be caused

by the effects of genetic and environmental factors. Limited research has been performed to understand the causes of variability in rates of ageing, but the effects of body size, occupation, and levels of physical activity, parturition and the consumption of drugs and alcohol may be important. This symposium will present current research on the variability of skeletal ageing rates across populations with the aim of raising awareness among researchers of the importance of learning more about the skeletal ageing process. Three main themes will be communicated at the symposium: variability in rates of ageing across populations, factors that have an effect on bone ageing in skeletal remains and living individuals, and the implications for methods of age estimation.

Discussant: Vanessa Campanacho.

Discussant: Andrew T. Chamberlain.

1 **Macroscopic, microscopic and molecular biomarkers for age estimation: The role of environmental factors.** A.T. CHAMBERLAIN.

2 **Obesity affects the accuracy and precision of age at death estimations based on the pelvic joints.** D.J. WESCOTT, S.R. MAVROUDAS.

3 **Body size as a factor in skeletal age estimation: When size matters and how to deal with it.** C.E. MERRITT.

4 **The influence of body size in age estimation from the pelvic joints: methodological considerations.** V. CAMPANACHO.

5 **Aging using adult human pelvis morphology: effect of occupation or statistical method?** M. MIRANKER.

6 **The effects of osteoarthritis on age at death estimates from the human pelvis.** S.E. CALCE, H.K. KURKI, D. WESTON, L. GOULD.

7 **The relationship between pathology and age: diffuse idiopathic skeletal hyperostosis (DISH) in known-age individuals.** L. CASTELLS NAVARRO, J. BUCKBERRY.

8 **The Effect of Lifestyle Factors such as Smoking, Activity Level, and Pregnancy on Age Estimation from the Pubic Symphysis: A Study of 1,238 Living Volunteers.** J. TRUESDELL.

9 **Confounding factors: are molecular methods of age estimation less vulnerable?** F. MAYER, T. ARENT, C. BOES, A. RECKERT, S. RITZ-TIMME.

Session 11: Primate Nutrition/Foraging

Contributed Poster Presentations. Chair: Taylor A. Polvadore.

Carondolet.

1 **Nutrient limitation and orangutan facilitated nutrient recycling in a peat swamp habitat.** S.E. ALAVI, S.S. UTAMI ATMOKO, M. DJINU, E.R. VOGEL.

2 **Meat-eating in hamadryas baboons: temporal patterns of meat consumption and doum palm fruit availability.** A.L. SCHREIER, R.M. SCHLAHT, L. SWEDELL.

3 **Interannual variation in *Piliocolobus badius badius diet* in Cote d'Ivoire's Tai National Park: implications for conservation.** M. WILKINS, W. MCGRAW, E.E. KANE.

4 **Histological sectioning and imaging of *Papio* dentition prior to isotopic sampling permits fine-tuned assessments of ages at dietary transitions.** M. MALONE, L. MACLATCHY, J. KINGSTON, G.T. SCHWARTZ.

5 **Female sooty mangabeys (*Cercocebus atys*) select softer seeds than males.** E. GEISSLER, D.J. DAEGLING, T.A. POLVADORE, W. MCGRAW.

6 **Intraspecific Variation in a Food Mechanical Property: The Ecology of Fruit Hardness for a Primate Food at Gunung Palung National Park, Indonesia.** B.J. FINKEL, A.J. MARSHALL.

7 **Niche Partitioning, Diet, and Oral Processing Behaviors in Three Sympatric Guenons in the**

Taï National Park, Côte d'Ivoire. T.A. POLVADORE, E.E. KANE, M. WILKINS, F.M. GNEPA, D.J. DAEGLING, W. MCGRAW.

8 **Near-infrared Spectroscopy as a Tool for Modeling Savanna Primate Diets.** E.K. SMITH, J. LEICHLITER, M. SPONHEIMER, T. CERLING.

9 **Variation in Sympatry Among Crowned Lemurs and Sanford's Lemurs: A Comparison Between Mt.d'Ambre National Park and Analabe Gallery Forest.** B.Z. FREED, K.O. ARTHUR.

10 **Isotopic Variability of Chimpanzee Vertebrate and Invertebrate Prey at Gombe National Park.** R.S. NOCKERTS, R.C. O'MALLEY, M.L. WILSON, D.L. FOX.

11 **Oral processing profiles of three sympatric colobines in Taï National Park, Côte d'Ivoire.** J.N. TRAFF, M. WILLIAMS, E.E. KANE, D.J. DAEGLING, W. MCGRAW.

12 **Unique Habitat Sharing between Humans and Wild Chimpanzees in Sierra Leone: Ecological Implications for the Human-Primate Interface.** A.R. HALLORAN, C.E. BOLTEN.

13 **Nutritional Balancing of Milk: Examining Nutritional Variability in Human Milk through a Geometric Framework.** E.C. CANCELLIERE, K. HINDE, D. RAUBENHEIMER, J.M. ROTHMAN.

14 **Correlates of energetic status among female chimpanzees at Ngogo, Kibale National Park using urinary C-peptide.** S. GUNTER, K.B. POTTS, J.L. BROWN.

15 **Great ape isotope ecology – moving beyond general patterns.** V.M. OELZE.

Session 12: Primate Reproduction, Parentage, and Life History II

Contributed Poster Presentations. Chair: Magdalena N. Muchlinski .

Carondolet.

1 **Allocare in a captive population of hamadryas baboon (*Papio hamadryas*).** A. CARTER.

2 **Are Male Orangutans a Threat to Infants? Mother-offspring Interactions with Males in Wild *Pongo pygmaeus wurmbii*.** A.M. SCOTT, C.D. KNOTT.

3 **Correlates of fecal androgens in wild female white-faced capuchins (*Cebus capucinus imitator*).** G. KING-BAILEY, K.M. JACK.

4 **An ontogenetic perspective of the energetic contratins of brain growth on muscle mass.** M.N. MUCHLINSKI.

5 **Testosterone as a Predictor of Dispersal Strategies in Geladas.** S. SEN, C. BARALE, J. BEEHNER.

6 **Does the energetic status of wild orangutan mothers vary with infant age?** T.D. BRANSFORD, M. EMERY THOMPSON, D.J. NAUMENKO, A.M. MOLDAWER, A.J. PRITCHARD, M.A. VAN NOORDWIJK, S. UTAMI ATMOKO, E.R. VOGEL.

7 **High-stakes fighting: Monopolizability of females promotes intragroup killing in chimpanzees.** M.L. WILSON, E.E. WROBLEWSKI, N.M. SIMMONS, D.C. MJUNGU, S.M. KAMENYA, R.S. RUDICELL, B.H. HAHN, A.E. PUSEY.

Session 13: Human Biology and Beyond

Contributed Poster Presentations. Chair: Victoria M. Dominguez.

Carondolet.

1 **Maternal Environment and Craniofacial Growth: Geometric Morphometric Analysis of Mandibular Shape Changes Associated with *In Utero* Overexposure to Thyroxine in Mice.**

M.J. KESTERKE, M.A. JUDD, M.P. MOONEY, M.I. SIEGEL, J. CRAY, M. ELSALANTY, R. HOWIE, S.M. WEINBERG.

2 **Outreach initiatives related with health, obesity and osteology developed by the Anthropological Museum Montané in elementary schools and communities of Cuba.** A. RANGEL, V. VÁZQUEZ, D. NIEBLA, M. DÍAZ.

3 **Make no bones without it: Characterization of region-specific behaviors in non-sutural cranial osteoblasts using bone morphogenetic proteins.** J.A. BRILL, H.E. WEISS-BILKA, M.J. RAVOSA.

4 **Investigating intra-skeletal variation in cortical bone strength parameters of the radius and tibia in non-osteoporotic males.** R.L. HUNTER, K.C. BRILEY, A.J. YARD, M.M. MURACH, A.M. AGNEW.

5 **An evaluation of US educator product priorities and challenges for teaching human evolution.** B. POBINER, D. PATTERSON.

6 **Comparison of body size changes among military personnel between 1988 and 2012.** T.N. GARLIE, H. CHOI, J.L. PARHAM, J. BRANTLEY, S.P. PAQUETTE.

7 **3D geometric morphometrics of lumbar vertebral curvatures in *H. sapiens*.** S. LOIS ZLOLNISKI, D. GARCÍA MARTÍNEZ, E. BLANCO-PÉREZ, J.A. SANCHIS GIMENO, A. BARASH, S. MARTELLI, S. NALLA, M. BASTIR.

8 **A theoretical demonstration for the effects of anthropometric secular changes relative to military accommodation rates among different race groups.** H. CHOI, T.N. GARLIE, J. PARHAM, J. BRANTLEY, S.P. PAQUETTE.

9 **Male infants, risk, and postnatal depression: Evidence regarding the Trivers-Willard hypothesis in a contemporary low-fertility context.** S.E. JOHNS, S. MYERS.

10 **Studying yellow fever virus susceptibility in humans using a howler monkey model.** N. TOROSIN, K. FISCHER, J. ROUND, L.A. KNAPP.

11 **Influence of anatomical, cognitive, and behavioral variables on the morphological variation of human corpus callosum.** Y. HEUZÉ, N. TZOURIO-MAZOYER, E. MELLET, F. CRIVELLO.

12 **Shape covariation of the human orbit and eyeball.** A. RUEDELL.

13 **Cortical Area vs Bone Area: Assessing Intracortical and Endosteal Bone Loss With Age.** V.M. DOMINGUEZ, A.M. AGNEW.

14 **The "other" drug: Implementing bird grasshoppers as a treatment for anemia.** K.J. HURD.

15 **Effects of ethanol on *Porphyromonas gingivalis* in planktonic and biofilm monocultures.** N.A. SHORT, R.J. LAMONT, P.W. EWALD.

16 **Timing and Duration of Epiphyseal Fusion and Implications for Growth Potential.** M.E. BOEYER, R.J. SHERWOOD, C.B. DEROCHE, D.L. DUREN.

17 **walkR: A Software Package to Analyze the Biomechanics of Human Locomotion.** E.R. OTAROLA-CASTILLO, E.R. CASTILLO, M. HORA, M.G. TORQUATO, A.G. WARRENER, H. PONTZER.

18 **"It Sucks To Be A Boy On His Period": Language Ideologies, "Women's" Health, & Trans* Communities.** A.E. GUITAR, S.M. PERRINO.

19 **Variation in the Interface of Brain and Skull.** S.Y. GREER, I.D. GEORGE, K. ALDRIDGE.

20 **As Tall as Goliath? Stature Among the Philistines at Ashkelon.** S.C. FOX, K. MARKLEIN, R. KALISHER, M. FAERMAN, P. SMITH, D. MASTER, A. AJA.

21 **Membership in a LGBT-Focused Organization Serves as a Buffer against Stigma: A Biocultural Approach to Stigma Stress.** N.D. ROY, C. WALKER, H. ACOSTA, S. LAWSON, C.D. LYNN.

22 **The US ARMY Anthropometric Survey (ANSUR II): Database of body-size and associated demographic data of military personnel.** J.L. PARHAM, T.N. GARLIE, H. CHOI, J. BRANTLEY, S.P. PAQUETTE.

Session 14: Paleoanthropology: Early Homo II

Contributed Poster Presentations. Chair: Adam P. Van Arsdale.

Carondolet.

1 **Sex Differences in Walking Kinematics among Modern Humans.** L.T. GRUSS, C. WALL-SCHEFFLER.

2 **The biomechanics of stone tool behaviors and implications for the evolution of the human hand.** E. WILLIAMS-HATALA, K.G. HATALA, M. GORDON, M. KASPER, T.L. KIVELL.

3 **The diet of *Homo antecessor*.** M. LOZANO, A. ROMERO, J. BERMÚDEZ DE CASTRO, E. CARBONELL, J. ARSUAGA, A. PÉREZ-PÉREZ.

4 **Seasonal variation of $\delta^{13}C$ and $\delta^{18}O$ in extant African suid enamel and its implications for fossil suid diets and paleoecology of hominin fossil sites.** D. YANG, K.T. UNO.

5 **The interaction of preservation bias and analytical bias in the fossil record.** A.P. VAN ARSDALE.

6 **Phosphate-water $\delta^{18}O$ offset revision improves paleoclimatic reconstructions.** D.R. GREEN, A.S. COLMAN.

7 **Modeling Hominin Dispersal Patterns using Cost Path Analysis and Spectral Signature Models.** R. MCPHERSON, C.M. MUSIBA.

8 **A preliminary study of primate abundance in East Turkana collection areas relative to outcrop size.** B. THOMPSON, J. ARENSON, M. BIERNAT, W. BARR, J. REEVES, D.R. BRAUN, A. HAMMOND.

9 **An Analysis of Shape Differences in Crocodylian Dentition Using Geometric Morphometrics.** P. FARRUGIA, J.K. NJAU, P. POLLY.

10 **New Insights on the *Homo naledi* Ankle Using Three-dimensional Quantification.** A. FERNANDEZ, W.E. HARCOURT-SMITH.

11 **Can Small be All? The Limited Commonalities of Mata Menge and Liang Bua Hominins on Flores.** M. HENNEBERG, A.J. KUPERAVAGE, S. CHAVANAVES, R.B. ECKHARDT.

12 **Homo naledi's pedal pathologies.** Z. THROCKMORTON, B. ZIPFEL, P. RANDOLPH-QUINNEY, E. ODES, K. CONGDON, J. DESILVA, W. HARCOURT-SMITH, L. BERGER.

13 **Minor Physical Anomalies as Additional Indicators of Developmental Disorder in LB1 from Liang Bua, Flores.** R.B. ECKHARDT, S. CHAVANAVES, M. HENNEBERG.

14 **Shifts in the distribution of rat body sizes through time at Liang Bua: New paleoecological insights into the extinction of *Homo floresiensis* and other endemic taxa.** E.G. VEATCH, M.W. TOCHERI, T. SUTIKNA, . JATMIKO, E.W. SAPTOMO, K.M. HELGEN.

15 **Exploring the impact of collection strategies on interpretations of faunal abundance: a case study from the Koobi Fora Formation (Pleistocene, northern Kenya).** A. ENNY, M. BIERNAT, D.R. BRAUN, W.H. REDA, A.S. HAMMOND, D.B. PATTERSON, W. BARR.

16 **Problems in Predicting Anatomy and Inferring Behavior from the Gross Morphology of the Flexor Pollicis Longus Insertion Site.** K.G. HATALA, E. WILLIAMS-HATALA, T. SCIBILIA, S. HILES, K.N. RABEY.

17 **Revisisng the hypodigm of *Homo heidelbergensis*, a view from the Eastern Mediterrannean.** M. ROKSANDIC.

18 **Electromyography, Kinematics, and Kinetics of the Upper Limb during Oldowan Stone Tool Manufacture.** E.M. FEUERRIEGEL, M. HALAKI, D. REED, C.P. GROVES, K.A. GINN.

19 **Mechanical Diet and its Role in Evolutionary Anthropology.** H. SELVEY, O. PAINE.

20 **The affinities of *Homo floresiensis* based on phylogenetic analyses of cranial, dental and postcranial characters.** D. ARGUE, C. GROVES, M. LEE, W. JUNGERS.

Session 15: Functional Anatomy: Jaws and Teeth

Contributed Poster Presentations. Chair: Kate McGrath.

Carondolet.

1 **The Developmental Cascade Biases Dates of Evolutionary Change in the Dentition.** C.S. MONGLE, A. NESBITT, J.B. SMAERS, F.E. GRINE.

2 **An Investigation of the Inhibitory Cascade Mechanism in Extant and Extinct Lemurs.** K.K. CATLETT, L.R. GODFREY, K. SAMONDS, E. DALY, G.T. SCHWARTZ, A. EVANS.

3 **What is a genus? Understanding craniodental diversity in *Callicebus*.** L.B. HALENAR, S.B. COOKE.

4 **First 3D dental topographic analysis of the enamel-dentine junction in non-primate euarchontans: investigating development, diet, and taxonomy.** K.R. SELIG, M.T. SILCOX.

5 **The Ontogeny of Masticatory Efficiency and Implications for Hominin Canine Reduction.** H. GLOWACKA, G.T. SCHWARTZ.

6 **Histological examination of molar development in Virunga mountain gorillas (*Gorilla beringei beringei*) from Volcanoes National Park, Rwanda.** S.C. MCFARLIN, D.J. REID, K. ARBENZ-SMITH, M.R. CRANFIELD, T.S. STOINSKI, T.G. BROMAGE, A. MUDAKIKWA.

7 **Coordination of upper and lower primary postcanine tooth size in the haplorrhine primates by the inhibitory cascade.** E. DALY, K.K. CATLETT, S. KING, K. SAMONDS, L.R. GODFREY, G.T. SCHWARTZ, A. EVANS.

8 **The relationship between dental eruption sequence, phylogeny and life history in the evolution of primate dentition.** T.A. MONSON, L.J. HLUSKO.

9 **Quantifying linear enamel hypoplasia in Virunga mountain gorillas and other great apes.** K. MCGRATH, S. EL ZAATARI, M.R. CRANFIELD, T.S. STOINSKI, A. MUDAKIKWA, T.G. BROMAGE, S.C. MCFARLIN.

10 **Food toughness and dental microwear anisotropy.** R.S. SCOTT, B.W. WRIGHT, K.A. WRIGHT, C. ROSS, A. VAN CASTEREN, M. FOGAÇA, D.M. FRAGASZY, C. MARCIL, D.S. STRAIT.

11 **Many ways to form a pit, but not a scratch: modelling and measuring dental microwear signatures.** M.A. BERTHAUME, E. SCHULZ-KORNAS, K. KUPCZIK.

12 **Are developmental defects of enamel acquired according to seasonal schedules in Bornean gibbons and orangutans? An autocorrelation analysis.** M. O'HARA, D. GUATELLI-STEINBERG.

13 **Masticatory loading and diet type in relation to cross-sectional geometric properties of the primate zygomatic arch.** H.M. EDMONDS.

14 **The Biomechanical Consequences of Zygomatic Arch Shape.** A.L. SMITH, I.R. GROSSE.

15 **Effect of periodontal ligament on stress gradients in alveolar bone.** A. RAPOFF, D. YANKOVA, W. MCGRAW, D. DAEGLING.

16 **Subfamily affiliation conditions bone stiffness in Taï Forest monkeys.** D.J. DAEGLING, J.D. PAMPUSH, W. MCGRAW.

17 **Morphological Integration and Function in the Platyrrhine Mandible.** M.A. HOLMES.

18 **Scaling relationships within architectural properties of the jaw adductormusculature in Macaca fascicularis.** E. DICKINSON, L.C. FITTON, K. KUPCZIK.

19 **Analyzing the Morpho-functional Consequences of Seed Predation in the Pitheciid lower Jaw using Finite Element Analysis and Geometric Morphometrics.** T.A. PÜSCHEL, J. MARCÉ-NOGUÉ, T.M. KAISER, R.J. BROCKLEHURST, W.I. SELLERS.

20 **Trabecular symmetry in the primate temporomandibular joint.** P.A. RAMOS, A.D.

SYLVESTER, A.B. TAYLOR, C.E. TERHUNE.

21 **Complex mandibular molar root size differences and similarities between non-human primate species (*Gorilla*, *Pongo* and *Pan*), and chimpanzee subspecies (*Pan troglodytes verus*).** M. BÄUCHLE.

Session 16: Human Skeletal Biology: Isotopes, Subsistence, and Mobility

Contributed Poster Presentations. Chair: Luseadra J. McKerracher.

Carondolet.

1 **Effects of Mounting Adhesives and Solvent Treatments on Sequential Sectioning of Dentine Samples for Stable Isotope Analysis (C, N).** I. SCHARLOTTA.

2 **The environmental sulfur isotope composition of the Maya region: A working model and preliminary results.** A.J. RAND, V. GRIMES.

3 **Isotopes of Coastal Ecuador.** L. VAN VOORHIS, J. KRIGBAUM, V. MARTINEZ, N. JASTREMSKI.

4 **Stable isotope analyses of human bone collagen from Iron Age Switzerland - Diet and mobility of Swiss "Celtic" populations.** N. MOGHADDAM, F. MÜLLER, S. LÖSCH.

5 **Bone deep: stable nitrogen isotope ratios and histomorphometric measurements of bone remodelling within adult human skeletons.** G.E. FAHY, C.A. DETER, R. PITFIELD, P. MAHONEY.

6 **Inter-tooth differences in enamel defect and $\delta^{18}O$ sequences: implications for research on individual high resolution stress histories.** C. WITZEL, A. SOŁTYSIAK, E. KRZEMIŃSKA, Z. CZUPYT.

7 **Intermarriage and Hybridity at an Ancient Greek Colony: Oxygen Stable Isotope Analysis at Himera in Sicily.** V.C. ALARCIA, L.J. REITSEMA, B. KYLE, S. VASSALLO.

8 **Environmental background for a catastrophic event in an early urban centre in Syria: the evidence from oxygen isotopes and enamel defects.** A. SOŁTYSIAK, C. WITZEL, H. SCHUTKOWSKI, E. KRZEMIŃSKA, Z. CZUPYT.

9 **Examining the pig in the poke: What happens with stable isotopes in the body tissues of livestock?** D.F. ANDERS, J.A. KRETZINGER, M.A. VOHBERGER.

10 **Early Colonial Period Exodus to the Southern Maya-Spanish Frontier: Investigating Immigration to Tipu through the use of Strontium and Oxygen Isotopes.** W.R. TRASK.

11 **Family isn't everything: Strontium and oxygen stable isotope analysis of a known population from Fewston Parish, UK.** L. QUADE, R. GOWLAND, A. MILLARD.

12 **From whence they came: Identifying natal landscapes using strontium isotope ($^{87}Sr/^{86}Sr$) signatures in late prehistoric southwestern Portugal.** A.J. WATERMAN, E. WRIGHT, M. KUNST, J. CARDOSO, D.W. PEATE.

13 **Isotopic perspectives on human mobility at the Imperial Roman Rue Jacques Brel necropolis (ca. 1st to 3rd c. CE) in Saintes, France.** R.J. STARK, T.L. PROWSE.

14 **Assembling a Winning Army: Strontium Isotope Analysis of Local and Non-Local Soldiers from the Ancient Greek Battles of Himera (480 BCE, 409 BCE).** J.R. STAMER, K.L. REINBERGER, B. KYLE, P. FABBRI, S. VASSALLO, L.J. REITSEMA.

15 **Baseline characterization and biogeochemical variation for the identification of paleomobility in the Aegean.** E. PREVEDOROU, J.E. BUIKSTRA, G.W. GORDON, K.J. KNUDSON.

16 **Anthropological evidence of multi-ethnicity in the first Greek settlement In Italy. Strontium isotopic analysis of the skeletal sample from the necropolis of Pithekoussai, (Ischia VIII cent. BCE - III cent. CE).** M. GIGANTE, V. WARTER, W. MÜLLER, A. SPERDUTI, L.

BONDIOLI.

17 **Using Stable Isotopes to Assess Dietary Variation in Late Middle Woodland Settlements in the Central United States: Evidence from Human Burials at Monkey Mountain (23JO14) Warrensburg, Missouri.** H.E. MARSH, A.J. WATERMAN, R.H. TYKOT.

18 **Bread and Porridge in Early Berlin: A Palaeodietary Analysis of the Medieval Cemetery at Petriplatz, Germany.** M.E. ZECHINI, K. KILLGROVE, J. HOLMSTROM, B.J. SCHAEFER, B.L. TURNER.

19 **Stable Isotope Analysis of Human Diet at the Santa Bárbara Mining Encampment.** T.K. PROCTOR, D.K. SMIT, T.A. TUNG.

20 **Reconstructing Székely Subsistence: Stable Isotope Evidence for Medieval Diet in Eastern Transylvania.** E.M. PESCHEL, T.E. DUNN, J.D. BETHARD, Z. NYARADI, A. GONCIAR, M. KATZENBERG, S.H. AMBROSE.

21 **Temporal trends in medieval diet at Stoke Quay, Ipswich, England.** E. FARBER, A. ROSE, J. LEE-THORP, L. LOE, H. HAMEROW.

22 **Stable Carbon and Oxygen Isotope Analysis of Archaeological Dental Calculus: Potential for Future Study.** S.D. PRICE, H.P. SCHWARCZ, A. KEENLEYSIDE.

23 **Stable carbon and nitrogen isotopes of dental calculus from Greenlandic Inuit are consistent with a protein-rich and fat-rich diet.** G. SCOTT, S.R. POULSON, N. LYNNERUP.

24 **The Complexities and Interpretive Benefits of Employing Local Food Resources for Dietary Reconstruction via Stable Isotope Analysis.** S.C. DENT, D.L. HUTCHINSON.

25 **Micro-fossils Recovered from Dental Calculus: Implications for Reconstructing Moche Diet.** C.M. GAGNON, A.O. LAFFEY.

26 **The Metagenomic Analysis of Oral Microbiome Composition of Dental Calculus Recovered from Institutionalized Individuals from the Mississippi State Asylum, Jackson MS.** J.R. BELANICH, H.R. JORDAN, M.K. ZUCKERMAN, N.P. HERRMANN, S. MILLER, J. ROSCH.

27 **Diet and Social Complexity in the Atacama Desert of Northern Chile (AD 700 – 1100).** R.M. SCOTT, S.E. HALCROW, V. STANDEN, B. ARRIAZA, C.W. SCHMIDT.

28 **Human diet in the early medieval period: Tooth wear, mastication, enamel thickness and its relationship to social stratification.** A. IBROVÁ, J. DUPEJ, P. STRÁNSKÁ, P. VELEMÍNSKÝ, L. POLÁČEK, J. VELEMÍNSKÁ.

29 **Environment resources use of Rio De Janeiro's state coast by shellmound builders: an estimate of diet composition.** V. GUIDA, M. BASTOS, S. REIS, C. RODRIGUES-CARVALHO.

30 **Isotopic and paleopathological analysis of Pre-Columbian secondary interments at Cueva Vigía, Sancti Spiritus, Cuba. MAURICIO HERNANDEZ[1], ARMANDO RANGEL RIVERO[2], and DODANY MACHADO MENDOZA[3] [1]University of California Los Angeles – USA; [2]Museo Montané, University of Havana – Cuba; [3]Instituto de Medicina Legal – Cuba.** M. HERNANDEZ, A. RANGEL RIVERO, D. MACHADO MENDOZA.

31 **The Importance of Shoes: Correlation between Grave Goods, Status, and Diet of Late Iron Age and Early Roman Individuals from Winterborne Kingston, UK.** S.A. MCGUIRE, H. SCHUTKOWSKI, M. HUBBE.

32 **Age, body size, and reproductive status affect $\delta^{13}C$ and $\delta^{15}N$ values: Evidence from living Maya women from Guatemala.** L.J. MCKERRACHER, M. COLLARD, P. NEPOMNASCHY, M.P. RICHARDS.

33 **Gender differences in diet and physical activity: Evidence of social difference in a Muisca community (Sabana de Bogotá, Colombia, 1000-1400 AD).** M.J. MILLER, S.C. AGARWAL, C.H. LANGEBAEK.

34 **A Bioarchaeological Investigation of Marine Resource Procurement among the Chumash of Santa Rosa Island, California.** S.C. KUZMINSKY, J.M. ERLANDSON, T. XIFARA.

35 **Adult and early childhood diet of early medieval untypical population group of Central Europe (10th century AD, Czech Republic) in relation to the health status.** S. KAUPOVA, P.

VELEMINSKY, P. STRANSKA, K. TOMKOVA.

36 **Diet Reconstruction of the Ancient People from Chinese Silk Road: The Tooth Wear of the Bronze-Iron Age Population From Jiayi Cemetery in Xinjiang, China.** W. ZHANG, H. ZHAO, S. YANG, A. WANG, X. MAN, N. LIANG, X. GAO.

37 **An Isotopic Approach to Examining Culture Change at Casas Grandes, Mexico.** A.M. OFFENBECKER, K.D. WALLER, J.H. KELLEY, M. KATZENBERG.

38 **Revealing variation in social integration: Diet and migration at the ceremonial site of La Marcha, Peru in the southern Nasca region (1-1000 BCE).** C.M. KELLNER, V. WHALEN, A. FIGUEROA FLORES.

39 **Dietary variability and age-related behavioural changes among hunter-gatherers from Roonka, South Australia.** C.B. SMITH, J. LITTLETON.

40 **Horse Trail Shelter (41VV166): Understanding subsistence and lifeways in the Lower Pecos Canyonlands of Texas during the Late Prehistoric using a novel SfM approach to osteological data collection.** C.C. SIEGERT, C.W. KOENIG, A.M. CASTANEDA, S.L. BLACK, M.D. HAMILTON, L.A. MECKEL, D.S. GLEIBER, S.R. MAVROUDAS.

41 ***In Cibus Veritas*: Palaeodietary Analysis of Skeletons from 5th Century BC, Italy.** A.N. ACOSTA, K. KILLGROVE, B.L. TURNER, B.J. SCHAEFER.

42 **Isotope paleodietary investigations on a Medieval Christian population from the 4th Cataract of the Nile River in Sudan.** D. ANTOINE, M.A. MANNINO, M.P. RICHARDS.

43 **A Multi-Isotopic Approach to the Reconstruction of Prehistoric Mobility and Burial Patterns in the Iranian plateau during Bronze Age.** F. KHATIBI JAFARI.

Thursday, Afternoon sessions.

Session 17: Collaborations Across Anthropology and Genetics: Examples of Transdisciplinary Work

Invited Podium Symposium. Chair: Connie J. Mulligan, Catherine Panter-Brick.

Co-organizers: Connie J. Mulligan, University of Florida; Catherine Panter-Brick, Yale University.

Bissonet.

Working across disciplines often helps us tackle new research issues and achieve better insights into questions which range from human health over the lifecourse to questions of human identity and evolution. How do geneticists, human biologists, medical anthropologists, psychologists, and archaeologists initiate collaborations, manage the integration of different types of data, and coordinate approaches to ask novel research questions? What do researchers gain from collaboration in terms of data capture, analytical strategy, and insights about what matters for individuals and populations in specific environments? Oftentimes inter-disciplinary collaborations lead to the formulation of new research questions, an overhaul of data collection and analytical strategies, and a more careful use of concepts such as race, resilience, and genetic inheritance. This symposium, sponsored by the American Association of Anthropological Genetics, showcases concrete examples of collaborative work which invites reflection on the value of transdisciplinary research.

2:30 **Genetics of risk and resilience in Syrian refugee youth.** C.J. MULLIGAN, C. CLUKAY, J. QUINLAN, R. DAJANI, D. HAMADMAD, G. ABUDAYYEH, C. PANTER-BRICK.

2:45 **Epigenetic pathways of intergenerational phenotypic inertia in birth weight: Evidence from mothers in Cebu, Philippines.** C.P. RYAN, M.J. JONES, J.L. MACISAAC, A. MORIN, J.B.

BORJA, M.S. KOBOR, C.W. KUZAWA, T.W. MCDADE.

3:00 **Posttraumatic stress and psychological resilience in Nepali child soldiers: an interdisciplinary study in human social genomics.** C.M. WORTHMAN, B.A. KOHRT, S.W. COLE.

3:15 **Can acupuncture decrease stress and increase telomerase activity to promote healthy cellular aging among older adults with depression or anxiety?** A.L. NON, E.S. CLAUSING, L.S. REDWINE, N.C. RODNEY.

3:30 **Physiology, fertility, and population genetics.** C.M. BEALL, A. DI RIENZO.

3:45 **A Bio-Ethnography of Environmental Health and Body Mass in Mexico City: Challenges and Preliminary Results.** E.F. ROBERTS, M. TÉLLEZ-ROJO.

4:00 **Structural Racism, Genetic Variation, and Hypertension among African Americans: Evidence from HEAT Heart Health.** C.C. GRAVLEE, J. QUINLAN, R. VACCA, C. MCCARTY, P. BOSTON, M. MITCHELL, C.J. MULLIGAN.

4:15 **The "Environment" in Gene-Environment Interaction Research: An Anthropological View.** W.W. DRESSLER.

4:30 **Break.**

4:45 **Genetic Ancestry, Race, and National Belonging in Argentina: Interdisciplinary Investigations.** G.S. CABANA, M. MENDOZA, L. SMITH.

5:00 **Ancient TB in the Americas: the partnership between bioarchaeology and genetics to identify a killer.** A.C. STONE, T. HONAP, Å.J. VÅGENE, J.E. BUIKSTRA, A. HERBIG, K.I. BOS, J. KRAUSE.

5:15 **Unstated Assumptions and Interdisciplinarity in the Study of Ancient Pathogen DNA.** J.E. BUIKSTRA.

5:30 **Discussant: Catherine Panter-Brick.**

Session 18: Primate Nutrition and Foraging

Contributed Podium Presentations. Chair: Margaret J. Schoeninger.

Balcony I/J.

2:30 **The gut microbiome and metabolome of saddle-back tamarins (*Leontocebus weddelli)*: Understanding the foraging ecology of a small-bodied primate.** P.A. GARBER, A. GOMEZ.

2:45 **The role of primate entomophagy in niche partitioning and species coexistence: a molecular case study from Kibale National Park (KNP), Uganda.** M.M. LYKE, A. DI FIORE, N. FIERER, A.A. MADDEN, J.E. LAMBERT.

3:00 **Who, What, Where: Patterns of Gut Microbial Diversity in Atelines.** K.M. MILICH, K.R. AMATO, A. LINK, A. DI FIORE.

3:15 **Orangutans, Fruit, and the Geometric Framework - Fruit and Non-Fruit Choice in Wild *Pongo pygmaeus wurmbii*.** A.L. DIGIORGIO, C.D. KNOTT.

3:30 **Stable Isotope Ratios ($\delta^{13}C$ and $\delta^{15}N$) of Hair Indicate Habitat Ecology and Diet at Two Chimpanzee Study Sites.** M.J. SCHOENINGER, C.A. MOST, J.J. MOORE, A.D. SOMERVILLE.

3:45 **The Multidimensional Nutritional Niche of Baboons.** C.A. JOHNSON, D. RAUBENHEIMER, J.M. ROTHMAN.

4:00 **Elemental Ratios of Carbon and Nitrogen Track Weaning in a Graminivorous Primate (*Theropithecus gelada*).** L.J. REITSEMA, N. SNYDER-MACKLER, J.C. BEEHNER, T.J. BERGMAN, A. LU.

4:15 **Nutritional balancing among Angola black and white colobus monkeys (*Colobus angolensis palliatus*) in structurally distinct areas of the Diani Forest, Kenya.** N.T. DUNHAM.

4:30 **Break.**

5:00 **Diana monkeys (*Cercopithecus diana*) experience fewer mechanical challenges during periods of low fruit availability.** E.E. KANE, A. VAN CASTEREN, M. WILKINS, J.N. TRAFF, S.E. LAD, D.J. DAEGLING, W. MCGRAW.

5:15 **From forest to savannah: exploring the mechanical properties of eastern chimpanzee (*Pan troglodytes schweinfurthii*) foods.** A. VAN CASTEREN, K. KUPCZIK.

5:30 **Foraging Efficiency and Ecological Risk Aversion in Juvenile Bornean Orangutans.** C.D. KNOTT, K.E. DELONG.

5:45 **Nutritional strategies of female redtail monkeys (*Cercopithecus ascanius*).** M.A. BRYER, D. RAUBENHEIMER, J.M. ROTHMAN.

6:00 **The power of protein: protein regulation, energetics, and health in wild Bornean orangutan (*Pongo pygmaeus wurmbii*).** E.R. VOGEL, T.D. BRANSFORD, S.E. ALAVI, M. EMERY THOMPSON, B.E. CROWLEY, W.M. ERB, M.A. VAN NOORDWIJK, S. UTAMI ATMOKO, D. RAUBENHEIMER, J.M. ROTHMAN.

6:15 **Dietary abrasiveness and chewing efficiency in chimpanzees.** E. SCHULZ-KORNAS, J. STUHLTRAEGER, R. WITTIG, K. KUPCZIK.

Session 19: Primates and Evolution

Contributed Podium Presentations. Chair: Ulrich H. Reichard.

Studio 1/2/3.

2:30 **Evolution of Gibbons and Siamang: What do we know?** U.H. REICHARD, M.M. CROISSIER.

2:45 **Rethinking Neonatal Brain Size: Birth Timing Relative to Brain Growth and Neurodevelopmental Schedules in Primates and other Mammals.** A.C. HALLEY, T.W. DEACON.

3:00 **The effect of different patterns of cranial vasculature on encephalization within Primates.** A.R. HARRINGTON, D.M. BOYER.

3:15 **Ancestral state reconstructions of dental development in Miocene fossil taxa.** C. KUFELDT.

3:30 **New fossil primates from the Lower Siwaliks of India.** C.C. GILBERT, B.A. PATEL, N.P. SINGH, C.J. CAMPISANO, J.G. FLEAGLE, K.L. RUST, K.D. PUGH, R. PATNAIK.

3:45 **New Small Catarrhine Fossils from Songhor and Lower Kapurtay and their Implications for Interpreting Early Miocene Primate Communities.** R.J. JANSMA, I.O. NENGO, K.P. MCNULTY, S. COTE, N. MALIT, N.J. STEVENS.

4:00 **Yet another new cranium from the early Miocene: the most complete male cranial remains of the fossil ape *Ekembo*.** S. MUTETI, T. LEHMANN, L. MICHEL, S. COTE, D.J. PEPPE, R.J. JANSMA, K.P. MCNULTY.

4:15 **Geochronology and palaeoecological implications of new orangutan-bearing fossil deposits from the Padang Highlands, western Sumatra.** J. LOUYS, G.J. PRICE, J. ZAIM, Y. RIZAL, W.D. SANTOSO, A. TRIHASCARYO.

4:30 **Break.**

5:00 **The unusual and generically distinct face of the middle Miocene small-bodied ape "*Micropithecus*" *leakeyorum* from Maboko Island, Kenya.** B.R. BENEFIT, M.L. MCCROSSIN, E. DAVIS.

5:15 **Signals of Ecogeography and Phylogeny in the Macaque Dentition (Cercopithecidae: *Macaca*).** N.D. GRUNSTRA, R.A. FOLEY, P. MITTEROECKER.

5:30 **Long bone cross-sectional diaphyseal shape follows different ontogenetic trajectories in captive and wild gorillas.** S.L. CANINGTON, A.D. SYLVESTER, M. BURGESS, J. JUNNO,

C.B. RUFF.

5:45 **Revisiting the Early Miocene Paleoenvironments of Rusinga Island, Lake Victoria, Kenya based on Paleosols and Paleontological Analyses.** L.A. MICHEL, K.P. MCNULTY, T. LEHMANN, A. NOVELLO, S.G. DRIESE, D.L. FOX, N.D. GARRETT, D.J. PEPPE.

6:00 **Shift in Dental Topography and Size in the Early Euprimate *Teilhardina* in Response to Climate Change at the End of the Paleocene-Eocene Thermal Maximum.** P.E. MORSE, D.M. BOYER, J.I. BLOCH.

6:15 **Revised geochronology of the Early Miocene faunas from Rusinga Island and Mfangano Island (Lake Victoria, Kenya): Implications for Miocene hominoid evolution and faunal succession.** D.J. PEPPE, A.L. DEINO, K.P. MCNULTY, M.S. MCCOLLUM, A.L. MITCHELL, S.G. DRIESE, H.M. DUNSWORTH, D.L. FOX, W.E. HARCOURT-SMITH, K. JENKINS, T. LEHMANN, L.A. MICHEL.

6:30 **Does Size Matter? Using Size Variation to Diagnose the Presence of Multiple Species in Subfossil Lemur Samples.** A.J. ZAMORA, J.P. HERRERA.

6:45 **Dispersal of early haplorhine primates by rafting across Tethys: Discovery of an Eocene omomyid from northern Anatolia.** K. BEARD, G. MÉTAIS, A. LICHT, P. COSTER, F. OCAKOĞLU, J. KAPPELMAN, M.H. TAYLOR.

Session 20: Human Skeletal Biology: Life Experience, Violence, and Disease

Contributed Podium Presentations. Chair: Emily A. Sharp.

Studio 7/8/9.

2:30 **Radiological and Forensic Re-evaluation of the Cause of Death of the Iceman, c. 5300 BP.** F. RUHLI, P. PERNTER, O. PESCHEL.

2:45 **Get rid of the ugly one: congenital deformations and early childhood pathologies in the female monastic population in the Iberian Peninsula.** N. ŠARKIĆ, R. DINARÈS, L. MUÑOZ, J. HERRERÍN.

3:00 **Delineating the effects of early life experience on adult immune function in 20th Century Portugal.** K.E. BLEVINS, C. ROBERTS, A. SANTOS.

3:15 **Treponemal Disease in Early China.** K. PECHENKINA, S. CHEN, W. FAN.

3:30 **Palatal Destructive Lesions in the St. Jørgen's Medieval Leprosarium: Paleopathological Analysis and Paleoepidemiological Inferences.** V.M. MATOS, C. MARQUES.

3:45 **Molecular evidence for *Plasmodium falciparum* malaria in 1st-4th c. A.D. southern Italy.** S. MARCINIAK, T.L. PROWSE, A. HERRING, J. KLUNK, M. KUCH, A.T. DUGGAN, L. BONDIOLI, E.C. HOLMES, H.N. POINAR.

4:00 **Utilizing non-weight-bearing bones in archaeological investigations of the evolution of osteoporosis.** R. MOUNTAIN.

4:15 **Hale and Frail: Skeletal Frailty in Medieval and Postmedieval London.** D.E. CREWS, K.E. MARKLEIN.

4:30 **Break.**

5:00 **Long bone growth in a mid-19th century documented sample of the urban poor from Bethnal Green, London, UK.** R. IVES, L.T. HUMPHREY.

5:15 **Can the Timing of Deciduous Tooth Emergence be Partially Accounted for by Mother's Past or Current Circumstances?** J.E. SPENCE, B. FLOYD, D. GUATELLI-STEINBERG, B. PIPERATA.

5:30 **Trauma, Stress, and Sociopolitical Change in the Lower Río Verde, Oaxaca, Mexico.** A.T. MAYES, A. JOYCE, S. BARBER.

5:45 **Interpersonal violence during the Andean Early Intermediate Period and Middle Horizon.**

E.A. SHARP, R.E. BRIA.

6:00 **A Pact of Not Forgetting: Understanding Medellín's Violent Past Through a Modern Documented Skeletal Collection.** J.E. ROTHWELL.

6:15 **Number of battle deaths scale with population size rather than differential proclivities for violence among humans living in nonstate and state societies.** D. FALK, C. HILDEBOLT.

6:30 **The costs of conquest: Detecting changing environmental stress in the transition from Iron Age to Roman England.** A.R. TOBIN, C.A. ROBERTS.

Session 21: Diversity, Variation, and Paleoecology: A View of Hominin Complexity from the Middle Pliocene of Eastern Africa

Invited Poster Symposium. Chair: Amy L. Rector, Denise F. Su, Kaye E. Reed.

Co-organizers: Kaye E. Reed, Arizona State University; Denise F. Su, Cleveland Museum of Natural History.

Balcony K.

Hominin fossil discoveries in the last two decades have dramatically increased the taxonomic diversity of hominin species from the middle Pliocene (~4-3 Ma) of eastern Africa. Detailed morphological, geological, and paleoecological studies show that this increase in diversity is not limited to taxonomic representation, but also to habitat, diet, and locomotion. This symposium brings together experts in hominins, paleoecology, and geology to synthesize the data from the last twenty years and examine the implications for our understanding of early hominin evolution.

2:30 **Individual poster presentations (Odd posters).**

3:30 **Individual poster presentations (Even posters).**

6:00 **Discussants: William Kimbel and Carol Ward.**

1 **Hominin Adaptation and Variation within a Paleoecological Context: An Integrative Approach.** A.L. RECTOR, K.E. REED, D. SU.

2 **A Stable Oxygen Isotope Mosaic Index: Implications for Reconstructing Hominin Paleoenvironments in East Africa.** M.M. BEASLEY, M.J. SCHOENINGER.

3 **Warm pools, upwellings, and an early glacial. Are "mid-Pliocene" climate transitions reflected in the eastern African records?".** C.J. CAMPISANO, K.E. REED.

4 **Biogeography, Endemism, and Functional Trait Community Structure: Basinal Differences in the Pliocene.** K.E. REED, I.E. SMAIL, J. ROWAN, J. ROBINSON, E.M. LOCKE, I.A. LAZAGABASTER, C.J. CAMPISANO.

5 **Pliocene African Cercopithecid Evolution, Turnover and Diversity.** S.R. FROST.

6 **Diversity, Abundance, and Paleoecology of East African Suidae in the Context of Hominin Evolution During the Pliocene.** I.A. LAZAGABASTER, J.R. ROBINSON, C.J. CAMPISANO, K.E. REED.

7 ***Australopithecus afarensis* habitat diversity: a unique perspective from Laetoli, Tanzania.** D.F. SU, T. HARRISON.

8 **Paleoenvironments and Dietary Adaptation of *Australopithecus afarensis*: A Synthesis.** Z. ALEMSEGED, J.G. WYNN, W.H. KIMBEL.

9 **Comparing the habitats of 3.5–3.2-million-year-old hominins at Woranso-Mille and Hadar, Ethiopia.** Y. HAILE-SELASSIE.

10 **Plio-Pleistocene hominid diversity interpreted through the genetic mechanisms that pattern the dentition.** M.F. BRASIL, T.A. MONSON, C.A. SCHMITT, L.J. HLUSKO.

11 **Evaluating the utility of extant reference samples for modelling hominin taxonomic**

variation. J. PLAVCAN.

12 **Defining *Homo* or identifying *Homo*? The role of the genus in hominin taxonomy.** B.A. VILLMOARE.

Session 22: Foreign Affairs: Bioarchaeological Approaches to Ethnicity, Identity, and Interaction in The MENA Region

Invited Poster Symposium. Chair: Margaret A. Judd, Lesley A. Gregoricka.

Co-organizers: Margaret A. Judd, Department of Anthropology, University of Pittsburgh; Lesley A. Gregoricka, Department of Sociology, Anthropology and Social Work, University of South Alabama.

Studio 4/5.

Bioarchaeologists working in the Middle East and North Africa (MENA) often face challenges unique to the discipline, from extensive commingling and fragmentation to poor preservation resulting from hyper-arid climates. As a result, the skeletal remains from this region have been understudied despite their rich potential in revealing past human behaviors. Questions of identity and ethnicity are especially critical to contextualizing adaptation, interaction, and mobility - both within and between human groups. Bioarchaeologists are uniquely suited to address such inquiries owing to interpretive frameworks that encompass not only biological assessment of skeletal material but that also link funerary archaeology, material culture, historical documents, and social theory. Such a holistic approach facilitates a more nuanced understanding of the ways in which communities and agents throughout this region maintained and negotiated their own identities and ethnicities amidst changing forms of both internal social organization and external political and/or economic influences. Moreover, given current events in MENA that threaten the lives, livelihoods, and histories of so many ethnic groups and communities today – from the refugee crisis to the destruction of cultural heritage – it is important for bioarchaeologists to pursue questions of identity in the region. The goal of this session is to bring together scholars working throughout the MENA region to more critically evaluate how identity, ethnicity, and past interaction might be re-approached using current methodologies and multiple lines of evidence coupled with explanatory theoretical models.

3:00 **Individual poster presentations.**

4:00 **Discussant: Megan Perry.**

1 **Lineage and Lifestyle in Early Bronze Age Jordan: A Biogeochemical Investigation of Charnel House Human Remains.** L.A. GREGORICKA, S.G. SHERIDAN.

2 **The monastic mosaic at Mount Nebo, Jordan.** M.A. JUDD, L.A. GREGORICKA, D. FORAN.

3 **States of Being: Exploring Nabataean *Nationality*.** J. WALKER.

4 **Between Land and Sea – Bioarchaeological Dynamics at Middle Bronze Age Sidon, Lebanon.** H. SCHUTKOWSKI, N. SPEITH.

5 **Bodies in Motion: Migration and Identity in Bronze Age Cyprus.** A.J. OSTERHOLTZ.

6 **Manipulation of the dead: exploring delayed burial practices at Neolithic Çatalhöyük.** E.M. SCHOTSMANS, S.D. HADDOW, M.A. PILLOUD, M. MILELLA, B. GLENCROSS, B.J. BETZ, C.J. KNÜSEL.

7 **Building Communities: Strontium isotope and cross-sectional geometry analysis in early sedentary communities.** J.A. PEARSON, D. BAIRD, J. EVANS, E. GAROFALO, C.B. RUFF, S.D. HADDOW, C.J. KNÜSEL, C.S. LARSEN.

8 **Mobility in Neolithic Central Anatolia: A Comparison of Dental Morphometrics and aDNA.** M.A. PILLOUD, M. SOMEL, S.D. HADDOW, C.J. KNÜSEL, C. LARSEN, M. ÖZBAŞARAN,

O. ERDAL, D. BAIRD, J. PEARSON, A. GÖTHERSTRÖM, J. STORÅ, M. JAKOBSSON, G. KILINÇ, F. ÖZER, D. KOPTEKIN, N. DAĞTAŞ.

9 **Class and Continuity in a Roman/Parthian Period cemetery at Tall Šēḫ Ḥamad, Syria.** J.G. KENNEDY, D. MERRIWETHER.

10 **Dilmunite Past To Bahraini Present: Exploring The Implications Of Ethnicity From Bioarchaeological Evidence.** A.T. BOUTIN, B.W. PORTER.

11 **Commingled, Disarticulated, and Eroded… Oh My! Navigating Bioarchaeology in the Arabian Peninsula.** A.C. CAINE.

12 **Two Potential Cases of Eunuchism from a Ptolemaic-Roman Cemetery in the Western Delta of Egypt: Differential Diagnosis and Social Implications.** S.D. HADDOW, S. ZAKRZEWSKI, J. ROWLAND.

13 **Preservation poor—data rich: bioarchaeology of the Neolithic peoples from Gebel Ramlah, Western Desert, Egypt.** J.D. IRISH, A. CZEKAJ-ZASTAWNY, J. KABACIŃSKI.

14 **Kin structure of the Amarna South Tombs Cemetery.** W.C. SCHAFFER, C.M. STOJANOWSKI, J.C. ROSE, J.E. BUIKSTRA.

15 **Morphological Changes and Expansion in New Kingdom Egypt and the Levant.** K.E. SANDERS.

16 **Mortuary Patterns and Health in New Kingdom Juvenile Burials from Tombos.** K.M. WHITMORE, M.R. BUZON, S.T. SMITH.

17 **Tooth Avulsion, Identity and Funerary Archaeology at Al Khiday 2, Central Sudan.** T. JAKOB, J.W. WALSER III, D. USAI, S. SALVATORI.

18 **Foreign Exchange in the Fourth Cataract Region of Ancient Nubia.** B.J. BAKER.

Session 23: The Anthropology of Islands: Evolution, Variation, and New Research Directions

Invited Poster Symposium. Chair: Colleen B. Young, Lu Yao.

Co-organizers: Lu Yao, American Museum of Natural History.

Studio 6.

Islands are excellent laboratories to study how ecological factors affect species size, shape, and development. Organisms' historical bauplans are shaped into functional phenotypes within island ecosystems. Darwin (1859) observed this process in the adaptive radiation of finches on the Galapagos. While island evolution and ecology are regularly used to understand organismal diversity in non-human biological disciplines, fewer anthropologists have subscribed to this lens for understanding primate diversity. Understanding how island evolution and ecology applies to primates is important for several reasons: over half of all primate taxa on earth inhabit islands, unique island fossils (such as specimens associated with *Oreopithecus* and *Homo floresiensis*) have perplexed paleoanthropologists for years, and humans on islands exhibit extraordinary adaptations in isolated environments. Further, recent climate change and biodiversity crises neccesitate more research on how primates survive in stressful environments along with environments that restrict migration, two factors which can accelerate and exaggerate evolutionary processes. The purpose of this symposium is to highlight the importance of current research about insular organisms in order to better understand primates that inhabit island ecosystems. A wide range of presenters have been asked to present their research that encompasses pertinent island topics ranging from: paleontology, genetics, archaeology, primatology, and ecology. Presenters will highlight how their island research is important for understanding primate evolution and diversity. Further, they will make suggestions for future research that will deepen our understanding of island theory and its applications to hominins.

5:00 **Discussant: Agustin Fuentes.**

1 **Face in the Sand: Island Rules, Biogeography, and the Fallacy of Palauan Hobbits.** J.H. STONE, S.M. FITZPATRICK.

2 **High brachial and crural indices in Island Foxes: analysis of island fox and human populations and applications for understanding the pygmy body type.** C.B. YOUNG, L.W. COWGILL.

3 **External Auditory Exostoses and their Relationship to Aquatic Activities on Santa Cruz and San Miguel Islands, California.** B.M. LUCERO.

4 **Multivariate craniodental allometry in tarsiers (*Tarsius*), a small-bodied, cryptic, insular primate.** R.A. MUNDS, G.E. BLOMQUIST.

5 **Dietary Differences of Two Sympatric Folivorous Indriids as a Mechanism for Niche Separation in a Highly Seasonal Island Environment.** L.K. OLIVER.

6 **Life on the "Ultimate Island": The Adaptive Radiation of the Sulawesi Macaques and their Shared Ecologies with Humans.** E.P. RILEY.

7 **Evolution of brain size in *Macaca fascicularis* on Southeast Asian islands.** R.D. MARTIN, L. YAO.

Session 24: Primate Ecology and Conservation

Contributed Poster Presentations. Chair: Irene E. Smail.

Carondolet.

1 **The Number of Male and Female Simakobus (*Simias concolor*) on the Pagai Islands, West Sumatra, Indonesia.** L.M. PACIULLI, A. SHARMA, K. ALTABET.

2 **Does National Park Protection influence Mammal Presence?: Comparing Chimpanzee's Competitors, Predators, and Prey between Niokolo-Koba National Park and Fongoli Savanna Research Site in Senegal.** S.L. BOGART, M. GUEYE, P. NDIAYE, J.D. PRUETZ, S.M. LINDSHIELD.

3 **Comparison of the oral, rectal, vaginal, and penile microbiome in semi-free ranging Eastern Chimpanzees (*Pan troglodytes schweinfurthii*).** A.E. ASANGBA, L. MUGISHA, K.E. NELSON, S.R. LEIGH, B.A. WILSON, B.A. WHITE, R.M. STUMPF.

4 **Behavior of Red Uakaris in a Heterogeneous Landscape in Northeastern Peru.** R.M. HORES, S.M. FORD.

5 **Homerange and sleeping site use by the Critically Endangered Cat Ba langur (Trachypithecus poliocephalus).** R.L. HENDERSHOTT, A.M. BEHIE, B.M. RAWSON.

6 **Cathemerality in Crowned Lemurs and Sanford's Lemurs: Evidence From Analabe Gallery Forest in Northern Madagascar.** K. ARTHUR, B. FREED.

7 **Mixed Effects of Modern Climate, Pleistocene Climate, and Anthropogenic Activity on Global Primate Diversity Patterns.** J.J. ROWAN, I.E. SMAIL, K.E. REED.

8 **The Effect of Forest Disturbance on the Feeding Ecology and Behavior of *Varecia variegata* in Ranomafana National Park.** M. DONOHUE, P.C. WRIGHT.

9 **Meet me at the airstrip: Fission-fusion dynamics and ranging patterns in a kinda-chacma hybrid baboon group.** M.M. MCDONALD.

10 **Primate Health Responses to Extreme Drought in Northwestern Costa Rica.** K.M. JACK, S.A. CORTESE, G.L. KING-BAILEY, M. BERGSTROM, L.M. FEDIGAN.

11 **Seed Dispersal Effectiveness in Two Populations of Bornean Orangutans (*Pongo pygmaeus wurmbii*).** A. BLACKBURN, S.E. ALAVI, P. LADY, . RIYANDI, E.R. VOGEL, C.D. KNOTT.

12 **Coping with low-quality habitat: white-handed gibbons (*Hylobates lar*) alter diet and activity patterns where fig trees are scarce.** L.E. LIGHT.

13 **Ecological niche modeling of the genus *Papio*.** A.J. FUCHS, C.C. GILBERT, J.M. KAMILAR.

14 **The Effects of Human Surrogacy on Hair Cortisol Levels in Orphaned Baboons (*Papio ursinus*).** M.T. WALLER, S. SKINNER, S. FARDI, R.M. BERNSTEIN, H. YOUNG.

15 **Testing a novel method for collecting salivary cortisol from wild macaques.** D.A. BERTRAND, C. BRET, C.M. BERMAN, S.W. MARGULIS, M. HEISTERMANN, A. MUHAMMAD, U. SUTIAH, A. ENGELHARDT.

16 **Guided by voices: using social media to target small ape surveys in Peninsular Malaysia.** T.Q. BARTLETT, S. LAPPAN, N. RUPPERT.

17 **A Lack of Cathemeral Activity in *Varecia variegata* in Kianjavato, Madagascar.** N.K. GUTHRIE, S.M. HOLMES, A.D. GORDON, E.E. LOUIS JR., S.E. JOHNSON.

18 **Cultural Attitudes Toward Primate Conservation.** S. GURSKY.

19 **Aye-ayes (*Daubentonia madagascariensis*) are not just deadwood specialists: Assessing the importance of live trees to larval foraging.** T.M. SEFCZEK, D. RANDIMBIHARINIRINA, B. RAHARIVOLOLONA, D. RABEKIANJA, E.E. LOUIS, JR..

20 **Tree preference and coexistence of white-faced capuchins and mantled howler monkeys in a Costa Rican forest fragment.** R.M. SCHLAHT, A.L. SCHREIER.

21 **Behavioral and Fecal Hormonal Variation in Vervet Monkeys (*Chlorocebus pygerythrus*) in South African Rehabilitation Centers.** A.I. GILLILAND-LLOYD, M.C. SORRENTI, T.R. TURNER.

22 **A Survey of Crossing Structures among Captive Primates.** L.E. GOTUACO, I.J. BROCK, C.M. BRAND, U.S. STREICHER, L.R. ULIBARRI.

Session 25: Human Biology and Genetics I

Contributed Poster Presentations. Chair: Noah D. Simons.

Carondolet.

1 **Diet and health in 18th to 20th century Copenhagen.** M.S. JØRKOV, D.R. GRÖCKE.

2 **Genetics of Psychiatric Disorders and Behavioral Traits Correlate with Geo-climate Variables, Pathogen Diversity, and Language {honological Complexity in European Populations.** R. POLIMANTI, M. KAYSER, J. GELERNTER.

3 ***Uncoupling Protein 1 (UCP1)* and Selection in Warm and Cold Climates.** L. NEVELL.

4 **The evolution of the human hippocampus and neuroplasticity.** B.M. SCHILDER, B.J. BRADLEY, C.C. SHERWOOD.

5 **The value of understanding intraspecific relationships in comparative analyses.** L. YAO, H. LI, C.S. MOREAU, R.S. MALHI, R.D. MARTIN.

6 **The Shape of Selection on Human Life Histories.** J. JONES.

7 **Internal craniofacial morphology of high-altitude Tibetans may reflect unique adaptations to hypoxic environments.** L.N. BUTARIC, R. KLOCKE.

8 **High heritability and ancestry dominance are behind the genetics of short stature in South African KhoeSan populations.** M. LIN, J.M. GRANKA, A.R. MARTIN, J. MYRICK, E.G. ATKINSON, C.J. WERELY, D. GURDASANI, C. POMILLA, T. CARSTENSEN, B. SCELZA, M. MOLLER, M. SANDHU, C.D. BUSTAMANTE, E.G. HOAL, M.W. FELDMAN, C.R. GIGNOUX, B.M. HENN.

9 **Identification of Mitochondrial and Y-chromosome Population Structure among Four Aye-aye Populations in Madagascar.** M.L. AYLWARD, S.E. JOHNSON, G.H. PERRY, E.E. LOUIS JR..

10 **Megalencephaly and Macrocephaly Genes are Associated with Comparative Variation in Primate Brain Size.** A.R. DECASIEN, A. YIM.

11 **Host immune gene expression and viral infection status from whole blood transcriptomes in the Ugandan red colobus.** N.D. SIMONS, G.N. EICK, M.J. RUIZ-LOPEZ, C.A. CHAPMAN, T.L. GOLDBERG, K.N. STERNER, N. TING.

12 **A comparative analysis of wild non-human primate gut microbiomes.** R.M. AUSTIN, K. SANKARANARAYANAN, C. WARINNER, C. LEWIS JR..

13 **Sex differences in dimorphic dental trait heritability in *Saguinus fuscicollis*.** A.M. HARDIN.

14 **Associations between *MHC-DQA1* Regulatory Variation and the Gut Microbiome in the Ugandan Red Colobus (*Procolobus rufomitratus tephrosceles*).** D.M. CHRISTIE, N.D. SIMONS, M. RUIZ-LOPEZ, C.A. CHAPMAN, T.L. GOLDBERG, K. STAGAMAN, B.J. BOHANNAN, N. TING.

15 **Rapid, Inexpensive Genotyping and Barcoding of Primates: Multiple Applications for High-resolution Melt Analysis in Primatology and Anthropology.** D.C. FRANKEL, R.L. JACOBS, E.E. LOUIS JR, W.D. HOPKINS, B.J. BRADLEY.

16 ***FOXP2* Variation in Great Ape Populations offers potential Insights into Variation in Communication.** N. STAES, C.C. SHERWOOD, M.D. MONTERO, J.J. ELY, W.D. HOPKINS, B.J. BRADLEY.

17 **Ancient hybridization between *Papio* and *Theropithecus* detected at a non-coding region of the X-chromosome.** A.J. TOSI, C.M. BERGEY, A.S. BURRELL.

18 **Genome Partitioning and Telomere Length in Primates and other Mammals.** A.R. KLEGARTH, D.T. EISENBERG.

19 **DNA barcodes and the identification of extant and extinct primates.** V. NIJMAN, T. ROBBINS.

20 **The New Genus *Paragalago* Suggests Convergent Dwarfism in the family Galagidae.** L. POZZI, J.C. MASTERS.

21 **Association of *ACE* haplotypes and family members in social networks with blood pressure variation in African Americans.** K.C. FULLER, C. MCCARTY, R. VACCA, C.C. GRAVLEE, C.J. MULLIGAN.

22 **Adaptive Evolution of *TCIRG1*: A Gene Involved in Bone Development and Remodeling.** A. YIM, S.A. WILLIAMS, T.R. DISOTELL.

23 **Optimism and Social Support Buffer Effects of Childhood Disadvantage on Adult Health Behaviors.** E.S. CLAUSING, J.C. ROMÁN, S.E. GILMAN, E.B. LOUCKS, S.L. BUKA, L.D. KUBZANSKY, A.A. APPLETON, A.L. NON.

24 **Violence and Prostate Cancer Risk: Chronic Health implications of the Challenge Hypothesis for the Southern American Culture of Honor.** L.C. ALVARADO.

25 **Evidence of an ancient origin for contemporary chronic disease risk in South Asia.** E. POMEROY, V. MUSHRIF-TRIPATHY, J.T. STOCK, J.C. WELLS.

26 **Effects of Genetics and the Nuclear Family Environment on Shodagor Health.** M.H. AHSAN, K.E. STARKWEATHER.

27 **Suicidal Behavior as a Costly Signal of Apology.** K.L. SYME, E.H. HAGEN.

28 **Variation in clinical symptoms in sickle cell trait athletes: a study on genetic markers and behavioral traits.** C. FLANSBURG, C.M. BALENTINE, R.W. GRIEGER, J. LUND, M. CIAMBELLA, E. GONZALEZ, D. WHITE, A.C. STONE, L. MADRIGAL.

29 **Evidence of Prehistorical Atlantic and Pacific Transoceanic Genetic and Cultural Contacts with America.** A. ARNAIZ-VILLENA, E. MUÑIZ, C. CAMPOS, M. MARTIN VILLA, J. PALACIO-GRUBER.

Session 26: Paleoanthropology: Late Homo

Contributed Poster Presentations. Chair: P. Thomas Schoenemann.

Carondolet.

1 **Mechanical Properties of the Masticatory System in Recent Northern Chinese populations.** Q. WANG, Q. ZHANG, T. HAN, Z. SUN, M.J. KESTERKE, H. ZHU, P.C. DECHOW, Q. ZHANG.

2 **Is Broca's cap really larger on the left in modern humans? Contradictory evidence via Non-rigid diffeomorphic mapping methods.** L.M. KITCHELL.

3 **Diploic patterns and vascular morphometrics in fossil specimens.** G. RANGEL DE LAZARO, E. BRUNER.

4 **Behavioral traces on dental wear in Pleistocene fossil humans.** A. ESTALRRICH, M. LOZANO, L. BONDIOLI, I. FIORE, J. BERMÚDEZ DE CASTRO, J. ARSUAGA, E. CARBONELL, A. ROSAS, O. KULLMER, D. FRAYER.

5 **Using a mouse model to understand the relationship between skeletal and ectodermal trait variation in mammalian hybrids.** R.A. HUMPHREYS, T. RITZMAN, K. WARREN, C.J. PERCIVAL, B. HALLGRIMSSON, R.R. ACKERMANN.

6 **Human remains and artefacts from Romualdo's cave, Istria, Croatia.** I. JANKOVIĆ, J.C. AHERN, D. KOMŠO, S. MIHELIĆ, F.H. SMITH.

7 **Dolichocephaly and occipital hemi-bun development in extant humans.** M.E. KARBAN.

8 **The database of Worldwide Instances of Symbolic Data Outlining Modernity.** M. KISSEL, A. FUENTES.

9 **It's all in the wrist: New Neandertal carpal bones from El Sidrón (Asturias, Spain).** T.L. KIVELL, A. ESTALRRICH, R. HUGUET, A. GARCIA-TABERNERO, L. RIOS, M. DE LA RASILLA, A. ROSAS.

10 **The origin of our species: an ancestral morphotype for modern humans.** A. MOUNIER, M. MIRAZÓN LAHR.

11 **Modern Human Variation in Brain Size: Implications for the Dmanisi Hominins and other Fossil Taxa.** P. SCHOENEMANN, R.L. HOLLOWAY.

12 **Trabecular Bone Properties in the Border Cave 3 Infant Ilium: Implications for the onset of Independent Gait in Early Modern *Homo sapiens*.** K.A. TOMMY, B. ZIPFEL, J. KIBII, K.J. CARLSON.

13 **Neanderthal Dental Remains from Chagyrskaya cave, Altai Mountains, Siberia.** B. VIOLA, S.V. MARKIN, N. RUDAYA, S. VASILYEV, K. KOLOBOVA.

14 **Craniofacial Variation in Middle Pleistocene Hominins.** S. WHITE, S. HILLSON, C. SOLIGO.

15 **Comparison of Neandertal Mandibular First Molar Occlusal Outlines using Elliptical Fourier Function Analysis.** F. L'ENGLE WILLIAMS, J.K. BROPHY.

16 **Virtual cranial restoration of Qafzeh 6 by new methodology using photogrammetry.** D. COUTINHO NOGUEIRA, B. DUTAILLY, F. COMTE, A. TILLIER, H. COQUEUGNIOT.

17 **Paleoenvironmental Reconstruction of the Koanaka Hills Pleistocene Fossil Locality in Botswana.** Z.W. PIERCE, T.L. CAMPBELL, P.J. LEWIS.

18 **Coordinate-system-invariant Assessment of Measurement Error in Landmark Coordinate Data.** T.M. COLE III, L. HU, S.R. LELE, J.T. RICHTSMEIER.

19 **The impact of shared evolutionary history on the observed morphological differences in the femoral mid-shaft between archaic and modern humans.** B.L. MOODY.

20 **Examination of Neandertal maxillary first molar occlusal outlines using Elliptical Fourier Analysis.** W.G. ANDERSON, F. WILLIAMS.

21 **Neandertal Dental Microwear Texture Analysis from l'Hortus: A Bioarchaeological Perspective.** J.L. DROKE, F. L'ENGLE WILLIAMS, C.W. SCHMIDT, J.C. WILLMAN.

22 **Finite Element Modeling of Talar Loading in Modern Humans with Application to the Hominin Fossil Record.** Z.S. SWANSON, N.M. WEBB, H. PONTZER, J.M. DESILVA, W.E.

HARCOURT-SMITH.

Session 27: Bioarchaeology and Paleopathology: Stress, Frailty, and Inequality

Contributed Poster Presentations. Chair: Larissa Collier.

Carondolet.

1 **Connected Lives: Maternal Health in Medieval and Post-medieval England.** A.C. JONES, T. JAKOB.

2 **The Impact of Multiple Skeletal Stress Markers on Survivorship and Longevity.** J.D. MINSKY-ROWLAND.

3 **Subadult Stress: continental Croatia vs Adriatic coast.** M. KLJAJIC LUKACEVIC, M. WOJCINSKI, M. SLAUS.

4 **A characterization of nutritional stress among early Medievel subadult females of the central Dalmatian region of Croatia.** L.J. THORSON, V. VYROUBAL, M. ŠLAUS.

5 **Stressful times: Investigating childhood health in urban and rural medieval Britain.** E.R. DOVE, J.D. IRISH, C. ELIOPOULOS, I. DE GROOTE.

6 **Stress in Transylvania: Utilizing macroscopic skeletal analysis to track metabolic and nutritional stress between Late Antiquity and Middle Ages in Romania.** K.D. CROWDER, C.A. ROBERTS.

7 **Assessing skeletal indicators of childhood stress amongst 20th century northeastern (Isan) Thais.** M. PANAKHYO, N. TECHATAWEEWAN.

8 **Childhood and Famine in Medieval London.** S.L. YAUSSY, S.N. DEWITTE.

9 **Analysis of Growth Disruptions in two Burial Populations in the Greek Colony of Himera.** A.H. ZAHID, B. KYLE, N. LONOCE, A. SMITH, S. VASSALLO, P. FABBRI, L.J. REITSEMA.

10 **An Inside View: Childhood Stress at the Greek Colony, Himera.** M. CHOWNING, C. GARLAND, B. KYLE, S. VASSALLO, L.J. REITSEMA.

11 **Examining the osteological paradox: frailty in mass graves versus the general population at the Greek colony of Himera.** J. TYLER, B. KYLE, A. SMITH, S. VASSALLO, P. FABBRI, L.J. REITSEMA.

12 **The Cost of Early Stress in the Later Stone Age: Temporal Variation in the Relationship between Neural Canal Size and Early Mortality Among Adult Foragers.** L. DOYLE.

13 **Childhood Death in a Southwest Basketmaker II Community.** D.M. MULHERN, M.C. CHARLES.

14 **Methodological Comparison of the Macroscopic vs. Radiographic Assessment of Cranial Porosities within the Texas State University Donated Skeletal Collection.** B.S. MCCLAIN, M.D. HAMILTON.

15 **Childhood stress among the Postclassic Maya of Mayapan.** S. SERAFIN.

16 **Stressed Before Sacrifice? Reconstructing Psychosocial Stress from Archaeological Hair at Chotuna-Chornancap, Peru.** B.J. SCHAEFER, B.L. TURNER, H.D. KLAUS.

17 **Skeletal Stress Markers in Undocumented Border Crossers: A Comparative Approach.** A. GOOTS, L.A. MECKEL, D.S. GLEIBER, A. AYALA BAS.

18 **Porotic hyperostosis versus cribra orbitalia for prehistoric populations from the southeastern United States: contributions to the etiology debate.** T. SOMOGYI, E.A. DIGANGI.

19 **Paleopathological Assessment of Health and Social Status in a Texas Gulf Coastal Plains Population.** J.A. PYLE, C.C. SIEGERT, M.D. HAMILTON.

20 **Health Conditions of Enslaved Africans, Freemen and Poor White Workers: A Biocultural Approach.** A. LESSA, G.N. CAMPOS, R.B. TAVARES.

21 **Effects of Social Transition on Health at Tumilaca la Chimba, Peru.** S.A. LOWMAN, B. TURNER, N. SHARRATT.

22 **Health, inequality, and conquest in Warring States China.** E.S. BERGER, L. CHEN, J. SHAO, Z. SUN.

23 **Framing Function, Health, and Disability in the Roman Iron Age: Application of the ICF in Two Individuals with Developmental Dysplasia of the Hip.** L. COLLIER, L. LOWE.

24 **Hip fractures and survivorship in old age: investigating trauma in the archaeological record.** M.L. MANT, R. IVES, C. DE LA COVA, M. BRICKLEY.

25 **Finding Etruscan Bones: Confocal Laser Scanning Microscope in archaeological context.** L. GASPARI, M. SANNIBALE, F. DE ANGELIS, P. CATALANO, O. RICKARDS.

26 **Feeding the City: dietary variation in several communities of Roman *Suburbium* (I-III centuries CE).** F. DE ANGELIS, S. VARANO, G. AMICUCCI, A. BATTISTINI, C. CALDARINI, S. DI GIANNANTONIO, R. MOSTICONE, W. PANTANO, F. ZAVARONI, P. CATALANO, O. RICKARDS.

27 **Sex-specific patterns in age-related cortical and trabecular bone loss: A 2-D histomorphometric study using mid-thoracic ribs.** A.C. BERESHEIM.

Session 28: Human Dental Anthropology: Health, Disease, and Other Cool Stuff with Teeth

Contributed Poster Presentations. Chair: Christina L. Fojas.

Carondolet.

1 **The dawn of dentistry in the Late Upper Paleolithic.** G.M. OXILIA, F.M. FIORILLO, F.D. BOSCHIN, E.D. BOARETTO, S.M. APICELLA, C.D. MATTEUCCI, D.D. PANETTA, R.P. PISTOCCHI, F.P. GUERRINI, C.M. MARGHERITA, M.D. ANDRETTA, R.M. SORRENTINO, G.P. BOSCHIAN, S.M. ARRIGHI, I.D. DORI, G.M. MANCUSO, J.D. CREZZINI, A.D. RIGA, M.M. SERRANGELI, A.M. VAZZANA, P.P. SALVADORI, M.P. VANDINI, C.P. TOZZI, A.P. MORONI, R.D. FEENEY, J.D. WILLMAN, J.P. MOGGI-CECCHI, S.D. BENAZZI.

2 **Intentional Dental Staining in the Mariana Islands.** R.M. IKEHARA-QUEBRAL, T.M. RIETH, A.E. MORRISON, M. PIETRUSEWSKY, M. DOUGLAS.

3 **Odontometric Sex Sssessment at the Early Bronze Age site of Ostojićevo (Serbia).** A.N. KARABOWICZ, K.M. POMPEANI.

4 **Differences in the non-masticatory dental wear of two medieval assemblages from the 4th cataract, Sudan.** R.J. WHITING, S. HILLSON, D. ANTOINE.

5 **Regional Variation of Dental Microwear in the English Late Bronze Age and Iron Age.** R.L. PERASH.

6 **Differentiating Dental Wear Patterns: A Dental Microwear Study on the Philistine Population from Ashkelon.** R.E. KALISHER.

7 **Something To Chew On: Comparing Dentin Exposure in Ancient Egyptians and Dental Age Estimation Standards.** C.L. KIRKPATRICK.

8 **The applicability of dental wear in age estimation for a modern American population.** K.E. FAILLACE, J.D. BETHARD, M.K. MARKS.

9 **A new method for estimating age from deciduous teeth in archaeological contexts.** J. BECK.

10 **Initiation of Permanent Premolar Tooth Crypt Formation in Individuals with Premolar Agenesis.** M. ŠEŠELJ.

11 **A Study of Human Tooth Eruption and Root Growth.** H.M. LIVERSIDGE.

12 **Estimating Age at Death through Cementum Annulations in Canines and 1st Molars: A Late**

Formative Period (400 B.C. - 150 B.C.) Population from Cerro de la Cruz in the Lower Río Verde Valley of Oaxaca, Mexico. C. VEGA, A.T. MAYES, A.A. JOYCE.

13 **Biorhythm tracks enamel thickness in humans and great apes.** P. MAHONEY, J.J. MISZKIEWICZ, R. PITFIELD, C. DETER, D. GUATELLI-STEINBERG.

14 **Human incremental hard tissue formation as evidence of a biorhythm: preliminary results.** R. PITFIELD, P. MAHONEY.

15 **Prenatal crown formation time of human deciduous central incisors in a pre-industrial population.** A. NAVA, P.F. ROSSI, L. BONDIOLI.

16 **Trace Element Studies Support Rapid Tooth Enamel Mineralization at the Enamel-Dentine Junction.** T.M. SMITH, C. AUSTIN, D. GREEN, M. ARORA.

17 **Growing up in Çatalhöyük : enamel hypoplasia and history houses.** E. BOCAEGE, A. CLEMENT, S. HILLSON.

18 **A lesson in stressin': A comparison of linear enamel hypoplasias in children from the prehistoric Ohio Valley.** E. MOES, S. BLATT.

19 **Linear enamel hypoplasia incidence in bush-dwelling and village Hadza from Tanzania.** P.S. UNGAR, A.N. CRITTENDEN, J.C. ROSE.

20 **Climate Change and Enamel Defects: Interpreting the Childhood Stress of Early Levantine Agriculturalists.** T.V. WILSON.

21 **Tooth size, trait expression, and nutritional stress.** E.C. BLANKENSHIP-SEFCZEK, D. GUATELLI-STEINBERG, A.H. GOODMAN.

22 **Sex-Related Differences in Dental Caries Prevalence in the Prehistoric American Southwest.** R.T. WINEINGER.

23 **Dental Health and Diet at Tell el-Amarna: A Comparison of Carious Lesions, Dental Wear, and Antemortem Tooth Loss in Dynastic Egypt.** E.L. MOREY.

24 **Dietary Reconstruction of Winnebago Phase Oneota: A Study of Dental Pathology.** J. KARSTEN, T. DORSHORST, K. KUBEHL, L. SCHEIDER.

25 **Oral health among the Hadza foragers of Tanzania.** A.N. CRITTENDEN, S. MOONIE, J. SORRENTINO, P.S. UNGAR.

26 **Heterogeneity in Oral Health in Middle Tennessee during the Mississippian Period.** C.L. FOJAS.

27 **A large-scale analysis of the prevalence of dental caries and calculus over time, from the Bronze Age to the Post-medieval period in Britain.** C.S. HIRST.

28 **Disease and dental wear on the upper Texas coast: Cross-era comparison of Native American Health at site 41GV66.** E.A. EDWARDS.

29 **A new perspective on the population history of the pre-Incan South Central Andes through analysis of dental morphological data.** A. CUCINA, A. COPPA, C. ARGANINI, F. CANDILIO.

30 **Dental Modification and Human Sacrifice at Midnight Terror Cave.** C. VERDUGO, K. ZHU, L. FEHREN-SCHMITZ.

31 **Refining a Traditional Method in Dental Wear Analysis for Greater Application.** E.M. LAGAN.

32 **An assessment of oral health in prehistoric Ancón, Peru.** C. MONESMITH.

33 **Ethnic diversity in a 19th Century Colorado Insane Asylum: what the teeth tell us.** E. HUBBARD, F. ERBIL, M. GLANTZ, A. MAGENNIS.

34 **Hutchinson's dental criteria diagnose congenital syphilis in pre-Columbian Old World.** S. IOANNOU, R.J. HENNEBERG, M. HENNEBERG.

Friday, Morning sessions.

Session 29: Human Skeletal Biology: Shape, Selection, Integration, and Kinship

Contributed Podium Presentations. Chair: Maureen J. Devlin.

Balcony I/J.

8:00 **Differences in Adult Female Human True Pelvis Morphology with Respect to Age are Not Due to Selection.** B.M. AUERBACH.

8:15 **Combining functional and forward genomics to explore the evolutionary developmental regulation of primate long bone length variation.** T.D. CAPELLINI, M. HILLER, J. WILLEN, A.W. WOHNS, H. DINGWALL.

8:30 **High Fat, High Protein Diet Increases Bone Density in Cold-exposed Mice: Implications for Humans.** M.J. DEVLIN, A.E. ROBBINS, M.N. COSMAN, L.M. SHIPP, T.R. BRASH.

8:45 **Worldwide modern human morphological variation: exploring the association between morphological modules and climate and geographic distances.** K.I. DOWNEY, B. HERRERA, M. HUBBE.

9:00 **Geography More than the Chronological Depth Explains the Structure of the Human Cranial Diversity.** D.V. BERNARDO, T.F. DE ALMEIDA, T.C. CAMPOS, W.A. NEVES.

9:15 **Integration Between the Lower Face and the Dentition throughout Ontogeny.** A. NESBITT.

9:30 **Integration between the cranium and mandible in recent humans.** D.C. KATZ, M.N. GROTE, T.D. WEAVER.

9:45 **Cranial integration is a major determinant of endocranial and brain shape.** C.P. ZOLLIKOFER, T. BIENVENU, M.S. PONCE DE LEÓN.

10:00 **Break.**

10:30 **Midline Bony Landmarks are Poor, but better than Soft Tissue Landmarks, for Estimating Population Affiliation in Unknown Individuals.** H.J. EDGAR, K. GWIN, K. RUSK.

10:45 **Evaluating the Limitations of Biological Distance Models of Gene Flow in Ancient Human Populations.** A.M. MALLARD, J.T. WATSON, B.M. AUERBACH.

11:00 **Social network analysis of cranial shape among Moquegua Tiwanaku-affiliated communities: a regional approach to kinship analysis.** K.M. JOHNSON.

11:15 **Can diaphyseal (cross-sectional) properties of arm and leg bones detect among-population genetic relationships?** G. AGOSTINI, B. HOLT.

11:30 **Comparative performance of deciduous and permanent dental morphology in reconstructing biological kinship.** K.S. PAUL, C.M. STOJANOWSKI.

11:45 **Population continuity and replacement in the pre-contact Valley of Mexico.** C.S. RAGSDALE, H.J. EDGAR.

12:00 **Defining the "Outsiders": a biodistance analysis of Ottoman communities in Hungary and Romania.** K. ALLEN, N. VON CRAMON-TAUBADEL.

Session 30: Paleoanthropology: Early Homo

Contributed Podium Presentations. Chair: Shelby S. Putt.

Bissonet.

8:00 **Bovid locomotor traits track land cover and mean annual precipitation: using an ecometric approach to reconstruct paleoenvironments in the Shungura Formation (Plio-Pleistocene, Ethiopia).** W. BARR.

8:15 **Exploring the Utility of Carbon Isotope Analyses of Small Mammal Tooth Enamel as an Environmental Proxy.** J.N. LEICHLITER, P. SANDBERG, M.J. SPONHEIMER, B. PASSEY,

N. AVENANT, O. PAINE, D. CODRON, J. CODRON.

8:30 **Hybridization and reticulation in hominin evolution.** J.R. GAUTNEY, T.W. HOLLIDAY.

8:45 **New insights into locomotion and posture in hominoid evolution: integration of the skull and cervical vertebrae.** C.I. VILLAMIL.

9:00 **Relative fibular strength and locomotor behavior in OH 35 and KNM-WT 15000.** C.M. HARPER, D. MARCHI, H. CHIRCHIR, C.B. RUFF.

9:15 **Virtual reconstruction of the pelvic remains of KNM-WT 15000 *Homo erectus* from Nariokotome, Kenya.** C. FORNAI, M. HAEUSLER.

9:30 ***Homo naledi's* frontal lobe: Modern in form, ancestral in size.** S.D. HURST, R.L. HOLLOWAY, H.M. GARVIN, T. SCHOENEMANN, W.B. VANTI, J. HAWKS, L.R. BERGER.

9:45 **Title: *Homo naledi* posterior endocasts and their significance for understanding brain reorganization.** R.L. HOLLOWAY, S. HURST, H.M. GARVIN, T. SCHOENEMANN, W.B. VANTI, J. HAWKS, L. BERGER.

10:00 **Break.**

10:30 **Functional Neuroimaging Insights into Acheulian Cognition and Hominin Brain Evolution.** S.S. PUTT, S. WIJEAKUMAR, R.G. FRANCISCUS, J.P. SPENCER.

10:45 **A morphometric assessment of *Homo naledi* deciduous molar teeth from Dinaledi Chamber, Rising Star cave system, South Africa.** J.K. BROPHY, S.E. BAILEY, J. MOGGI-CECCHI, L.K. DELEZENE, M. SKINNER, D.J. DE RUITER.

11:00 **Metric Variation in *Homo naledi* Molars.** L.K. DELEZENE, J.D. IRISH, M.W. SKINNER, J. BROPHY, J. HAWKS, L.R. BERGER.

11:15 **The limb proportions of *Homo naledi*.** S. TRAYNOR, J. HAWKS.

11:30 **Functional and Evolutionary Implications of the *Homo naledi R*earfoot.** T.C. PRANG.

11:45 **Hamadryas baboons as analogs for social evolution in early Homo.** L. SWEDELL, T. PLUMMER.

12:00 **A deformation-based approach to the frontal lobe morphology in OH9, UA 31 and Bodo.** A. BEAUDET, E. BRUNER.

Session 31: Primate Ecology, Cognition, and Conservation

Contributed Podium Presentations. Chair: Fernando A. Campos.

Studio 1/2/3.

8:00 **Pairing Feeding Observations with Stable Isotope Data from Bonobo (*Pan paniscus*) Fecal Samples from the Lomako Nature Reserve, Democratic Republic of the Congo.** J.E. LOUDON, H.M. KIMEL, M.T. WALLER, M.L. WAKEFIELD, A. HICKMOTT, F.J. WHITE, M. SPONHEIMER.

8:15 **Patch-use Decisions in Geladas: Effects of Body Size and Food Type.** L. CHRISTOPHER, V.V. VENKATARAMAN, J.T. KERBY, N. NGUYEN, P.J. FASHING.

8:30 **I Did it My Way!: Three Nocturnal Lemur Species show Intraspecific Inter-individual Variation when Solving a Multi-destination Route.** J.A. TEICHROEB, A.Q. VINING.

8:45 **Comparative foraging strategies of Neotropical frugivores: Do primates forage 'smarter'?** M.C. CROFOOT, R. MAREST, D. CAILLAUD, R. KAYS, B. HIRSCH.

9:00 **The ontogeny of manipulation complexity within 26 primate species.** S.A. HELDSTAB, J.M. BURKART, C.P. VAN SCHAIK, K. ISLER.

9:15 **BRAAAINS!!! Chimpanzees at Gombe consume monkeys head-first.** I.C. GILBY, D. WAWRZYNIAK.

9:30 **Feverish Monkeys get Kicked when they're Down.** R. MCFARLAND, L. BARRETT, A.

FULLER, P. HENZI, S.K. MALONEY, D. MITCHELL, C. YOUNG, R.S. HETEM.

9:45 **Individual differences in spatial position during collective movements of vervet monkeys.** M.B. BLASZCZYK.

10:00 **Break.**

10:30 **Identifying the Ecological Mechanisms Promoting Long-term Co-existence in a Mega-diverse Assemblage of Vertebrate Frugivores at Gunung Palung National Park, West Kalimantan, Indonesia.** A.J. MARSHALL, L. BEAUDROT, H.U. WITTMER.

10:45 **Ranging patterns and behaviour of Javan slow lorises in a dynamic agroforestry landscape in West Java.** A.I. NEKARIS, S.A. POINDEXTER, K.D. REINHARDT, M.A. SIGAUD, V.J. NIJMAN.

11:00 **Fifteen Years of Forest Fragmentation in Southeastern Madagascar: Making sense of Fragmented Results.** K.J. KLING, Z. ANDRIANDRASANA, A. DEHGAN, P.C. WRIGHT.

11:15 **Quantifying *Microcebus* Habitat Loss Due to Roads.** M.S. RAMSAY, A. RAZAFINDRAKOTO, H.N. RAVELONJANAHARY, S.M. LEHMAN.

11:30 **Abrupt decline in mantled howlers (*Alouatta palliata*) but not in sympatric white-faced capuchins (*Cebus capucinus imitator*) in a tropical dry forest conservation area in Costa Rica.** F.A. CAMPOS, K.M. JACK, L.M. FEDIGAN.

11:45 **Variation in prey choice and hunting efficiency by season and technology among indigenous Waiwai hunters in Guyana.** C.A. SHAFFER, C. YUKUMA, E. MARAWANARU, P. SUSE, M.S. MILSTEIN.

12:00 **Strontium Isotope Ratios Indicate Mobility, Behavior Patterns in Modern Fauna from Kibale National Park, Uganda.** M.I. HAMILTON.

Session 32: Human Biology: Evolutionary Perspectives on Reproduction, Development, and Health

Contributed Podium Presentations. Chair: Aaron D. Blackwell.

Studio 7/8/9.

8:00 **Innate food aversions and culturally transmitted food avoidances in pregnancy: separate systems to protect the fetus?** E.H. HAGEN, C.D. PLACEK.

8:15 **The "cliff edge model" of human obstetric selection.** P. MITTEROECKER.

8:30 **Excessive gestational weight gain and birth outcomes among American Indians and Alaska Natives.** K.G. ANDERSON, P. SPICER, M.T. PEERCY, G. SKREPNEK.

8:45 **Paternal grandmothers increase and maternal grandmothers decrease fertility of couples they reside with.** G. JASIENSKA, M. JASIENSKI, A. GALBARCZYK, I. NENKO, M. KLIMEK.

9:00 **Maternal and paternal anthropometry influences on body size, body shape and obstetric capacity in growing girls.** S. DECRAUSAZ, J.T. STOCK, M.S. FEWTRELL, J.E. WILLIAMS, J.C. WELLS.

9:15 **The human voice conveys information on developmental stability.** A.K. HILL, R.A. CÁRDENAS, J.R. WHEATLEY, L.L. WELLING, R.P. BURRISS, P. CLAES, C.L. APICELLA, M.A. MCDANIEL, A.C. LITTLE, M.D. SHRIVER, D.A. PUTS.

9:30 **Opportunity costs from potential nighttime activities trade off against time allocated to sleep behavior among Tsimane hunter-horticulturalists.** G. YETISH, H. KAPLAN, M. GURVEN.

9:45 **Divisions of Labor at Daily Timescales among Batek Hunter-Gatherers.** V.V. VENKATARAMAN, T.S. KRAFT, K.M. ENDICOTT.

10:00 **Break.**

10:30 **Life History Transitions: Parents Still Matter more than Female Friends for Adolescent Girls' Mental Health.** M.A. RODRIGUES, S.R. SANFORD, M.P. ROGERS, K.M. LEE, S.J.

GAY, R.A. MITCHELL, Z. SULTANA, J. AMOS, C.D. HUNTER, K.B. CLANCY.

10:45 **Atherosclerosis in contemporary preindustrial populations: does it exist and is it clinically relevant?** M.D. GURVEN, B.C. TRUMBLE, J. STIEGLITZ, B. BEHEIM, A.D. BLACKWELL, D. MICHALIK, A.H. ALLAM, C. ROWAN, B. FROHLICH, L. SUTHERLAND, J.D. SUTHERLAND, J.K. MIN, C.E. FINCH, S. WANN, R.C. THOMPSON, G.S. THOMAS, H.S. KAPLAN.

11:00 **Human parasitism in a comparative context: Are humans exceptionally parasitized?** C.R. AMOROSO, C.L. NUNN.

11:15 **Unwelcome Guests: Human-rodent Commensalism and its Implications for Zoonotic Disease Transfer.** C.M. MCCABE, H.S. YOUNG, S.B. WEINSTEIN, C.L. NUNN.

11:30 **Immune function across the life-span in Amazonian horticulturalists.** A.D. BLACKWELL, B.C. TRUMBLE, I. MALDONADO SUAREZ, J. STIEGLITZ, B. BEHEIM, J. SNODGRASS, H. KAPLAN, M. GURVEN.

11:45 **The Importance of Ethnographic Data and Social Network Structures in Determining Infection Risk for Individuals in Rural Communities of Bangladesh and Uganda.** L.S. BLOOMFIELD, A. HAZEL, J.H. JONES.

12:00 **Remoteness Influences Access to Sexual Partners and Drives Patterns of Viral Sexually Transmitted Disease Prevalence among Nomadic Pastoralists.** A. HAZEL, J. HOLLAND JONES.

Session 33: Here Comes the Sun: Evolutionary Responses to Solar Exposure

Invited Poster Symposium. Chair: Ellen E. Quillen, Nina G. Jablonski.

Co-organizers: Nina G. Jablonski, Pennsylvania State University.

Balcony K.

Throughout human evolution and recurrently in diverse environments, pigmentation genes have undergone some of the strongest intervals of selection found in the genome. Selection and genetic drift have shaped local genetic variation in striking ways. This symposium focuses on recent work on the genetics of skin pigmentation with a particular focus on distinct manifestations of overlapping allelic variation among populations. Comparison with our non-human primate relatives provide deeper perspectives on the evolutionary history of pigmentation variation while studies of more recent gene flow and admixture have generated novel interactions between genes influencing constitutive skin color within populations. Variation in constitutive pigmentation informs, but is insufficient to explain, variation in response to ultraviolet radiation. Increasingly, the genetic architectures of facultative pigmentation (tanning), vitamin D production, and epidermal thickening in response to solar exposure are being elucidated with both classic pigmentation genes and novel alleles influencing these biomedically and forensically important traits. By considering both constitutive pigmentation and these labile traits, which are heavily influenced by both genetics and the environment, we seek a more complete picture of variation in human skin.

8:00 **Introduction: Ellen E. Quillen.**

8:05 **Individual poster presentations (Posters #1-7).**

10:30 **Individual poster presentations (Posters #8-12).**

11:15 **Discussant: Nina G. Jablonski.**

1 **Pigmentation variation in the presence of strong UVR: genetic and phenotypic variation in Island Melanesia.** H.L. NORTON, L. BOWSER, J.S. FRIEDLAENDER.

2 **Genetics of pigmentation in East Asia: The role of *OCA2* polymorphisms.** L. RAWOFI, M.

EDWARDS, S. KRITHIKA, N. MURRAY, H.L. NORTON, E.J. PARRA.

3 **Rapid Evolution of Lighter Skin Pigmentation in Southern Africa.** B.M. HENN, M. LIN, A.R. MARTIN, R. SIFORD.

4 **The complicated genetic landscape of skin color in India.** F. ILIESCU, G. CHAPLIN, N. RAI, G. JACOBS, C. BASU MALLICK, A. MISHRA, R. GOTO, R. TAMANG, G. CHAUBEY, I. GALLEGO ROMERO, F. CRIVELLARO, R. PITCHAPPAN, L. SINGH, M. MIRAZON-LAHR, M. METSPALU, K. THANGARAJ, T. KIVISILD, N.G. JABLONSKI.

5 **Variation in skin reflectance and pigmentation genes in young adults of Xhosa and Cape Mixed ancestry from the Western Cape, South Africa.** N.G. JABLONSKI, T. LASISI, A. ABHIMANYU, A.K. COUSSENS, C.E. NAUDE, G. CHAPLIN, L.N. PEARSON, R. GOLIATH, M.D. SHRIVER, R.J. WILKINSON.

6 **Fluidity of "Color" among Brazilians Investigated using Genomic Ancestry, Skin Pigmentation, and Facial Ancestry.** L.N. PEARSON, D.A. HERNANDEZ, P. CLAES, R.W. PEREIRA, M.D. SHRIVER.

7 **Mapping the Origins of Inter-Population Skin Color Variation with Admixed Indigenous Populations.** K.C. ANG, V.A. CANFIELD, T.C. FOSTER, M.S. NGU, J. HAWLEY, M.M. CLYDE, B.M. MD-ZAIN, G. MEISENBERG, S.J. OPPENHEIMER, K.C. CHENG.

8 **Pigmentation in a Comparative Context: Factors Shaping Variation and Convergence in Primate Pelage Patterns.** B.J. BRADLEY, J.M. KAMILAR, A.N. SPRIGGS, B.C. WILHELM, S. WALSH.

9 **The prediction of human pigmentation phenotypes from DNA for forensic and anthropological usage.** S. WALSH, K. BRESLIN, R. ELLER, C. MURALIDHARAN, E. POSPIECH, L. CHAITANYA, A. WOLLSTEIN, F. LIU, W. BRANICKI, M. KAYSER.

10 **A Complex, Polygenic Architecture for Lightened Skin Pigmentation in the Southern African KhoeSan.** A.R. MARTIN, C.R. GIGNOUX, M. LIN, J.M. GRANKA, A. ADAMS, X. LIU, E.G. ATKINSON, C.A. GUENTHER, S. BELEZA, C.J. WERELY, J. MYRICK, M. MÖLLER, D.M. KINGSLEY, M.J. DALY, M.W. FELDMAN, E.G. HOAL, C.D. BUSTAMANTE, B.M. HENN.

11 **The role of FZD6 in the evolution of tanning response in the Americas.** E.E. QUILLEN, J. FOSTER, A. SHELDRAKE, N.G. JABLONSKI, M.D. SHRIVER.

12 **Complex adaptive forces shape skin barrier evolution in humans.** Y. LIN, M. EAASWARKHANTH, P. PAJIC, D. XU, M. RZHETSKAYA, M. HAYES, R. BLEKHMAN, N. JABLONSKI, O. GOKCUMEN.

Session 34: Adaptation: Identifying Form-Function Relationships in the Fossil Record

Invited Poster Symposium. Chair: Marisa E. Macias, Kari L. Allen.

Co-organizers: Marisa Macias, Division of Anthropology, American Museum of Natural History.

Studio 4/5.

A primary goal of paleoanthropology is to understand the relationship between form and function in extinct taxa. Interpretation of the form/function relationship requires an unambiguous definition of adaptation and a formalized set of criteria for the identification of this in the fossil record. Best practices involve a combination of indirect - comparative method using extant taxa - and direct - observation of the fossil record - approaches. In the the last few decades, we have seen an explosion of new methodology for evaluating associations between morphology and function using phylogenetic, morphometric, and evolutionary modeling approaches. Researchers have necessarily specialized in these approaches, creating discrete subfields within paleoanthropology. The aim of this symposium is to facilitate the synthesis of disparate methods and theoretical

approaches for a more nuanced and holistic understanding of functional adaptations in primate evolution. This session will bring together researchers with a deep interest and expertise in 1) the construction of theoretical framework from which to assess the presence of adaptation in fossil taxa, 2) novel techniques in testing for adaptive evolution, and 3) the application of adaptive theoretical framework to a specific anatomical system, ecological variable, or primate clades. This session highlights a broad range of focuses, covering functional systems throughout the body, as well as across evolutionary time to discuss best practices for incorporating explicit theoretical framework into the understanding of the form-function relationship within the primate fossil record.

10:30 **Discussant: Richard F. Kay.**

1 **Combining Indirect and Direct Evidence for the Coevolution of Brain Size and Diet in Primates.** K.L. ALLEN.

2 **Platyrrhine dynamic dental topography: implications for secondary dental morphology in brachydont, long-lived taxa.** J.D. PAMPUSH, J.P. SPRADLEY, J.T. GLADMAN, D. GRIFFITH, L.A. GONZALES, R.F. KAY.

3 **New specimens of *Stirtonia* from the La Victoria Formation, La Venta, Colombia and the evolution of alouattin dental and mandibular form.** S.B. COOKE, A. VANEGAS, A. LINK, B.M. SHEARER, L.K. STROIK, M. TALLMAN.

4 **Adaptive plasticity in the masticatory apparatus: inferences for form, function, and fossils.** C.E. TERHUNE, A.D. SYLVESTER, S. COINER-COLLIER, J.E. SCOTT, K.R. MCABEE, M.J. RAVOSA.

5 **You are how you eat: elucidating chewing patterns through 3D shape analysis of fossil primates.** K.P. MCNULTY, R.P. KNIGGE, C.J. VINYARD.

6 **Testing hypotheses about early hominin feeding adaptations.** D.S. STRAIT.

7 **The role of experimental approaches to the interpretation of form-function relationships in the fossil record.** S.G. LARSON.

8 **Inferring hominoid locomotor adaptation from bones: insights from the torso skeleton.** C.V. WARD, E.R. MIDDLETON.

9 **Adaptations in the upper limb of *Australopithecus*.** M.E. MACIAS, M. GRABOWSKI.

10 **Anatomical Determinants of Dysfunction Inform the Evolution of the Human Shoulder.** N.M. YOUNG, N.T. ROACH, S. HERFAT, M. RAINBOW, M. MARMOR, B. FEELEY, T. BAUM, M. BEY.

11 **Primate femoral condyle curvature: linking shape and locomotion.** A.D. SYLVESTER.

12 **Testing hypotheses about hominin locomotor evolution using models not analogies.** D.E. LIEBERMAN, M.M. BARAK, C.P. ROLIAN, D.A. RAICHLEN, H. PONTZER.

13 **Primate Communities: Behavior and Morphology.** J.G. FLEAGLE, K.E. REED, N. NAQVI, J. SMAERS.

Session 35: Anthropological Stories of Bone Histology and Remodeling: An Invited Session in Honor of Samuel D. Stout

Invited Poster Symposium. Chair: Sabrina C. Agarwal.

Studio 6.

Sam Stout pioneered the early work on bone histomorphometry in ancient bone, and over the past decades his work has established the significant methodological and scientific contribution of histological studies to biological anthropology. He has examined some of the most fundamental aspects of skeletal variation including patterns in bone remodeling with disuse, taphonomy, population variation, biomechanical loading, bone remodeling in early hominids, and changes

with disease and aging. He has continued to develop new microscopic age estimation methods and push our understanding of intra-skeletal variation in bone mass and microstructure. This session brings together the research of his colleagues and the students he has mentored to celebrate the stories and new trajectories from this work that have served to clarify the fundamentals of bone biology for generations of scholars in skeletal biology, forensic anthropology, paleoanthropology and bioarchaeology.

8:00 **Introduction: Sabrina C. Agarwal.**

10:30 **Participant Discussion.**

1 **An analysis of infant bone composition using Raman Spectroscopy.** M.E. SOTO MARTINEZ, C.M. CROWDER, X. BI.

2 **After 25 years, revisiting clavicle histology.** R.R. PAINE.

3 **Applications of bone histomorphometry in bioarchaeology, forensic anthropology, and clinical studies.** H. CHO.

4 **Observer Variability in Identification of Histological Structures in Silver-Stained Bone Thin Sections.** D.C. PINTO, C.M. CROWDER, G.T. PHILLIPS.

5 **Histological indicators of stress.** E. RAGUIN, M.A. STREETER, M.S. DRAPEAU.

6 **You win some, you lose some: variation in bone growth, gain and loss across the skeleton.** P. BEAUCHESNE, S.C. AGARWAL.

7 **Mechanotransduction in bone: lessons from mice.** A. ROBLING.

8 **Distributions of secondary osteon collagen/lamellar morphotypes are important in avoiding stress fractures: A new hypothesis for the etiology of stress fractures.** J.G. SKEDROS.

9 **Fracture Resistance in the Human Rib: Contributions of Cross-Sectional Geometry.** A.M. AGNEW, E. MISICKA, M.M. MURACH, V.M. DOMINGUEZ, T.P. GOCHA.

10 **Longitudinal variation of osteon circularity in three-dimensional reconstructions of Haversian networks.** I. MAGGIANO, C. MAGGIANO, J. CLEMENT, D. THOMAS, D. COOPER.

Session 36: Primate Social Behavior II

Contributed Poster Presentations. Chair: Monica L. Wakefield.

Carondolet.

1 **Visitor effects on Western Lowland Gorillas (*Gorilla gorilla gorilla)*.** A. KIRWEN.

2 **Spatial Organization in Female Bonobos (*Pan paniscus*) Reflects Social Cohesion.** A.J. HICKMOTT, C.M. BRAND, K.J. BOOSE, F.J. WHITE.

3 **Males in uniform: intra-individual pelage color variation is associated with social style in male macaques.** A. VAN HORN, A.N. SPRIGGS, B.C. WILHELM, J.M. KAMILAR, B.J. BRADLEY.

4 **Gorilla Social Dynamics: Only Heterosexual Relationships Impact Long-Term Stress in Captive Western Lowland Gorillas (*Gorilla gorilla gorilla*).** A.N. EDES, B.A. WOLFE, D.E. CREWS.

5 **The Use of Color Cues in Within-group Competition over Food Resources by Tufted Capuchin Monkeys.** A. COLOSIMO, C.J. SCARRY.

6 **Should I stay or should I go? Using Hinde's proximity index to understand changing social relationships in Hylobatid groups as offspring mature.** A.C. SHELDON, G. SKOLLAR.

7 **Group membership, individual identity, and sex encoded in *Saguinus imperator* long calls.** E.E. ROBAKIS, M. WATSA, G. ERKENSWICK.

8 **Methodological Considerations for Measuring Female Chimpanzee Social Relationships.**

M.L. WAKEFIELD, A.J. HICKMOTT, L.M. MEADOR, S.J. AMSLER, K.D. WILD.

9 **Nearly naked apes: A survey of hair plucking among captive bonobos (*Pan paniscus*).** L.F. MARCHANT, C.M. BRAND.

10 **Male Reproductive Strategies in the Context of Female Defense Polygyny: An Agent-Based Model.** K.N. CROUSE, C.M. MILLER.

11 ***Propithecus* as Prey: vigilance and Behavioral Changes in *Propithecus edwardsi* After a Perceived Predator Threat.** A.R. LAMB, P. WRIGHT.

12 **Individual Social Strategies Vary in Relation to Network Position Among Sub-Adult Male Long-Tailed Macaques.** J.V. PETERSON, A. FUENTES.

13 **Oxytocin (OT) and Arginine-Vasopressin (AVP) Cell Bodies and Fibers in the Social Behavioral Neural Network in Rhesus Macaques, Chimpanzees, and Humans.** C. ROGERS, A.P. ROSS, J. DOOYEMA, M. CREE, S.P. SAHU, E. SIEGEL, E.G. STOPA, J.K. RILLING, H.E. ALBERS, L.J. YOUNG, T.M. PREUSS.

Session 37: Human Biology and Genetics II

Contributed Poster Presentations. Chair: Kirsten A. Ziesemer.

Carondolet.

1 **Recovery of ancient DNA from Upper Nubian skeletal remains.** A.M. BREIDENSTEIN, A. BOUWMAN, G.E. ZOELLER, G. EMBERLING, F. RUEHLI, A.W. BIGHAM.

2 **Interpreting the Penutian migration through Genetics: Ancient human DNA analysis from Central California.** F.A. VILLANEA, C. MONROE, R. CAMBRA, A. LEVENTHAL.

3 **Paleogenomic investigations of human remains from Rapa Nui.** L. FEHREN-SCHMITZ, K.M. HARKINS, C.L. JARMAN.

4 **A new method for assessing postmortem DNA damage from ancient remains.** K.M. HARKINS, J.D. KAPP, L. FEHREN-SCHMITZ, R.E. GREEN.

5 **Comparison of Five Different DNA Extraction Methods for Reconstructing Ancient Gut Microbiomes from Coprolites.** R.W. HAGAN, C. HOFMAN, K. REINHARD, K. SANKARANARAYANANN, C. WARINNER.

6 **Comparative Sub-Regional Population Structure within South America using MtDNA and Y-Chromosome DNA.** B.C. HERRERA, M. HUBBE.

7 **Investigating the genetic impacts of Spanish missionization on the Guale of St. Catherines Island, Georgia.** L.C. SPRINGS, C.S. LARSEN, D.H. THOMAS, A.M. SEMON, D.A. BOLNICK.

8 **Genetic Diversity in the Dominican Republic: Implications for the Population and Demographic History of Hispaniola.** E.R. OAKLEY, R. PAULINO-RAMIREZ, B. VEGA, M.G. VILAR, A. MENCIA-RIPLEY, S. GUERRERO-MARTINEZ, A. BENITEZ, T.G. SCHURR.

9 **History of Human Population Diversity Studies in Central America.** N.F. BALDI, R. BARRANTES.

10 **Comparison of southwestern US Hispanic populations to Mexican Hispanic populations using immunoglobulin haplotypes.** M.S. SCHANFIELD.

11 **Insights into the Cahokian Sphere of Influence through Ancient DNA Evidence.** J.L. HARRISON, F.A. KAESTLE.

12 **Y STR Variation in Six Garífuna Villages on the Honduran Coast.** K.G. BEATY, E. HERRERA-PAZ, N. BALDI-SALAS, N. BRACCI, M. MATAMOROS, M.H. CRAWFORD, R. ROY.

13 **The effect of mobility and modernization on co-residence patterns in Batek hunter-**

gatherers: a longitudinal analysis. T.S. KRAFT, V.V. VENKATARAMAN, K.M. ENDICOTT.

14 **Cultural and biological pathways of transmission among post-contact Native Americans on the High Plains.** S.J. LYCETT, N. VON CRAMON-TAUBADEL.

15 **Three-dimensional analysis of facial aging and asymmetry from juvenile to old age.** J. VELEMÍNSKÁ, E. HOFFMANNOVÁ, J. KOUDELOVÁ, J. DUPEJ.

16 **Age-progression and age-regression face modelling in Czech girls from 6 to 15 years based on three-dimensional longitudinal data.** E. HOFFMANNOVA, J. KOUDELOVÁ, J. DUPEJ, J. VELEMÍNSKÁ.

17 **Neonatal hair cortisol in rural Gambian infants.** S. FARDI, S. DRAMMEH, A. DOEL, A.M. PRENTICE, S.E. MOORE, R.M. BERNSTEIN.

18 **Age- and Testosterone-dependent Changes in Facial Asymmetry among Adolescent Bolivian Males and Females.** C.R. HODGES-SIMEON, K.N. HANSON SOBRASKE, K. STEINHILBER, M. GURVEN, S.J. GAULIN.

19 **Postnatal Neuron increase in the Human Amygdala is more Extensive than in other Hominids.** N. BARGER, M.V. VARGAS, T.A. AVINO, K. SEMENDEFERI, C.M. SCHUMANN.

20 **Greater variability in within-section cortical thickness among men relative to women and its effects on the accuracy of periosteally-derived cross-sectional geometry estimates.** A.A. MACINTOSH, C.N. SHAW, T.M. RYAN, J.T. STOCK.

21 **Breast milk macronutrient content in rural West African mothers is impacted by season of infant birth and maternal energy balance.** M.A. GRUCA, S.E. MOORE, M.K. DARBOE, A.M. PRENTICE, R.M. BERNSTEIN.

22 **An Evolutionary Perspective on Elective Cesarean Section.** K.R. ROSENBERG, W.R. TREVATHAN.

23 **Growth and reproduction in adult women: understanding the interactions of evolution and culture in American and rural Brazilian populations.** A.C. RIVARA, S.G. PAIVA.

24 **First case of cd39 β-thalassemia found in a Sardinian man from 2000 years ago.** C. VIGANÒ, G. AKGÜL, F. RÜHLI, A. BOUWMAN.

25 **Whole human genome enrichment on dental calculus.** K.A. ZIESEMER, J. RAMOS MADRIGAL, A.E. MANN, K. SANKARANARAYANAN, C. WARINNER, C. HOFMAN, H. SCHROEDER.

26 **Using Mitogenomes to Understand Dog Population History in the Americas.** K.E. WITT, R.S. MALHI.

27 **The Distribution of CFTR Haplotypes in Brazilian Quilombos as a Consequence of History.** C. CARVALHO GONTIJO, D. MORAES, C.X. DE CARVALHO, E.M. COELHO, C.T. MENDES-JUNIOR, G. FEIJÓ, M. KLAUTAU-GUIMARÃES, S.F. DE OLIVEIRA.

28 **Placentophagy's Effects on Postpartum Maternal Affect, Health, and Recovery.** S.M. YOUNG, L.K. GRYDER, C. CROSS, D. ZAVA, D.W. KIMBALL, D.C. BENYSHEK.

29 **Community Support Buffers Psychosocial Stress in Mothers of Infants.** B.N. EVANS, B.L. TURNER.

Session 38: Functional Anatomy: Ontogeny

Contributed Poster Presentations. Chair: Jacqueline Runestad Connour.

Carondolet.

1 **A 'Hypophysis' to Test: Comparative Aspects of Pituitary Gland Anatomy and its usefulness for Reconstructing Hominin Life History.** A. MCGROSKY, J.M. KAMILAR, S.R. TECOT, G.T. SCHWARTZ.

2 **Functional morphology of the occipital condyles in anthropoids.** A.C. NISHIMURA, P.J. FERNÁNDEZ, J.S. GUERRA, G.A. RUSSO.

3 **A three-dimensional geometric morphometric evaluation of shape variation in the hybrid baboon cranium.** T.B. RITZMAN, C. JAMES, J. ROGERS, R.R. ACKERMANN.

4 **Integration of the Anthropoid Skull: An Ontogenetic Perspective with Insights into Jaw Fusion.** R.P. KNIGGE.

5 **Spandrels and Functional Matrices: the Ontogenetic Basis for Primate Postorbital Septation.** V.B. DELEON, A.L. ROSENBERGER, T.D. SMITH.

6 **Relationship of Turbinal Surface Area and Nasal Cavity Volume in Primates.** M.C. MARTELL, T.D. SMITH, V.B. DELEON.

7 **Energetics of the Nasal cavity: The impact of Total Energy Expenditure on Cranial Airway Morphology.** V.N. MASON, R.S. SCOTT, S. CACHEL.

8 **A novel method for estimating ancestral ontogenetic trajectories of shape change using cercopithecine crania as a test case.** E.A. SIMONS, S.R. FROST, M. SINGLETON.

9 **Variation in osteon size in the cercopithecoid femur and its implications for bone fracture toughness.** S.E. LAD, W. MCGRAW, D.J. DAEGLING.

10 **Cancellous bone density in age-sorted atelines.** J. RUNESTAD CONNOUR, K.M. NIDA, K.E. GLANDER.

11 **Ontogenetic changes in trabecular architecture: A pilot study of chimpanzee (*Pan troglodytes*) manual and pedal elements.** A.J. RAGNI, N. WEBB, W. HARCOURT-SMITH.

12 **Population-level Ontogenetic Variation in *Gorilla* and *Pan*.** J.S. MASSEY, K.P. MCNULTY.

13 **Geometric Morphometrics of the Neonatal Pelvis in Strepsirrhine Primates.** S.M. ZALESKI, T.D. SMITH, J.W. YOUNG, V.B. DELEON.

14 **Ontogeny of Morphological Variation in the Talar Trochlea of *Gorilla*.** L.M. FATICA, K. TURLEY, A. MUDAKIKWA, M.R. CRANFIELD, T.S. STOINSKI, S.C. MCFARLIN, S. ALMÉCIJA.

15 **Skeletal aging in mountain gorillas.** C.B. RUFF, M. BURGESS, A. MUDAKIKWA, S. MCFARLIN.

16 **Trauma, Growth, and Death: An analysis of *Gorilla gorilla* life history from specimens at the Yale University Peabody Museum of Natural History.** R.T. MCRAE, G.P. ARONSEN.

17 **Facial fluctuating asymmetry in wild Virunga mountain gorillas (*Gorilla beringei beringei*).** A.B. ERIKSEN, K. MCGRATH, A. GÓMEZ-ROBLES, L. SCHROEDER, J.S. MASSEY, T.G. BROMAGE, A. MUDAKIKWA, T.S. STOINSKI, M.R. CRANFIELD, M.W. TOCHERI, S.C. MCFARLIN, N. VON CRAMON-TAUBADEL.

18 **Possilbe idiopathic scoliosis in a bonobo.** C.A. KIRCHHOFF, H.S. LLOYD.

19 **Growth of the Catarrhine Ectotympanic Tube.** E.E. FRICANO, V.B. DELEON.

20 **Muscle proportions and body composition in an infant gorilla.** D. BOLTER, C. UNDERWOOD, A. ZIHLMAN.

21 **Middle phalanx morphology reflects postural differences of primate grooming and nail-bearing digits.** S.A. MAIOLINO.

22 **Hyoid Proportions, Growth, and Spatial Placement in Non-Human Primates.** A.S. CUNNINGHAM, T.D. SMITH, V. BURKE DELEON.

Session 39: Primates: Methods and Morphology

Contributed Poster Presentations. Chair: Julia Arias-Martorell.

Carondolet.

1 **A novel approach to anatomical complexity: Random Forest Analysis applied to jaw morphology in Homininae.** J. LAWRENCE, M. SÓSKUTHY.

2 **Correlated Responses to Selection among Elements of the Cranium and Appendicular Skeleton between Large-Bodied and Small-Bodied Tamarins.** E.R. AGOSTO, B.M. AUERBACH.

3 **A macroevolutionary perspective on human gut proportions.** E.K. BOYLE, S. ALMÉCIJA.

4 **A 2D Geometric Morphometric Analysis of Cercopithecoid Mandibular Symphysis Outline Shape: Implications forTtaxonomy and Systematics.** C.M. KIMOCK.

5 **Distinguishing locomotor adaptation of non-human primates and hominoids using ulnar diaphyseal curvature.** C.E. TAYLOR, Y. HAILE-SELASSIE.

6 **Trabecular architecture of the hominoid humerus.** J. ARIAS-MARTORELL, R. DAVENPORT, T.L. KIVELL, M.M. SKINNER.

7 **Brain size as an evolutionary constrain on facial form.** A. PETTIT, B. VILLMOARE.

8 **Evolutionary Implications of Variability and Rates of Change in the Primate Lumbosacral Plexus.** B.M. SHEARER.

9 **Looking beyond Phalangeal Length and Curvature: Functional Correlation between Manual Phalangeal Articular and Collateral Ligamentous Morpohology and Anthropoid Locomotor Adaptations.** K.M. WILES, M.W. TOCHERI, A.S. DEANE.

10 **Combining 3DGM analyses from multiple anatomical regions improves phylogenetic interpretations of phenetic data in Platyrrhini.** J.T. GLADMAN, G.S. YAPUNCICH, S.B. COOKE.

11 **Morphometric analysis of the chimpanzee maxillary and ethmoid sinuses.** S.B. BOREN, D. DURAND.

12 **Testing Hypotheses for the Embryonic Origins of Primate Neocortical Expansion.** A. KRISHNAMURTHY, A.C. HALLEY, T.W. DEACON.

13 **Paleobiogeography of the Colobinae.** S. CARNATION.

14 **Canine Tooth Robusticity mitigates Stress in the Jaw.** Z.S. KLUKKERT.

Session 40: Forensic Anthropology and Bioarchaeology: Collections, Ancestry, and Age at Death

Contributed Poster Presentations. Chair: Kyra Stull.

Carondolet.

1 **The Shallow Biohistory of Recently-acquired Skeletal Material by the Louisiana Department of Justice.** C.L. HALLING, R.M. SEIDEMANN.

2 **Skull shapes, maps and museum collections: Representing modern human cranial variation.** M. FRIESS, M. GALLAND.

3 **Using sociological segregation indices to reintroduce geographical relationships in anatomical skeletal collections.** A.C. ZIMMER.

4 **Humans of Anthropology Teaching Collections: Life-histories of Body Donors.** O. LYSA, K. PECHENKINA.

5 **Are virtual bones, derived from clinical CT scans, a precise source for a virtual skeletal reference database?** K.L. COLMAN, J.G. DOBBE, K.E. STULL, J.M. RUIJTER, R. OOSTRA, R.R. VAN RIJN, A.E. VAN DER MERWE, H.H. DE BOER, G.J. STREEKSTRA.

6 **3D Modeling of Skeletal Remains Using Agisoft Photoscan: Best practices for Field Data Collection.** J.E. KAISER, A.M. DAMARANY.

7 **Documenting Burials and Mortuary Context in the Field using 3D Technology.** T. PARSONS, R.P. HARROD.

8 **3D reconstructions of cortical canal network is an efficient method to differentiate human from animal fragmentary bones.** C. RITTEMARD, O. DUTOUR, H. COQUEUGNIOT.

9 **Three-dimensional Reconstruction of Vascular Pore Networks in the Human Rib from Two-dimensional Serial Sections.** M.E. COLE, S.D. STOUT.

10 **Measuring digit ratios from 2D hand scans versus negative handprints: Implications for archeology.** A.P. GREMBA, C. TORGALSKI, S. WEINBERG.

11 **Teaching Forensics in the Classroom: Considerations for Ancestry Determination in Educational Settings.** A.R. DZUBAK, C. CHEVERKO.

12 **Accuracy Rates of Ancestry Estimation by Forensic Anthropologists Using Identified Forensic Cases.** R.M. THOMAS, C. PARKS, A. RICHARD.

13 **Effect of age on nonmetric cranial traits for sex estimation in subadults and adults.** K.M. LESCIOTTO, L.J. DOERSHUK.

14 **The Effect of Age on Nasal Aperture Shape in Humans.** A. VARVARES, V.B. DELEON.

15 **Understanding (mis)classification trends of Hispanics in Fordisc 3.1: Incorporating cranial morphology, microgeographic origin, and admixture proportions for interpretation.** C.E. HUGHES, B. DUDZIK, B.F. ALGEE-HEWITT.

16 **Estimating ancestry in undocumented migrants along the south Texas border using dental morphological traits: a test of Edgar's method.** C.M. CLEMMONS, M. SPRADLEY, D.J. WESCOTT.

17 **Estimating ancestry of patients from the Colorado State Insane Asylum from 1879-1899 using geometric morphometric software.** R. PEREZ, A.H. ROSS.

18 **Understanding the Degree of Craniometric Variation in South Texas Migrants.** C.P. MCDANELD, T.P. GOCHA, C.C. SIEGERT, R.M. STRAND, L.E. BAKER, M. SPRADLEY.

19 **Cranial growth in six- to eight-year-old humans: comparison of standard metric and 3D coordinate data.** D.E. BECKER, N.A. CASTELLON-HINKLE, L.E. CIRILLO, R.S. JABBOUR, G.D. RICHARDS.

20 **A critical review and classification of juvenile age estimation methods.** L.K. CORRON, F. MARCHAL, S. CONDEMI, P. ADALIAN.

21 **Estimating age at death in subadults from metaphyseal width of lower limb longs bones.** C. ROSSETTI, M. LICATA, G. ARMOCIDA, A. VERZELETTI, A. TOSI.

22 **Left or Right Pubic Symphysis: Asymmetry Analysis of Age-at-Death Estimation Using 3D Laser Scans and Computational Algorithms.** D.K. STOYANOVA, B.F. ALGEE-HEWITT, J. KIM, D.E. SLICE.

23 **Use of the structured light scanner David SLS-2 for recording auricular surface in 3D and implications for age at death assessment.** J. BRŮŽEK, J. DUPEJ, A. KOTĚROVÁ, R. RMOUTILOVÁ, J. VELEMÍNSKÁ.

24 **The effects of epiphyseal fusion asymmetry on juvenile age estimation.** K.E. STULL, L. CORRON.

25 **Estimation of ancestry in non-adults.** A.L. SZEN.

26 **Cortical Thickness as a Supplement to Osteon Population Density to Estimate Age at Death.** T.P. GOCHA, M.M. MURACH, A.M. AGNEW.

27 **A retrospective study of age estimation method performance on positively identified forensic cases.** C.C. CATALDO-RAMIREZ, M.J. RUE, H.M. GARVIN.

28 **Skeletal Midshaft Diameters as Estimators of Age at Death in Subadults.** M.T. KETCHUM, S. NAWROCKI.

29 **Quantitative assessment of age-related topographic changes in the pubic symphysis.** M.K. STOCK, P.E. MORSE, C. VILLA.

30 **A Test of Fazekas and Kósa (1978) Fetal Aging Standards using Ultrasound Data.** J.A. CONLEY, S. OUSLEY.

31 **The effect of pathology on bone microstructure: implications for histological age estimation.**

C.E. LILL, J.G. GARCIA-DONAS, R.R. PAINE, B. XHEMALI, E.F. KRANIOTI.

32 **Histological age estimation on two Mediterranean Populations:A validation study of four existing methodologies.** J. GARCÍA-DONAS, A.R. SCHOLL, A. DALTON, R.R. PAINE, E.F. KRANIOTI.

33 **Revised Transition Analysis: Validation on a Historical Sample and the First Archaeological Application of the New Procedure.** S.M. GETZ, G.R. MILNER, J.L. BOLDSEN.

34 **Data standardization in anthropology: Curation and access.** A.E. KENDELL, N.L. GESKE.

35 **Data standardization in anthropology: methods and best practice.** N.L. GESKE, A.E. KENDELL.

36 **Experiences in the application and attendance of human skeletal biology graduate programs.** N.V. PASSALACQUA, H.M. GARVIN.

37 **Application and Accuracy of 3D Scanned Postcranial Bones.** V. HARRINGTON, H. MCKILLOP.

38 **A quantitative analysis of iodine stained CT (DiceCT) measurements in physical and digital dissection.** J. LEVY, P.J. LEWIS, A. HARTSTONE-ROSE.

39 **The Statistics of Tiny Samples: The Utility of ACTUS, an Alternative Method of Contingency Table Analysis Using Simulation, in Human Skeletal Biology.** V.H. ESTABROOK, D.A. PROSSER.

40 **Big Classes, Small Budgets, and Osteometric Lab Equipment: Is cost Commensurate with Quality?** L.L. TAYLOR, M. FARALDO, G.A. CARDENAS.

41 **Cortical Bone Dynamics and Skeletal Age at Death Assessed from Human Femoral Cortical Histomorphology.** R.A. WALKER.

42 **Trabecular Bone Morphometrics: A Methodological Appraisal of Software Applications.** N.M. WEBB, Y. HU, X. GUO.

43 **Dental Crown Morphological Variation at the Boothill Burial Ground: Ancestry Estimation Using rASUDAS.** J.D. SYKES, K.A. VEROSTICK, E.H. KIMMERLE, J. BETHARD.

44 **Alternative instrument bags: assessing the accuracy and precision of the iGaging 8" Digital Outside Calipers.** J.M. BERGER, K.E. FAILLACE.

Friday, Afternoon sessions.

Session 41: Beyond Visibility: How Academic Diversity is Transforming Scientific Knowledge

Invited Podium Symposium. Chair: Deborah A. Bolnick, Rick W.A. Smith.

Co-organizers: Deborah A. Bolnick, University of Texas at Austin.

Balcony I/J.

In recent years the field of biological anthropology and the AAPA have taken center stage in national debates concerning sexual harassment, the need for greater integrity and safety in the field and workplace, and sex and gender equality in the sciences. The AAPA has also seen unprecedented efforts to increase diversity in the discipline, including the Committee on Diversity's Undergraduate Symposium, the Increasing Diversity in Evolutionary Anthropological Sciences (IDEAS) workshop, and the formation of the GAYAPA interest group, among others. These developments have been important for increasing the inclusion of underrepresented groups in science and are crucial to broadening access and increasing justice within biological anthropology. However, while strides have been made towards improving visibility for underrepresented groups and their concerns in the field, less consideration has been given to the

intellectual contributions that diversification brings. Such diversity includes new kinds of questions and theoretical perspectives, new approaches to research design and ethics, new insights and interpretations of data — leading to the production of new knowledge within biological anthropology and the sciences more generally. In this symposium we draw on the voices and insights of scholars from within biological anthropology and beyond to highlight how scientists from diverse backgrounds are producing new kinds of knowledge about humans and non-humans, the connections between bodies, biology, and culture, and the politics and practice of science. We show that diversity is not just a question of visibility and representation; it is also about making a new and vital science together. This session will explore how our collective efforts to change "who we are" also involves expanding and reconstituting "what we know".

2:30 **Alterity and Anthropometrics: Blackness, Vulnerability, and Post-Colonial Identities in Biological Anthropology.** R.G. NELSON.

2:45 **Land of Milk and Honey: Infiltrating Academia to Pursue Overlooked Topics.** K. HINDE.

3:00 **Belief(s), Identity, and Experience: Navigating Multiple Influences on Knowing in Biological Anthropology.** A. FUENTES.

3:15 **How subjectivity strengthens research: Developing new approaches to anthropological genetics in the Pacific Northwest.** A.C. BADER, R.S. MALHI.

3:30 **Marginal perspectives within hegemonic spaces: the marronage of genomic technologies.** J. BENN TORRES.

3:45 **Undisciplining Desire: Bisexual and Queer Approaches to Science.** S.M. ARCHER, T. VILLASEÑOR-MARCHAL, R.W. SMITH.

4:00 **The Coloniality of Philosophies of Biology.** S. MCLEAN.

4:15 **Dead end evolutionary lineage, says the White man: the evolution of *Homo erectus* and *Homo sapiens* in Asia.** S.G. ATHREYA.

4:30 **Queer developments: LGBTQIA perspectives on ontogeny, growth and development, and ranges of variation in human and nonhuman primates.** C.A. SCHMITT, C.M. ASTORINO, S.L. MEREDITH.

4:45 **How social justice perspectives expose hidden exclusions in science.** D.N. LEE, K.B. CLANCY.

5:00 **Minority Rules: Social Capital, Scientific Obligations, and the Struggle to Decolonize Biological Anthropology.** V.R. PÉREZ.

5:15 **Discussant: Alan H. Goodman.**

5:30 **Discussant: Kim TallBear.**

Session 42: Signals in Evolutionary and Ecological Context

Invited Podium Symposium. Chair: Michael P. Muehlenbein.

Bissonet.

Evolutionary signals are hypothesized to represent phenotypic traits that influence the behaviors of others. These signals develop through the mechanisms of natural and sexual selections, resulting from complex interactions between individuals within a variety of ecological contexts. Such traits have been studied extensively in a variety of taxa, with much recent work in human and nonhuman primates. The present symposium includes new and established experts in human and nonhuman primate signaling systems to review the present state of research on evolutionary signals in a variety of species across the order Primates (including humans, macaques, lemurs, and others). Drawing from concepts in sexual selection and life history theory, and a growing body of both field and laboratory observations and experiments, these presentations include discussion on skin and hair coloration, sexual swellings, pheromones, body and face size and shape,

vocalizations, physiological performance, and even religious rituals and parenting behaviors as signals. Discussion is focused primarily within the context of mate selection (signaling between the sexes), although social status (signaling within the sexes) is also considered. The potential costs behind these 'viability-indicators' are reviewed, especially the immunological and physiological correlates of coloration and other physical traits.

2:30 **Co-evolution of Male and Female Primate Sexual Signals, the Example of Crested Macaques.** A. ENGELHARDT.

2:45 **Variation in Lemur Color Vision across Species, Populations and Habitats: Implications for Signal Evolution.** R.L. JACOBS, T.S. MACFIE, J.M. KAMILAR, A.N. SPRIGGS, A.L. BADEN, T.L. MORELLI, M.T. IRWIN, R.R. LAWLER, J. PASTORINI, M. MAYOR, M.L. SAUTHER, R. LEI, R. CULLIGAN, M.T. HAWKINS, P.M. KAPPELER, P.C. WRIGHT, E.E. LOUIS JR, N.I. MUNDY, B.J. BRADLEY.

3:00 **Female and male rhesus macaque red skin coloration in evolutionary context.** C. DUBUC, J.P. HIGHAM.

3:15 **Is primate sexual coloration an accurate indicator of immune functions?** M.P. MUEHLENBEIN, S.P. PRALL, E.C. SHATTUCK, C.S. SPARKS, K.C. BAKER.

3:30 **How selection shapes primate major histocompatibility complex polymorphism.** L.A. KNAPP.

3:45 **Condition-dependent scent signals in strepsirrhine primates.** C.M. DREA.

4:00 **Are sexual swellings reliable indicators?** C.L. FITZPATRICK, J. ALTMANN, S.C. ALBERTS.

4:15 **Are human voices honest signals of condition?** D.A. PUTS.

4:30 **Sizing up Strangers: Sexual Selection and Vocal Signals in Male Geladas (*Theropithecus gelada)*.** M.E. BENÍTEZ, T.J. BERGMAN, J.C. BEEHNER.

4:45 **Cardiovascular fitness as a signal of reproductive potential.** D. LONGMAN, J.C. WELLS, M.K. SURBEY, J.T. STOCK.

5:00 **Evidence for specialized processing of facial kinship cues.** L.M. DEBRUINE, E. TURNER, R. GORDON, B.C. JONES.

5:15 **What does women's facial attractiveness cue?** B.C. JONES, A.C. HAHN, C.I. FISHER, M. KANDRIK, H. WANG, C. HAN, L.M. DEBRUINE.

5:30 **Behaviors, Badges, Bans, and Babies: Religious Commitment Signaling and Unwed Motherhood in American Samoa.** C.D. LYNN, M.E. HOWELLS.

5:45 **Signaling human fathering potential.** P.B. GRAY.

6:00 **Discussant: Jo Setchell.**

Session 43: Human Skeletal Biology: Mobility, Isotopes, Diet

Contributed Podium Presentations. Chair: Bethany L. Turner.

Studio 1/2/3.

2:30 **Mobility and trabecular bone variation in the human foot.** J.P. SAERS, C.N. SHAW, T.M. RYAN, J.T. STOCK.

2:45 **Foot Muscle Size and Longitudinal Arch Biomechanics in a Minimally Shod, Non-industrial Human Population.** N.B. HOLOWKA, E.F. KOCH, M. RUIZ, I.J. WALLACE, D.E. LIEBERMAN.

3:00 **Femoral metaphyseal morphology as a predictor of locomotor behavior.** P.A. STAMOS, Z. ALEMSEGED, A.J. CHAUDHARI, T.D. WEAVER.

3:15 **Horticultural activity predicts later localized limb status in a contemporary pre-industrial population.** J. STIEGLITZ, B. TRUMBLE, H. KAPLAN, M. GURVEN.

3:30 **Roving Romans: Biomechanical and Fracture Evidence for Sex-related, Intensified Mobility at Vagnari, Italy.** R.J. GILMOUR, T.L. PROWSE, E. JURRIAANS, M.B. BRICKLEY.

3:45 **Paleomobility in the 5th century Mediterranean: Oxygen isotope analysis of soldiers from the Battles of Himera (480 BCE, 409 BCE).** K.L. REINBERGER, B. KYLE, P. FABBRI, S. VASSALLO, L.J. REITSEMA.

4:00 **Subsistence and mobility at Hellenistic New Halos, Greece: as reconstructed from stable carbon, nitrogen, oxygen and strontium isotope analysis.** H.A. SPARKES, S. GARVIE-LOK, M. HAAGSMA.

4:15 **Utilizing Isotope Analysis to Assess the Origins of Axis Combatants from World War II.** K.E. KOLPAN, I. HANSON, G. KAMENOV, J. KRIGBAUM.

4:30 **Early Spanish Colonialism in Northern Guatemala: Identifying Itza Mayas at the Mission San Bernabé using Strontium, Carbon, and Oxygen Isotope Assays and Biodistance Analyses.** C. FREIWALD, K. MILLER WOLF.

4:45 **Assessing Demographic Change From the Iron Age (7th – 4th c. B.C.E) through the Roman Period (1st – 3rd c. C.E.) in Southern Italy Using Isotope and Whole-Mitochondrial Genome Analysis.** M.V. EMERY, A.T. DUGGAN, H.P. SCHWARCZ, H.N. POINAR, T.L. PROWSE.

5:00 **Gender, ethnicity, and diet in the Late Intermediate Period, Colca Valley, Peru: A study of carbon and nitrogen isotope ratios from bone collagen.** M.C. VELASCO, T.A. TUNG.

5:15 **Isotopic analysis of pre-Columbian Groups from the Brazilian coast.** M.Q. BASTOS, A. LESSA, R.V. SANTOS, C. RODRIGUES-CARVALHO.

5:30 **Spanish Colonial Impacts on Foodways and Diet in the Zaña Valley of Peru: A Multi-Isotopic Reconstruction.** B.L. TURNER, P. VANVALKENBURGH, B.J. SCHAEFER.

5:45 **Stable Isotope Evidence for Salmon Consumption in the Prehistoric Sacramento Valley of California.** E.J. BARTELINK, J. NELSON, D. FURLONG, S. KLINE, J. PRINCE-BUITENHUYS, A. MACKINNON, F. BAYHAM.

6:00 **Biological continuity over the transition to food production in Eastern Africa: human dental evidence from early pastoralists.** E. SAWCHUK.

Session 44: Primate Genetics and Adaptation

Contributed Podium Presentations. Chair: C. Eduardo Amorim.

Studio 7/8/9.

2:30 **An unsteady molecular clock in primates.** P. MOORJANI*, C.G. AMORIM*, P. ARNDT, M. PRZEWORSKI.

2:45 **Population genomics disentangles taxonomic relationships and identifies ancient hybridization in the genus *Chlorocebus*.** H. SVARDAL, A. JASINSKA, C.A. SCHMITT, Y. HUANG, G. WEINSTOCK, J.P. GROBLER, R.K. WILSON, W.C. WARREN, N.B. FREIMER, M. NORDBERG, T.R. TURNER.

3:00 **Tarsier Phylogenetic Inference using Museum Skin Samples.** L.C. MATTHEWS.

3:15 **Chimpanzees of the past: Full mitochondrial genomes from *Pan troglodytes schweinfurthii* skeletons from Gombe National Park.** A.T. OZGA, M.A. NIEVES-COLON, R. NOCKERTS, M.L. WILSON, I.C. GILBY, A. PUSEY, A.C. STONE.

3:30 **Evidence of frequent hybridization in guenons (tribe Cercopithecini) from phylogeny with genome-wide markers.** C.M. BERGEY, A.S. BURRELL, A.J. TOSI.

3:45 **Two-Way Anthropogenic Hybridization between Invasive *Callithrix jacchus* and *C. penicillata* with Endemic *C. aurita*: A Threat to Marmoset Conservation.** R.S. CARVALHO, J. MALUKIEWICZ, A.M. OLIVEIRA, D.G. PEREIRA, S. LOIOLA, E.F. CARVALHO, D.A. SILVA, H.G. BERGALLO.

4:00 **A phylogeny of the *CHIA* gene in the context of insectivory.** M.C. JANIAK, M.E. CHANEY, A.J. TOSI.

4:15 **An Integrative Approach for Evaluating Rhesus Macaque Social Behavior: Whole Genome Sequencing Reveals Molecular Variation in a Suite of Neuroreceptors.** M.J. MONTAGUE, N. SNYDER-MACKLER, S. MADLON-KAY, K.K. WATSON, L.J. BRENT, J.H. SKENE, J.E. HORVATH, M.L. PLATT.

4:30 **An Evolutionary Perspective on the Contribution of Serotonergic Genetics to Health: Lessons from Rhesus Macaques.** S.M. LARSON, A. RUIZ-LAMBIDES, J. HORVATH, A. ROBINSON, P. SKENE, M.L. PLATT, L.J. BRENT.

4:45 **Mechanisms of convergent testis transcriptome evolution in primates.** E. SAGLICAN, M. DONERTAS, R. ROHLFS, E. OZKURT, H. HU, R. NEME, B. ERDEM, P. KHAITOVICH, M. SOMEL.

5:00 **Relationship between Reproductive status and Gut Microbial Community Composition in White-faced Capuchins (*Cebus capucinus*).** E.K. MALLOTT, P.A. GARBER, R.S. MALHI, K.R. AMATO.

5:15 **Evidence for elevated diversity in genes linked to facial diversity in apes supports the hypothesis that individual facial recognition is important across hominoids.** M.E. STEIPER, N.T. GRUBE, C.M. GAGNON.

5:30 **Genomic basis for fatal *Toxoplasma gondii* infection in primates.** Y. SUAREZ, S. GUNASEKERA, N. VALIZADEGAN, K. VAN ETTEN, W.H. WITOLA, J. LINDE, J.F. BRINKWORTH.

5:45 **Genomic analyses of *Mycobacterium leprae* strains from naturally infected nonhuman primates.** T.P. HONAP, L. PFISTER, A.C. STONE.

Session 45: The Evolution of Form and Function in the Hominin Pelvis

Invited Poster Symposium. Chair: Karen L. Baab, Ashley S. Hammond, Matthew O'Neill.

Co-organizers: Hammond, Ashley (Department of Anthropology / CASHP, George Washington University), O'Neill, Matthew C. (Department of Basic Medical Sciences, University of Arizona College of Medicine - Phoenix).

Balcony K.

The pelvis conveys information about ape and hominin paleobiology, including phylogenetic history, body size and shape, development and locomotor capabilities. The past decade has seen a rapid increase in the number of hominin fossil pelvic remains, which has expanded our knowledge about pelvis evolution, while simultaneously raising many new and important questions. This new material has led researchers to reconsider long-standing ideas about the *Pan-Homo* last common ancestor, the earliest hominins and the origins of bipedalism (*Ardipithecus ramidus*), raised new questions about locomotor capabilities in australopiths and early *Homo* (e.g. *Australopithecus sediba*), and ignited new debates about size, shape and adaptation in *Homo erectus* (Gona pelvis). Recent work has also highlighted both stasis and mosaicism in pelvis evolution during the last 500,000 years of hominin evolution (*H. floresiensis*, mid-Pleistocene *Homo*), and has generated new ideas about the relative role of neutral genetic evolution and climate-driven selection in shaping modern human pelvic variation. This symposium will explore how integrative methodologies and new data can address questions presented by the more complete paleontological record for the pelvis. Contributors use methods as diverse as functional genomics, experimental biomechanics, musculoskeletal modeling, 3D morphometrics, comparative analyses and population genetics to explore morphological variation and the underlying factors driving this variation. A particular focus will be paid to pelvic remains described in the past decade. This

symposium brings together diverse analytical approaches to better trace the key modifications in pelvis size and shape throughout hominin evolution, as well as provide new insights into the functional implications of these modifications.

3:00 **Individual poster presentations and discussion led by Carol V. Ward.**

1 **The evolution of the human pelvis: A developmental genetics and functional genomics perspective.** M. YOUNG, E. JAGODA, H. DINGWALL, T.D. CAPELLINI.

2 **Developmental Perspectives on the Hominid Sacroiliac Complex.** A.L. MACHNICKI, L.B. SPURLOCK, S.M. HRYCAJ, D.M. WELLIK, C. LOVEJOY, P.L. RENO.

3 **Pelvic height, lumbar entrapment, and their effects on upper body stability during bipedalism.** N.E. THOMPSON, M.C. O'NEILL, B. DEMES.

4 **Pelvis shape, lumbar column length and the origin of the hominin walking stride.** M.C. O'NEILL, N. OGIHARA, M. NAKATSUKASA, B. DEMES, N.E. THOMPSON, B.R. UMBERGER.

5 **Mechanics of Hip Extension Characterize Arboreal-Terrestrial Trade-offs in Hominin Evolution.** E.E. KOZMA, N.M. WEBB, W.E. HARCOURT-SMITH, D.A. RAICHLEN, K. D'AOÛT, M.H. BROWN, E. FINESTONE, S.R. ROSS, P. AERTS, H. PONTZER.

6 **Defining Lateral Iliac Flare in Hominins.** C. VANSICKLE.

7 **Functional analysis of lower ilium shape and robusticity in Plio-Pleistocene hominins.** K.L. LEWTON.

8 **The functional significance of iliac buttressing in the genus *Homo*.** S.E. CHURCHILL.

9 **Comparative Morphometric Analysis and Digital Reconstruction of the *Homo floresiensis* Pelvis.** K.L. BAAB, M.C. O'NEILL, A.S. HAMMOND, W.L. JUNGERS.

10 **The middle Pleistocene human pelvis: a comparison across Eurasia.** A. BONMATÍ, K. ROSENBERG, J. ARSUAGA, L. ZUNÉ.

11 **Omo-Kibish pelvic morphology and implications for body form in the earliest modern humans.** A.S. HAMMOND, D.F. ROYER, J.G. FLEAGLE.

12 **Modern Variation in the Shape of the Birth Canal and the Effects of Climate and Population History.** L. BETTI, A. MANICA.

Session 46: The Axial Skeleton: Morphology, Function, and Pathology of the Spine and Thorax in Hominoid Evolution

Invited Poster Symposium. Chair: Ella Been, Alon Barash.

Co-organizers: Been, Ella (Ono Academic College, Tel Aviv University), Barash, Alon (Bar Ilan University)..

Studio 4/5.

The vertebral spine and the thorax are vital for existence. Their main role is to protect the spinal cord, the cardiovascular and respiratory systems as well as parts of the digestive tract. The axial skeleton with its muscles and joints provides stability for the attachment of the head and limbs and at the same time enables the mobility required for breathing and for locomotion. Despite its great importance the axial skeleton is often over looked by researchers mostly because: a) vertebrae and ribs are fragile in nature, which makes their fossilization a rare event; b) they are metameric (seriated and repeated elements) that make their anatomical determination and thus, their subsequent study difficult; and c) the plethora of bones and joints involved in every movement or function of the axial skeleton makes the reconstruction of posture, breathing mechanics and locomotion extremely difficult. It is well established that the axial skeleton has changed dramatically during human evolution. Spinal curvatures, spinal load transmission and thoracic

shape of bipedal humans are derived among hominoids. Yet, there are many debates as too how and when these changes occurred and what their functional and pathological implications are. In recent years, renewed interest arose in the axial skeleton. New and exciting findings mostly from Europe and Africa as well as new methods for reconstructing the spine and thorax have been introduced to the research community. Gait analysis of primates also adds to our understanding of the axial skeleton. This symposium explores the new models and new data, including recent fossil, morphological, biomechanical, and theoretical advances regarding the axial skeleton.

3:00 **Individual poster presentations.**

5:00 **Discussants: Liza J. Shapiro and Ella Been.**

1 **Intraspecific variation in hominoid vertebral morphology: effects of column position and locomotor adaptation.** L.J. SHAPIRO, A.D. KEMP.

2 **Total numbers of vertebrae clarify the ancestral vertebral formula of African apes and humans.** S.A. WILLIAMS, D. PILBEAM.

3 **The Evolution of Foramen Magnum Position and Orientation in Anthropoids.** G.A. RUSSO, E. KIRK, J.S. GUERRA, J.B. SMAERS.

4 **Functional inferences from vertebral morphology and torso shape in anthropoids.** E.R. MIDDLETON, C.V. WARD.

5 **A comparative and ontogenetic analysis of zygapophyseal facets along the thoracolumbar transition in apes and humans.** T.K. NALLEY, J. WOOD, C.V. WARD.

6 **How did early hominins hold their heads? New evidence on head posture from the australopith cervical spine.** M.R. MEYER, S.A. WILLIAMS.

7 **Geometric morphometrics of hominoid thoraces and its bearing for reconstructing the ribcage of *H. naledi*.** M. BASTIR, D. GARCÍA-MARTÍNEZ, S.A. WILLIAMS, M.R. MEYER, S. NALLA, P. SCHMID, A. BARASH, M. OISHI, N. OGIHARA, S.E. CHURCHILL, J. HAWKS, L.R. BERGER.

8 **The vertebral column of the Gran Dolina-TD6 and Sima de los Huesos hominins: new remains and new results.** A. GÓMEZ-OLIVENCIA, J. ARSUAGA, J. BERMÚDEZ DE CASTRO, E. CARBONELL.

9 **The vertebral column of La Chapelle-aux Saints: the evidence of spinal osteoarthritis for Neanderthal spinal curvature.** M. HAEUSLER, C. FORNAI, N. FRATER, N. BONNEAU.

10 **Reconstruction of the spinal curvatures in hominins, where do we stand?** E. BEEN, A. GÓMEZ-OLIVENCIA, A. BARASH.

11 **Lordosis variability and shock attenuation in the hominin lumbar spine.** E.R. CASTILLO, D.E. LIEBERMAN.

12 **Sexual dimorphism of lumbar lordosis: a case for joint laxity.** J.F. BAILEY, E. BEEN, P.A. KRAMER.

13 **Bilateral Variation in Human Lumbar Zygapophyses.** K. WHITCOME.

Session 47: Biological Investigations of Nomads: Developments and Innovations

Invited Poster Symposium. Chair: Selin E. Nugent, Mark Hubbe.

Co-organizers: Selin E. Nugent, The Ohio State University, Mark Hubbe, The Ohio State University.

Studio 6.

Nomadic people have historically been marginalized when compared to more sedentary populations. Nomads were frequently represented at the periphery of major developments in

human history, such as cities, states, and empires, while present-day nomads face political and economic pressures that threaten their mobile lifestyles. However, mobility has characterized the vast majority of our history as a species, thus understanding the nature of nomadic lifestyles and their relationships with other populations, and to their environment has significant implications for both the study of our past as well as understanding of modern human variation. Because mobile lifestyles leave distinct marks on the human body that may not be noticeable in material or social contexts, biological anthropology through bioarchaeology and human biology is well positioned to broaden our understanding of the complexities of nomadic populations and their dynamic relationships to sedentary populations. This has become especially true when seen through the lenses of the innovative and constantly developing applications of isotopic, genetic, morphological, and biocultural analyses. The objective of this session is to unite scholars in biological anthropology studying both ancient and extant nomadic populations to present novel methods and analyses that highlight the utility of biological perspectives in elucidating the lives of mobile people. Our goal is to facilitate the exchange and development of innovative and interdisciplinary approaches that will help bring nomads out of the shadows of their sedentary counterparts and promote understanding of their lives to better serve their needs in the present.

5:00 **Discussant: William R. Leonard.**

1 **Socio-cultural influences on genetic variation in nomadic populations of northern Eurasia.** T.G. SCHURR.

2 **Identifying the effects of diverse ecological and biological variability in Bronze-Iron Age Inner Asian steppe populations.** M. MACHICEK, J.T. ENG.

3 **Intra-tooth Isotopic Variation and Implications for Reconstructing Seasonal Diet and Mobility in Ancient Nomadic Populations.** S.E. NUGENT.

4 **Moving across the desert: Investigating the remains of travelers who died traversing the Chilean Atacama.** C. TORRES-ROUFF, W.J. PESTLE, G. PIMENTEL, K.J. KNUDSON.

5 **Mobility patterns among pre-historic shell-mound builder populations from coastal Brazil.** M. HUBBE, C. CHEVERKO, M. OKUMURA, W.A. NEVES.

6 **Limb biomechanics and terrestrial mobility among Pleistocene and Holocene foragers and herders in northern, eastern, and southern Africa.** M.E. CAMERON, J.T. STOCK.

7 **Global Environmental Change: Effects on East African Pastoral Mobility and Biology.** K. GALVIN, T. BEETON.

Session 48: Primate Cognition and Ecology

Contributed Poster Presentations. Chair: Colin M. Brand.

Carondolet.

1 **Examining Heavy Metal Concentrations in Hair of South African Vervet monkey (*Chlorocebus pygerythrus*) to access Anthropogenic Impacts.** A.E. LEWIS, J.E. LOUDON, J.E. PENDER, J.C. ANDREWS, M.E. HOWELLS, J.P. GROBLER, T.R. TURNER.

2 **Evidence for Euclidean maps in wild western gorillas (*Gorilla gorilla*).** R. SALMI, A. PRESOTTO, D.M. DORAN-SHEEHY.

3 **Collective-Decision Making and Social Foraging Behavior in White-Faced Capuchins (*Cebus capucinus*).** G.H. DAVIS, M.C. CROFOOT.

4 **Quantifying Countershading in *Eulemur* Using Eigencoats.** A.N. SPRIGGS, B.J. BRADLEY, J.M. KAMILAR, A.D. GORDON.

5 **Evidence for handedness in termite fishing among Gombe chimpanzees.** M. FERRY, L.F. MARCHANT, R.C. O'MALLEY.

6 **The Effects of Age and Sex on Long-term Spatial Memory.** M.D. GONZALEZ, M. JANAL, R. WOLK, E. CUNNINGHAM.

7 **Extractive foraging in wild Tana River Mangabeys, *Cercocebus galeritus*: Implication of Different Physical Properties of Foods. Stanislaus M. Kivai[1], Erin R. Vogel[1], Jessica M. Rothman, J.[2] Charles M. Kivasu[3] and Ryne A. Palombit[1] [1,3]Department of Anthropology & Center for Human Evolutionary Studies, Rutgers, The State University of New Jersey, USA, [2]Department of Anthropology, Hunter College of the City University of New York, USA, [3]Institute of Primate Research, Department of Conservation Biology, Kenya.** S.M. KIVAI.

8 **Preliminary results of a vocal self-recognition test in northern white-cheeked gibbons (*Nomascus leucogenys*).** J. D'AGOSTINO, C. PASETTA, U. REICHARD.

9 **Bonobos Exhibit Higher Connectivity in the Ventral Anterior Cingulate Cortex Relative to Chimpanzees.** H.A. ISSA, N. STAES, J.P. TAGLIALATELA, C.D. STIMPSON, W.D. HOPKINS, C.C. SHERWOOD.

10 **Sleep tree use by emperor and saddleback tamarins during the dry season: A test of food resource exploitation as a driving factor.** M. DE VRIES, M. WATSA, G. ERKENSWICK.

11 **Crossing Structure Design and Effectiveness for Primate Conservation.** I.J. BROCK, L.E. GOTUACO, C.M. BRAND, U.S. STREICHER, L.R. ULIBARRI.

12 **Long-term spatial memory in *Eulemurs* and effects of learning schedules.** R. WOLK.

Session 49: Human Biology and Genetics III

Contributed Poster Presentations. Chair: Theresa E. Gildner.

Carondolet.

1 **A Woman's World: Rate of Morphological Dilemmas in Romano-British Childbirth.** C. MCGOVERN.

2 **Patterns of mtDNA Diversity in Central Asia Reveal a Complex Population History.** B.M. CHRISTY.

3 **Whole Mitochondrial Genomes Reveal the Maternal Origin of the Bronze Age Xiabandi Population in Xinjiang, Northwest China.** C. NING, Y. CUI.

4 **Characterizing blood composition in mothers and newborns: Implications for epigenetic studies.** C. HSIAO, N.C. RODNEY, J. QUINLAN, C.J. MULLIGAN.

5 **Human Settlement History of Papua New Guinea Highland Populations.** M. LI, K. DEROSA, H. MANN, A. ROOME, S. SCHUTTA, D. CASTELLANOS, S. BENDER, J. ECHARD, K. CASEY, M. SHAMOON-POUR, K. GOWEN, R. SPATHIS, R. GARRUTO, K. LUM.

6 **One Generation Evolutionary Signal from Human Whole-exome Sequencing Data.** T. FERREIRA DE ALMEIDA, D. VICENSOTTO BERNARDO, M.R. SANTOS PASSOS-BUENO.

7 **New Problems with an Old Idea: Is Human Genetic Variation really Clinally Distributed?** J.A. HODGSON.

8 **Simulating effect of starting configuration on diversity in the context of range expansion.** N.J. ANGAL, C.R. TILLQUIST.

9 **Genome variation across the Bantu to Nilo-Saharan linguistic boundary in Uganda.** R.L. RAAUM, D. ISABIRYE.

10 **MtDNA analysis reveals presence of ancestral lineages between coastal and highland populations in Papua New Guinea.** K.L. DEROSA, M. LI, H. MANN, S. SCHUTTA, A. ROOME, W. GUO, D. CASTELLANOS, S. BENDER, J. ECHART, K. CASEY, M. SHAMOON-POUR, H. DULIN, R. SPATHIS, R.M. GARRUTO, J. LUM.

11 **Genetic variation of southern Africa hunter-gatherers and the impact of admixture with farming and pastoralist populations.** M. VICENTE, P. EBBESEN, M. JAKOBSSON, C. SCHLEBUSCH.

12 **Human races are not the same as dog breeds: Dismantling a powerful popular metaphor as an educational exercise.** H. DUNSWORTH, A. BIGHAM, H. NORTON, L. PEARSON, E. QUILLEN.

13 **Documenting the Changing Reproductive Landscape among Shuar Females from Amazonian Ecuador.** F.C. MADIMENOS, M.A. LIEBERT, S.S. URLACHER, T.J. CEPON-ROBINS, T.E. GILDNER, C.J. HARRINGTON, J. SNODGRASS, L.S. SUGIYAMA.

14 **Associations between testosterone levels and parasite load: Testing life history tradeoffs among indigenous Shuar men from Amazonian Ecuador.** T.E. GILDNER, M.A. LIEBERT, T.J. CEPON-ROBINS, R.G. BRIBIESCAS, S.S. URLACHER, J.M. SHROCK, C.J. HARRINGTON, F.C. MADIMENOS, L.S. SUGIYAMA, J. SNODGRASS.

15 **Relations of hot flash severity, stress and socioeconomic status among Mayan and non-Mayan women in Campeche, Mexico.** D.E. BROWN, L.L. SIEVERT, L. HUICOCHEA GOMEZ, D. CAHUICH CAMPOS.

16 **Does menstrual phase affect the relationships between catecholamines and perceived environmental stress?** G.D. JAMES.

17 **Evidence of Coastal New Guinea Population Geneflow and Implications for the Southern and East Asian Migration Route Hypotheses.** S. RAGSDALE, H. MARSH.

18 **A Study of Structural Variants in Ancient Genomes and their Introgression into Modern Humans.** S. RESENDEZ, D. XU, J. BRADLEY, O. GOKCUMEN.

19 **Modeling the Effects of Multiple Transmission Pathways on the Spread of Enteric Pathogens.** J. DIMKA, J. TROSTLE, J.N. EISENBERG.

20 **Sex-related Connectivity Differences in the LSCN.** I.D. GEORGE, K. ALDRIDGE.

21 **Human sickness behavior not expressed in response to the rabies vaccine.** E.C. SHATTUCK, M.P. MUEHLENBEIN.

22 **Sex Ratio Imbalance affects Marriage and Reproductive Decisions among Pumé Hunter-Gatherers.** K.L. KRAMER, R. SCHACHT, R.D. GREAVES, A.V. BELL.

23 **Early Life Influences on Dual-Hormone Output in Fathers When Playing With Their Children.** M.S. SARMA, S. BECHAYDA, L.T. GETTLER.

24 **Variation in dietary intake and DNA methylation: The possibility of a remnant thrifty epigenotype in populations remaining at risk for seasonal food shortages.** M. MOSHER, A.J. WILLIAMS.

25 **Maternal environment and the composition of breast milk immune proteins in mothers from urban and rural Poland.** L.D. KLEIN, E. GOONATILLEKE, A. GALBARCZYK, A. KOTLINSKA, C. LEBRILLA, G. JASIENSKA, K. HINDE.

26 **Skewed Pattern of X Chromosome Inactivation in Brazilian Women.** S.F. OLIVEIRA, D.L. BRANDÃO, A. PIC-TAYLOR, J.F. ARAÚJO.

27 **Central Asian Turkic and Indo-Iranian Genetic, Linguistic, and Geographic Differentiation.** A.G. KITTOE, F. MANNI, É. HEYER, P. MENNECIER.

28 **Men's status and reproductive success in 33 non-industrial societies: effects of subsistence, marriage system, and reproductive strategy.** C.R. VON RUEDEN, A.V. JAEGGI.

29 **Dating Behaviors and Attitudes among Single Parents in the U.S.** C.Y. FRANCO, P.B. GRAY, J.R. GARCIA, A.N. GESSELMAN, H.E. FISHER.

30 **Pregnancy and the upper volumetric expansion of the barrel-shaped ribcage in *Hylobates* and *Homo*.** J. UY, K. O'BRIEN, J. HAWKS.

31 **Ancient *Yersinia pestis* genomes provide novel insights into the phylogeographic history of Plague.** M.A. SPYROU, R.I. TUKHBATOVA, M. FELDMAN, A. HERBIG, K.I. BOS, J. KRAUSE.

50: Paleoanthropology: Early Hominins II

Contributed Poster Presentations. Chair: Zachary Cofran.

Carondolet.

1 **Dental microwear textures of an expanded sample of *Australopithecus africanus* from Sterkfontein Member 4.** E.F. ABELLA, F.E. GRINE, M.F. TEAFORD, P.S. UNGAR.

2 **Paleoenvironmental reconstruction at Kanapoi through use of rodent dental microwear.** J.H. BURGMAN, F. MANTHI, J. PLAVCAN, C.V. WARD, P.S. UNGAR.

3 **Site-specific cortical bone topographic variation across the whole neck assessed in two hominin proximal femora from Swartkrans Member 1, South Africa: SK 82 and SK 97.** M. CAZENAVE, J. BRAGA, F. DE BEER, J.W. HOFFMAN, R. MACCHIARELLI, A. OETTLÉ, J.F. THACKERAY.

4 **Modularity and the evolution of the human canine.** Z. COFRAN.

5 **Bipedalism evolved from knuckle-walking: Evidence from 3D geometric morphometric analyses of cervical and upper thoracic vertebral shape of *Homo sapiens*, *Pan troglodytes*, and *Pongo pygmaeus*.** M. COLLARD, K.A. PLOMP, K. DOBNEY, U.S. VIDARSDOTTIR, D.A. WESTON.

6 **Using 4th order polynomial curve fitting to assess curvature and allometry of the hallucal facet in extant hominoids and fossil hominins.** M.M. DUDAS, W.E. HARCOURT-SMITH.

7 **An assessment of variation and its causes in the face of *Paranthropus*.** N.M. HLAZO, T.D. RITZMAN, R.D. ACKERMANN.

8 **A Comparison of Upper and Lower Molar Trait Associations in Modern Humans, *Australopithecus*, and *Paranthropus*.** E.A. KOZITZKY, S.E. BAILEY.

9 **DNH 32: A distal humerus of *Paranthropus robustus* from Drimolen, South Africa.** M.R. LAGUE, C.G. MENTER.

10 **Subregion-scale heterogeneity in bovid abundance in the Koobi Fora Formation (Pleistocene, Northern Kenya).** C. LLERA, L. BENITEZ, M. BIERNAT, D.R. BRAUN, A.S. HAMMOND, D.B. PATTERSON, W. BARR.

11 **Re-examining the Peroneal Trochlea of the StW 352 Calcaneus.** E.J. MCNUTT, A.G. CLAXTON, K.J. CARLSON.

12 **Photogrammetric Imaging: A Fresh Look at the Laetoli Hominin Footprints in Relation to Recent Discoveries.** A.J. PELISSERO, C.M. MUSIBA, F. MASAO, A. MABULLA, C. MAGORI, E. MARO, A. GIDNA, H.T. BUNN, A. GURTOV, A. SARATHI, J. LI, G. OLE MOITA, M. KAISOE, J. WASHA, J. TEMBA, S. KILLINDO, J. PARESSO, A. LOWASSA, J. MWANKUNDA.

13 **Dental microwear textures of *Paranthropus robustus* from Kromdraai, Drimolen, and an enlarged sample from Swartkrans.** A.S. PETERSON, F.E. GRINE, M.F. TEAFORD, P.S. UNGAR.

14 **Bipedalism evolved from knuckle-walking: Evidence from 3D geometric morphometric analyses of thoracic and lumbar vertebral shape of *Homo sapiens*, *Pan troglodytes*, and *Pongo pygmaeus*.** K.A. PLOMP, U. STRAND VIDARSDOTTIR, D. WESTON, K. DOBNEY, M. COLLARD.

15 **Plio-Pleistocene paleoenvironments of the Shungura Formation based on bovid dental adaptation and abundance analysis.** W.H. REDA, Z. ALEMSEGED.

16 **Trace element evidence for trophic level in extant mammals from Laikipia, Kenya: implications for eastern African fossil hominin diet reconstructions.** C. RYDER, R. QUINN, J. LEWIS, B. POBINER, O. MWEBI.

17 **Tapirs as model organisms for understanding hominin evolution: the functional significance of the sagittal crest and dietary implications for *Paranthropus*.** L. DESANTIS, A. SHARP, B. SCHUBERT, M. COLBERT, S. WALLACE.

18 **Navigating peaks of speciation and extinction: Did prime movers or random effects lead to the composition of the South African fossil record?** D.C. PEART, J. MCKEE.

19 **Taphonomic characterization of the honey badger, an actualistic first.** B.F. COHEN, J.M. KIBII.

20 **A technological study of the lithic artefacts from the Earlier Stone Age site of Maropeng in the Cradle of Humankind, South Africa.** R. MOLL, K. KUMAN, D. STRATFORD.

21 **"Rogue" taxa and hominin phylogeny.** M. DEMBO, A. MOOERS, M. COLLARD.

22 **Large mammal community structure and habitat variability in eastern and southern African *Paranthropus*.** K.D. O'NEILL, A.L. RECTOR, C. STEININGER.

23 **Arm Swing and the Evolution of Shorter Arms in *Homo*.** A.K. YEGIAN, S. GILLINOV, Y. TUCKER, D.E. LIEBERMAN.

24 **New Field Research at Galili, Afar State, Ethiopia.** S.W. SIMPSON, J. QUADE, H. SAID.

Session 51: Human Skeletal Biology: Morphology, Variation, and Environment

Contributed Poster Presentations. Chair: Meghan Shirley.

Carondolet.

1 **Shape differences in the proximal femur of a cadaver sample based on different classifiers of obesity.** R.A. JOHNSTON, L.W. COWGILL, T. PASKOFF.

2 **Estimation of individual body mass from the femur: insights from a CT-based analysis of body composition.** A. LACOSTE JEANSON, J. DUPEJ, J. BRŮŽEK.

3 **Osteometric Reconstruction of Body Mass in the Lambayeque Valley Complex, Peru: Pre-Hispanic Variability and the Impact of Spanish Conquest.** S.J. BALL, H.D. KLAUS.

4 **The effect of activity on the reliability of body mass estimated from long bone cross-sectional area.** V. SLADEK.

5 **A Test of the Mastication Hypothesis on Mandibular Morphology using Medieval and Modern Non-adult Individuals.** E.E. HAMMERL, M.K. MOORE, E.A. DIGANGI, H.M. JUSTUS.

6 **From form to function: insights into tooth function through the study of variation in tooth root size and shape.** C.L. FERNEE, K.R. BROWN, A. DICKINSON, C. WOODS, S.R. ZAKRZEWSKI.

7 **Raccoons, humans and Allen's rule in eastern North America.** T. STEEGMANN, R. STEEGMANN.

8 **Climatic adaptation in Japanese macaques (*Macaca fuscata*)as a model for calibrating human intraspecific variation.** L.T. BUCK, I. DE GROOTE, Y. HAMADA, J.T. STOCK.

9 **Why did *H. erectus* disperse? Tracking variables between fleshed and skeletal individuals to find patterns of plasticity.** S.C. ANTÓN, H.G. TABOADA, E.R. MIDDLETON, C.W. RAINWATER, T.R. TURNER, J.E. TURNQUIST, K.J. WEINSTEIN, S.A. WILLIAMS.

10 **Integration and modularity within the human nasal region.** N.E. HOLTON, A. PICHE, T.R. YOKLEY.

11 **An investigation of the relationship between maxillary sinus volume and midfacial growth using a pig model.** C.L. NICHOLAS, N.E. HOLTON, B. DOOLITTLE, T. SOUTHARD.

12 **Statistical shape analysis using statistical shape models - comparing surface to outline data in the human zygomatic structure.** S. SCHLAGER, A. RÜDELL.

13 **Investigating Pterion from Three Perspectives: Phylogeny, Biomechanics and Size.** N.J. GAMET, J.C. STEVENSON.

14 **The Influence of EGCG on Cranial Vault Morphology.** J. STARBUCK, E. HARRINGTON,

A. GHONEMIA, K. KULA, R. ROPER.

15 **Generalised Procrustes Analysis on an ontogenetic series clarifies the two-bandage cranial modification technique in Migration Period Hungary.** P.R. MAYALL, V. PILBROW.

16 **Exploring artificial cranial deformation in a 5th century Germanic population from Croatia using multiple lines of inquiry.** M. NOVAK, K.A. SIRAK, D.M. FERNANDES, J. BURMAZ, M. ČAVKA, R. HOWCROFT, R. PINHASI.

17 **Cranial Vault Modification as a Possible Ethnic Marker in the Middle Cumberland Region.** G.J. WEHRMAN.

18 **Geometric Morphometric and Craniometric Analysis of the MidFace in Colombian Population. Allometry and Sexual Dimorphism.** S.O. CHIÑAS, M.E. PEÑA, C. SANABRIA, L. MÁRQUEZ.

19 **A Preliminary Analysis on the Cranial Variation within Prehistoric Mexico.** S.R. RENNIE, M. CLEGG, S. GONZALEZ, J.C. LÓPEZ.

20 **The Use of Geometric Morphometrics to Identify Distinct Mortuary Components at Koster Mounds.** L. SACKS.

21 **Explaining distinct crania from Colonial Delaware using craniometric and genetic analyses.** K.A. HAUTHER, A.H. MCKEOWN, M. SNOW, M.K. SPRADLEY.

22 **Exploration of craniometrics variation along the Nile River.** C.R. BENNETT, A.H. ROSS.

23 **Pelvic morphology and stature in South Asian women.** M.K. SHIRLEY, O.J. ARTHURS, J.C. WELLS.

24 **Osteon circularity variation with femur size and anatomical region in archaeological humans.** P. FUENTE GARCÍA, J.J. MISZKIEWICZ, C. DETER, P. MAHONEY.

25 **Bilateral Asymmetry in Cross-Sectional Properties Indicates Periarticular Plasticity in the Distal Humerus of Modern Humans.** K.G. ZELAZNY, C.B. RUFF.

26 **Are marital system, climate and geographic origin good predictors of human craniofacial size and shape variation?** K. BALOLIA, C. SOLIGO.

27 **Does the shape of the talus predict first metatarsal abduction?** S.G. LAUTZENHEISER, A.D. SYLVESTER, P.A. KRAMER.

28 **Evaluation of the covariation in markers of robusticity in the locomotor skeleton.** T.E. DUNN.

29 **Ontogenetic trajectories of talo-crural joint shape among the two species of *Pan*, *Pan troglodytes* and *Pan paniscus*: Life history and behavioral correlates.** K. TURLEY, E.A. SIMONS, S.R. FROST, F.J. WHITE.

30 **Comparison of fluctuating asymmetry level between normal and pathological specimens from modern Thai skeletal group.** H. JUNG, E. WOO, N. VON CRAMON-TAUBADEL.

31 **Sacral variability in tailless species: *Homo sapiens* and *Ochotona princeps*.** R.G. TAGUE.

32 **Similarities in Pelvic Dimorphism Across Populations.** H. DELPRETE.

33 **Divided Zygomata in Neolithic and Dynastic Northern Chinese Populations.** Q. ZHANG, P.C. DECHOW, Q. ZHANG, Q. WANG.

34 **A 3D geometric morphometric study of the ilium during growth and the influence of habitual activity in the Later Stone Age foragers of southern Africa.** H. KURKI, L. HARRINGTON.

35 **Developmental limb element asymmetry across three Native North American populations.** E.B. WAXENBAUM, K.A. SIRAK.

36 **An analysis of upper and lower limb cross-sectional properties in the Lake Nitchie skeleton from southwestern New South Wales, Australia.** E.C. HILL, O.M. PEARSON, A.C. DURBAND.

37 **Finding the Volume of the Femoral Intercondylar Fossa from a 3D Scanning Image Using CAD Modeling Software.** B.E. HERNDON, S.K. BECKER.

38 **The effect of temperature and population history on the shape of the distal and proximal epiphyses of the tibia.** P. IBÁÑEZ-GIMENO, T.G. DAVIES, J.T. STOCK.

39 **Regional Variation and Sexual Dimorphism in the Ontogeny of Humeral Asymmetry among Prehistoric Hunter-Gatherers.** B. OSIPOV, L. HARRINGTON, L. COWGILL, D. TEMPLE, V.I. BAZALIISKII, A.W. WEBER.

40 **Cortical Bone Structural Variation in Modern Human Metatarsals.** T. JASHASHVILI, M.R. DOWDESWELL, L.A. SCHEPARTZ, P. CHABIKULI, B. ZIPFEL, K.J. CARLSON.

41 **Patterns of Handedness Among Human Populations from the Late Pleistocene to the Holocene.** Y. SIEW, E. NIKITA, A.A. MACINTOSH, M.A. GASPERETTI, E. POMEROY, J.T. STOCK.

42 **Juvenile skeletal sexual dimorphism under poor environmental conditions.** S. REEDY.

43 **Differences between the endosteal surface of human and non-human long bones: a potential feature to assist with identification.** S.L. CROKER.

44 **A Proposed Method for Determining Sex in Skeletal Remains Using the Position of the Sacral Auricular Surface.** C.T. SKOOG, C. RANDO, S. HILLSON.

Saturday, Morning sessions.

Session 52: Humans as Holobionts: The Microbiome as a Biological System in Human Evolution

Invited Podium Symposium. Chair: Stephanie Schnorr, Meagan Rubel.

Co-organizers: Meagan A. Rubel, Stephanie Schnorr.

Bissonet.

Tiny yet ubiquitous, microbiota play a major role in biological diversification throughout evolution. Symbiosis is not a new concept, having been popularized nearly half a century ago, yet the inclusion of prokaryotes, archaea, and viruses (microbiota) within this conceptual framework has only recently crystallized into the study of the human microbiome. Current research links the microbiome with myriad host physiological functions such as immunity, metabolism, growth, development, reproduction, and behavior. The exact role of the microbiome as a primary epithelial interface between host and environment and the extent of its physiological relevance remains an open area of investigation. Human evolutionary research must therefore consider the communities and activities of associated microbiota to fully understand the selective factors that shaped the human species. Host-microbe associations have likely enabled many key evolutionary transitions over time, as microbial functions can confer adaptive faculties directly to hosts, and hosts mediate microbial colonization and survival through a multitude of physiological and biochemical pathways. This shared selective and adaptive platform challenges notions of a macroscopic singular “self,”- rather, humans can be considered as “holobionts,” or the sum of their host and microbial interdependent parts. The advent of massively parallelized sequencing, meta-omics functional assays, and increasingly sophisticated computational models have facilitated the interrogation of human microbiota at an unprecedented level of detail, revealing microbial functions, mechanisms of molecular information exchange, and genetic variability. This symposium brings together expertise from human evolutionary ecology, immunology, microbiology, and genetics to motivate open discourse about ways in which microbiome research can be effectively used to answer core anthropological questions about the selective factors that shaped human evolution and how this knowledge can be used to inform on contemporary human health issues.

8:00 **Introduction: Stephanie Schnorr.**

8:15 **The Microbial Organ is Unlike any Other – Evidence for Conflict in Human-Microbiome Co-Evolution.** J. ALCOCK, R. KRAJMALNIK-BROWN, J. MALDONADO, A. AKTIPIS, C. HAN.

8:30 **Meta-OMIC Reconstruction of Host-microbe Interactions in the Primate Gut: Impactions for Human Origins.** A. GOMEZ, K. PETRZELKOVA.

8:45 **Creating context: Using non-human primates to understand the relationship between gut microbes and human diet, physiology, and health.** K.R. AMATO, C.A. SCHMITT.

9:00 **The role of host genetics in determining human gut microbiome composition.** E.R. DAVENPORT.

9:15 **Cospeciation of Gut Microbiota with Hominids.** A.H. MOELLER, B.H. HAHN, A.E. PUSEY, E.V. LONSDORF, M.N. MULLER, A.V. GEORGIEV, H. OCHMAN.

9:30 **Beyond the exclusive presence of *Treponema* and *Bifidobacterium* in the gut microbiota of hunter-gatherers and Western populations: new insights in microbes-host co-evolution.** S. RAMPELLI, S. TURRONI, M. CANDELA.

9:45 **Food and its Form: Cooking Shapes the Gut Microbiome.** R.N. CARMODY, P.J. TURNBAUGH.

10:00 **Break.**

10:30 **Patterns of Variation in the Oral and Gut Microbiomes of Traditional Populations.** K. SANKARANARAYANAN, R. TITO, A. OBREGON-TITO, L. MARIN-REYES, C. WARINNER, C. LEWIS JR..

10:45 **The Global Diversity of the Human Oral Microbiome.** A. HÜBNER, M. STONEKING.

11:00 **The Evolution of Host-microbiome Interactions in Humans.** R. BLEKHMAN.

11:15 **Three Years of Sampling the Gut Microbiota of Free-ranging Capuchin Monkeys (*Cebus capucinus imitator*) in a Tropical Dry Forest.** J.D. ORKIN, S.E. WEBB, A.D. MELIN.

11:30 **Ecology of the Human Gut Microbiome: An Evolutionary Perspective and its Implications for Health.** J. WALTER.

11:45 **Insights from Neandertals and beyond: Evolution of the hominin microbiome on a global scale.** L.S. WEYRICH, K. DOBNEY, A. COOPER.

12:00 **Discussant: Meagan Rubel.**

Session 53: Primate Reproduction, Parentage, and Life History

Contributed Podium Presentations. Chair: Brian M. Wood.

Balcony I/J.

8:00 **Infant handling in mountain gorillas: establishing its frequency, function and (ir)relevance for life history evolution.** C.C. GRUETER, J. HALE, R. JIN, D.S. JUDGE, T.S. STOINSKI.

8:15 **Maternal Effects on the Development of Sex Differences in Sociality among Wild Chimpanzees (*Pan troglodytes schweinfurthii*).** Z. MACHANDA, M. EMERY THOMPSON, E. OTALI, M.N. MULLER, R.W. WRANGHAM.

8:30 **Male-infant Relationships in Wild Woolly Monkeys (*Lagothrix lagotricha poeppigii*).** L.A. ABONDANO, K.M. ELLIS, A. DI FIORE.

8:45 **Female Olive Baboons (*Papio anubis*) Signal Sexual Interest in Socially Stable Males.** J.T. WALZ, D.M. KITCHEN.

9:00 **Evidence of higher maternal investment for sons in wild chimpanzees at Ngogo, Kibale National Park, Uganda.** I. BADESCU, A.M. KATZENBERG, D.P. WATTS, D.W. SELLEN.

9:15 **Attachment to older siblings can buffer the negative consequences of decreased maternal investment in wild infant olive baboons (*P. anubis*) in Laikipia, Kenya.** C.A. MOST, S.C.

STRUM.

9:30 **Insulin it to Win It: Patterns, Causes, and Consequences of Insulin Production during the Marmoset Monkey Pregnancy.** J. RUTHERFORD, L. RIESCHE, T. ZIEGLER, C. ROSS, A. SILLS, D. LAYNE COLON, V. DEMARTELLY, S. TARDIF.

9:45 **Triangulating weaning in wild geladas (*Theropithecus gelada*) using observational, isotopic, and gut microbial evidence.** A. LU, L.J. REITSEMA, J.C. BEEHNER, T.J. BERGMAN, N. SNYDER-MACKLER.

10:00 **Break.**

10:30 **Characterizing Non-Maternal Infant Care in a Communally Breeding Primate, *Varecia variegata*.** A.L. BADEN.

10:45 **Promiscuity or partner preference? Male-female interactions across reproductive states reflect female strategies for avoiding aggression.** E.E. BOEHM, A.R. ROGERS, S. FOERSTER, E.E. WROBLEWSKI, A.E. PUSEY.

11:00 **Differences in Endocrine Fluctuations between Geriatric *Pan troglodytes* and *Homo Sapiens*.** K.H. MACDOWELL, C.T. CLOUTIER BARBER, D.C. BROADFIELD.

11:15 **Rank Differences in Male Bonobo (*Pan paniscus*) Reproductive Strategies.** C.M. BRAND, A.J. HICKMOTT, K.J. BOOSE, F.J. WHITE.

11:30 **Longitudinal changes in diet and reproduction among wild chimpanzees at Kanyawara, Kibale National Park.** M. EMERY THOMPSON, Z.P. MACHANDA, S. PHILLIPS-GARCIA, E. OTALI, M.N. MULLER, R.W. WRANGHAM.

11:45 **Menopause is Common among Wild Female Chimpanzees in the Ngogo Community.** B.M. WOOD, K.E. LANGERGRABER, J.C. MITANI, D.P. WATTS.

12:00 **Countering infanticide: chimpanzee mothers are sensitive to the relative risks posed by males on differing rank trajectories.** N.E. NEWTON-FISHER, A. LOWE.

Session 54: Functional Anatomy of the Pelvis, Limbs, and Jaws

Contributed Podium Presentations. Chair: Marcia S. Ponce de León .

Studio 1/2/3.

8:00 **Linking manipulative abilities to hand morphology in bonobos.** E.E. VEREECKE, M. VANHOOF.

8:15 **Obstetric and Non-obstetric Determinants of Pelvic Sexual Dimorphism in Hylobatids.** M.S. PONCE DE LEÓN, M. SCHERRER, C.P. ZOLLIKOFER.

8:30 **The Effect of Obstetric Demand on the Magnitude of Sexual Dimorphism in the Birth Canals of Anthropoid Primates.** E.A. MOFFETT.

8:45 **Functional adaptations of primate forearm and leg muscle fiber architecture.** A. HARTSTONE-ROSE, C.L. LEISCHNER, F. PASTOR, D. MARCHI.

9:00 **Highly Protracted Hindlimbs and a Forward Foot Placement Increase Stability when Walking on Arboreal Substrates.** A. ZEININGER, M.C. GRANATOSKY, D. SCHMITT.

9:15 **Modifying Descent Behaviors in Response to Support Steepness in Primates.** B.A. PERCHALSKI.

9:30 **Patellar response to knee flexion in the Miocene primates Epipliopithecus vindobonensis and Pierolapithecus catalaunicus.** M. PINA, D. DEMIGUEL, F. PUIGVERT, J. MARCÉ-NOGUÉ, S. MOYÀ-SOLÀ.

9:45 **Three-dimensional Subastragalar Rotation in *Macaca* using XROMM.** S. KUO, N.J. GIDMARK, C.V. WARD.

10:00 **Break.**

10:30 **Trabecular bone structural variation in the hominin femoral head.** T.M. RYAN, K.J. CARLSON, L.J. DOERSHUK, A.D. GORDON, T. JASHASHVILI, C.N. SHAW, J.T. STOCK.

10:45 **Variation in the trabecular bone structure of the proximal humerus in four human populations.** L.J. DOERSHUK, J.P. SAERS, J.T. STOCK, C.N. SHAW, K.J. CARLSON, T. JASHASHVILI, T.M. RYAN.

11:00 **Feeding and Locomotor Systems Differ in Joint Excursions.** C.F. ROSS, M.C. GRANATOSKY, A.B. TAYLOR, J. IRIARTE-DIAZ, E. MCELROY.

11:15 **Cross-sectional geometry of the mandibular corpus and food mechanical properties in extant primates.** S. COINER-COLLIER, A.C. PASQUINELLY, M.J. RAVOSA.

11:30 **Dynamic chewing: A novel approach to analyzing three-dimensional motion sequences.** M.F. LAIRD, P. O'HIGGINS.

11:45 **Hard food for stiffer jaws: A comparative Finite Element Analysis of different primate jaws.** J. MARCÉ-NOGUÉ, T.A. PÜSCHEL, T.M. KAISER.

12:00 **Game of bones: intracranial and hierarchical perspective on dietary plasticity in mammals.** E.M. FRANKS, J.E. SCOTT, J.P. SCOLLAN, K.R. MCABEE, M.J. RAVOSA.

Session 55: Later Homo Evolution

Contributed Podium Presentations. Chair: Libby W. Cowgill.

Studio 7/8/9.

8:00 **A Taxonomic Scale-explicit Analysis of Brain Size Evolution in the Hominin Clade.** A. DU, A.M. ZIPKIN, K.G. HATALA, E. RENNER, J.L. BAKER, S. BIANCHI, K.H. BERNAL, B.A. WOOD.

8:15 **Reconsidering Mid-Pliocene Hominin Ecology in the Turkana Basin, Kenya: Integrating Vegetation, Sedimentary, and Mammalian Community Reconstructions to Explore Hominin Sympatry.** A. VILLASEÑOR, A.K. BEHRENSMEYER, R. BOBE.

8:30 **Characterizing early Pleistocene paleohabitats in Eastern Europe: Results from four years of research in the Olteţ River Valley of Romania.** S.C. CURRAN, D.L. FOX, N. GARRETT, A. PETCULESCU, C. ROBINSON, M. ROBU, C.E. TERHUNE.

8:45 **The Middle Pleistocene Human Cranium from Gruta da Aroeira Acheulian site Aroeira (Almonda Karst System,Torres Novas, Portugal).** J. DAURA, M. SANZ, J. ARSUAGA, R. QUAM, D. HOFFMANN, M. ORTEGA, E. SANTOS, S. GÓMEZ, A. RUBIO, L. VILLAESCUSA, P. SOUTO, F. RODRIGUES, J. MAURICIO, A. FERREIRA, P. GODINHO, E. TRINKAUS, J. ZILHÃO.

9:00 **Utility of deciduous lower first molar crown outlines in diagnosing *Homo sapiens* and *Homo neanderthalensis*.** S.E. BAILEY, S. BENAZZI, J. HUBLIN.

9:15 **Rodeo Riders Revisited: A second look at Neandertal patterns of trauma.** J. BAIN, L.W. COWGILL.

9:30 **A reinterpretation of the Regourdou 1 burial using 3D photogrammetry and field notes from the original excavators.** B.A. MAUREILLE, T. HOLLIDAY, A. ROYER, M. PELLETIER, S. MADELAINE, F. LACRAMPE-CUYAUBÈRE, X. MUTH, C. COUTURE-VESCHAMBRE, E. LE GUEUT, E. DISCAMPS, A. TURQ, J. TEXIER, C. LAHAYE.

9:45 **What we know (and don't) about human sinus variation and climate.** T.C. RAE, L.T. BUCK, T. KOPPE.

10:00 **Break.**

10:30 **The dynamics of fundamental niche parameter fluctuation for late Neandertals and Upper Paleolithic humans in Western and Central Europe.** R.C. BIBLE.

10:45 **Of hybrid mice and hominins: disintegration key to understanding hominin hybrid**

morphologies. K.A. WARREN, C.J. PERCIVAL, T. RITZMAN, B. HALLGRIMSSON, R.R. ACKERMANN.

11:00 **The zygomatic root in recent and fossil hominids.** G.W. WEBER, V.A. KRENN.

11:15 **Khoe-San and the origins of modern human cranial diversity.** P. GUNZ, S.E. FREIDLINE, J. HUBLIN.

11:30 **The evolution of modern human endocranial shape.** S. NEUBAUER, P. GUNZ, J. HUBLIN.

11:45 **The evolution of human altriciality and brain plasticity in comparative context.** A. GÓMEZ-ROBLES, J.B. SMAERS, C.C. SHERWOOD.

12:00 **How the origin of curiosity may have boosted hominin cultural evolution.** C. VAN SCHAIK, S. FORSS, L. DAMERIUS.

Session 56: Anthropological Demography, Well-being, and the Osteological Paradox: A Symposium in Honor of James W. Wood

Invited Poster Symposium. Chair: Sharon N. DeWitte, Rebecca Ferrell, Corey Sparks, Bethany Usher.

Co-organizers: Rebecca Ferrell, National Science Foundation; Corey Sparks, Department of Demography, University of Texas, San Antonio; Bethany Usher, Department of Sociology and Anthropology, George Mason University.

Balcony K.

James W. Wood's 40+ year career in anthropology has taken him from the highlands of Papua New Guinea to the cliffs of the Orkney Islands, and his research has examined a variety of topics related to the biodemography of mortality and reproduction, population ecology, historical demography, and paleodemography. Regardless of topic, Dr. Wood has consistently emphasized analytical and theoretical rigor and creativity and has encouraged the same in his students and colleagues. He has thus directly and indirectly advanced the field in innovative ways. This poster symposium brings together Dr. Wood's colleagues and former graduate students to present specific research projects and syntheses of work that represent the ways that he has helped shape and answer important questions in biological anthropology and other fields. The breadth of topics included in this session demonstrates the interdisciplinary nature of his work and the widespread influence he has had and will continue to have on the field of biological anthropology.

9:00 **Individual poster presentations (Posters #1-8).**

10:30 **Individual poster presentations (Posters #9-16).**

1 **Developmental effects on ovarian function.** G.R. BENTLEY.

2 **Disentangling Fecundability and Fetal Loss: Implications for Age-specific Fertility.** D.J. HOLMAN.

3 **More than just menopause: Processes of female reproductive aging.** K.A. O'CONNOR, R.J. FERRELL, D.J. HOLMAN.

4 **It ain’t necessarily “so”: James W. Wood, just so stories and the triumph of the proximate determinants approach in human reproductive ecology.** D.P. TRACER.

5 **Risk sensitive fertility behavior in historic Orkney, Scotland.** C.S. SPARKS.

6 **The household ecology of enteric pathogen transmission, diarrheal exposure risk and impaired childhood growth in rural Bangladesh and Kenya.** K.Z. LONG, A.S. FARUQUE, T. AHMED, I. GUNANTI, S. ZAMORA, J.P. NATARO, D. NASRIN, M. LEVINE, K. KOTLOFF.

7 **Household demography and land-use in a rice-farming village in Laos from 1971 to 2013.** S. TOMITA, D.M. PARKER.

8 **Households, Intensification and Well-being: James Wood and the Anthropology of Landscape.** T.M. MURTHA.

9 **Households at the edge of Europe: A reexamination.** J.A. JENNINGS.

10 **Parallel tracks: Cross-fertilization in studies of mortality and fertility throughout human history.** L. SATTENSPIEL.

11 **Experiments with extensions of the Siler model.** T.B. GAGE, J.S. NAPIERALA.

12 **James W. Wood's contribution to the "Rostock Manifesto".** L.W. KONIGSBERG, S.R. FRANKENBERG.

13 **The Osteological Paradox: Its Silver Jubilee.** G.R. MILNER, J.L. BOLDSEN.

14 **Hidden Heterogenity in Mortality – Perhaps not so Hidden.** J.L. BOLDSEN, G.R. MILNER.

15 **Sex differences in pre- vs. post-Black Death trends in survivorship.** S.N. DEWITTE.

16 **Short Children, Short Lives: Selective Mortality in Preindustrial and Prehistoric Communities.** C. VIOLARIS, B.M. USHER.

Session 57: Skeletal Standards: Documentation Software, Databases, and Online Digitization Resources Available to Researchers

Invited Poster Symposium. Chair: J. Christopher Dudar, Felix Engel, Leslie Williams.

Co-organizers: Felix Engel, Freiburg University; Leslie Williams, Beloit College.

Studio 4/5.

Standardization of traditional osteological research data and evolving digitization capture is increasingly in demand by physical anthropology for a variety of reasons, such as international repatriation claims reducing institutional collections, or study of remains excavated in the field and subsequently rendered inaccessible by other legislation/policies. In addition, large-scale research projects require the compilation of coherent and accessible data sets from different sources in the scientific community. Since the publication of “Standards for Data Collection from Human Skeletal Remains” (Buikstra & Ubelaker 1994), various infrastructures for coding and managing digital resources have been developed. Despite these efforts, a common system for making data available has not yet evolved in Physical Anthropology. In order to have a positive impact on research, digital data and digitization standards must meet a number of requirements. Specific capture protocols must be established to reduce inter-observer error and ensure the accuracy, reliability and therefore the comparability of data and imaging compiled. All digital documentation should be coded according to unified standards, which serve as exchange formats when pooling data from different sources. The resulting datasets must then be archived in a way that data structures will be understood and remain accessible into the future. These requirements might imply a rigid separation of standards and software to make data compatible between different systems and applications. However, software development has often accompanied the formulation of data collection standards and plays a key role in advancing their use. In particular standardized data is advantageous only in the presence of digital infrastructures, connecting otherwise separate research endeavors. This session reviews current approaches to data and digitization standardization and related issues, addressing the following questions: how can data and imaging standardization keep pace with methodological innovation? Who should define standards? What prevents large-scale adoption of digital data infrastructures?

8:30 **Authors of even numbered posters present.**

9:00 **Software demonstrations.**

10:30 **Authors of odd numbered posters present.**

11:00 **Comments by discussant (TBA) followed by discussion.**

1 **Osteoware: Standardized Skeletal Documentation Software at the Smithsonian Institution.** C. DUDAR, S. OUSLEY, E. JONES, C.W. WILCZAK, J. HEFNER, M. GWYN, D. MULHERN.

2 **Standardised osteological recording of archaeological skeletal material using an Oracle platform database: The Wellcome Osteological Research Database (WORD).** J.J. BEKVALAC.

3 **Digitised Diseases and Data Structure: Challenges and Future Directions.** J. BUCKBERRY, T. SPARROW, A.D. HOLLAND, R.A. STORM, K. MANCHESTER, E.L. BROWN, C. GAFFNEY, A.S. WILSON.

4 **Combining Multiple Osteological Recording Standards in a Single Database: Applications for International Research.** L.L. WILLIAMS.

5 **Make research explicit using RDFBones, an extensible digital standard for research data.** F. ENGEL, S. SCHLAGER.

6 **VIRT.OS: virtual osteological library for research, education and heritage preservation.** H. COQUEUGNIOT, A. COLOMBO, B. DUTAILLY, J. BERNARD, P. DESBARATS, O. DUTOUR.

7 **The On-line IMPACT Radiological Mummy Database: the quest for standardization in mummy studies.** A.J. NELSON, A.D. WADE.

8 **OsteoSurvey: An Open-source Data Collection Tool for Studying Commingled Human Remains.** A.E. AUSTIN.

Session 58: Broadening Forensic Anthropology: Bringing East and Southeast Asia to the Forefront

Invited Poster Symposium. Chair: Matthew C. Go, Sean D. Tallman.

Co-organizers: Matthew C. Go.

Studio 6.

While forensic anthropology has expanded considerably in its theoretical and methodological scope as a discipline, it is nevertheless limited by an over-reliance on data from North America and Europe. Current methods largely developed from American skeletal collections that were established in the late 19th to early 20th centuries have become standards in forensic anthropology. However, it is unlikely that these methods developed on individuals of African, European and Native American descent can be accurately applied to worldwide populations. This is especially true when considering the wide range of human skeletal variation and the increasingly diverse biocultural demographics that exist in modern metropolises globally. In particular, Asian individuals make up approximately 60% of the global population, and East and Southeast Asia represent two of the largest sources of contemporary diasporic communities (approximately 6% of U.S. and 8% of Canadian populations); however, such groups are significantly underrepresented in forensic anthropological literature. Additionally, mass disasters, human rights violations, and armed conflict further necessitate the need for Asian-specific biological profile methods. The increasing number and availability of skeletal collections throughout Asia enables the development of forensic anthropological methods for these understudied populations, thereby addressing this mismatch between classic standards and the call for more representation from East and Southeast Asia. This symposium aims to highlight the diverse research on modern human skeletal variability in East and Southeast Asia that is ameliorating this problematic research gap. Thematic contributions include: the investigation of understudied collections in East and Southeast Asia; the establishment of novel and vital collections; the development of population-specific methods; and the evaluation and applicability of existing techniques. Taken together, these papers push forward the boundaries of current forensic anthropology theory, method, and practice by creating a more inclusive discipline that

better reflects modern global demographics and better benefits local and global communities.

10:30 **Discussant: Hallie R. Buckley.**

1 **Building an osteological reference collection of modern Filipino individuals.** M.C. GO, A.B. LEE, R. CROZIER.

2 **A large modern Southeast Asian skeletal collection from Thailand.** N. TECHATAWEEWAN, P. TUAMSUK, Y. TOOMSAN, M. NAMKING, P. AMARTTAYAKONG, S. RATANASUWAN, N. TAYLES.

3 **Visual Versus Algorithmic Pair-Matching in a Modern Filipino Population.** A.B. LEE, J. SANTOS, N. VESAGAS, M.C. GO.

4 **Cranial and Pelvic Nonmetric Sexual Dimorphism in Modern Japanese and Thai Individuals.** S.D. TALLMAN.

5 **Sex Estimation from the Scapula in a Contemporary Thai Population.** S.E. SCOTT, T.R. PECKMANN, S. MEEK, P. MAHAKKANUKRAUH.

6 **Sex estimation from dental crown and cervical metrics in a contemporary Japanese sample.** D. ADAMS, M. PILLOUD, D. MALARCHIK, C. ARCE.

7 **Understanding population-specific age estimation using documented Asian skeletal samples.** J. KIM.

8 **Validity of Post-Mortem Age Estimation Using the Tooth Cementum Annulations in Northeastern Thai Adults.** P. TUAMSUK, P. SUWANATHADA, P. PUNGCHANCHAIKUL, N. KANHARAT, N. TECHATAWEEWAN.

9 **A numerical scoring system for estimation of age-at-death via visual analysis of the pubic symphysis, modelled after the Brooks & Suchey (1990) phasing method, using a Thai population.** A.E. BROWN, P. MAHAKKANUKRAUH.

10 **Stature Estimation from the Calcaneus and Talus in Japanese Individuals.** A. HAYASHI, P.D. EMANOVSKY, T.D. HOLLAND.

11 **Ancestry estimation in Asian and Asian-derived populations using dental morphology.** R.L. GEORGE, M.A. PILLOUD, J. GÓMEZ-VALDÉS.

12 **Using the Digitized Cranial Angle Method for Ancestry Estimation in American Black, American White, and Japanese Individuals.** J. MANABE.

13 **Craniometric Variation in the Modern Thai Population: Forensic Applications and Population History Implications.** L. FREAS, P. MAHAKKANUKRAUH, K. VICHAIRAT, P. TUAMSUK, A. SINTHUBUA.

14 **Examining Japanese and Hispanic Morphological Similarities Using Geometric Morphometrics.** B. DUDZIK.

Session 59: Human Biology and Genetics IV

Contributed Poster Presentations. Chair: Melanie A. Martin.

Carondolet.

1 **Genetic structure of populations from six cities in Iraq based on 15 STRs.** S.D. ALDEN, M. SABBAH, M.H. CRAWFORD.

2 **Method Development: Enzyme-linked Immunoassay Techniques to Detect Hair Cortisol Concentrations in Afro-textured Hair.** J.A. DOYLE, E. BRINDLE, D. ENQUOBAHRIE, S. GOODREAU.

3 **Objectively Measured Childhood Physical Activity among Small-scale Populations.** S.S. URLACHER, J. SNODGRASS, K.L. KRAMER, M. KONECNA, H. PONTZER, L.S. SUGIYAMA.

4 **The Effects of Lifestyle Factors and Social Support on Physical Activity Patterns among**

Older Adults from Uganda: Preliminary Analyses from WHO's SAGE-PA Uganda Sub-study. T.J. CEPON-ROBINS, M. KUTEESA, T.M. BARRETT, J. MUGISHA, E. HALLETT, J. SCHROCK, L. GEDDES, P. MBABAZI, P. KOWAL, J. SEELEY, J. SNODGRASS.

5 **"Skeletal maturation" vs. "critical fat threshold" in relation to pubertal development in Qom girls.** M.A. MARTIN, C. VALEGGIA.

6 **Objectively measured physical activity in a hunting and gathering population.** D.A. RAICHLEN, H. PONTZER, J.A. HARRIS, T.W. ZDERIC, M.T. HAMILTON, B.M. WOOD.

7 **Exploring the Use of Wrist-based Fitness Monitors in Network Creation.** T. JASKOWIEC, M.V. FLINN.

8 **Fosterage on Adult Strength and Body Fat in Himba Women.** S. PRALL, B. SCELZA.

9 **Reduced Immune Investment with Energy Stress: Evidence from a Mouse Model.** A.L. SCHNEIDER, N.S. BURGHARDT, H. PONTZER.

10 **Optimizing Long-Run Energy Harvesting Strategies in Central Asian Nomadic Pastoralists.** A.Z. REYNOLDS, P.L. HOOPER.

11 **Seasonal Fluctuation in Body Fat Sexual Dimorphism among Pumé Hunter-Gatherers.** A. ACHENBACH, R.D. GREAVES, K.L. KRAMER.

12 **Overweight and obesity prevalence and tracking after 2 years follow up study in children and adolescents from Havana, Cuba.** V. VAZQUEZ, J. GÁLVEZ, M. DÍAZ, D. NIEBLA.

13 **Water Soluble Nutrient Intake and Leptin Phenotypes in the Kansas Mennonite.** C.E. BARRETT, M. CRAWFORD, M. MOSHER.

14 **Differential Impacts of Drought on Social and Ecological Adaptations of the Himba Across Local Environments of Kaokoveld.** M. ANDERSON, A. HAZEL.

15 **Stable isotope analysis of hair from three peoples in modern Ethiopia shows clear differences among isotopic signatures related to subsistence regimes.** C.G. COOPER, K. LUPO, A. ZENA, M.P. RICHARDS.

16 **Market integration and lifestyle in Vanutau, and their effects on health.** E.D. MASSENGILL, S.M. MATTISON.

17 **Modern human hair, nail and breath isotopic signals and their relevance to diet assessment in the past.** M. CORREIA, R. FOLEY, T. O'CONNELL, F. RAMÍREZ-ROZZI, M. MIRAZÓN LAHR.

18 **Osteoarthritis as an evolutionary mismatch disease.** I.J. WALLACE, S. WORTHINGTON, D.T. FELSON, R.D. JURMAIN, K.T. WREN, H. MAIJANEN, R.J. WOODS, D.E. LIEBERMAN.

19 **Objectively Measured Physical Activity among the Pokot Agro-Pastoralists of Kenya.** M. SAYRE, D.A. RAICHLEN, E.N. BUNKLEY, D.A. ODERA, C.A. REEVES, I.L. PIKE.

20 **The effects of high speed and weighted walking on head pitch and knee forces.** J.T. WEBBER, D.A. RAICHLEN.

21 **Inferior Nasal Turbinate Morphology in Arctic and sub-Saharan African Humans: Implications for Understanding Climatic Adaptation in the Nasal Complex.** T.N. MARKS, L.N. BUTARIC, S.D. MADDUX, R.G. FRANCISCUS.

22 **Why are Men's faces More Easily Recognized as Male? Evolutionary Conditioning of Perceptual Biases.** T. GONZALEZ-ZARZAR, J. FERNANDEZ, M. BEASLEY, A. ZAIDI, P. CLAES, M.D. SHRIVER, J.K. WAGNER.

23 **Differences between Human and Chimpanzee Costo-vertebral Joint Anatomy.** W.É. CALLISON, D.E. LIEBERMAN.

24 **Cranial and Mandibular Variation Preceding the Emergence of Agriculture in Eastern Europe and Western Asia.** M. GALLAND, A. GROMOV, V. MOISEYEV, S. VASILYEV, E. VESELOVSKAYA, R.M. PINHASI.

25 **The Neolithic transition at the Western edge of Europe.** G.M. GONZALEZ FORTES, T. FRANCESCA, G. SILVIA, H. KIRSTIN, H. MICHAEL, B. GUIDO.

26 **Harnessing the Power of the Genographic Project Database to Research Migrations in War-Torn Regions: Mitochondrial DNA Diversity in Afghanistan.** M.G. VILAR, G. VILSHANSKY, D. MERRIWETHER, M. SHAMOON POUR.

27 **The Center on American Indian and Alaskan Native Genomics Research: Engaging Ethical, Legal, and Social Issues.** J. LUND, S. KETCHUM, P. SPICER, A. COBB-GREETHAM, V. HIRATSUKA, C.M. LEWIS.

28 **Agent-Based Modeling of Geographic Barriers and Gene Flow in Fuego-Patagonia.** V.M. BATTISTA.

29 **Using historic fixed soft tissues for retrospective genomic analyses: a methodological evaluation.** G. FERRARI, H.E. LISCHER, G. AKGÜL, F.J. RÜHLI, A.S. BOUWMAN.

30 **Measures of Evolvability in Human Body Proportions across Latitude.** K.R. SAVELL, B.M. AUERBACH.

31 **Assessment of Cortical Thickness as a Non-Specific Indicator of Stress in Bone: An Experimental Animal Model.** T.M. FRASIER, M.P. ALFONSO-DURRUTY, D. HEADLEY.

32 **Population genetics analysis of Southeast Asian Ovalocytosis in a cohort of individuals from Island Melanesia.** E.A. WERREN, H.L. NORTON, A.W. BIGHAM.

Session 60: Fossil Primates and Environments

Contributed Poster Presentations. Chair: Mary T. Silcox.

Carondolet.

1 **New Tools and Methods for Developing a Geospatial Paleoanthropology.** R.L. ANEMONE, C.W. EMERSON, B. NACHMAN.

2 **Evidence for grooming claws in the earliest omomyids.** D.M. BOYER, S.A. MAIOLINO, P.A. HOLROYD, P.E. MORSE, J.I. BLOCH.

3 **New primitive micromomyid plesiadapiform from the Wutu Formation, Shandong Province, China.** S.G. CHESTER, K. BEARD, Y. TONG, X. NI, J. WANG.

4 **New Estimates of Body Mass for "Giant" Subfossil Lemurs using Phylogenetic Regressions and Implications for Relative Brain Size, Life History and Risk of Extinction.** K.E. THOMPSON, W. JUNGERS.

5 **Molar Size and Shape Variation in a Large Sample of *Niptomomys* (Microsyopidae, Primates) from the Paleocene-Eocene Thermal Maximum: One Species or Two?** R.S. FELIBERT, P.E. MORSE, S.G. STRAIT, D.M. BOYER, J.I. BLOCH.

6 **Body size estimation for the Shanghuang petrosal.** A.D. KEMP, E. KIRK, K. BEARD.

7 **Exploring taxonomic and dietary signals in Paromomyidae (Plesiadapiformes, Primates) using 3D dental topographic metrics.** S. LÓPEZ-TORRES, K.R. SELIG, K.A. PRUFROCK, D. LIN, M.T. SILCOX.

8 **Internal Nasal Morphology of *Rooneyia viejaensis*: Implications for Crown Primate Olfactory System Anatomy.** I.K. LUNDEEN, E. KIRK.

9 **Phenetic Affinities of *Teilhardina* (Primates, Omomyidae) from the Powder River Basin of Wyoming Reveal the First Known Occurrences of *Teilhardina brandti O*utside the Bighorn Basin.** G.S. YAPUNCICH, B.A. WILLIAMS, D.M. BOYER.

10 **Comparison Between *Parapapio broomi* and *Pp. whitei* from Makapansgat and Sterkfontein, South Africa using Dental Microwear Analysis.** L.C. ADAY, F.L. WILLIAMS, W.G. ANDERSON.

11 **Updated chronology for the Miocene primate succession at Abocador de Can Mata (NE Iberian Peninsula).** D.M. ALBA, I. CASANOVAS-VILAR, M. GARCÉS, J.M. ROBLES.

12 **Niche Separation of Large-Bodied Cercopithecidae at Koobi Fora, Upper Burgi Member.** M.

ANDERSON, S.R. FROST, E.H. GUTHRIE.

13 **Now they're Everywhere: New Fossil Primate Remains from Bukwa, Uganda, Demonstrate that Catarrhine Primates are ubiquitous at East African Early Miocene Fossil Sites.** S. COTE, L. MACLATCHY.

14 **Preliminary Study of the Cercopithecidae from Leado Dido'a Locality, Woranso-Mille (central Afar), Ethiopia.** H. REDA, S.R. FROST, E. SIMONS, M. ANDERSON, Y. HAILE-SELASSIE.

15 **Experimental Study of Sheep (*Ovis aries)* Bone Weathering Under UV-B Light.** S. HAILESELASSIE.

16 **Zygomaxillary morphology of *Macaca* cf. *robusta* (Middle Pleistocene, South Korea) and its phylogenetic and evolutionary implications.** T. ITO, Y. LEE, T.D. NISHIMURA, M. TAKAI.

17 **An assessment of the mandibular ontogeny of *Limnopithecus evansi*.** A.C. JAEGER, R.P. KNIGGE, K.P. MCNULTY, E.N. MBUA, F.K. MANTHI, I.O. NENGO.

18 **Paleoenvironments and mammalian fauna of the early Miocene fossil site at Buluk, Kenya.** W.E. LUKENS, D.J. PEPPE, E. LOCKE, E. MILLER, A.L. DEINO, K.O. OGINGA, I. NENGO.

19 **Proximal Humeral Evidence for Partitioning of Locomotor Substrates by four Catarrhine Species from the Middle Miocene of Maboko Island, Kenya.** M.L. MCCROSSIN, B.R. BENEFIT.

20 **Paleoclimate and Paleoenvironmental Reconstruction of the Early Miocene Fossil Site Koru 16 (Nyanza Province, Western Kenya) and Its Implications for Hominoid Evolution.** K. OGINGA, D. PEPPE, W. LUKENS, J. LUTZ.

21 **New Material of *Turkanapithecus* and *Simiolus* from West Turkana, Kenya.** J.B. ROSSIE, S. COTE.

22 **Ecomorphology of the fossil monkey community of the Hadar and Ledi-Geraru sites, Afar Region, Ethiopia.** M. VERGAMINI, A.L. RECTOR, K.L. LEWTON.

23 ***Oreopithecus bambolii* is still an "enigmatic anthropoid".** C. ZANOLLI, D.M. ALBA, M. DEAN, J. FORTUNY, R. MACCHIARELLI, L. ROOK.

24 **Taxonomic Diversity among Central European Miocene Hominids.** D.R. BEGUN, M. BÖHME.

25 **Endocranial anatomy of Late Paleocene (Clarkforkian NALMA) *Carpolestes simpsoni* (Plesiadapoidea, Primates) from the Bighorn Basin, Wyoming.** M.T. SILCOX, R. RUSEN, J.I. BLOCH.

26 **Three-dimensional analysis of the distal humerus in catarrhines with implications for Miocene locomotor diversity.** F. MCGECHIE, S. KUO, C.V. WARD.

27 **Tracking hylobatid taxonomic diversity from molar morphometrics.** A. ORTIZ, C.I. VILLAMIL, C.M. KIMOCK, K. HE, T. HARRISON.

28 **Forest Composition and Miocene platyrrhine distributions: Why are there No Fossil Monkeys in Florida?** J.I. BLOCH, E.D. WOODRUFF, A.F. RINCON, P.E. MORSE, A.R. HARRINGTON, G.S. MORGAN, A.R. WOOD, N.A. JUD.

29 **Discerning Hominid Taxonomic Variation in the Southern Chinese, Peninsular Southeast Asian, and Sundaic Pleistocene Dental Record.** T.R. AVALOS.

30 **Cranial Variation and Taxonomic Diversity among Late Miocene Hominoids from Yunnan, China.** J. KELLEY.

31 **Intraspecific Variation Among Plio-Pleistocene Primates of South Africa.** R. STUDER-HALBACH.

Session 61: Bioarcheology and Paleopathology: Violence, Activity, Infection, and Congenital Conditions

Contributed Poster Presentations. Chair: Lori A. Tremblay Critcher.

Carondolet.

1 **Analysis of central american machete cut marks: an application of microprofilometry and micro-computed tomography.** S. MITCHELL, A. NOVOTNY, P. LEWIS.

2 **Bioarchaeological Analysis of Weapon-related Trauma in an Early Medieval Population from Central Europe.** L. HOSEK.

3 **Effect of mycobacterial species on immune cells and its potential impact on inflammatory responses in periosteal lesions.** M.E. DUNCANSON, S.N. DEWITTE, F.A. CRESPO.

4 **Infantile Cortical Hyperostosis or Disseminated Hematogenous Osteomyelitis? The Case of a High Status Child from Huanchaco, Peru.** K.E. TSCHINKEL, G. PRIETO, J. VERANO.

5 **A proposed method for scoring subadult entheseal morphology.** J.L. PALMER, A.L. WATERS-RIST, A. LIEVERSE.

6 **An Analysis of Gender Constructs in an Early Bronze Age Population Through Principal Coordinates Analysis of Scored Entheseal Changes.** M. TOUSSAINT, P. WŁODARCZAK.

7 **Testing the Coimbra Method: Discovering Possible Causes of Fibrocartilaginous Entheseal Change.** K.C. JORGENSEN, E.F. KRANIOTI.

8 **Bulging Biceps: MicroCT Analysis of Entheseal Changes at Byzantine St. Stephen's Monastery, Jerusalem.** A.C. PASQUINELLY, K.A. PORTMAN, S.G. SHERIDAN, M.J. RAVOSA.

9 **Biological Stress Indicators Among Historically Documented Populations (1913-1935): An analysis of Entheseal Changes and Degenerative Joint Disease.** A.P. ALIOTO.

10 **A case of thoracic insufficiency syndrome in Cabeçuda Shellmound, Brasil.** S. REIS, A. SALADINO, M. BASTOS, C. RODRIGUES-CARVALHO.

11 **An Examination of Sex Differences in Pathological Conditions of the Spine in a Historic Population from Milwaukee, Wisconsin.** L.A. TREMBLAY CRITCHER.

12 **Functional associations between Osteoarthritis and Vertebral Osteophytosis in Prehistoric Atacama Oases, Chile.** R. LOPEZ BARRALES, V. LLAGOSTERA, W. NEVES, M. HUBBE.

13 **Comparative analysis of osteoarthritis and implications for division of labor in two prehistoric skeletal populations.** A.L. STANCO.

14 **Palaeopathological Indicators of Mounted Pastoralism during the Mongolian Bronze Age.** S.K. KARSTENS, J. LITTLETON, B. FROHLICH, T. AMGALUNTUGS, P. KRISTEN.

15 **Bioarchaeology of Violence and Disease at Forbush Creek, North Carolina.** S. BERGER, D. HUTCHINSON.

16 **Approaching studies of multiple traumata from the leg up: An examination of the effect of prior injury location on patterns of subsequent injury in 18th and 19th century London.** D.A. BOYD, C.F. MILLIGAN.

17 **Patterns of Trauma and Violence among Nomadic Pastoralists at the Nileke Site (500-221 BCE), Northwestern Xinjiang Province, China.** C. LEE, A. BELTRAN-BUZOS, M. ALVAREZ, A. TORRES.

18 **Evidence for violence along the Silk Road (206 BCE-420 CE), in Xinjiang Province, China.** M. JOHNSON, M. SANTOS, A. GARCIA, C. SEPULVEDA, C. LEE.

19 **Violence in 18th and 19th Century London: Analyzing Trauma Prevalence by Cemetery, Age, and Sex.** P. BANKS, D. MILLER.

20 **Conflict and warfare at the Chandman site (700-400 BCE), in northwestern Mongolia.** D. FORNELLI, Y. GONZALEZ, P. ANG, C. CHICKANIS, C. LEE.

21 **Building America on Broken Bones: Comparative Analysis of Antemortem Fracture Patterns of Three Contemporary American Poorhouse Cemeteries.** J.F. BYRNES.

22 **Trauma Prevalence among Enslaved African Males and Females between the 17th and 19th Centuries in the United States.** K. WILLIAMS.

23 **Evidence of an Iron Age Massacre at the Sandby borg Ringfort.** C. ALFSDOTTER, A. KJELLSTRÖM.

24 **Engaging in Combat: Interpersonal Violence in the Ancient Greek Colony, Himera.** C. SAWYER, B. KYLE, N. LONOCE, S. VASSALLO, P.F. FABBRI, L.J. REITSEMA.

25 **Osteomas on the cranial vault: Survey of presence and frequency Erin N. Hall[1] and David R. Hunt[2]. [1]Department of Anthropology,Catholic University, [2]Department of Anthropology, Smithsonian Institution.** E. HALL.

26 **An Analysis of Human Remains from an Inca Ushnu: Polydactylism, Infection, Blunt Force Trauma, and Sharp Force Trauma at Soledad de Tambo, Huachis, Ancash Peru.** A.R. TITELBAUM, J. QUEREVALÚ, N. RIOS, R. CHIRINOS.

27 **Ace in the Hole: Investigating High Levels of Glenoid Fossa Pathologies in Comparative Samples from the Americas.** D.L. NEIDICH, S.A. JOLLY.

28 **Effects of age, activity, and obesity on osteoarthritis in a modern European-American skeletal sample.** A.P. WINBURN.

29 **Limb Joint Degenerative Joint Disease Prevalence in German Populations from the Little Ice Age (AD 1300-1850).** E.J. WADDLE, K. WEINRICH, L.L. WILLIAMS.

30 **Healed Rib Fractures: A Micro-anatomical Assessment.** K.M. HALL, R.R. PAINE.

31 **Evidence for Cancer and Syphilis in a Prehistoric Native American Population from North Carolina.** C.N. WAMSER, C.A. JUAREZ.

32 **The case of a primary malignant bone tumor in a pre-Columbian skeleton from Cerro Brujo, Bocas del Toro, Panamá.** N.E. SMITH-GUZMÁN, J.A. TORETSKY, R.G. COOKE.

33 **Unidentified, multifocal joint disease from the Slovenian Kranj skeletal series.** V. VYROUBAL, M. ŠLAUS, Ž. BEDIĆ, A. PLETERSKI, B. ŠTULAR.

34 **The Effect of Leprotic Infection on the Risk of Death in Medieval Rural Denmark.** K.S. KELMELIS, M.H. PRICE, J.W. WOOD.

35 **Growing Pains: Developmental origins of tuberculosis and periodontal disease in Lisbon's working poor during the turn of the 20th century.** J.C. WHITE.

36 **Pellagra mortality in the historic Mississippi State Asylum: An investigation and comparison of skeletal data and institutional records.** M.L. DAVENPORT, M.K. ZUCKERMAN, N.P. HERRMANN, M. MURPHY.

37 **An Examination of the Osteological Distribution of Leprosy Lesion Types: Results from a Meta-analysis on the Paleopathological Literature on *Mycobacterium Leprae*.** M.A. SCHREIER.

38 **Searching for pathogens in the earliest know colonial epidemic burial in Mexico, Teposcolula Yucundaa.** Å.J. VÅGENE, M.G. CAMPANA, N. GARCÍA, D. HUSON, N. TUROSS, A. HERBIG, K.I. BOS, J. KRAUSE.

39 **Periodontal disease and periosteal lesions in a prehistoric population from Kentucky: searching for evidence of systemic inflammation.** K.N. WILHAM, P.J. DIBLASI, S.N. DEWITTE, F.A. CRESPO.

40 **Spectroscopic Approach to Human Bone/Collagen in Pre-industrial Populations: Preservation vs Chronic Diseases.** O. LÓPEZ-COSTAS, M. RIAL TUBÍO, J. KAAL, A. MARTÍNEZ CORTIZAS.

41 **Differential Diagnosis of a Possible Endocrine Disorder in an Ancient Maya Skeleton from the Chan Site, Belize.** A. NOVOTNY, S. MITCHELL.

42 **Micromorphological study of hypocellular human mastoids.** S. FLOHR, A.K. BRESSLER, H. KIERDORF, M. SCHULTZ, U. KIERDORF.

43 **Single nucleotide polymorphisms in the FGFR3 gene: interpreting cranial, neural, and vascular changes in prehistoric cases of achondroplasia.** S.M. LEE, N.K. APODACA, R.S. JABBOUR, G.D. RICHARDS.

44 **Craniosynostosis and Inheritance: A Bioarchaeological review in the Middle Tennessee**

River Valley. B.S. THOMPSON.

45 **Sixth Lumbar Sacralization and Familial Relatedness among Tiwanaku Individuals Buried at M70 in Moquegua, Peru.** S.K. BECKER, B.E. HERNDON, G. TORRES MORALES, P.S. GOLDSTEIN.

46 **Pre-Axial Polydactyly in a Mid-Holocene Human Skeleton from Gobero, Niger.** S.E. BURNETT, C.M. STOJANOWSKI.

47 **The Incidence and Variance of Metopism in Three Medieval British Populations.** C.L. BURRELL, S. GONZALEZ, J.D. IRISH.

48 **Extraction of cortical area thickness profiles from CT-scanned femurs.** J. DUPEJ, A. LACOSTE JEANSON, J. BRŮŽEK, J. PELIKÁN.

49 **The Effect of Mobility Impairment on Femoral Trabecular and Cortical Bone Structure.** D.S. GLEIBER, D.J. WESCOTT.

50 **Eastern States Mental Hospital: Does the Presence of Heavy Metals as Evidenced by pXRF in the Bone and Teeth Indicate use of "Heroic Medicine" ?** P.E. KILLORAN.

51 **Age, Exposure, and Disease: An Osteological Analysis of Three Juvenile Individuals from the Helton Site in the Lower Illinois River Valley.** A. ROSSILLO.

52 **Identification of *Mycobacterium tuberculosis* in dental calculus from the Smithsonian's Huntington Collection.** S.E. YOUNG, A.L. WARNER-SMITH.

53 **Prevalence of Degenerative Joint Disease and Schmorl's nodes in Little Ice Age German populations.** K. WEINRICH, E. WADDLE, L.L. WILLIAMS.

54 **Assessment of the thoracolumbar transition in modern humans.** E.O. CHO, T.K. NALLEY, E.R. MIDDLETON, C.V. WARD.

Saturday, Afternoon sessions.

Session 62: Primates and Dietary Ethanol: Evolutionary Outcome, or Modern Accident?

Invited Podium Symposium. Chair: Nathaniel J. Dominy, Robert Dudley.

Co-organizers: Robert Dudley, UC Berkeley; Nathaniel Dominy, Dartmouth College.

Bissonet.

Increasing recognition of the natural occurrence of ethanol within fruits and nectar has prompted speculation concerning the extent of dietary ingestion of this substance by various animals, including primates. Many animals (including modern humans) exhibit sensory and behavioral responses to ethanol-containing foods, but the broader ecological significance as well as evolutionary origins of these responses remain remarkably unstudied. Paleogenetic reconstruction of ethanol-metabolizing enzymes, demonstrable fermentation of sugars within fruits and nectar, and behavioral responses of some primates to ethanol are all consistent with ancestral exposure of hominids, and possibly all primates, to this most widespread of the psychoactive compounds consumed by humans today. Low-level alcohol consumption may thus characterize all nectarivores and frugivores. This symposium will review recent empirical evidence for the natural ingestion of ethanol by primates, the origins of directed fermentations, and assess the possible consequences for routine drinking behavior in modern humans, including excessive consumption.

2:30 **Are frugivores and nectarivores boozers too?** R. DUDLEY.

2:45 **Toxin Evolution for Organismal Defense: Is Ethanol a Special Case?** R. SULLIVAN.

3:00 **Aliphatic esters in primate-consumed fruits: a reliable cue for fruit quality?** O. NEVO, K. VALENTA.

3:15 **Spider monkeys and the functional ecology of olfactory sensitivities to alcohol.** L. HERNANDEZ-SALAZAR, M. LASKA.

3:30 **The 'Drunken Monkey' Hypothesis and spider monkeys (*Ateles geoffroyi*): Further Evaluation.** C.J. CAMPBELL, V.R. WEAVER, R. DUDLEY.

3:45 **Hominids adapted to metabolize ethanol long before human-directed fermentation.** M.A. CARRIGAN.

4:00 **Nectar and the genetic basis of ethanol metabolism in Euarchonta.** A.D. MELIN, G. DUYTSCHAEVER, K. WELLS, P. ONG, N.J. DOMINY.

4:15 **Some Strepsirrhines Prefer Alcohol.** N.J. DOMINY, S.R. GOCHMAN.

4:30 **Wild chimpanzees consume alcohol using tools.** K.J. HOCKINGS, T. MATSUZAWA.

4:45 **Origins of yeast domestication, as revealed from wine.** J. LEGRAS.

5:00 **Discussant: Erin R. Vogel.**

Session 63: Up Goer Five PhysAnth Edition: Communicate Your Science Using English's Ten Hundred Most Common Words

Invited Podium Symposium. Chair: Kim Valenta, Katherine H. Bannar-Martin.

Co-organizers: Katherine H. Bannar-Martin and Kim Valenta.

Studio 7/8/9.

A major challenge to scientific researchers is effectively disseminating and communicating their work to diverse audiences. If we are to motivate change, human understanding, or explain the importance of our research to funding bodies and public policy makers, we must find ways to communicate complex concepts and findings to non-specialists. In this session, all speakers have agreed to the rules of the Up Goer Five challenge - to describe their research using only the top 1,000 most common words in the English language. Presentations will be followed by a moderated discussion about the role of language in physical anthropology and science communication.

4:45 **Dogs go places they are not from and eat weird animals in their homes: Reasons for fewer weird animals.** K. VALENTA, Z.J. FARRIS, S. ZOHDY.

4:50 **How to tell people who are from a place and people who are not from that place by how they are put in the ground after death and from things in their teeth.** M.A. KATZENBERG, A.M. OFFENBECKER.

4:55 **Why Eating Flies and other very tiny Animals was Probably Important to No-longer-living, Human-like Animals.** J.J. LESNIK.

5:00 **How Much Food do Animals Need to Walk, Run, and Climb? This Much.** H. PONTZER.

5:05 **Tiny Old Dead Human-Like Animals Found in Rocks and What They Tell Us about How Life Changes Over a Long Time.** A.L. ATWATER, E.C. KIRK.

5:10 **Are jumping tree animals getting smaller over time because humans catch and eat the larger ones?** A.P. SULLIVAN, L.R. GODFREY, R. LAWLER, T. RYAN, G. PERRY.

5:15 **The relationship between the soft pink things and the hard white things.** K.N. RABEY, R. MOSKAL, K.G. HATALA, E. WILLIAMS-HATALA.

5:20 **Little Green Men, Huge Angry People, and Across the Water Visits: Very Wrong Things People Say about Old Times in the New World.** R.W. SMITH, J.A. RAFF.

5:25 **Which tree animal types live in areas together, and why? In part because of people things.** K.H. BANNAR-MARTIN.

Session 64: Human Adaptive Variation/Integrative Approaches

Contributed Podium Presentations. Chair: Courtney L. Meehan .

Balcony I/J.

2:30 **Understanding human brain evolution through neuropathology: the case for Williams syndrome.** K.L. HANSON, C.F. HORTON LEW, U. BELLUGI, K. SEMENDEFERI.

2:45 **Effects of Agricultural Transitions on the Evolution of Human Sensory Systems.** C.C. VEILLEUX, E.C. GARRETT, R.J. BANKOFF, N.J. DOMINY, G.H. PERRY, A.D. MELIN.

3:00 **Association between maternal stress and telomere length in the eastern Democratic Republic of the Congo.** P.H. REJ, N.C. RODNEY, D.A. KERTES, C.J. MULLIGAN.

3:15 **Deflating the "Good Genes Hypothesis": Asymmetry may not be an honest indicator of genetic quality in humans.** J.D. WHITE, A.A. ZAIDI, C.M. BERGEY, T. GONZALEZ-ZARZAR, P. CLAES, M.D. SHRIVER.

3:30 **Genome-wide cytosine methylation differences between ancient hunter-gatherers and farmers.** D. KOPTEKIN, G.M. KILINÇ, A.P. SÜMER, M. DÖNERTAŞ, M. SOMEL.

3:45 **Altered DNA Methylation of Methylation Complex Genes in Relation to Maternal Stress.** C.J. CLUKAY, D.A. HUGHES, N.C. RODNEY, D.A. KERTES, C.J. MULLIGAN.

4:00 **Genome-wide epigenetic signatures of high-altitude adaptation in Peru.** A. CHILDEBAYEVA, D.C. DOLINOY, J.M. GOODRICH, M. RIVERA-CHIRA, F. LEON VALERDE, M. KIYAMU, T. BRUTSAERT, A.W. BIGHAM.

4:15 **Costs of reproduction assessed via telomere length and epigenetic age measures of biological senescence in young adult women from Cebu, the Philippines.** D.T. EISENBERG, M. HAYES, T. MCDADE, C.P. RYAN, A. GEORGIEV, M. JONES, M.S. KOBOR, C.W. KUZAWA.

4:30 **Patterns of Genetic Coding Variation in a Native American Population Before and After European Colonization.** J. LINDO, B. PETZELT, J. MITCHELL, M. DEGIORGIO, R.S. MALHI.

4:45 **Assessment of DNA Methylation Patterns in Nonhuman Primate Skeletal Tissue.** G. HOUSMAN, E. QUILLEN, A.C. STONE.

5:00 **The Social Worlds of Mothers, Infants, and Microbes: Cooperative Breeding and the Human Milk Microbiome.** C.L. MEEHAN, K.A. LACKEY, E.H. HAGEN, J.E. WILLIAMS, M.A. MCGUIRE, M.K. MCGUIRE.

5:15 **Mother's milk oligosaccharides and infant gut microbiota: seasonality and infant outcomes in rural Gambia.** R.M. BERNSTEIN, J.C. DAVIS, Z.T. LEWIS, S. KRISHNAN, S.E. MOORE, A.M. PRENTICE, D.A. MILLS, C.B. LEBRILLA, A.M. ZIVKOIVC.

5:30 **Associations between biomarkers of immune function and cognitive performance in forager-horticulturalists with high parasite and pathogen loads.** B.C. TRUMBLE, J. STIEGLITZ, A.D. BLACKWELL, B. BEHEIM, D.K. CUMMINGS, H. KAPLAN, M. GURVEN.

5:45 **The Hormonal and Elemental Composition of Dehydrated Human Placenta Capsules.** L.K. GRYDER, S.M. YOUNG, W.B. DAVID, Y. TENG, D. ZAVA, D.W. KIMBALL, S. GERSTENBERGER, D.C. BENYSHEK.

Session 65: Primate Evolutionary Morphology

Contributed Podium Presentations. Chair: Kimberly Congdon.

Studio 1/2/3.

2:30 **Estimating primate morphological ancestors: Implications for the analysis of hominoid cranial evolution.** N. VON CRAMON-TAUBADEL, L. SCHROEDER.

2:45 **Homoplasy in papionins: an explanation from genetic sources of variation shared by body size and craniofacial form.** J.L. JOGANIC, K.E. WILLMORE, J.T. RICHTSMEIER, L.A. COX, M.C. MAHANEY, J. ROGERS, J.M. CHEVERUD.

3:00 **Processes that generate modularity in the mammalian skull: implications for primate skull evolution.** N. SINGH, R.H. REEVES, J.T. RICHTSMEIER.

3:15 **Trait Variation, Convergence, and Ecogeographic Patterns in *Macaca* Crania.** S.J. WILLIAMS, B.M. AUERBACH.

3:30 **The evolution of hominoid cranial diversity: a quantitative genetics approach.** L. SCHROEDER, N. VON CRAMON-TAUBADEL.

3:45 **Running behavior predicts brain size in primates.** A.M. DELOUIZE, F.L. COOLIDGE.

4:00 **Functional Morphology of the Hominoid Ankle Joint: Locomotor Activity and Shape Variation of the Tibial Plafond.** M.A. FRELAT, T. JASHASHVILI, K.J. CARLSON.

4:15 **Trabecular anisotropy in the primate lower ilium reflects locomotor mode.** D. SHAPIRO.

4:30 **Locomotor mode and kinematics of the head, neck, and trunk in *Varecia variegata*.** N. GRIDER-POTTER, A. ZEININGER.

4:45 **Does increased contact with an arboreal substrate result in decreased digital grasping pressures?** K.A. CONGDON.

5:00 **Automatic segmentation of morphological structure into biologically corresponding features: implications for systematics and ecomorphology.** E.L. FULWOOD, T. GAO, I. DAUBECHIES, D.M. BOYER.

5:15 **Which Tooth Best Predicts Diet using Dental Complexity in Fossil Primates?** S. PINEDA-MUNOZ, I.A. LAZAGABASTER.

5:30 **The role of the hypocone in primate diversification: a test of the key-innovation hypothesis.** J.E. SCOTT.

5:45 **Dietary properties, chewing patterns and cyclical loading: It's wicked hard always being tough.** M.J. RAVOSA, S. COINER-COLLIER, K.R. MCABEE, A.L. FLING.

6:00 **Exudate-feeding in Lorisidae: Evolutionary divergence in the toothcomb and lower molar.** A.M. BURROWS, A. HARTSTONE-ROSE, L.T. NASH.

Session 66: Division of Fossil Primates, Duke Lemur Center – 40th Anniversary Symposium

Invited Poster Symposium. Chair: Gregg F. Gunnell, Erik R. Seiffert, Ellen R. Miller, Prithijit Chatrath.

Co-organizers: Erik R. Seiffert, University of Southern California; Ellen R. Miller, Wake Forest University.

Balcony K.

In 1977 Elwyn Simons moved from Yale University to become the Director of the Duke Primate Center. At that time he also established the Division of Fossil Primates (DFP) in order to enable and promote the study of primate evolutionary history at Duke University. When Simons arrived in Durham he already had an established field program in the Fayum Depression in Egypt where 30-37 million year old iconic fossils related to anthropoid origins were being found. Subsequently, in 1983 he initiated field work in Madagascar seeking subfossil specimens to document the giant

lemurs that had once inhabited the island. In addition, whenever possible Simons augmented the collections at the DFP by trips to Wyoming to collect early Eocene fossil primates from the Willwood Formation. Also, occasional trips to India in search of Miocene monkeys and apes were interspersed along the way. All told, Simons and his trusted colleague Prithijit Chatrath led expeditions that amassed nearly 60,000 specimens over a 40 year history – of these over 35,000 are now housed at the DFP while the rest are stored in Cairo, Haritalyangar and Antananarivo. The DFP collections are unique and represent by far the most complete collection documenting the origination and radiation of early anthropoid primates anywhere in the world. Additionally, the collections from Madagascar are large and wide-ranging rivaled only by the collections at the American Museum of Natural History in New York, the Museum National d'Histoire Naturelle in Paris and those in Madagascar. Over 200 students and colleagues have been involved with field work over the past 40 years. This symposium features some of the students and professionals who have been directly responsible for amassing and studying the DFP collections over the years and highlights the discoveries that have influenced and advanced the sciences of primate paleontology and paleoanthropology.

4:00 **Discussants: John G. Fleagle and Laurie Godfrey.**

1 **Brain Proportions in Early Anthropoid Evolution: Evidence from the Fayum Fossil Record.** R. LAVINGIA, K.L. ALLEN.

2 **Documenting Skeletal Anatomy of Early Adapiforms.** L.A. GONZALES, C.H. CRAWFORD, J.T. GLADMAN, J.P. ALEXANDER, J.I. BLOCH, G.F. GUNNELL, D.M. BOYER.

3 **A multi-isotope investigation of extinct monkey lemurs (*Archaeolemur*) from Antsirondoha cave, Madagascar.** B.E. CROWLEY.

4 **Exploring the mode and tempo of Madagascar's lemuriform radiation.** S. FEDERMAN, G. GUNNEL, R. RIVAS, E. SARGIS, A. YODER, G. PERRY, A. DORNBURG.

5 **Evolution of the primate vomeronasal system: fossil evidence from the Fayum.** E.C. GARRETT, L.A. GONZALES, E.C. KIRK, E.R. SEIFFERT.

6 **Distal Phalanges and the Origin of Crown-Group Anthropoids.** D. GEBO, M. DAGOSTO, C. BEARD, X. NI.

7 **Early anthropoid dental eruption and development.** G.F. GUNNELL, E.R. MILLER, E.R. SEIFFERT, H.M. SALLAM, G.T. SCHWARTZ.

8 **The impact of fossil data on inferences of lemur biogeographic history.** J.P. HERRERA.

9 **Are there any African Platyrrhines?** R.F. KAY, B.A. WILLIAMS.

10 **Evaluating Ecological Change in Western Madagascar: A Paleontological Perspective.** K.M. MULDOON.

11 **New fossils and the paleobiology of *Karanisia clarki* from the late Eocene of Egypt.** B.A. PATEL, D.M. BOYER, B.A. PERCHALSKI, T.M. RYAN, E.M. ST. CLAIR, J.M. WINCHESTER, E.R. SEIFFERT.

12 **Covariation in life history, body and brain size, and molecular substitution rate across the diverse radiation of extant and extinct (megafaunal) lemurs.** G. PERRY, L. KISTLER, G.T. SCHWARTZ, L.R. GODFREY, L. ORLANDO.

13 **An additional caenopithecine adapiform primate from the late Eocene of Egypt.** E.R. SEIFFERT, D.M. BOYER, J.G. FLEAGLE, J.M. PERRY, H.M. SALLAM, G.F. GUNNELL.

14 **Exploring an Undersampled Interval in Primate Evolutionary History: Insights from the Late Oligocene Nsungwe Formation of Tanzania.** N.J. STEVENS, E.M. ROBERTS, P.M. OCONNOR.

15 **Bayesian Tip-dating of Caviomorph Rodent Phylogenies provides New Age Estimates for South America's oldest Platyrrhines.** D. DE VRIES, E. SEIFFERT.

Session 67: The Paleobiology of Upper Paleolithic / Later Stone Age Humans

Invited Poster Symposium. Chair: Erik Trinkaus, Sébastien Villotte.

Co-organizers: Sébastien Villotte.

Studio 4/5.

The past few decades of paleoanthropological research has seen a focus on the human paleobiology (and mortuary analysis) of the Upper Paleolithic / Later Stone Age (≈40 – ≈10 ka). These people have been increasingly viewed in terms of dynamic and culturally complex forager populations in a changing global climate, instead of being studied merely in terms of the establishment of modern versus archaic human biology. These analyses have been concerned with trends through this period in shifting body proportions, reflections of activity levels, growth and development, changing levels and patterns of paleopathology, aspects of dental structure and wear, skeletal reflections of diverse mortuary behaviors, patterns of population diversity and dispersal, and adaptations to diverse environments. The research has been greatly augmented by detailed reassessments of long-known important human skeletal samples, combined with the analyses of newly discovered remains. This symposium brings together an international group of paleoanthropologists addressing these issues with new data, new analyses and new fossils. It is designed to foster discussion on the biology and behavior of these Late Pleistocene early modern humans, the people who reflect both the heyday of highly successful global hunter-gatherers and provided the background for the increased sedentism of the early Holocene.

2:30 **Introduction: Erik Trinkaus and Sébastien Villotte.**

5:00 **Discussant: Brigitte Holt.**

1 **Upper Paleolithic and recent human brain variation and evolution.** A. BALZEAU, D. GRIMAUD-HERVÉ, L. ALBESSARD.

2 **Dental developmental patterns and tooth internal structure in European Upper Paleolithic humans.** P. BAYLE, M. LE LUYER.

3 **Late Pleistocene modern human diversity in Central Africa.** I. CREVECOEUR, A. BROOKS, I. RIBOT, P. SEMAL.

4 **Effects of technology on Upper Paleolithic human diet.** S. EL ZAATARI, F.E. GRINE, P.S. UNGAR, J. HUBLIN.

5 **Later Stone Age infant remains from the Grotte des Pigeons at Taforalt.** L. HUMPHREY, A. FREYNE, A. BOUZOUGGAR, N. BARTON.

6 **Evidence for Subsistence Shifts in the Late Upper Paleolithic of Europe: Caries and Antemortem Tooth Loss.** S.A. LACY.

7 **Dental remains of Late Pleistocene European foragers: external and internal characterization.** M. LE LUYER.

8 **Variation among inferred habitual activity in Upper Pleistocene modern humans.** O.M. PEARSON, E.C. HILL, V.S. SPARACELLO.

9 **The Upper Paleolithic human remains from the Troisième caverne of Goyet (Belgium).** H. ROUGIER, I. CREVECOEUR, A. GÓMEZ-OLIVENCIA, P. SEMAL.

10 **Infracranial variability among the Magdalenian people of southwestern France.** M. SAMSEL, C.J. KNÜSEL, S. VILLOTTE.

11 **Paleobiology, Competition and Migration in Late Pleistocene Southeast Asia.** A. ZACHWIEJA, L.L. SHACKELFORD.

12 **Morphological variability of Upper Paleolithic and Mesolithic skulls from Sicily.** L. SINEO, M. GALLAND, G. D'AMORE, M. FRIESS, R. PINHASI, R. MICCICHE'.

13 **Late Upper Paleolithic funerary behavior at Arene Candide Cave (Finale Ligure, Italy).** V.S. SPARACELLO, S. ROSSI, P. PETTITT, C.A. ROBERTS, J. RIEL-SALVATORE, V. FORMICOLA.

14 **Early and Middle Epipalaeolithic human remains from Jordan: implications for**

understanding late Pleistocene population and foraging complexity in the Levant. J.T. STOCK, E. POMEROY, T. DAVIES, T. RICHTER, L. MAHER.

15 **Population movements throughout northern Africa during the Pleistocene-Holocene transition.** C.M. STOJANOWSKI, R. BOOKMAN, C.L. CARVER.

16 **Puzzling Pairs from Pavlov: Mortuary Manipulation in the Mid Upper Paleolithic.** E. TRINKAUS, P. WOJTAL, J. WILCZYNSKI, S. SAZELOVA, J.A. SVOBODA.

17 **Gravettian human remains from Gargas (Hautes-Pyrénées, France). Implication for biological diversity and mortuary practices during the Upper Paleolithic.** S. VILLOTTE, P. BAYLE, S. NATAHI, C. VERCOUTÈRE, C. FERRIER, C. SAN JUAN-FOUCHER, P. FOUCHER.

18 **Biological and Cultural Factors influencing Non-masticatory Dental Wear in Early and Late Upper Paleolithic Humans.** J.C. WILLMAN, K.L. KRUEGER.

Session 68: Stable Isotope Advances in Studies of Stress and Disease

Invited Poster Symposium. Chair: Sammantha N. Holder, Laurie J. Reitsema.

Co-organizers: Sammantha Holder, Department of Anthropology, University of Georgia, Athens, GA; Laurie J. Reitsema, Department of Anthropology, University of Georgia, Athens, GA.

Studio 6.

This session explores recent advances and future prospects in the application of stable isotope data to human paleopathology. Stable isotope analysis of human remains is widely used in anthropology to reconstruct past diet and migration, based on the adage “You are what you eat.” In addition to diet, pathological conditions and physiological stress affecting fractionation, uptake, and distribution of isotopes throughout the body also create isotopic variation in tissues. Although this additional source of isotope variation complicates dietary reconstructions, it provides novel opportunities for studying past stress and health in archaeological remains. The last 10 years have seen a surge in research exploring the utility of stable isotope ratios as indicators of malnutrition, stress, and disease. This symposium assembles some of this research into *in vivo* fractionation and distribution of isotopes, and addresses a persistent question: How may stress-induced fractionation and stable isotope variation shed light on questions of past health, when the tissues sampled are relatively inert? Subjects of particular interest include sampling strategies, tissue turnover, theoretical issues of health and disease, and individuals or groups with known histories of ill-health.

4:00 **Individual poster presentations and discussion led by Anne Katzenberg.**

1 **Addressing the Inertness of Bones and Teeth in Isotopic Studies of Stress and Disease: A review of Advances and Future Prospects.** S. HOLDER, L.J. REITSEMA, C.J. GARLAND, A.K. SMITH, J. LUNSFORD, M. KRAJEWSKA, T. KOZLOWSKI.

2 **The Effects of Pathology on the Intra-tissue Carbon and Nitrogen Isotopic Variability of Human Bone Collagen.** K.C. OLSEN, C.D. WHITE, F.J. LONGSTAFFE, K. VON HEYKING, G. MCGLYNN, G. GRUPE, F.J. RÜHLI.

3 **Stable Isotope Reconstruction of Maladaptive Breastfeeding and Weaning Practices in a 19th Century Rural Dutch Community: The Effect of Possible Negative Nitrogen Balance on Stable Nitrogen Isotope Values.** A.L. WATERS-RIST, M.L. HOOGLAND.

4 **The Impact of Caloric Restriction on Tissue Isotopic (Nitrogen, Carbon and Oxygen) Values.** N.C. TUROSS.

5 **Early Life Stress at the Mission Santa Catalina de Guale: Combining Enamel Defects and Incremental Isotope Analysis of Dentin to Explore Nutrition as a Source of Stress.** C.J. GARLAND, L.J. REITSEMA.

6 **Sub-seasonal oxygen isotope variations in human bone reflect changes in drinking water.** C.M. MAGGIANO, C. WHITE, R. STERN, F.J. LONGSTAFFE.

Session 69: Functional Anatomy of the Limbs

Contributed Poster Presentations. Chair: Aidan A. Ruth.

Carondolet.

1 **Hindlimb Bone Strength Ratios reveal Decreased Limb Tapering in Humans vs. Other Great Apes.** M.N. COSMAN, S. SCHLECHT, K. JEPSEN, L. MACLATCHY, M. DEVLIN.

2 **When I Grow Up; Limb Development and Adaptation in Old World Primates.** J.A. NADELL, S. ELTON, K. KOVAROVIC.

3 **Pronogrady, not fast speed specifically, acts as a constraint on vertebral formula in mammals.** M.R. SHATTUCK, L.A. PETRULLO, A. PETERSON, A.B. LEE, E. KACZMAREK, D.M. GOLDSTEIN, S.A. WILLIAMS.

4 **Intraspecific Variation during Quadrupedal Locomotion in Mammals.** M.C. GRANATOSKY, P. LEMELIN, C.F. ROSS, E. MCELROY, D. SCHMITT.

5 **Is all Quadrupedalism the Same? Form-function Relationships in Behaviorally Flexible Primates.** D. SCHMITT, M.C. GRANATOSKY.

6 **Bipedal Loading Behaviors do Not Always Induce Cross-sectional Changes in Bone.** A.D. FOSTER.

7 **Quantifying muscular response to habitual activity: Toward understanding muscle-bone interactions for anthropological behavioral reconstructions.** C.M. TURCOTTE, K.N. RABEY, D.J. GREEN, S.C. MCFARLIN.

8 **A foot for all seasons: Grauer gorillas reveal the effects of phylogeny and function on the evolution of gorilla foot morphology.** M.W. TOCHERI, R.P. KNIGGE, C.M. ORR, K.P. MCNULTY.

9 **Morphological correlates of limb differentiation in the cross-sectional geometric properties of anthropoid primate metapodials.** S.H. BUI, B.A. PATEL.

10 **Morphological integration of anatomical, functional, and developmental modules of the postcranium in the Crab-eating Macaque (*Macaca fascicularis*).** M.A. CONAWAY, L. SCHROEDER, N. VON CRAMON-TAUBADEL.

11 **Hominoid scapular morphology suggests a generalized last common ancestor.** M.S. SELBY, C. LOVEJOY.

12 **The Relationship of the Glenoid Fossa and Acromion process as a Predictor of Locomotor Behavior.** K.E. BAILEY, N.B. GROW.

13 **Intraspecific Variation and Functional Morphology in the Humerus of Cercopithecoids.** A. GOSSELIN-ILDARI.

14 **Examining the influence of function and phylogeny on skeletal shape: A case study involving proximal and distal articular surfaces of hominoid third metacarpals.** T.R. REIN.

15 **Quinticeps? Investigating a Possible Fifth Head of the Quadriceps femoris in Non-human Primates.** H.W. HEMINGWAY, M.N. MUCHLINSKI.

16 **The relationship of knee rotation to lateral meniscus shape and attachments in hominoids.** A.A. RUTH.

17 **Gait Asymmetry in Humans and Other Animals: How much is Normal and Why Does it Exist?** A.Z. FITZSIMONS, M.C. GRANATOSKY, R.M. QUEEN, P. LEMELIN, A. ZEININGER, H. CHAPMAN, D. SCHMITT.

18 **Intrinsic manual proportions affect the biomechanics of suspension.** K.R. RAMIREZ, H. PONTZER.

19 **Morphological Correlates of Locomotor Mode in the Volar Pads of Strepsirrhine Primates.** A.K. KINGSTON.

20 **Hand and foot postures during vertical clinging and grasping: implications for digit length in primates.** L.E. JOHNSON, D. SCHMITT.

21 **Calcaneal trabecular structure in terrestrial and arboreal primates and marsupials: implications for the locomotor behaviour of the extinct wombat, *Phascolmys mitchelli*.** D.A. SFORZIN, V.C. PILBROW, D.C. ACKLAND.

22 **Lateralization in the Slow Loris (*Nycticebus* spp.) 'Venom Pose'.** S.A. POINDEXTER, K. NEKARIS.

23 **Geometric morphometric analysis of variation in human hallucal metatarsal periosteal and endosteal shape in rural and urban populations.** L.A. WILSON, I. DE GROOTE, L.T. HUMPHREY.

24 **A geometric morphometric analysis of pollical metacarpal shaft morphology in Gorilla, Pan, and Homo.** L.A. BOWLAND, J.E. SCOTT, B.A. PATEL, M.W. TOCHERI, C.M. ORR.

25 **Exploring morphological shape variation in modern human tali.** R. SORRENTINO, C. MINGHETTI, W. PARR, K. TURLEY, S. WROE, C. SHAW, J. SAERS, A. SU, L. FIORENZA, F. FELETTI, S. FROST, K.J. CARLSON, M.G. BELCASTRO, T. RYAN, S. BENAZZI.

26 **Walking in their shoes: A multidisciplinary approach to understanding tarsal coalition in Medieval Exeter.** M.E. ALBEE.

27 **Kinematic Effects of Body Size Differences during Walking.** M.C. FOX, K.K. WHITCOME, J.D. POLK.

28 **Ontogenetic Changes and Adult Variation in Human Metatarsal Torsion.** A.N. HEARD-BOOTH, A.D. KEMP.

29 **Incorporating Spatial Analysis into a Whole-epiphysis Approach to Studying Trabecular Bone Structure in the Distal Femur of *Homo, Pan, Pongo,* and *Papio*.** S.M. SUKHDEO, T.M. RYAN.

Session 70: Human Skeletal Biology: Population History and Beyond

Contributed Poster Presentations. Chair: Molly K. Zuckerman.

Carondolet.

1 **Two recently excavated Megalithic gallery graves in Erwitte-Schmerlecke (North Rhine-Westphalia) from the Wartberg Culture (3500-2800 BC) with focus on the investigation of their builders.** S. KLINGNER, M. SCHULTZ.

2 **Reconstructing the monastic lifestyle: Bioarchaeological investigation of living conditions in a religious community based on human skeletal remains from el-Ghazali, Sudan.** J.A. CIESIELSKA, R.J. STARK.

3 **Mortality Effects of Discrimination in Post-Medieval Ireland.** M.A. CLARK.

4 **Skeletal Height Estimation in Medieval Bioarchaeological Collections from Piedmont, Italy.** N.M. WEISS, G. VERCELLOTTI, R. BOANO, M. GIROTTI, S.D. STOUT.

5 **Implementing Intersectionality in Bioarchaeology: A Study of Sex and Status at Roman Winchester.** L. AVERY, T.L. PROWSE, M.B. BRICKLEY.

6 **The Rise of an Empire, the Decline of its People: Stature and body proportion in Roman Britain.** L.J. WALTHER, R.L. GOWLAND.

7 **Age and Sex-related Changes in Cross-Sectional Geometry in a 17th-19th Century Rural Dutch Population.** C. CHILCOTE, A.L. WATERS-RIST, M.L. HOOGLAND, S.C. AGARWAL.

8 **An Interdisciplinary Project on the Neolithic Population of Modern Switzerland.** I. SIEBKE,

A. FURTWÄNGLER, A. HAFNER, J. KRAUSE, S. LÖSCH.

9 **Anthropological and bioarchaeological approaches to two medieval populations from Reigoldswil (Switzerland).** V. TRANCIK PETITPIERRE, A. HAFNER, S. LÖSCH.

10 **Keep your head high - Mesolithic crania mounted on stakes at Kanaljorden, Sweden.** A.S. KJELLSTR&#65533;M, S. GUMMESSON, F. HALLGREN.

11 **Urbanization's Impact: Health and Survivorship Patterns in Medieval Poland.** T.K. BETSINGER, S. DEWITTE.

12 **Preliminary findings on relationships among neural canal dimensions, terminal adult stature, and risk of death in a medieval Polish sample at Bezławki.** A. GRUENTHAL-RANKIN, M. RAMSIER, A. KOPERKIEWICZ, M. POLCYN.

13 **Sexual dimorphism of the upper face, mandible and palate in elite of early medieval population from the Central Europe.** Š. BEJDOVÁ, J. DUPEJ, J. VELEMÍNSKÁ, L. POLÁČEK, P. VELEMÍNSKÝ.

14 **Sexual Dimorphism in an Early Medieval Population (IX.-XI. Century) from Central Europe and its relationship to socio-economic stratification.** P. VELEMINSKY, P. STRÁNSKÁ, J. DUPEJ, P. HAVELKOVÁ, S. KAUPOVÁ, J. FROLÍK, L. POLÁČEK, J. BRUZEK.

15 **Bio-cultural analysis of an early 18th century noble family in Transylvania, Romania.** K. ZEJDLIK, Z. NYÁRÁDI, R. SANDQUIST, A. GONCIAR.

16 **A rocky start: The conundrum of a post-medieval burial ground in Gibraltar.** D.L. WARD, E. POMEROY, J. GRANT, S. BENADY, C. FINLAYSON, M. REINOSO DEL RÍO, J. GUTIÉRREZ LÓPEZ, K. LANE.

17 **Biological distance between flexed and supine burials at the ancient Greek city of Himera using dental nonmetric data.** J. CZAPLA, B. KYLE, S. VASSALLO, P. FABBRI, L.J. REITSEMA.

18 **The Bioanthropology of the inhabitants of the Late Middle to Early Late Bronze Age at Megiddo, southern Levant.** M. FAERMAN, M. MARTIN, P. SMITH.

19 **Assessing the role of migration during a cultural transition (fourth century BC to AD sixth century): Strontium isotope results from Samtavro cemetery, Central Georgia.** N. LANGOWSKI, V. PILBROW, R. MAAS.

20 **Are the socially recognized ethnic groups of northern Pakistan meaningful biological entities for reconstruction of population histories? A dental morphology investigation.** M. TARIQ, H. AHMAD, B. HEMPHILL.

21 **Historic era immigrants to northern Pakistan? A dental morphology investigation of Pathans, Gujars and Kohistanis.** I. ULLAH, H. AHMAD, B.E. HEMPHILL.

22 **Tracking Humans: A bio-archaeological approach to the history of pre-colonial populations in the Dogon Country (Mali).** N. DLAMINI, E. HUYSECOM, A. MAYOR, I. HAJDAS, J. SEALY.

23 **Fetal Remains in Bioarchaeology: A Case Study from the 19th Century Spring Street Presbyterian Church.** M.A. ELLIS.

24 **Perinatal death - a multitude of fetal and neonatal burials at the churchyard of Michelberg, Austria.** M. BERNER, A. STADLMAYR, D. PANY-KUCERA, E. RAMMER, E. LAUERMANN.

25 **Biological and cultural evidence for social maturation at Point Hope, Alaska: Integrating data from archaeological mortuary practices and human skeletal biology.** L. JUSTICE, D.H. TEMPLE.

26 **Age Related Changes in Trabecular Bone Structure in a Sample of Early Agriculturalists.** D.J. KLEBECK, T. RYAN.

27 **Anterior femoral curvature tracks decreasing mobility from Woodland to Mississippian.** A.Y. ABU DALOU.

28 **Postcranial Robusticity of Two Precolonial Brazilian Coastal Shellmound Builders Groups Relative to Differences on Daily Activities and Mobility.** A.D. SALLES, M. KONSKIER, E.T. TONOMURA, A. LESSA.

29 **From the Shenks Ferry people to the Susquehannocks: Inferring population history in the Lower Susquehanna Valley from dental morphology.** D.E. EHRLICH.

30 **Bioarchaeological Assessment of Childhood Morbidity during the Coles Creek Period in the southern Lower Mississippi Valley.** G.A. LISTI.

31 **Steele: An Examination of Early Archaic Cremations from Southern Indiana.** R. QUATAERT, C.W. SCHMIDT, C. TOMAK.

32 **Historic and Skeletal Mortality of the Mississippi State Asylum.** A.M. PLEMONS, M.L. DAVENPORT, N.P. HERRMANN.

33 **Social Status, Skeletal Biology, and the Lords of Sipán: Bioarchaeological Perspectives on the Moche Elite, North Coast Peru.** A.C. HAM, H. KLAUS, J. THOMAS, S. BALL, H. HULEY, G. BROWN, J. YOUNG, E. BRACAMONTE LEVANO, W. ALVA ALVA.

34 **Kinship Structures and Victim Origins in a Mass Human Sacrifice: Biodistance Analysis of Intracemetery Dental Phenetic Variation, Temple of the Sacred Stone, Túcume, Peru.** J.E. YOUNG, H.D. KLAUS, J. TOYNE, B. DELGADO.

35 **The confusing case of Grave 42: a bioarchaeological analysis.** C. JAMES, K. FLOR-STAGNATO, E. CANTOR, A.J. OSTERHOLTZ, A. GONCIAR, Z. NYÁRÁDI.

36 **A comparative bioarchaeological analysis of two Formative Period communities from the lower Rio Verde, Oaxaca, Mexico.** A.J. YOUNG, A.T. MAYES, J. BRZEZINSKI, S. BARBER, A. JOYCE.

38 **The Bioarchaeology Field and the Study of Ancient Egypt - Development and Characteristics of Academic Publications.** L.B. FARIA.

39 **Lost and Found: Forgotten Cemeteries Under the City of Milwaukee.** S.A. BONCAL.

40 ***Ave Imperium! Mortui te salutamus*: Bioarchaeological Research in the Roman Period Black Sea Region, Turkey.** K.E. MARKLEIN.

41 **Does the Number of Nuclear Microsatellite Loci affect Genetic Distances? Implications for Bioarchaeological Studies.** A.R. HUBBARD.

42 **A novel cranial base drilling method with direct access to petrous bones for analyzing ancient DNA and preserving ancient human remains.** K.A. SIRAK, D.M. FERNANDES, O. CHERONET, M. NOVAK, B. GAMARRA RUBIO, T. BALASSA, Z. BERNERT, A. CSÉKI, J. DANI, J. GALLINA, I. KŐVÁRI, O. LÁSZLÓ, I. PAP, R. PATAY, Z. PETKES, G. SZENTHE, T. SZENICZEY, T. HAJDU, R. PINHASI.

43 **Of Pirates, Pigs and Philistines: A novel perspective on the Late Bronze/Iron Age Transition in the Southern Levant.** J.A. KRETZINGER, D.F. ANDERS, M. ARTZY, I. FINKELSTEIN, L. KOLSKA HORWITZ, P. SMITH, M. FAERMAN, M. MEIRI, A. MAEIR, R. STIDSING, G. GRUPE, J. MARAN, P. STOCKHAMMER, M.A. VOHBERGER.

44 **Craniometric variation of Early Horizon Native Californians: New perspectives on the Howells Craniometric Dataset.** W.B. REINER, L.J. HLUSKO.

45 **Intra- and inter-population affinities among the Medieval English: a preliminary craniometric study.** S. VALORIANI, J.D. IRISH, S. GONZALEZ, M. BORRINI.

46 **Mortuary Archaeology of the Pre-Columbian Aklis Site, St. Croix, USVI: Normativity and Deviance.** M.K. ZUCKERMAN, D.T. ANDERSON, D.S. MILLER, J. FLORES, S.B. HUDSON, G. WEHRMAN, M. REDONA.

47 **The Biological Embodiment of Public Health Values: A Case Study from Two Working Class English Populations.** S.A. MATHENA-ALLEN.

48 **Cultural hybridity and Greek colonization: A case study of Himera utilizing strontium isotope analysis.** A.C. KAZMI, L.J. REITSEMA, K.L. REINBERGER, B. KYLE, S. VASSALLO.

49 **Mobility at Neolithic Çatalhöyük: Temporal and Ontogenetic Context.** E.M. GAROFALO, C.B. RUFF, C.S. LARSEN.

Session 71: Forensic Anthropology and Bioarchaeology: Sex, Comingling, Postmortem Interval, and Decomposition

Contributed Poster Presentations. Chair: Nicholas P. Herrmann.

Carondolet.

1 **Measuring bacterial communities in the humerus to estimate PMI.** S.E. BIVENS, E. DAVID, N. RUBLE.

2 **A metric approach to assessing sex in the Erie County Poorhouse Collection.** B.A. KENYON, S.E. BAUMGARTEN, J.E. SIRIANNI.

3 **The accuracy of tibial nutrient foramen vs. midshaft measurement location for sex determination.** A.C. DAFOE, D. HUNT.

4 **Sexual dimorphism of the humerus in a Japanese sample: A test of the İşcan et al. (1998) method.** R. BONGIOVANNI, C.B. LEGARDE.

5 **Biological sex assessment methods: A meta-analysis of trends in recent (2006-2015) forensic and archaeological research.** A.B. CHECK, E. CRAIG-ATKINS.

6 **Estimation of Sex in Fragmentary Archaeological Populations: A Test of Post-Cranial Estimation Methods.** M.C. STEWART, G. VERCELLOTTI.

7 **Sex Determination Using the Proximal Femur: a method for Portuguese Populations.** F. CURATE, C. UMBELINO, C. NOGUEIRA, A. PERINHA, E. CUNHA.

8 **Are metacarpals handy indicators of sex? The applicability of metacarpal metrics in sex determination.** K.A. ROBINSON, T.K. BETSINGER, J.M. ULLINGER, D.R. TARQUINIO.

9 **Sexual Dimorphism of the Capitate using 3D Data.** J.V. MEYER, H.J. EDGAR, S. DANESHVARI BERRY, W.F. MARQUARDT.

10 **Metric Sex Estimation using the Sustentaculum Tali.** C.A. BAILEY, K.A. BROEHL, A.C. DUNCAN, A.Z. MUNDORFF, R. KOSALKA.

11 **Postcranial Sectioning Points Derived from the Terry Collection for Utility in Sex Estimation in Historical Contexts.** D.D. GRAHAM, A.K. COSTELLO, K.E. BRUN.

12 **Reevaluating morphological sex estimation methods for the creation of a free user database.** A.R. KLALES, S.J. COLE.

13 **A multi methodological approach for human identification and reconstruction of cause and manner of death in forensic anthropology.** F. KANZ, H. BRANDTNER, E. MÜLLER, F. NEUHUBER, S. TANGL, E. TUTSCH-BAUER, O. ANZBÖCK, J. CEMPER-KIESSLICH.

14 **Historical Bioarchaeology and DVI: Data Integration of the Mississippi State Asylum Burial Sample and Archival Records.** N.P. HERRMANN, M.L. DAVENPORT, A.M. PLEMONS, G.L. HARLEY, A.D. SHAEFER, M.K. ZUCKERMAN.

15 **Sorting Out the Past: An evaluation of MNI Methods.** S. KUISMANEN.

16 **Harlyn Bay: A Case Study in the Analysis of a Curatorially Commingled Skeletal Collection.** A.M. JORDAN.

17 **Constructing Demographic Profiles in Commingled Collections: A Comparison of Methods for Estimating Age at Death in a Byzantine Monastic Assemblage.** R.C. MAYUS, S. GUISE SHERIDAN, C.S. LARSEN.

18 **Retrospective correspondence analysis of a commingling event.** J.L. CAMPBELL.

19 **Joint articulation in resolving commingled human remains: Osteometric analysis of the acetabulo-femoral and tibio-femoral articular surface areas.** E.W. PARKINSON, E. CRAIG-ATKINS.

20 **Bacterial Succession in Bone Marrow as a Potential Tool for Estimating PMI.** C.T. FAKHRI, L. SPOONIRE, N. RUBLE.

21 **The Use of the Pelvic Microbiome for PMI Estimation.** L. RUDIE, M. MANN, N. RUBLE.

22 **The Effects of Body Composition on Human Decomposition.** S.T. AMMER.

23 **An application of structure from motion to document the decomposition of hacking wounds.** C.D. CARLTON, S. MITCHELL.

24 **Seasonal Differences in Accumulated Degree-days on the Rate of Human Decomposition.** S.L. GARZA, D.J. WESCOTT.

25 **Initial *in situ* bone decomposition after short inhumation times: New insights from experimental degradation assays.** N. HOKE, A. ROTT, M. HARBECK.

26 **Exploring provision of care for disabled individuals in prehistoric alabama.** D.S. SIMPSON.

27 **Influence of body size on sexual dimorphism.** H. HORBALY.

28 **Allometry, sexual dimorphism in human ossa coxae, and its relevance for understanding human torso variation.** S. TORRES, D. GARCÍA-MARTÍNEZ, J. EYRE, S.A. WILLIAMS, J. HAWKS, C. VANSICKLE, M. BASTIR.

29 **Arsenic fed piglets: Assessing arsenic levels in decomposing pig tissue and soil samples.** C.L. BROWN, R.R. PAINE.

30 **A comparative study of the effects of river flow rate on decomposition.** M. NEUMAN.

31 **Microbiome of Bone Marrow during Human Decomposition.** N. RUBLE, P. LEWIS, A. LYNNE.

32 **Sexual dimorphism in absolute and relative sizes of pubis dimensions from a documented human osteological collection.** B.N. THOMPSON, F.L. WILLIAMS.

33 **Using Bacterial Communities From Human Femora To Determine Post Mortem Interval.** S.A. BAKER, S.N. MESA, M.N. RUBLE.