

**Program of the 85th Annual Meeting of the
American Association of Physical Anthropologists
April 12 – 16, 2016**

To be held at the

Atlanta Marriott Marquis
265 Peachtree Center Avenue
Atlanta, GA 30303

AAPA Scientific Program Committee:
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Auburn University and Emory University

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Message from the Program Chair

Welcome to the 85th Annual Meeting of the American Association of Physical Anthropologists in Atlanta 2016! Our meeting officially begins on Wednesday, April 13 with the **Undergraduate Research symposium**, followed by the **AAPA welcoming reception**. Earlier on Wednesday, the Committee on Diversity has organized a **Women's Mentoring Workshop and an IDEAS Workshop (Increasing Diversity in Evolutionary Anthropology)**. Once again, we are having dedicated time for posters from 4:00 to 6:00 (5:00 – 6:00 on Saturday), so that everyone will have time to participate in the poster sessions. The time of day is ideal for an “enhanced” afternoon break at 4:00. Posters will be up all day, as in the past, but there will be no concurrent podium sessions after 4:00.

As in the past two years, the **AAPA annual business meeting** will be held after the scientific sessions on Friday afternoon, beginning at 5:45. A highlight of this meeting is the presentation of the **Charles R. Darwin Lifetime Achievement Award and the Gabriel W. Lasker Service Award**. Please come to learn more about the AAPA and to celebrate the careers of this year's honorees. The **AAPA Annual Luncheon** is on Saturday and features Dr. Lee Berger, whose luncheon address is titled: **“Almost Human –*Homo naledi* and the implications of new hominin discoveries from southern Africa.”** See the Annual Meeting Registration web site for tickets and information.

This year's program includes 1096 scientific presentations over the three full days of the meeting. The 58 sessions include seven invited podium symposia, 16 invited poster symposia, 18 contributed podium sessions and 17 contributed poster sessions. Dedicated time for posters has resulted in shorter afternoon podium sessions, so we added a fifth podium session on Saturday afternoon only, with four concurrent podium sessions on other days.

Our extensive scientific program includes a truly international group of scholars. This year, we are joined by the *Paleoanthropology Society* (PS), the *Paleopathology Association* (PPA), the *Human Biology Association* (HBA) the *American Association of Anthropological Genetics* (AAAG) and the *Dental Anthropology Association* (DAA).

The 2016 Wiley podium symposium, titled **Hybridization in Human Evolution: What can other**

organisms tell us? and organized by Rebecca R. Ackermann and Benedikt Hallgrímsson, takes place on Thursday morning. The joint AAPA–HBA session, held on Friday morning, is an invited poster symposium titled: **Biocultural Perspectives on Family Health within and across Generations**, and is organized by Melanie A. Martin and Lisa McAllister. The joint AAPA-AAAG session, held on Thursday afternoon, is an invited podium symposium titled: **Ancient Alleles in Modern Populations: Ancient structure, introgression and variation- maintaining adaptive forces**, organized by Omer Gokcumen and Aaron Sams. This year we also have a joint poster session with the Dental Anthropology Association: **Old Questions, New Approaches and New Solutions: Celebrating the 30th Anniversary of the Dental Anthropology Association** on Thursday afternoon.

The **AAPA silent and live auctions** take place on Thursday evening. These auctions, started by Mark Teaford and continued by Susan Antón and Josh Snodgrass, have raised thousands of dollars that fund the Pollitzer Student Travel Awards. Please participate through donations (contact Josh Snodgrass) and bidding. Finally, our popular **Closing Reception and Student Awards Ceremony** will be held on Saturday evening.

AAPA President, Susan Antón, will host a **Panel Discussion** on Saturday afternoon titled "Working Together to Change the Future: A dialog on harassment in biological anthropology."

I am very grateful to all those who have helped to put the 2016 program together. First and foremost, webmaster Ed Hagen, designer and upgrader of our on-line system has worked to integrate the AAPA system with our new membership and registration system hosted by Burk and Associates. Except for a few initial little bumps, the new integration is working very well. I appreciate sage advice from officers and the other members of the Executive Committee. Thanks to all of the members of the Program Committee for their careful work and helpful comments while reviewing symposium proposals and abstracts. My program assistant, Kim Edwards, has been a tremendous help. Special thanks to Frank Williams and John Redmond and their local arrangements committee. Please express your appreciation when you see them in Atlanta.

Anne Katzenberg
AAPA Vice President and Program Chair

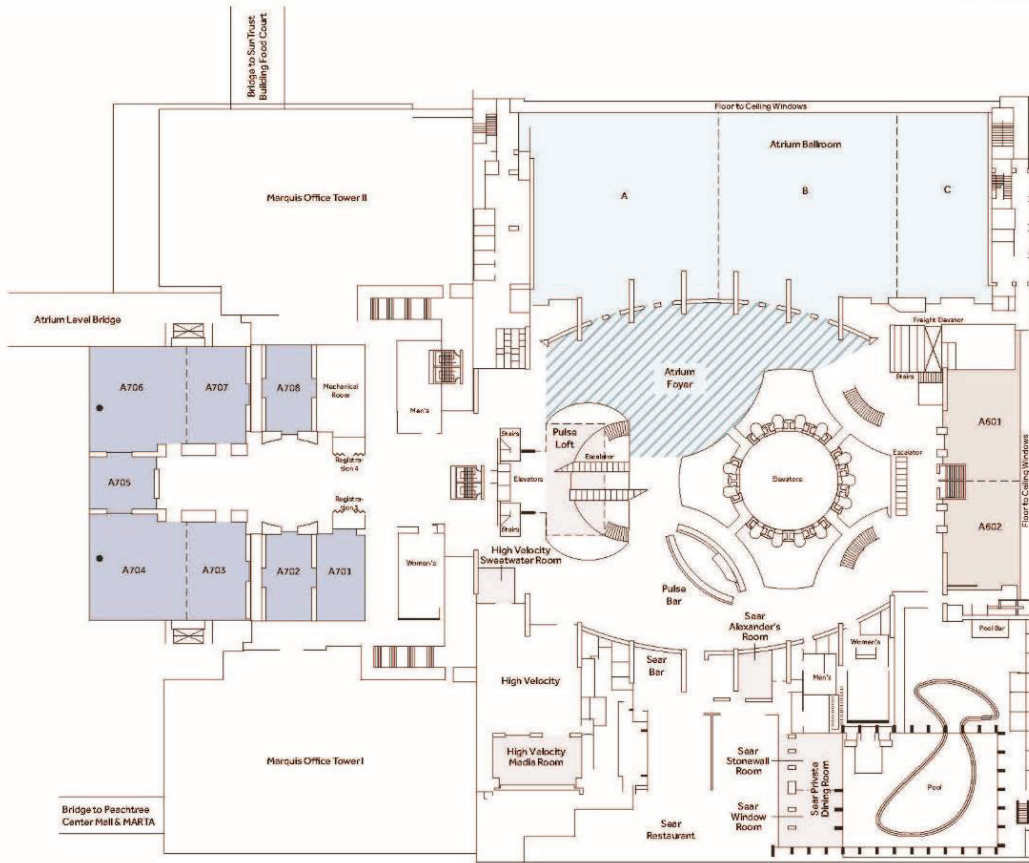
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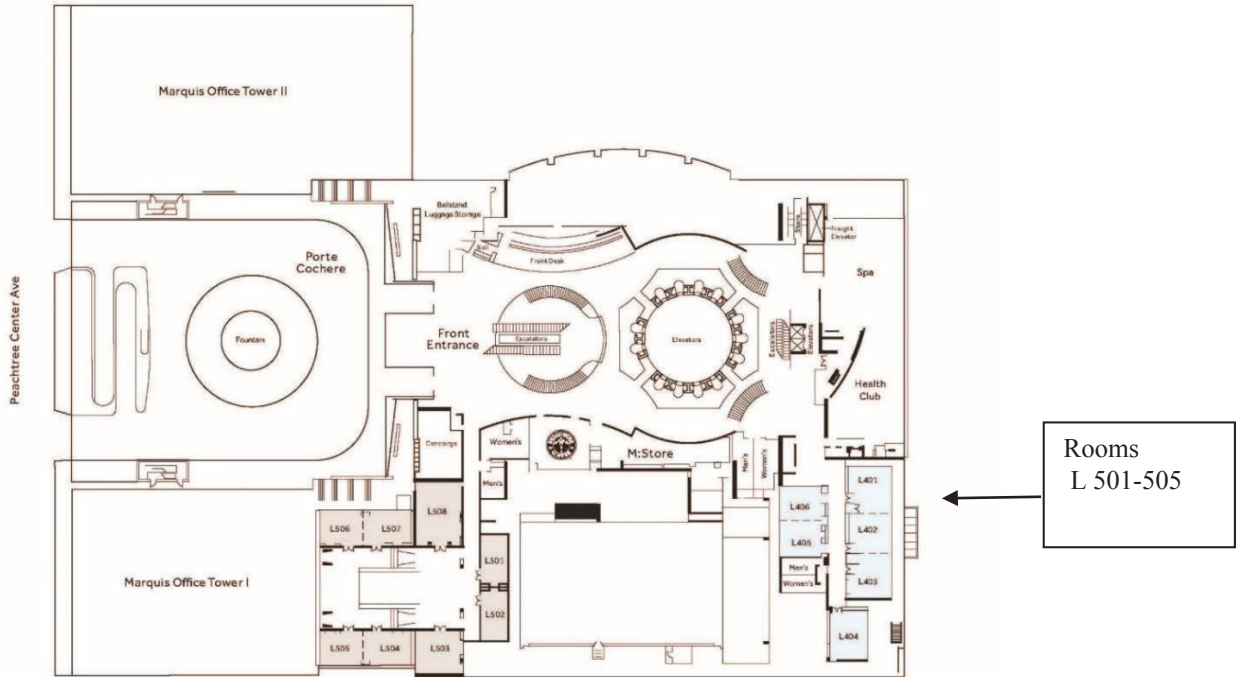
KEY TO ACRONYMS:

AAAG	– American Association of Anthropological Genetics
AAPA	– American Association of Physical Anthropologists
ADA	– American Dermatoglyphics Association
AJHB	– <i>American Journal of Human Biology</i>
AJPA	– <i>American Journal of Physical Anthropology</i>
BANDIT	Biological Anthropology Developing Investigators Troop
COD	– AAPA’s Committee on Diversity
DAA	– Dental Anthropology Association
HB	– <i>Human Biology</i>
HBA	– Human Biology Association
JHE	– <i>Journal of Human Evolution</i>
PAWMN	AAPA Physical Anthropology Women’s Mentoring Network
PPA	– Paleopathology Association
PS	– Paleoanthropology Society

ATRIUM LEVEL

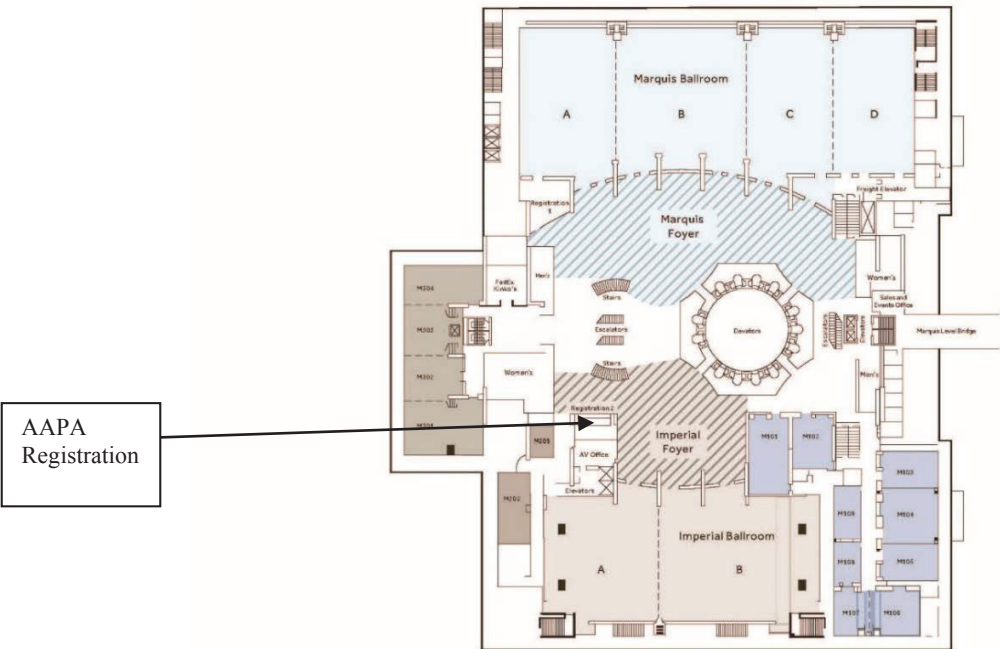


LOBBY LEVEL



Rooms
L 501-505

MARQUIS LEVEL



AAPA
Registration

Monday, Evening**PALEOPATHOLOGY ASSOCIATION**

Paleopathology Association Registration	Registration 3 - Atrium Level	6 p.m.-9 p.m.
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Tuesday, All Day**AAPA**

Family Respite Room	L 503	7:30 a.m.-10 p.m.
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PALEOANTHROPOLOGY SOCIETY

Paleoanthropology Society Registration	Atrium Foyer	7 a.m.-5 p.m.
Paleoanthropology Society Podium presentations	A 706/707	9 a.m.-12:15 p.m.
Paleoanthropology Society Podium presentations	A 706/707	2 p.m.-4 p.m.
Paleoanthropology Society Posters	Atrium Ballroom A	4 p.m.-6 p.m.

PALEOPATHOLOGY ASSOCIATION

Paleopathology Association Registration	Registration 3 - Atrium Level	8:00 a.m.-5 p.m.
Paleopathology Association Workshop 1	A 601	8 a.m.-noon
Paleopathology Association Workshop 2	A 602	8 a.m.-noon
Paleopathology Podium Presentations	Imperial Ballroom A	1:30 p.m.-5 p.m.
Paleopathology Student Action Meeting	A 708	5 p.m.-6:30 p.m.
Paleopathology Association Banquet and Business Meeting (ticketed event)	Imperial Ballroom B	6:45 p.m.-10 p.m.

Wednesday, Morning**HUMAN BIOLOGY ASSOCIATION**

AJHB Editorial Board Breakfast	A 702	7:30 a.m.-9 a.m.
HBA Breakout Session 1	L 504	11:30 a.m.-12:30 p.m.
HBA Breakout Session 2	L 505	11:30 a.m.-12:30 p.m.

PALEOANTHROPOLOGY SOCIETY

Paleoanthropology Society Podium presentations	A 706/707	9 a.m.-12:15 p.m.
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PALEOPATHOLOGY ASSOCIATION

Paleopathology Association Registration	Registration 3 - Atrium Level	8 a.m.-noon
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Wednesday, All day**AAPA**

AAPA COD Ideas Workshop	A 708	7 a.m.-5 p.m.
Speaker Ready/ Press Interview Room	L 502	7:30 a.m.-5 p.m.
Family Respite Room	L 503	7:30 a.m.-10 p.m.
AAPA Executive Committee Meeting	Skyline Level (10)	8 a.m.-5 p.m.
AAPA COD Women's Mentoring Workshop	A 705	10 a.m. - 3 p.m.

HUMAN BIOLOGY ASSOCIATION

Human Biology Association Posters	Atrium Ballroom A	8 a.m.-5 p.m.
Human Biology Association Registration	Registration 4 - Atrium Level	8 a.m.-5 p.m.

PALEOANTHROPOLOGY SOCIETY

Paleoanthropology Society Registration	Atrium Foyer	7 a.m.-5 p.m.
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PALEOPATHOLOGY ASSOCIATION

Paleopathology Podium Presentations	A 601/602	8 a.m. - 5 p.m.
Paleopathology Association Posters	Atrium Ballroom A	8 a.m.-5 p.m.

DAA

Dental Anthropology Workshop	A 701	9:00 a.m.- 3:00 p.m.		
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Wednesday, Afternoon

AAPA

AJPA Editorial Board Lunch	Skyline Level (10)	noon-1:30 p.m.		
AAPA COD Women's Mentoring Workshop Lunch	Skyline Level (10)	noon-1 p.m.		
AAPA Registration	Registration 2 - Marquis Level	2 p.m.-8 p.m.		
Student Committee Meeting	A 702	4 p.m.-5 p.m.		
Student Committee 'Meet and Greet'	A 702	5 p.m.-6 p.m.		

DAA

Dental Anthropology Working Group	A 701	3:30 p.m.-5:30 p.m.		
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HUMAN BIOLOGY ASSOCIATION

HBA Plenary Session	A 703/704	1 p.m.-6 p.m.		
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Other

AAAG Networking Event (pre-registration required)	L 505	3 p.m.-5 p.m.		
Journal of Human Evolution Workshop	A 705	4 p.m.-5:30 p.m.		

PALEOANTHROPOLOGY SOCIETY

Paleoanthropology Society Podium presentations	A 706/707	2 p.m.-6 p.m.		
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Wednesday, Evening

AAPA

Student Committee 'Meet and Greet'	A 702	5 p.m.-6 p.m.		
AAPA COD Undergraduate Research Symposium	Atrium Ballroom A	5 p.m.-8 p.m.		
AAPA Opening Reception	Skyline Level (10)	8 p.m.-11 p.m.		

Thursday, Morning

AAPA

Physical Anthropology Women's Mentoring Network Lunch (reservations required)	A 703	11 a.m.-2 p.m.		
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AAPA WILEY

Hybridization in human evolution: what can other organisms tell us?	Imperial Ballroom B	8 a.m.-noon	1	Invited Podium
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AAPA

Functional Morphology	A 602	8 a.m.-noon	2	Podium
Primateology: Behaviour - Apes and Old World Monkeys	A 706/707	8 a.m.-noon	3	Podium
Skeletal Biology: Bioarchaeology	Imperial Ballroom A	8 a.m.-noon	4	Podium
Reconstructing hominin paleoenvironments and paleoecology in Africa using stable isotopes: an integrative approach	A 701	8 a.m.-noon	5	Invited Poster
Toward a Holistic Forensic Anthropology	A 702	8 a.m.-noon	6	Invited Poster
Bone Microstructure: Imaging, Analysis and Function	Atrium Ballroom C	8 a.m.-noon	7	Invited Poster

HUMAN BIOLOGY ASSOCIATION

HBA Registration	Registration 4 - Atrium Level	8 a.m.-10 a.m.		
HBA Podium Presentations	A 704	8:30 a.m.-11:45 a.m.		

Thursday, All day

AAPA

AAPA Registration	Registration 2 - Marquis Level	7 a.m.-5 p.m.		
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Family Respite Room	L 503	7:30 a.m.-10 p.m.		
Speaker Ready/Press Interview Room	L 502	7:30 a.m.-5 p.m.		
Exhibitors	Atrium BallroomA/B	8 a.m.-6 p.m.		
Primate Behaviour	Atrium BallroomA/B	8 a.m.-6 p.m.	8	Poster
Primate Evolution	Atrium BallroomA/B	8 a.m.-6 p.m.	9	Poster
Paleoanthropology: Genus Homo	Atrium BallroomA/B	8 a.m.-6 p.m.	10	Poster
Forensic Anthropology	Atrium BallroomA/B	8 a.m.-6 p.m.	11	Poster
Skeletal Biology: Growth, Development and Variation	Atrium BallroomA/B	8 a.m.-6 p.m.	12	Poster

Thursday, Afternoon

AAPA

AAPA COD LGBTQQIAA Lunch	A 708	noon-1 p.m.		
Yearbook of Physical Anthropology Editorial Board Meeting	L 504	noon-2 p.m.		

AAPA - AAAG

Ancient alleles in modern populations: Ancient structure, introgression and variation-maintaining adaptive forces	Imperial Ballroom B	1 p.m.-4:15 p.m.	13	Invited Podium
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AAPA

Primatology: Social and Reproductive Behavior	A 602	1 p.m.-4 p.m.	14	Podium
Skeletal Biology: Paleopathology and Functional Studies	A 706/707	1 p.m.-4 p.m.	15	Podium
Paleoanthropology: Early hominins	Imperial Ballroom A	1 p.m.-4 p.m.	16	Podium
Evolutionary Approaches to Bioarchaeology	A 701	1 p.m.-5 p.m.	17	Invited Poster
Malaria in Antiquity: Methodological and Theoretical Approaches	A 702	1 p.m.-5 p.m.	18	Invited Poster
Old Questions, New Approaches and New Solutions: Celebrating the 30th Anniversary of the Dental Anthropology Association	Atrium Ballroom C	1 p.m.-5 p.m.	19	Invited Poster

HUMAN BIOLOGY ASSOCIATION

HBA Podium Presentations	A 704	1:30 p.m.-4:30 p.m.		
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Thursday, Evening

AAPA

AAPA Silent and Live Auctions (silent 4:30 - 6:30; Live 6:30 - 9:30)	A 601	4:30 p.m.-9:30 p.m.		
AAPA COD Title IX Talk	A 706/707	5 p.m.-6:30 p.m.		

AAPA WILEY

Wiley Reception	Atrium Foyer	8 p.m.-10 p.m.		
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HUMAN BIOLOGY ASSOCIATION

HBA Annual Business Meeting	A 704	5 p.m.-6:30 p.m.		
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Other

Physical Anthropology Women's Mentoring Network Happy Hour	A 703	5 p.m.-8 p.m.		
JHE Editorial Board	Sear Private Dining Room	7:30 p.m.-10 p.m.		
AAAG Business Meeting and Reception	A 708	7 p.m.-9 p.m.		

Friday, Morning

AAPA

AAPA COD Teaching in the 21st Century Workshop	A 705	8 a.m.-10 a.m.		
Hands, Brains, and Tools: Integrating concepts in human evolution	Imperial Ballroom B	8 a.m.-noon	20	Invited Podium

Skeletal Biology: Growth and Development	A 703/704	8 a.m.-noon	21	Podium
Primate Ecology	A 706/707	8 a.m.-noon	22	Podium
Human genetic variation	Imperial Ballroom A	8 a.m.-noon	23	Podium
Humans in Marginal Environments	A 701	8 a.m.-noon	24	Invited Poster
Birth, Death, and Migration: Bioarchaeology and Skeletal Biology of the Southeastern United States	A 702	8 a.m.-noon	25	Invited Poster
<u>AAPA – HBA Joint Symposium</u>				
Biocultural perspectives on family health within and across generations	Atrium Ballroom C	8 a.m.-noon	26	Invited Poster
<u>Other</u>				
NSF Focus Groups	L 505	8 a.m.-9 a.m.		
Using the R Programming Language for Biological Anthropology	A 601	9:30 a.m.-11:30 a.m.		
Mentoring Relationships for Grant Writing: NSF, Wenner-Gren Foundation and Leakey Foundation	A 602	10 a.m.-11 a.m.		

Friday, All day

AAPA

Speaker Ready/Press Interview Room	L 502	7:30 a.m.-5 p.m.		
Family Respite Room	L 503	7:30 a.m.-10 p.m.		
AAPA Registration	Registration 2 - Marquis Level	7:30 a.m.-5 p.m.		
Fossil Casts and Videos	A 708	8 a.m.-5 p.m.		
Exhibitors	Atrium BallroomA/B	8 a.m.-5 p.m.		
Skeletal Biology: Violence, Trauma and Disease	Atrium BallroomA/B	8 a.m.-6 p.m.	27	Poster
Human Biology: Past and Present	Atrium BallroomA/B	8 a.m.-6 p.m.	28	Poster
Skeletal Biology: Non-human Primates	Atrium BallroomA/B	8 a.m.-6 p.m.	29	Poster
Human Skeletal Biology: Functional Studies	Atrium Ballroom /B	8 a.m.-6 p.m.	30	Poster
Skeletal Biology: Bioarchaeology	Atrium Ballroom /B	8 a.m.-6 p.m.	31	Poster

Friday, Afternoon

AAPA

AAPA Ethics Committee	A 601	noon-2 p.m.		
AAPA Career Development Panel Workshop	A 602	noon-2 p.m.		
AAPA COD IDEAS	A 705	noon-1 p.m.		
AAPA COD Executive Committee	L 504	1 p.m.-2 p.m.		
AAPA COD AACT	A 602	2 p.m.-4 p.m.		
In search of the last common ancestor: perspectives on the ancestral morphotype of hominins	Imperial Ballroom A	1 p.m.-4:15 p.m.	32	Invited Podium
Allomother-infant relationships across the Primate order: biomarkers, bonding, buffering, and other bidirectional effects	Imperial Ballroom B	1 p.m.-4 p.m.	33	Invited Podium
Human Biology: Nutrition and Variation	A 703/704	1 p.m.-4 p.m.	34	Podium
Paleoanthropology: Methods	A 706/707	1 p.m.-4:15 p.m.	35	Podium
Migration: An anthropological perspective	A 701	1 p.m.-5 p.m.	36	Invited Poster
The suite with many names: An exploration of “market integration” and its effects on human biology, health, and behavior	A 702	1 p.m.-5 p.m.	37	Invited Poster
Innovative approaches to human brain evolution: molecules to systems	Atrium Ballroom C	1 p.m.-5 p.m.	38	Invited Poster

Friday, Evening

AAPA**AAPA Business Meeting and Lifetime Awards**

Primate Interest Group

Imperial Ballroom
B

5:45 p.m.-8 p.m.

A 703/704

8:15 p.m.-9:15 p.m.

DAA

Dental Anthropology Assoc. Business Meeting

A 706

8 p.m.-9 p.m.

Saturday, Morning**AAPA**

AAPA COD-MAIN Committee Breakfast

L 504

7 a.m.-9 a.m.

AAPA Education Committee K - 12 Teacher Workshop

A 705

8 a.m.-noon

Exhibitors

Atrium Ballroom
A/B

8 a.m.-2 p.m.

NSF 1:1: by appointment (RFERRELLat nsf.gov)

A 708

10 a.m.-noon

Biology and context of *Homo naledi* from the Rising Star cave system, South AfricaImperial Ballroom
A

8 a.m.-noon

39

Invited
Podium**Population Genetics: Human and Non-Human Primates**

A 602

8 a.m.-noon

40

Podium

Primate evolution and taxonomy

A 703/704

8 a.m.-noon

41

Podium

Human Biology: Growth, Reproduction and Adaptation

A 706/707

8 a.m.-noon

42

Podium

Bioarchaeology of Indigenous Peoples of Cuba

A 701

8 a.m.-noon

43

Invited
Poster**Blood in the Villages: Bioarchaeological and Forensic Evidence for Massacres**

A 702

8 a.m.-noon

44

Invited
Poster**Forensic applications of human skeletal biology and variation**

Atrium Ballroom C

8 a.m.-noon

45

Invited
Poster**Saturday, All day****AAPA**

AAPA Registration

Registration 2 -
Marquis Level

7:30 a.m.-3 p.m.

Speaker Ready/Press Interview Room

L 502

7:30 a.m.-5 p.m.

Family Respite Room

L 503

7:30 a.m.-8 p.m.

Human Variation: Diet, Disease and MorphologyAtrium
BallroomA/B

8 a.m.-6 p.m.

46

Poster

Primate ecology and behaviourAtrium
BallroomA/B

8 a.m.-6 p.m.

47

Poster

Human Genetic Variation: Population Studies and AdaptationAtrium
BallroomA/B

8 a.m.-6 p.m.

48

Poster

Dental AnthropologyAtrium
BallroomA/B

8 a.m.-6 p.m.

49

Poster

Genetics of Non-human primatesAtrium
BallroomA/B

8 a.m.-6 p.m.

50

Poster

Human Biology: DemographyAtrium
BallroomA/B

8 a.m.-6 p.m.

51

Poster

Education and OutreachAtrium
BallroomA/B

8 a.m.-6 p.m.

52

Poster

Saturday, Afternoon**AAPA****AAPA Annual Luncheon:** Dr. Lee Berger, Speaker. "Almost Human – *Homo naledi* and the implications of new hominin discoveries from southern Africa"Imperial Ballroom
B

noon-2 p.m.

First Annual Presidential Panel: Working Together to Change the Future: A dialog on harassment in biological anthropology

A 601

2 p.m.-6 p.m.

AAPA Student Awards Committee

L 504

5 p.m.-6 p.m.

Early-life stress in the past: bioarchaeological approaches to the evolution, ecology, and cultural contingencies of human life historyImperial Ballroom
A

2 p.m.-5 p.m.

53

Invited
Podium

Genetics and Evolution: Non-human Primates	A 602	2 p.m.-5 p.m.	54	Podium
Primateology: Life History	A 703/704	2 p.m.-5 p.m.	55	Podium
Paleoanthropology: Late Homo	A 706/707	2 p.m.-5 p.m.	56	Podium
Human Biology and Skeletal Studies	Atrium Ballroom C	2 p.m.-4 p.m.	57	Podium
Injury Recidivism and Violence: Perspectives from Bioarchaeology and Forensic Anthropology	A 701	2 p.m.-5 p.m.	58	Invited Poster

Saturday, Evening

AAPA

AAPA Student Awards and Closing Reception	Imperial Ballroom B	6 p.m.-9 p.m.		
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Thursday, Morning sessions.

Session 1: **Hybridization in human evolution: what can other organisms tell us?**

Wiley Invited Podium Symposium. Chair: Rebecca R. Ackermann.

Co-organizers: Rebecca R Ackermann and Benedikt Hallgrímsson.

Imperial Ballroom B.

Advances in genetics have dramatically influenced our understanding of human evolution in recent years. Nowhere is this more apparent than in the field of ancient DNA, which has almost singlehandedly resurrected the Neanderthals (and others) from “dead-end” status, shifting the tide of public and academic opinion. We now understand that the interplay among late Pleistocene hominin lineages involved the exchange of genes and resulted in the presence of ancient DNA lineages in living humans today. However, the dynamics of this process and its effects on the patterns we see in the fossil and archaeological record remain poorly understood. Gene exchange across divergent lineages can result in myriad outcomes, determined by taxon relationships, the nature of the exchange, and the environmental conditions under which it occurs. Here we draw widely from research in various vertebrate groups to demonstrate the ways that gene flow is known to structure genetic and phenotypic diversity under different climatic, geographic, ecological and phylogenetic scenarios. Our goal is to present and discuss a range of models that might be relevant for considering the process and effects of genetic exchange among our late Pleistocene (and possibly earlier hominin) ancestors. Where appropriate, we will also directly apply these models to examining the record of human evolution.

8:00 **Hybridization in human evolution.** R.R. ACKERMANN.

8:15 **Divergence With Genetic Exchange.** M. ARNOLD.

8:30 **Hybridization in Darwin's Finches.** P.R. GRANT.

8:45 **Consequences of hybridization in Darwin's finches.** B. GRANT.

9:00 **Hybrid speciation in amphibians: synergy, conflict, and sex chromosomes of allopolyploid genomes.** B.J. EVANS.

9:15 **Variation in the skeletal and ectodermal phenotype of mouse hybrids.** R.A. HUMPHREYS, T. RITZMAN, K. WARREN, C.J. PERCIVAL, C.C. ROSEMAN, B. HALLGRIMSSON, R.R. ACKERMANN.

9:30 **Admixture and adaptation in wild and domestic canids.** R.K. WAYNE.

9:45 **Paleogenomics interpretation of admixture between polar bears and brown bears.** J.A. CAHILL, P. HEINTZMAN, M. TEASDALE, A.E. RODRIGUES SORES., J. KNAPP, C.J. EDWARDS, I.M. STIRLING, D.G. BRADLEY, R.E. GREEN, B. SHAPIRO.

10:00 **Break.**

10:15 **Gene flow and species boundaries in howler monkeys.** L. CORTÉS-ORTIZ, M.D. NIDIFFER.

10:30 **Genetic and morphological variation in natural and anthropogenic marmoset hybrids.** J. MALUKIEWICZ, R.R. ACKERMANN, N.H. CURI, J.A. DERGAM, L.F. FUZESSY, K. GUSCHANSKI, A.D. GRATIVOL, P.A. NICOLA, L.C. PEREIRA, C.R. RUIZ-MIRANDA, M. PASSAMANI, D.L. SILVA, A.C. STONE.

10:45 **The hybrid dynamics of baboons.** D. ZINNER, C. ROOS.

11:00 **An evaluation of integration in the hybrid baboon cranium.** T.B. RITZMAN, R.R. ACKERMANN.

11:15 **Using extant taxa to model variation in hominin hybrid populations.** K.A. WARREN, L. SCHROEDER, T.B. RITZMAN, C.J. PERCIVAL, B. HALLGRIMSSON, R.R. ACKERMANN.

11:30 **Discussion: Fred Smith, Clifford Jolly and Benedikt Hallgrímsson.**

Session 2: Functional Morphology

Contributed Podium Presentations. Chair: Christopher B. Ruff.

A 602.

8:00 **Pelvis shape and hominin walking: Insights from the three-dimensional mechanics of the lesser gluteals and hamstrings in human and chimpanzee bipedalism.** M.C. O'NEILL, B. DEMES, S.G. LARSON, B.R. UMBERGER.

8:15 **Videographic analysis of kinematics in great apes: To what extent are gait and posture conserved?** E.M. FINESTONE, M.H. BROWN, S.R. ROSS, H. PONTZER.

8:30 **The relationship between hindlimb loading and cross-sectional morphology in bipedal rats.** A.D. FOSTER.

8:45 **Phylogenetic and environmental effects on limb bone structure in *Gorilla*.** C.B. RUFF, L. BURGESS, J. JUNNO, S.C. MCFARLIN, A. MUDAKIKWA, T.G. BROMAGE, C.P. ZOLLIKOFER, M.S. PONCE DE LEON.

9:00 **Functional morphology of the metatarsophalangeal joints in chimpanzees and humans: A kinematic and morphometric approach.** N.B. HOLOWKA, P.J. FERNANDEZ.

9:15 **Investigating primate cuboid shape within the context of adaptive evolution, allometry, and locomotion.** O.O. THOMAS, C.C. ROSEMAN, W.E. HARCOURT-SMITH, R.L. RAAUM.

9:30 **Functional differentiation of the propulsive and braking roles of the forelimbs and hindlimbs during quadrupedal**

locomotion. M.C. GRANATOSKY, A. ZEININGER, D. SCHMITT.

- 9:45 **The functional morphology of douc langur (genus *Pygathrix*) brachiation and the justification of the old-world semibrachiator category.** C. BYRON, M. GRANATOSKY, C. HENSEL, J. MORRISON, H. NGUYEN.
- 10:00 **Break.**
- 10:15 **Arm swing in bipedally walking chimpanzees.** B.J. SUMNER, N.E. THOMPSON, B. DEMES, S.G. LARSON, J.T. STERN JR..
- 10:30 **The effect of selection for lower relative encephalization on cranial base morphology.** C.J. PERCIVAL, F. SMITH, B. HALLGRÍMSSON.
- 10:45 **Craniofacial growth and dietary variability in an experimental model for primate fallback food use.** R.A. MENEGAZ, M.J. RAVOSA.
- 11:00 **An Eocene primate frontal from the Devil's Graveyard Formation, Texas.** E. KIRK, A.L. ATWATER, C.J. CAMPISANO, S. EGBERTS, I.K. LUNDEEN.
- 11:15 **Sexual dimorphism in masticatory cranial deformations in Bornean Orangutans (*Pongo pygmaeus*): a finite element analysis and geometric morphometrics study.** M.A. BERTHAUME, E. DICKINSON, C. SHAW, P. O'HIGGINS, K. KUPCZIK.
- 11:30 **Developmental coordination of the masticatory system constrains molar emergence across primates.** H. GLOWACKA, G.T. SCHWARTZ.
- 11:45 **Comparative assessment of human enamel tufts.** P.J. CONSTANTINO, M. KELLY, A. KEMPAINEN, N. LEDUE.

Session 3: Primatology: Behaviour - Apes and Old World Monkeys

Contributed Podium Presentations. Chair: Linda F. Marchant.
A 706/707.

- 8:00 **Female power in a male-dominated society: Simulating how female kin reunite in hamadryas baboons.** M.S. EKANAYAKE-WEBER, L. SWEDELL.
- 8:15 **Temporal stability in social network metrics among wild vervet monkeys.** M.B. BLASZCZYK.
- 8:30 **Dominance styles of eight alpha male chimpanzees at Gombe National Park, Tanzania.** J. BRAY, A.E. PUSEY, I.C. GILBY.
- 8:45 **Relationship of dominance ranks to age and coalition formation among male chimpanzees at Ngogo.** D.P. WATTS.
- 9:00 **Dominance Rank, Male-Female Aggression, and Male Mating Success Among Chimpanzees at Ngogo.** J. WIDNESS, D.P. WATTS.
- 9:15 **Predation by female chimpanzees at Gombe and Kibale: toward an understanding of sex differences in meat acquisition among early hominins.** I.C. GILBY, Z.P. MACHANDA, R.C. O'MALLEY, C.M. MURRAY, D.C. MJUNGU, E. OTALI, M.N. MULLER, M. EMERY THOMPSON, R.W. WRANGHAM, A.E. PUSEY.
- 9:30 **The diet of savanna-woodland chimpanzees (*Pan troglodytes schweinfurthii*) at Issa, western Tanzania.** A.K. PIEL, P. STRAMPELLI, E. GREATHEAD, R. HERNANDEZ-AGUILAR, J. MOORE, F.A. STEWART.
- 9:45 **Chimpanzee laterality redux.** L.F. MARCHANT.
- 10:00 **Break.**
- 10:15 **Alternative reproductive tactics among male chimpanzees in Gombe National Park, Tanzania.** J.T. FELDBLUM, E.E. WROBLEWSKI, R.S. RUDICELL, Y. LI, B.H. HAHN, A.E. PUSEY, I.C. GILBY.
- 10:30 **Chimpanzees and the phylogenetic origins of multi-level sociality in humans.** K.E. LANGERGRABER.
- 10:45 **Parasite infections reveal costs and benefits of social behavior in a community of wild chimpanzees.** S. FOERSTER, K.L. SCHABER, E.V. LONSDORF, D.A. TRAVIS, A.E. PUSEY, T.R. GILLESPIE.
- 11:00 **Evidence that anthropoid call frequencies are shaped by sexual selection.** A.K. HILL, D.H. BAILEY, R.S. WALKER, D.A. PUTS.
- 11:15 **Female White-handed Gibbon Great Call Linked to Resource Holding Potential Measures.** U.H. REICHARD, T.A. TERLEPH, S. MALAIVIJITNOND.
- 11:30 **Social preference based on direct and third party interactions in captive bonobos.** C. KRUPENYE, B. HARE.
- 11:45 **Human grooming in phylogenetic perspective: grooming rates and dyad composition in six traditional societies in comparison to other primates.** A.V. JAECCI, R. HAMES, K. KRAMER, M. GURVEN, C. GOMES, H. KAPLAN.

Session 4: Skeletal Biology: Bioarchaeology

Contributed Podium Presentations. Chair: Patricia M. Lambert.
Imperial Ballroom A.

- 8:00 **Embodying the Goddess: Tattooing and Identity Formation in Bioarchaeology.** A. AUSTIN.
- 8:15 **Identity in an historic cemetery from Ignacio, Colorado.** D.M. MULHERN, M.C. CHARLES.
- 8:30 **Challenges in ancient microbiome reconstruction using 16S rRNA gene amplification.** K.A. ZIESEMER, A. MANN, M.L. HOOGLAND, H. SCHROEDER, K. SANKARANARAYANAN, C.L. HOFMAN, C. WARINNER.
- 8:45 **Anthropologic-radiologic analyses of newly found ancient Egyptian Human Mummies from tomb KV 40, Valley of the Kings (Upper Egypt).** F. RÜHLI, S. MEYER, N. FRATER, L. OEHRSTROEM, R. SEILER, S. BICKEL.

- 9:00 **Urbanization and Mortality Risk in Late Medieval London.** B.S. WALTER, S. DEWITTE.
- 9:15 **Socio-ecological determinants of differential childhood morbidity in post-medieval London.** H. SCHUTKOWSKI, L. CALDERWOOD, J. BUCKBERRY.
- 9:30 **A Comparison of Statistical Techniques to Assess Age-Related Skeletal Disorders in Bioarchaeology.** C.M. CHEVERKO, K.I. DOWNEY, M. HUBBE.
- 9:45 **Traumatic Injury Risk with Agriculture: Data from the Southeast and Beyond.** P.M. LAMBERT, M.H. WELKER.
- 10:00 **Break.**
- 10:15 **The meaning of means: the (mis)use of adult age estimates in bioarcheology.** J. BUCKBERRY.
- 10:30 **Gender differences in Diet and Health During Eastern Zhou.** K. PECHENKINA, Y. DONG, C. MORGAN, W. FAN.
- 10:45 **Dietary Patterns in Northern Chile during the Transition to Agriculture (Tarapaca Region, 1000 BC–AD 900).** F. SANTANA SAGREDO, M. URIBE, M. HERRERA, R. RETAMAL, S. FLORES.
- 11:00 **Tracing Dietary Histories and Social Relationships in a Muisca Population (900-1400 AD, Sabana de Bogotá, Colombia).** M.J. MILLER.
- 11:15 **Application of Stable Isotope Analysis to Questions of Status and Dietary Disparities at Chalcatzingo, Morelos, Mexico.** S.A. STREULI, A.D. SOMERVILLE, M.J. SCHOENINGER.
- 11:30 **Isotopic evidence for weaning timing among Formative populations of Caleta Huelén, northern Chile.** W.J. PESTLE, E.K. SMITH, A. CLAROT, F. GALLARDO.
- 11:45 **Reconstructing daily lives of individuals in ancient mass graves from Greek Sicily: Paleodietary perspectives on the Battles of Himera mortuary assemblages (480 BC, 409 BC).** K.L. REINBERGER, L.J. REITSEMA, B. KYLE, P. FABBRI, S. VASSALLO.

Session 5: Reconstructing hominin paleoenvironments and paleoecology in Africa using stable isotopes: an integrative approach

Invited Poster Symposium. Chair: Scott A. Blumenthal.

Co-organizers: Scott A Blumenthal, David B Patterson, and Kendra L Chritz.

A 701.

Relationships between African climate, environment, and human evolution remain poorly understood, largely due to difficulties in inferring selective conditions directly experienced by hominins. Although ocean- and lake-based archives provide critical regional- to global-scale perspectives, these records must be contextualized within a local terrestrial framework. Stable isotope analysis of fossils and sediments has become widespread in paleoanthropology for reconstructing local climates and ecosystems associated with traces of hominin morphology and behavior. This symposium brings together expertise in stable isotopes and paleoecology to explore recent advances and persistent challenges in method and theory for reconstructing hominin environments, particularly the integration of isotopic records with other morphological and geochemical proxies.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.

Authors present 10:15 – 11:00

11:00 Discussion: Richard Potts.

- 1 **Isotopic perspectives on the dietary ecology of early Miocene catarrhines.** J. KINGSTON, L. MACLATCHY, S. COTE, W. SANDERS.
- 2 **Diets of Plio-Pleistocene Cercopithecidae from the Lake Turkana and Lake Victoria regions, Kenya.** T.E. CERLING, S.A. BLUMENTHAL, L.C. BISHOP, K.L. CHRITZ, P.W. DITCHFIELD, M. LEAKEY, F. MANTHI, T.W. PLUMMER.
- 3 **Spatial variation in paleovegetation in the Turkana Basin: implications for hominin niche shifts in the mid-Pliocene.** A. VILLASEÑOR.
- 4 **Hominin behavioral landscapes: merging stable isotopes, zooarchaeology and ecometrics for insights into hominin ecology at East Turkana, northern Kenya.** D.B. PATTERSON, D.R. BRAUN, R. BOBE, S.B. LEHMANN, N.E. LEVIN, A.K. BEHRENSMEYER, B.A. WOOD.
- 5 **Shifting dietary and technological adaptations of the Turkana hominins under static woody cover.** R.L. QUINN, C.J. LEPRE, M. BARCA, L. GODFREY, R.A. MORTLOCK, M. SCHALLER, J.D. WRIGHT.
- 6 **Small mammal insectivore carbon isotopes as environmental proxies in a South African savanna ecosystem.** J.N. LEICHLITER, M.J. SPONHEIMER, N. AVENANT, P. SANDBERG, O. PAINE, D. CODRON, J. CODRON.
- 7 **Stable Isotopic Study of Modern and Fossil *Tragelaphus*: interpreting the range of dietary signals within a single genus.** E.W. NEGASH, Z. ALEMSEGED, J.G. WYNN, Z.K. BEDASO, R. BOBE.
- 8 **Olduvai Gorge paleoecology: a multiproxy approach using bovid ecomorphological, tooth wear, and enamel stable isotopic studies.** T.W. PLUMMER, P.W. DITCHFIELD, L.C. BISHOP, J. LOUYS, F. HERTEL, J.D. KINGSTON, R. LAMELA-LOPEZ, F. FORREST, A. VAUGHAN.
- 9 **Environmental change in Kenya following a strong-weak monsoon transition: implications for the Pleistocene paleoenvironmental record.** K.L. CHRITZ, E.A. HILDEBRAND, K.H. FREEMAN, T.E. CERLING.
- 10 **Variation in the $\delta^{18}\text{O}$ record of Allia Bay, Kenya hippopotamidae .** M.J. SCHOENINGER, M.M. BEASLEY, I.J. ORLAND,

J.W. VALLEY.

- 11 **Experimental water switch in sheep improves models for seasonal climate reconstruction.** D.R. GREEN, A.S. COLMAN, G.M. GREEN, F.B. BIDLACK, P. TAFFOREAU, T.M. SMITH.
- 12 **Two proxies from one biomineral: AAR geochronology and isotopic palaeoaridity indices from ostrich eggshell in archaeological sites.** J. LEE-THORP, M. ECKER, M. CRISP, B. DEMARCHI, C. MAREAN, K. PENKMAN.
- 13 **Reconstruction of Late Pleistocene Paleoenvironments using Stable and Clumped Isotopes from the Lake Victoria Region.** E.J. BEVERLY, K. SNELL, D.J. PEPPE, S.G. DRIESE, J. FAITH, C.A. TRYON.
- 14 **Understanding landscape variability from stable carbon isotope ratios of paleosols and enamel: a case study from East Turkana, northern Kenya.** M.D. BIERNAT, S. HIMES, F.S. KASSA, D.B. PATTERSON, D.R. BRAUN.
- 15 **Terrestrial aridity and Plio-Pleistocene hominin environments.** S.A. BLUMENTHAL, N.E. LEVIN, T.E. CERLING, F.H. BROWN, K.L. CHRITZ, J.M. HARRIS, G.E. JEHLE.
- 16 **Early hominid habitat preferences in the Middle Awash Valley, Ethiopia, from 5.6 to 0.08 Ma: paleosol stable isotope evidence.** S.H. AMBROSE, G. WOLDEGABRIEL, W.K. HART, P.R. RENNE.

Session 6: **Toward a Holistic Forensic Anthropology**

Invited Poster Symposium. Chair: Jared S. Beatrice.

Co-organizers: Angela Soler, Jonathan D. Bethard, Cate E. Bird and Allysha P. Winburn.

A 702.

In the last few decades, forensic anthropology has expanded in scope beyond traditional method-based and applied laboratory osteology to include a diverse range of approaches and analytical frameworks. The field has benefitted from the development of more reliable methods, an emphasis on quantitative analysis and the establishment of error rates, and innovative collaboration with related disciplines. These advances have also been critical to the need to meet evidentiary standards required by the *Daubert* ruling. In addition to scientific and methodological improvements, forensic anthropologists increasingly recognize that practitioners can and *should* critically engage with the field of anthropology as a whole. In fact, numerous examples of deeper and more regular engagement with the broader anthropological literature provide a more holistic perspective on issues of identification, family assistance, and death investigations in a variety of cultural, medicolegal, and humanitarian contexts. This symposium aims to stimulate discussion of how forensic anthropologists incorporate broader anthropological concepts and theory into their approach to routine forensic casework, humanitarian disaster response, and the investigation of human rights violations. Contributors focus on themes that include the use of a population approach in forensic casework, the use of osteobiographies in identification, the application of embodiment theory, integrating sociocultural and religious context into interpretations, and the need to understand local social, economic, and political circumstances to better serve the needs of communities when performing human rights and/or humanitarian aid work. Collectively, these papers reinforce and make more recognizable the merits of a more holistic forensic anthropology.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.

Odd numbered poster authors present 9:00 – 10:00/ Even numbered poster authors present 10:00 – 11:00.

11:00 Discussion: Dawnie Wolfe Steadman and Sarah E. Wagner.

- 1 **Coming of age as a discipline: eighty-five years of forensic anthropology in the AAPA.** J.D. BETHARD.
- 2 **Incorporating all of anthropology into forensic anthropology graduate programs.** C.F. MILLIGAN, A. PERRONE.
- 3 **Forensic Anthropology *Is* Anthropology: How Participant Observation, Cultural Relativism, and Interviews Inform International Casework.** E.A. DIGANGI.
- 4 **Accounting for the Missing: Forensic Anthropology, Human Rights, and the Politics of Measurement.** A.R. ROSENBLATT.
- 5 **Forensic Anthropology For Who? The Experience of Colombian Forensic Practitioners in a Context of More Than Six Decades of Sociopolitical Conflict.** M. LOPEZ CERQUERA, D. CASTELLANOS.
- 6 **The Use of Physical and Cultural Anthropology in Resolving Medicolegal Cases: Forensic Anthropology at the PCOME.** B.E. ANDERSON, R.C. REINEKE.
- 7 **The biological consequences of structural violence in a forensic sample of undocumented migrants in southern Arizona.** A. SOLER, J.S. BEATRICE.
- 8 **Investigating migrant deaths: Viewing a humanitarian crisis through individual life histories.** J.S. BEATRICE, A. SOLER.
- 9 **The Anthropology of Forensic Identification in Texas.** J.P. FANCHER, M. SPRADLEY, H.A. DUECKER, C.E. SKIPPER, B.S. MCCLAIN, M.E. ISAACKS, C.P. MCDANELD, S.M. MAVROUDAS, A.C. GOOTS, A.D. AYALA BAS.
- 10 **Population Bias and its Advantages in Forensic Anthropological Casework.** C.E. BIRD.
- 11 **Investigative Anthropology: Holistic approaches to case resolution.** A.W. BUNCH.
- 12 **Using Paleopathology Techniques to Detect Childhood Neglect in Forensic Cases.** C.V. ISAAC.
- 13 **The biocultural signature of Afro-Caribbean religious rituals from a multiregional medicolegal perspective.** A.P. WINBURN, C.W. RAINWATER, G.O. HART, S.K. SCHOFF, N.M. PARR.
- 14 **Thinking spatially: Human behavioral ecology and forensic anthropology.** D. CONGRAM, M. KENYHERCZ.

Session 7: **Bone Microstructure: Imaging, Analysis and Function**

Invited Poster Symposium. Chair: John D. Polk.

Atrium Ballroom C.

The properties of cortical, trabecular and subchondral bone change in response to the loading conditions that they experience during an animals' lifetime. As a consequence, these bone properties have great potential for inferring functional differences between individuals and species of hominins and other primates. There has been a recent proliferation of techniques used to analyze and infer function from bone microstructure. This symposium brings together researchers from around the world who focus on experimental, ontogenetic, comparative, new analytical and imaging approaches to understanding variation in cortical, subchondral and trabecular bone, and the ways in which this variation can inform our understanding of extant and fossil species' articular function, and behavioral diversity.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.

Opening remarks and 5 minute presentations 9:30

11:30 Discussion: Brigitte Demes.

- 1 **Regional variation of bone properties within the human lumbar vertebrae.** A. SU, A.M. BARTOSH, A.S. DICKSON.
- 2 **Systemic patterns of trabecular structure in *Homo* and *Pan*: Evaluating inter- and intraspecific variability across anatomical sites.** Z.J. TSEGAI, M.M. SKINNER, D.H. PAHR, J. HUBLIN, T.L. KIVELL.
- 3 **Normal variation in osteocyte lacunar parameters between human skeletal elements in cortical and cancellous bone from adult males - a synchrotron micro-CT approach.** J.M. ANDRONOWSKI, I.V. PRATT, D.M. COOPER.
- 4 **Radial Maximum Intensity Projection (rMIP): A new method for mapping 3D subchondral bone apparent density on curved joint surfaces .** T.M. RYAN, L.J. DOERSHUK, S.M. SUKHDEO.
- 5 **Signals of loading and function in the human hand: a multi-method analysis of the external cortical and internal trabecular bone of the metacarpals.** N.B. STEPHENS, T.L. KIVELL, D.H. PAHR, A.H. GEE, G.M. TREECE, J. HUBLIN, M.M. SKINNER.
- 6 **Subchondral bone radiodensity patterns in the glenoid fossa of the scapula in humans and non-human primates.** B.A. PATEL, K.J. CARLSON.
- 7 **Trabecular orientation in the 3rd metacarpal head of humans and chimps reveals their difference in locomotion behavior.** M.M. BARAK, E. SHERRATT, D.E. LIEBERMAN.
- 8 **Trabecular bone adaptations to arboreal and terrestrial environments: experimental evidence from mice .** I.J. WALLACE, S. JUDEX, A. SU, B. DEMES.
- 9 **Trabecular bone structural variation throughout the lower limb in three human populations.** J.P. SAERS, Y. CAZORLA BAK, C.N. SHAW, T.M. RYAN, J.T. STOCK.
- 10 **Subchondral properties of the hominoid distal tibia: an indicator of loading during habitually dorsiflexed ankle postures.** K.J. CARLSON, H. CHIRCHIR, B.A. PATEL.
- 11 **The relationship between patterns of subchondral bone apparent density and trabecular bone structure in the hominoid knee.** S.M. SUKHDEO, T.M. RYAN.
- 12 **Reconstructing knee posture in humans, chimpanzees and gorillas: subchondral and trabecular signals.** M.C. FOX, K.J. CARLSON, T. RYAN, M. KERSH, J.D. POLK.
- 13 **Which bone properties provide the best indicators of habitual posture?** J.D. POLK, M.C. FOX, M. KERSH.
- 14 **A comparative, ontogenetic approach to trabecular architecture with implications for inferring foot function in fossil hominins.** A. ZEININGER.

Thursday, All day sessions.

Session 8: **Primate Behaviour**

Contributed Poster Presentations. Chair: Laurie J. Reitsema.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Polyspecific associations of red uakaris in northeastern Peru.** R.M. HORES, S.M. FORD.
- 2 **Isotopic corroborates for wild capuchin (*Sapajus libidinosus*) omnivorous dietary adaptation at Fazenda Boa Vista, Brazil.** L.J. REITSEMA, C.E. JONES, D.M. FRAGASZY, P. IZAR, E. VISALBERGHI.
- 3 **Quantifying urinary C-peptide levels in wild tufted capuchins: a validation of filter paper storage methods.** J. CHALK, E.R. VOGEL, C.E. WALL, P. IZAR, M. EMERY-THOMPSON.
- 4 **Group coordination and the distribution of leadership in tufted capuchin monkeys: implications from a natural removal**

- experiment. C.J. SCARRY, M. TUJAGUE.
- 5 **Infant mortality in white-faced capuchins: The impact of alpha male replacements.** K.M. JACK, L.M. FEDIGAN.
 - 6 **Maintaining and reinforcing commitment in the pair-bonded Bolivian gray titi monkey, *Callicebus donacophilus*.** K. DINGESS, Y. GARECA, V. SANDOVAL.
 - 7 **The impact of kinship and social contact on the gut microbiota of wild, black howler monkeys (*Alouatta pigra*).** K.R. AMATO, S. VAN BELLE, A. DI FIORE, A. ESTRADA, R. STUMPF, B. WHITE, K. NELSON, R. KNIGHT, S.R. LEIGH.
 - 8 **Intergroup and Intragroup Vocalizations in the Mantled Howling Monkey (*Alouatta palliata*).** S. PRASHER.
 - 9 **The Ontogeny of Prehensile-tail use in *Ateles geoffroyi*.** L.T. KUMPAN, K. RUNZEL.
 - 10 **Positional and Postural Behavior of *Ateles geoffroyi* at Osa Peninsula, Costa Rica.** H.G. SHOWALTER.
 - 11 **Reproductive seasonality in two sympatric primates (*Ateles belzebuth* and *Lagothrix poeppigii*) from Amazonian Ecuador.** K.M. ELLIS, A. LINK, A. DI FIORE.
 - 12 **Feeding and gouging in a wild pygmy marmoset group: Results from a camera trapping pilot study.** C.P. JACKSON, U.H. REICHARD.
 - 13 **Parasite risk influences the water preferences of lemurs.** C.R. AMOROSO, K.C. SMITH, A.G. FRINK, C.L. NUNN.
 - 14 **Do grooming bouts diminish ectoparasite load in wild *Propithecus edwardsi* in the rainforests of Madagascar?** K.J. KLING, M.E. LAUTERBUR, P.C. WRIGHT.
 - 15 **Phenotypic constraints on life cycle evolution in wild Verreaux's sifaka (*Propithecus verreauxi*).** R.R. LAWLER, J. RATSIRARSON, J. RANAIVONASY.
 - 16 ***Propithecus* playing around: Does female leadership influence play?** A.R. LAMB, E. LAUTERBUR, P.C. WRIGHT.
 - 17 **The Relationship of Estradiol to Paternal Care Behavior in Wild-living Red-bellied lemurs (*Eulemur rubriventer*).** J. COSTANZO, A.L. BADEN, S. TECOT.
 - 18 **To care or not to care? Paternal and alloparental infant care in free-ranging male Coquerel's sifaka (*Propithecus coquereli*).** L.M. MEADOR.
 - 19 **A Study of Habituation in *Eulemur flavifrons*.** K. MEIER.
 - 20 **Intersexual Affiliation in a Troop of Ring-Tailed Lemurs (*Lemur catta*).** L.E. GOTUACO, C.M. BRAND, C.G. OLIVEIRA, K. ORTIZ, T. KEITH LUCAS, F.J. WHITE.
 - 21 **Ultrasonic vocalizations by montane pygmy tarsiers (*Tarsius pumilus*) in Sulawesi, Indonesia.** N.B. GROW, K. BAILEY, S. GURSKY.
 - 22 **Revisiting carpal vibrissae: Positive identification in adult *Tarsius tarsier* and the implications for taxonomy and phylogeny.** A.N. SPRIGGS, B.C. WILHELM, B.J. BRADLEY, J.M. KAMILAR.
 - 23 **Social Network Analysis of Stone Handling and Object Manipulation Among Long-Tailed Macaques (*Macaca fascicularis*) in Bali, Indonesia: A Preliminary Analysis.** J.V. PETERSON, A. FUENTES.
 - 24 **Play behavior in captive black crested mangabeys (*Lophocebus aterrimus*).** N.P. RHOTON, K.L. GRAHAM.
 - 25 **Fatty food or fertile females? Consortships and raiding behavior in male chacma baboons in the Cape Peninsula, South Africa.** M.A. BRYER, L. SWEDELL, S. CHOWDHURY.
 - 26 **Network Position and Human Presence in Barbary Macaques of Gibraltar.** B.A. BEISNER, K.R. FINN, T. BOUSSINA, A. NATHMAN, A. FUENTES, E. SHAW, B. MCCOWAN.
 - 27 **Social network analysis of Barbary macaque (*Macaca sylvanus*) dominance structure.** K.R. FINN, B.A. BEISNER, A. NATHMAN, T. BOUSSINA, A. FUENTES, E. SHAW, B. MCCOWAN.
 - 28 **Object preferences and the function of object play behavior in a provisioned troop of long-tailed macaques (*Macaca fascicularis*) at Wat Khao Takieb, Thailand.** A.M. CARTER, K.P. GRAHAM, S. MALAIVIJITNOND.
 - 29 **Seasonal influences on gelada social networks.** D.J. PAPPANO, T.J. BERGMAN, J.C. BEEHNER, T. BERGER-WOLF, D.I. RUBENSTEIN.
 - 30 **Leaf fracture toughness and foraging efficiency in Angola black and white colobus monkeys (*Colobus angolensis palliatus*) from the Diani Forest of Kenya.** N.T. DUNHAM, A.L. LAMBERT.
 - 31 **Dominance Rank and Nutrition in Forest-Dwelling *Papio anubis*.** S. CASSALETT, C.A. JOHNSON, J.M. ROTHMAN.
 - 32 **Hands and Feet: Comparative anatomy of apes and Old World Monkeys.** A.L. ZIHLMAN, C.E. UNDERWOOD.
 - 33 **Short- and long-term consequences of intergroup interactions in redbelt monkeys (*Cercopithecus ascanius*) and grey-cheeked mangabeys (*Lophocebus albigena*) in Kibale National Park, Uganda.** M. BROWN.
 - 34 **Do site residence time and aggression reflect dietary preference among wild Diana monkeys (*Cercopithecus diana*)?** E.E. KANE.
 - 35 **Male reproductive strategies and paternity success in the multilevel social system of gelada monkeys from Guassa, Menz**

- Highlands, Ethiopia.** C.M. MILLER, N. SNYDER-MACKLER, N. NGUYEN, P.J. FASHING, J. TUNG, M.L. GUSTISON, M.L. WILSON.
- 36 **Signal trees: testing a theoretical framework and model for the evolution of primate vocal repertoires.** J.L. FULLER.
- 37 **Female reproductive success in an age-inversed hierarchy: the effects of age, parity, and rank.** A. KOENIG, D. DE VRIES, C. BORRIES.
- 38 **A multivariate approach to primate socioecology.** K.N. CROUSE.
- 39 **A New Quantitative Method to Analyze Geospatial Variations in Speech and Vocalization.** S.A. TOWNSEND, D.E. SLICE.
- 40 **What is a patch? Quantifying resource dispersion in primate studies .** C.A. SHAFFER.
- 41 **Facial Expressions and Pair-Bonds in Hylobatids.** B.N. FLORKIEWICZ, G. SKOLLAR, U.H. REICHARD.
- 42 **When borders are contested: methodological and theoretical issues when mapping ranging behavior of territorial species.** L.E. LIGHT, T.Q. BARTLETT, W.Y. BROCKELMAN.
- 43 **Effects of visitor group size on the number of abnormal behaviors in captive bonobos (*Pan paniscus*) housed in outdoor and indoor zoo exhibits.** J.L. BOLTE, M. WAKEFIELD.
- 44 **Rearing history and allostatic load in adult western lowland gorillas (*Gorilla gorilla gorilla*) in human care.** A.N. EDES, B.A. WOLFE, D.E. CREWS.
- 45 **A Review of the Yale Peabody Museum Osteological Collection of *Pan troglodytes*: Behavioral and spatiotemporal markers of ecology, disease, injury and death.** G.P. ARONSEN, M. KIRKHAM.
- 46 **Adolescent male chimpanzees do not form a linear dominance hierarchy with their peers.** R.B. REDDY, A.A. SANDEL.
- 47 **Chimpanzees show human-like shifts in cognition during adolescence.** A.G. ROSATI.
- 48 **Chimpanzee memory for complex events.** K. SAYERS, C.R. MENZEL.
- 49 **Social bonds in adolescent and young adult male chimpanzees at Ngogo, Kibale National Park, Uganda.** A.A. SANDEL.

Session 9: **Primate Evolution**

Contributed Poster Presentations. Chair: Isaiah Nengo.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Dietary adaptations and variability in occlusal surface shape of mandibular dentition in hominin and non-hominin primates.** K.D. O'NEILL, A.L. RECTOR.
- 2 **Comparison of molar metric variation and dental microwear among three species of *Parapapio* from the Pliocene cave site of Sterkfontein Member 4, South Africa.** L.C. ADAY, W.G. ANDERSON, F.L. WILLIAMS.
- 3 **Evolutionary and dietary implications of the internal structure of the dentition of *Anapithecus herynyi* revealed by synchrotron virtual histology.** A. LE CABEC, C. DEAN, P. TAFFOREAU, D.R. BEGUN.
- 4 **A large-bodied ape canine from middle Miocene Napudet deposits in the Turkana Basin, Kenya.** I. NENGO, B. BENEFIT, I. ARNEY, M. MCCROSSIN, T. RAE, E. MILLER.
- 5 **Craniofacial size influences the strength of the molar inhibitory cascade in anthropoid primates.** J.E. SCOTT.
- 6 **Investigating dietary evolution in crown strepsirrhines using dental topography metrics and ancestral state reconstruction.** E.L. FULWOOD, D.M. BOYER.
- 7 **New insights into *Alouatta* vocal tract anatomy and functional morphology via CT and MRI.** B.M. SHEARER, L.B. HALENAR, Z.S. KLUKKERT, A.S. PAGANO, C. TANG, J.S. REIDENBERG.
- 8 **Hard-tissue markers of face flanges in male *Pongo*.** A.R. DECASIEN, J.P. HIGHAM, S.A. WILLIAMS.
- 9 **Morphological assessment of a putative hybrid species, *Trachypithecus pileatus*, based on a 3D geometric morphometric analysis of cranial morphology.** J.L. ARENSON, M. ANDERSON, F.J. WHITE, S.R. FROST.
- 10 **Primate cranial shape evolution: combining geometric morphometrics and phylogenetic comparative methods.** R.H. GRIFFIN, C.C. GILBERT, A.L. BADEN, J.G. FLEAGLE.
- 11 **The influence of brain size on canal radius of curvature.** L.A. GONZALES, M.D. MALINZAK, R.F. KAY.
- 12 **Exploring Ecogeography, Drift, and Selection on the Macaque Cranium.** S.J. WILLIAMS.
- 13 **New primate femur from Pedernales Province, the Dominican Republic extends the range of Hispaniolan monkeys.** S.B. COOKE, M. TALLMAN, A. MYCHAJLIW, J. ALMONTE, G. FELIZ.
- 14 **Predicting platyrrhine locomotor behaviors using principal component regression.** J.T. GLADMAN.
- 15 **Up in Arms: Early primate proximal ulnae show affinities with non-quadrupedal, non-primate mammalian taxa.** K.R. RAMIREZ.
- 16 **Elbow morphology and substrate use in the fossil primate community at Hadar, Ethiopia.** M. VERGAMINI, A. RECTOR VERRELLI.

- 17 **Pedal Functional Morphology of *Paracolobus chemeroni*.** M. ANDERSON, S.R. FROST.
- 18 **Phylogenetic analysis of extant hominoid postcranial characters recovers molecular clades.** K.D. PUGH.
- 19 **Reassessing Sexual Dimorphism in Early and Middle Eocene Notharctine Adapiforms.** B.A. PERCHALSKI, G.F. GUNNELL, D.M. BOYER.
- 20 **Anthropoid grooming unguis and ancestral state estimations of second pedal unguis form.** S.A. MAIOLINO.
- 21 **Environmental Variation Explains Mammalian Niche Structure in Central and South America.** J.P. SPRADLEY, J.D. PAMPUSH, R.F. KAY.
- 22 **New evidence of widespread hunting of giant lemurs on Madagascar.** L.R. GODFREY, V.R. PÉREZ, L.R. MEADOR, B.E. CROWLEY, R.J. BANKOFF, B.J. CULLETON, D.J. KENNETT, G.H. PERRY.
- 23 **Autopod scaling relationships between primate groups.** J.R. WASHABAUGH.
- 24 **New palaeontological discoveries from the Middle Miocene site of Napudet, west Turkana, Kenya.** T.C. RAE, I.O. NENGO, E.D. CURRANO, C. FEIBEL, D.L. FOX, E.R. MILLER.
- 25 **Phylogenetic analysis of *Paradolichopithecus*: Fossil baboon or macaque?** N. O'SHEA, E. DELSON, K.D. PUGH, C.C. GILBERT.
- 26 **Avifaunal contributions to the paleoenvironment of *Kenyapithecus*, *Victoriapithecus*, and other middle Miocene primates from Maboko Island, Kenya.** M.L. MCCROSSIN, B.R. BENEFIT.

Session
10

Paleoanthropology: Genus Homo

Contributed Poster Presentations. Chair: Osbjorn M. Pearson.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Does tooth size matter? A dental analysis of StW 252 from Sterkfontein, South Africa.** C.E. MAYER, F.L. WILLIAMS.
- 2 **The inner structural organization of a (likely) paranthropine patella from Swartkrans Member 2 (SKX 1084): human- and nonhuman-like features.** M. CAZENAVE, A. BEAUDET, J. BRAGA, A. OETTLÉ, J. THACKERAY, J. HOFFMAN, F. DE BEER, R. MACCHIARELLI.
- 3 **Macromammalian faunas and biostratigraphy of the Drimolen Main Quarry deposits, South Africa.** J.W. ADAMS, D.S. ROVINSKY, C.G. MENTER, A.I. HERRIES.
- 4 **The large mammal community from Cooper's D and its significance for *Paranthropus robustus* ecology.** A.L. RECTOR, K.E. REED, S. MEACHAM, C. STEININGER.
- 5 **Micromammal community structure of Cooper's D and the paleobiology of *Paranthropus robustus*.** D.A. HERNANDEZ, A.A. RECTOR, T. MATTHEWS, C. STEININGER.
- 6 **Estimating fetal-pelvic disproportion in Australopithecines, with special reference to the MH2 (*Australopithecus sediba*) pelvis.** P. FRÉMONDIÈRE, L. THOLLON, F. MARCHAL, N. FRATER, S. MATHEWS, M. HAEUSLER.
- 7 **Rearfoot posture of *Australopithecus sediba* and the evolution of the hominin longitudinal arch.** T.C. PRANG.
- 8 **Crural index of immature *Homo naledi*.** S. TRAYNOR, C.S. WALKER, J. HAWKS.
- 9 **Proportions among stature, leg length, and foot size in Dinaledi Chamber early *Homo* and limb disproportions in Liang Bua LB1.** S. CHAVANAVES, R.B. ECKHARDT, M. HENNEBERG.
- 10 **Hunter-Schreger band configuration in the molars of modern humans and Plio-Pleistocene hominins.** D. YANG, S. CICCIO, F.E. GRINE.
- 11 **Skeletal indicators of lower limb flexibility in australopithecines and extant primates.** D.M. GOLDSTEIN.
- 12 **Comparisons of strength and predictability of Neanderthal and modern human femora under loading conditions simulating traumatic loads.** K.H. TAMVADA, D.S. STRAIT.
- 13 **The naming of Neandertals: William King, Ernst Haeckel and the rise and fall of "*Homo primigenius*."** F.H. SMITH.
- 14 **Digging in the museum: Preliminary report on three unpublished Neanderthal teeth from Carigüela Cave (Píñar, Granada, Spain).** J. JIMÉNEZ-ARENAS, I. TORO-MOYANO, A. MARGVELASHVILI, M. PONCE DE LEÓN, J. ALBA-TERCEDOR, J. CARRIÓN, M. CORTÉS, C. LALUEZA-FOX, J. RIQUELME, C. ZOLLIKOFER.
- 15 **Reassessing the Genus Homo on the Island of Java through Virtual Reconstruction.** D.E. TYLER, R.P. HARROD, J. JONES, T. PARSONS.
- 16 **Spatial determinants of mandibular symphyseal morphology in Pleistocene *Homo*.** J.E. SCOTT.
- 17 **Using endocranial coefficient of variation (ECV) to assess the place of Dmanisi fossils in the early *Homo* lineage.** S.W. GUIMARÃES, H. SILVA.
- 18 **Variation in parietal bone thickness and structural arrangement in Eastern African *erectus*-like *Homo*: comparative evidence from late Early Pleistocene Uadi Aalad and Mulhuli-Amo, Danakil depression of Eritrea.** C. ZANOLLI, L. BONDIOLI, F. CANDILIO, A. COPPA, D.W. FRAYER, Y. LIBSEKAL, T. MEDIN, L. ROOK, D. TEFAY, R. MACCHIARELLI.

- 19 Preliminary zooarchaeological and taphonomic analysis of FwJj70, a butchered bone surface assemblage from the Okote Member of Koobi Fora, Kenya. S.R. MERRITT, K. FETCHENHIER.
- 20 An assessment of great ape mandibular corpus shape with implications for understanding the hominoid fossil record. M. PITIRRI, D. BEGUN.
- 21 The Relationship between Superior Calcaneal Facet Area and Achilles Tendon Length in Primates. E.J. MCNUTT, J.M. DESILVA.
- 22 Testing models of brain size evolution in canids and primates. N. MAZUMDAR, C. ROSEMAN, J.D. POLK.
- 23 Comparing hypothetical patterns of modularity in the modern human cranium. A. KOLATOROWICZ.
- 24 Can fossil hominin pelvises be sexed using standards developed for modern humans? J. EYRE.
- 25 Using geometric shape for subfamily level taxonomic attribution in mixed, unassociated fossil cercopithecoid postcranial samples. M. TALLMAN, A.D. KEGLEY, J.W. ADAMS.
- 26 Inner ear morphology of the Cioclovina early modern European calvaria from Romania. A.D. UHL, H. REYES-CENTENO, D. GRIGORESCU, E.F. KRANIOTI, K. HARVATI.
- 27 Ecogeographical adaptations of Tanzanian skeletons from the German colonial period. O.M. PEARSON, E.T. HILL, J. VALESCA MEYER.
- 28 The human brain evolving: a diachronic study of endocranial variation. L. ALBESSARD, S. DURRLEMAN, A. BALZEAU, D. GRIMAUD-HERVÉ.
- 29 Shape analysis of the proximal phalangeal articular surface of pedal phalanges in extant anthropoids and fossil hominins. P.J. FERNANDEZ, W.T. WIEDEMANN, C.M. ORR, B.A. PATEL, M.M. TOCHERI, W.L. JUNGERS.
- 30 Dental microwear turnover rates in a modern hunter-gatherer population. S.V. LIVENGOOD, A.N. CRITTENDEN, P.S. UNGAR.
- 31 Asymmetry of the Modern Human Endocranium. L.M. KITCHELL.
- 32 The ontogenetic trajectory of occipital squama convexity in extant humans. M.E. KARBAN, R.G. FRANCISCUS.
- 33 The relationship between clavicle length and scapula position in living humans. S. MELILLO, H. COQUEUGNIOT, J. HUBLIN.
- 34 What does the fox say? Analysis of fox remains from island and mainland California, and implications for hominin evolution in insular environments. C.B. YOUNG, L.W. COWGILL.
- 35 Assessing the fracture patterns of thermally altered stone: Experimental evidence for distinct fracture patterns. J. MUSCHINSKI, P. AKUKU, R. CUTTS, S. HLUBIK, D. BRAUN.
- 36 Implications and applications of non-penetrating cortical bone modifications by carnivorous scavengers. C.E. ROWE.
- 37 Identifiable properties and accurate identification of hammerstone-broken long bone fragments. K.M. DAVIS, S. MERRITT.
- 38 The use of dye staining methods to distinguish between erythrocytes and fungi in ancient tissue histology. I. SUNDELL, T.J. SETZER.

Session
11

Forensic Anthropology

Contributed Poster Presentations. Chair: Alice Gooding.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30. Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 Sexual dimorphism of the proximal ulna: An evaluation of metric analyses. E.J. BRENNAN, D.R. HUNT.
- 2 Morphometric Assessment of Sexual Dimorphism and Asymmetry in the Human Scapula. J.E. FINLAYSON.
- 3 A univariate approach to sex estimation for the fragmentary upper limb. C.B. LEGARDE, R. BONGIOVANNI.
- 4 Sex diagnosis of the human dentition after heat exposure: the potential of cementum-enamel junction and root dimensions. M. GOUVEIA, I. SANTOS, A. SANTOS, D. GONÇALVES.
- 5 Sexual Dimorphism of the Oval Window. S.M. BERGER.
- 6 Osteometric Sex Estimation from Pelvis in a Thai Population. P. MAHAKKANUKRAUH, S. RUENGDIT, D. CASE, S. TUN, A. SINTHUBUA.
- 7 The preauricular sulcus and its link to sex and parturition: a test on a British Medieval collection. S.E. CANTY, C. ELIOPOULOS, M. BORRINI.
- 8 Patterns of ossification in macerated thyroid cartilages: Implications for age and sex estimation. K.L. BOLHOFNER, L.C. FULGINITI.
- 9 Frontal Sinus Development and Juvenile Age Estimation. K.M. MOORE, A.H. ROSS, C.A. JUAREZ.
- 10 A Test of the Meindl and Lovejoy Method for Age Estimation from Cranial Suture Closure in a Thai Population. S. RUENGDIT, S. PRANEATPOLGRANG, P. SINGSUWAN, A. SINTHUBUA, P. MAHAKKANUKRAUH.
- 11 A test of seven variables of the adult acetabulum for age estimation in a Thai population. P. SINGSUWAN, S. PRANEATPOLGRANG, S. RUENGDIT, A. SINTHUBUA, P. MAHAKKANUKRAUH.

- 12 Age Estimation from Vertebral Osteophytes in a Thai Population. S. PRANEATPOLGRANG, S. RUENGDIT, P. SINGSUWAN, A. SINTHUBUA, P. MAHAKKANUKRAUH.
- 13 Multiple population-specific age estimation methods or one-size-fits-all single age estimation method: which approach works best? J. KIM.
- 14 Archaeological application of three age-at-death estimation techniques to the Medieval site of La Granède, France: cementochronology, new life tables and Caussin-Courgeau bayesian procedure. S. NAJI, B. BERTRAND, T. COLARD.
- 15 Testing Transition Analysis Aging Method on a Modern Colombian Skeletal Sample. D. CASALLAS, M. LOPEZ-CERQUERA.
- 16 Examining the Variation of Orbital Shape in Modern Human Populations Using 3D Geometric Morphometrics. M.G. TORQUATO, M. ŠEŠELJ.
- 17 Observer error in digitizing endobasicranial coordinate landmarks. A.R. DZUBAK, T.P. GOCHA, A. KOLATOROWICZ.
- 18 Model-Based Facial Soft Tissue Estimation From Dry Skull. S. SCHLAGER, M. GOEPPER.
- 19 Patterns sex-based shape in the human hipbone among non-metric traits categorized on a 5-point scale. H.I. ROBERTSON.
- 20 Determining Ancestry of Unprovenanced Human Remains from the Grenadines, Southern Caribbean: Dental Morphology and Craniometric Analyses. T.N. DODRILL, G.C. NELSON, J.H. STONE, S.M. FITZPATRICK.
- 21 Peruvian Ancestry: Morphoscopic Trait Frequency Comparisons . V. BLACK, O. LOYOLA.
- 22 Assessing the Precision and Accuracy of Craniometric Measurements: Geomorph versus Caliper Data Collection Methods . A.N. FRIEND, M.K. STOCK.
- 23 Cranial variation and biodistance in three Imperial Roman cemeteries. S.M. HENS, A.H. ROSS.
- 24 rASUDAS: A New Method for Estimating Ancestry from Tooth Crown and Root Morphology. G. SCOTT, D. NAVEGA, J. COELHO, E. CUNHA, J.D. IRISH.
- 25 Patterns of Morphological and Genomic Variation Among Different Regional Groups in Mexico. C. FIGUEROA SOTO.
- 26 Tracing the Origins of Dental Non-Metric Traits in New Mexican Hispanics. R.L. GEORGE, G. SCOTT.
- 27 Shape variation of the human orbital cavity. A. RÜDELL.
- 28 Indicators of Stress within Modern Undocumented Border Crossers Along the South Texas Border. B.S. MCCLAIN, M.D. HAMILTON, M. SPRADLEY.
- 29 Cranial base height as an indicator of developmental stress in native Mexican and American-born Mexican populations. A. GOOTS, K. SPRADLEY, H. DUECKER.
- 30 Identification of osteoporosis with the parabolic index varies based on the method of adjustment for porosity. M.E. COLE, S.D. STOUT.
- 31 Micro-anatomical features specific to metabolic problems found in the 6th left rib: A comparison among samples from the Raymond Dart and the RRP collections. J.M. TULEY, R.R. PAINE.
- 32 Biocultural evidence through taphonomic observations in the Karluk Salmon Cannery Chinese of Kodiak Island, Alaska. A.S. CUNNINGHAM, D.R. HUNT, R.H. COOLIDGE.
- 33 Heavy-handed: Can handedness be detected from bilateral degeneration of the medial end of the clavicle? S.H. BLATT, E. MOES, K. PETERSEN.
- 34 Opportunistic Blitz Research: "What can you tell me about these bones?". M. FARALDO, L.L. TAYLOR.
- 35 Machete and Axe Tool Mark Assessment Using Fully Fleshed Pigs. M.L. HIGHSMITH, R.R. PAINE.
- 36 Thoracic Fracture Patterning as a Result of Blast Trauma. A.F. GOODING, M. MCCLUNG, S. KIRKPATRICK SMITH.
- 37 Cadaver Decomposition and the Persistence of Human DNA in the Underlying Soil. A.L. EMMONS, J.M. DEBRUYN, A.Z. MUNDORFF, K.L. COBAUGH, G.S. CABANA.
- 38 Understanding skeletal decomposition through physical changes caused by bone weathering. J. PYLE, K. SPRADLEY.
- 39 Osteological analysis can still shed light on a recent forensic case. C. HUMPHREY, M. HENNEBERG, J. KUMARATILAKE.
- 40 Windover: An Overview of the Past 30 Years. G.P. THOMAS, G.H. DORAN.
- 41 What level of biogeographical information is available from ¹⁸O and ¹³C signatures in late-erupting molars of modern humans? A. HOLOBINKO, W. MEIER-AUGENSTEIN, H.F. KEMP, S.M. FORD, P. TURK.
- 42 Reconstructing the Origins of the Perrins Ledge Cremins. D.D. GRAHAM.
- 43 Assessing the application of dental cementum increment analysis for determining season of death in humans. C.E. RALSTON.

Session **Skeletal Biology: Growth, Development and Variation**

12 **Contributed Poster Presentations.** Chair: Robert A. Walker.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Effects of age on sexual dimorphism in the adult modern human skull.** C.M. ASTORINO.
- 2 **Biorhythms, deciduous enamel thickness, and primary bone growth in modern human children: a test of the Havers-Halberg Oscillation hypothesis.** P. MAHONEY, J.J. MISZKIEWICZ, R. PITFIELD, S.H. SCHLECHT, C. DETER, D. GUATELLI-STEINBERG.
- 3 **Early Life Stress in Colonial Peru: Internal Enamel Micro-Defects and their Influence on Life History Trajectories.** C.J. GARLAND, B.L. TURNER, H.D. KLAUS.
- 4 **Secular Change and Modularity in Craniofacial Fluctuating Asymmetry as an Indicator of the Demographic Transition in Americans.** K.E. WEISENSEE, R.L. JANTZ.
- 5 **Enamel Hypoplasia and Longevity as seen in the Antelope Creek and Wolf Creek skeletal sample at the Panhandle-Plains Historical Museum.** E.C. FRIGO, R.R. PAINE.
- 6 **Re-evaluating the co-occurrence and age of formation of Harris lines and linear enamel hypoplasia.** E.R. DOVE, J.D. IRISH, C. ELIOPOULOS, I. DE GROOTE.
- 7 **Impact of population-specific dental development on age estimation.** D.M. ADAMS, C. RALSTON, R. SUSSMAN, J.D. BETHARD.
- 8 **Craniofacial and dental effects shown in rats following *in utero*/lactational exposure to 2,2',3,4,4',5,5'-heptachlorobiphenyl (PCB-180).** A. ROMERO, S. SHOLTS, H. HÅKANSSON, M. VILUKSELA.
- 9 **The relationship between ante-mortem tooth loss in molars and the mandibular ramus shape examined using 3-D geometric morphometrics.** H. JUNG, E. WOO, S. PAK.
- 10 **An Assessment of Sexual Dimorphism in the Crania from Roonka Flat, South Australia.** C.B. YOAKUM, A.C. DURBAND.
- 11 **Ontogeny of nasal integration in males and females.** N.E. HOLTON, A. ALSAMAWI, T.R. YOKLEY, A.W. FROEHLE.
- 12 **Cranial Deformation from Two Skulls in Romania.** E.I. COWARD.
- 13 **Homeotic transformations in the human vertebral column – global or local.** R.G. TAGUE.
- 14 **Examining childhood stress through vertebral neural canal size: implications for the Developmental Origins of Health and Disease hypothesis.** P. BEAUCHESNE, S.C. AGARWAL, K. KINKOPF, T. TROMBLEY, C. GOODSON, L. FENTRESS, A. COPPA, F. CANDILIO.
- 15 **Estimating human juvenile age-at-death from bone histology.** R.J. PITFIELD, P. MAHONEY.
- 16 **Circumferentially drifted osteons: Detailed histology of an unadressed modeling drift tissue and implications for general histomorphological analyses.** C.M. MAGGIANO, I.M. MAGGIANO.
- 17 **Patterns in ontogeny of epiphyseal and metaphyseal trabecular bone microstructure in the human proximal tibia.** J.R. GOLIATH, J.H. GOSMAN, Z.R. HUBBELL, T.M. RYAN.
- 18 **Variation in the trabecular structure of the proximal tibia between obese and non-obese females.** D.S. GLEIBER, C.E. SKIPPER, D.L. CUNNINGHAM, D.J. WESCOTT.
- 19 **Getting the shaft?: investigating midshaft location in immature femora.** C.D. ELEAZER, R. SCOPA KELSO, F.L. WEST.
- 20 **“Here’s Looking at You, Kid:” Analysis of Longitudinal Growth in Medieval and Postmedieval London Populations.** K.E. MARKLEIN.
- 21 **Consideration of allometry improves skeletal stature reconstructions from long bones.** I.M. SIERP, M. HENNEBERG.
- 22 ***Hoxa11* and *Hoxd11* influence pisiform length through altered growth plate organization.** K.M. KJOSNESS, J.E. HINES, P.L. RENO.
- 23 **Bilateral cortical bone mass and distribution in the human appendicular skeleton.** R.A. WALKER, K. MENNITTO, K. SIMOUNIAN, A. AZIE.
- 24 **A method for estimating age of medieval sub-adults from infancy to adulthood based on long bone length.** C. PRIMEAU, L. FRIIS, B. SEJRSEN, N. LYNNERUP.
- 25 **The effects of environmental conditions and gender on the presence of pathological conditions on children's skeletons from the Industrial Era of Europe.** S. REEDY.
- 26 **A re-evaluation of the Health Index of Southern Brazil shellmound populations.** M. GREEN, M. HUBBE, W.A. NEVES.
- 27 **Skeletal growth over the period of intensification of agriculture at the late prehistoric site of Ban Non Wat, Northeast Thailand.** N. DHAVALE, S. HALCROW, H. BUCKLEY, N. TAYLES, A. GRAY.
- 28 **The woman in blue: using modern analytical methods to investigate a Viking Age burial from Iceland.** J.W. WALSER III, T. JAKOB, M.H. SMITH, J. TUBMAN, F.H. ÓMARSÐÓTTIR, S.S. EINARSDÓTTIR, K. SMITH, J. MONTGOMERY, S.J. KRISTJÁNSDÓTTIR, S.S. EBENESERDÓTTIR, K. FREI.
- 29 **Isotopic Analysis of Prehistoric Human Diet at Chelechol ra Orrak, Palau.** J.H. STONE, J. KRIGBAUM, S.M. FITZPATRICK.
- 30 **Better with age: Diet and social identity of the elderly at Kellis, Egypt through stable isotope analysis.** K.E. EAST, T.L. DUPRAS, L. WILLIAMS, S.M. WHEELER.
- 31 **Bootstrap-based comparison of the elevations of reduced major axis (RMA) regression lines.** T.M. COLE III, M.S. COLE, W.L. JUNGERS.
- 32 **Variation in ontogenetic growth patterns with shifts in a small town economy: Intra-population assessment of body size and**

- bone strength (Barton-upon-Humber, Lincolnshire UK). E.M. GAROFALO.
- 33 **Children and Childhood in Prehistoric Peru: A Mortuary Analysis of Infants and Children at Estuquiña.** M. LUTEY, S.R. WILLIAMS.
- 34 **What's the Difference? A Comparison of the Skeletal Remains of Castrated Individuals.** K. REUSCH.
- 35 **Multiple perinatal burial from the 2nd to 1st c. B.C.E. at Kopila, Korčula Island, Croatia.** P. MITCHELL, D. RADOVČIĆ, I. BORZIĆ, D. RADIĆ.

Thursday, Afternoon sessions.

Session 13 **Ancient alleles in modern populations: Ancient structure, introgression and variation-maintaining adaptive forces**

Invited Joint AAPA-AAAG Podium Symposium. Chair: Omer Gokcumen.

Co-organizers: Omer Gokcumen and Aaron Sams.

Imperial Ballroom B.

It was an amazing decade for anthropological genetics. Improvements in sequencing technologies have, on the one hand, provided thousands of whole modern human genomes readily available for analysis, and on the other hand, allowed sequencing of whole ancient genomes, a feat that revolutionized the way in which we study human evolution. One of the most fascinating areas of research that has developed from these new resources is the observation that modern humans share derived alleles with archaic populations, such as Neandertals and Denisovans, and some of these alleles remain variable in human populations. This observation is concordant with three scenarios: (i) recent introgression events from the archaic humans into modern human populations; (ii) ancient structure in the ancestral human population(s); and (iii) recurrent mutations at orthologous loci. It is now clear that all these scenarios have considerable influence on shaping the landscape of modern human genomic variation. In addition, some of these ancient variants have been maintained through adaptive forces, especially involving variation-maintaining adaptive forces (i.e., different ramifications of balancing selection). These adaptations relate to evolutionarily important functional categories, such as immunity, metabolism, growth, and climatic adaptation. This symposium will bring together paleoanthropologists, genetic anthropologists and population geneticists who are leaders in the field to lay out state-of-the-art methodological and theoretical developments involving genetic variation that has been maintained for hundreds of thousands of years in the human lineage. We hope that this symposium will lead to novel discussion regarding recent human evolution, the ancient migrations that shaped contemporary genetic structure in humans, and the adaptive impact of ancient human variation.

- 1:00 **The high-quality genomes of a Neandertal and a Denisovan.** K. PRÜFER.
- 1:15 **A discriminative model for inferring genome-wide maps of Neandertal and Denisovan ancestry.** S. SANKARARAMAN, S. MALLICK, N. PATTERSON, D. REICH.
- 1:30 **The genomic footprints of Stone-Age Europeans.** M. JAKOBSSON.
- 1:45 **Ancient introgression in Africa and the evolutionary genetics of hybrid fitness effects.** J. LACHANCE.
- 2:00 **A novel approach for detecting adaptive introgression in modern humans.** E. HUERTA-SANCHEZ, F. RACIMO.
- 2:15 **A novel, probabilistically interpretable framework for localizing genomic elements underlying adaptive evolution .** S. RAMACHANDRAN.
- 2:30 **Adaptive maintenance of ancient alleles: likelihood approaches for detecting balancing selection.** M. DEGIORGIO, K.E. LOHMUELLER, R. NIELSEN.
- 2:45 **Balancing selection and adaptive introgression as sources of advantageous genetic diversity in populations.** A.M. ANDRÉS, M. DANNEMANN, J. TEIXEIRA, J. KELSO.
- 3:00 **Effects of adaptive Neandertal introgression at the OAS locus on the modern human innate immune response.** A.J. SAMS, J. NEDELEC, A. DUMAIN, V. YOTOVA, P.W. MESSER, L.B. BARREIRO.
- 3:15 **Ancient alleles and complex structural variation of pathogen receptors at the glycoporphin locus.** E.M. LEFFLER, G. BAND, K.A. ROCKETT, Q. LE, D.P. KWIATKOWSKI, C.C. SPENCER.
- 3:30 **Ancient genetic diversity and an evolutionary medicine perspective on Neandertal extinction.** A.P. SULLIVAN, G. PERRY.
- 3:45 **Millennial-scale population dynamics and the anthropology of introgression.** J. HAWKS.
- 4:00 **Discussion: Omer Gokcumen.**
- 4:15 **Break.**

Session 14 **Primateology: Social and Reproductive Behavior**

Contributed Podium Presentations. Chair: Anthony Di Fiore.
A 602.

- 1:00 **Ethoinformatics I: Developing a Standard Vocabulary and Data Model for Behavioral Field Research.** K.L. CHIOU, A. DI FIORE, R. OVERSTREET, M. CHEVETT, T. IGOE.

- 1:15 **Ethoinformatics II: Developing Open-Source Digital Data Services for Behavioral Field Research.** A. DI FIORE, K.L. CHIOU, M. CHEVETT, R. OVERSTREET, T. IGOE.
- 1:30 **Operational sex ratio, dominance rank and mating success of group and non-group male ring-tailed lemurs (*Lemur catta*).** A.D. WALKER-BOLTON, J.A. PARGA.
- 1:45 **Effects of sociality on the evolution of olfactory systems in mammals.** E.C. GARRETT, A.D. MELIN.
- 2:00 **Dichromacy as an adaptation for foraging in red-bellied lemurs (*Eulemur rubriventer*).** R.L. JACOBS, C.C. VEILLEUX, A.D. MELIN.
- 2:15 **The roots of all evil: aggression and below-ground feeding in female geladas.** J.C. JARVEY, B.S. LOW, T.J. BERGMAN, J.C. BEEHNER.
- 2:30 **Thermal Benefits of Grooming in Primates.** R. MCFARLAND, P. HENZI, L. BARRETT, A. FULLER, R.S. HETEM, D. MITCHELL, S.K. MALONEY.
- 2:45 **Social status, seasonality, and stress: Variation in glucocorticoid concentrations of high-ranking male rhesus macaques (*Macaca mulatta*).** K.M. MILICH, A.V. GEORGIEV, R. PETERSEN, M. EMERY THOMPSON, D. MAESTRIPIERI.
- 3:00 **Stabilizing selection and optimal group size in geladas.** E. TINSLEY JOHNSON, N. SNYDER-MACKLER, T.J. BERGMAN, J.C. BEEHNER.
- 3:15 **Does male rank trajectory influence male-female associations in olive baboons?** J.T. WALZ, D.M. KITCHEN.
- 3:30 **Baboon social neurobiology: Comparing the distributions of oxytocin and arginine vasopressin receptors in hamadryas (*Papio hamadryas hamadryas*) and anubis (*Papio hamadryas anubis*) baboon brains.** D.J. COPPETO, J.K. RILLING, T.M. PREUSS, G.L. WHITE, R.F. WOLF, P.R. MORALES, J.L. WAGNER, L.J. YOUNG.
- 3:45 **Energy balance across the estrus cycle and its relation to reproductive function in female chacma baboons.** T. STEINICHE, L. SWEDELL, S. FOERSTER.
- 4:00 **Break.**

Session **Skeletal Biology: Paleopathology and Functional Studies**

15 **Contributed Podium Presentations.** Chair: Bruno M. Magalhães.
A 706/707.

- 1:00 **Battle vs Massacre – the use of perimortem injuries to differentiate between violent encounters.** M. KLJAJIC, J. PERIC PERUCIC, M. WOJCINSKI, M. SLAUS.
- 1:15 **Bioarchaeological analysis of juvenile remains from a mass sacrifice at Huanchaquito-Las Llamas, Peru, circa AD 1400.** B.L. DEMENT, J.W. VERANO, G. PRIETO, M. LUND.
- 1:30 **Fracture patterns of early first Millennium B.C. mounted Pastoralists in the Kunlun Mountains, China.** J. GRESKY, T. SCHMIDT-SCHULTZ, L. SCHWARZ, M. SCHULTZ.
- 1:45 **Hip fractures: an investigation of perimortem criteria.** M.L. MANT, C. DE LA COVA, R. IVES, M. BRICKLEY.
- 2:00 **Porotic hyperostosis and cribra orbitalia over the Mesolithic-Neolithic transition in the Danube Gorges, Serbia.** M. EDINBOROUGH, K. EDINBOROUGH.
- 2:15 **High Osteoporosis Risk among Physically Active Forager-Horticulturalists.** J. STIEGLITZ, F. MADIMENOS, H. KAPLAN, M. GURVEN.
- 2:30 **Middle nasal *concha bullosa* in a Portuguese identified skull collection and its association with nasal septal deviation and respiratory disease.** B.M. MAGALHÃES, S. MAYS, A.L. SANTOS.
- 2:45 **Experimental Mummification Project for Radiological Detection of Cancer.** J.L. WILLOUGHBY, C.L. KIRKPATRICK, J. KOROPATNICK, A. NELSON.
- 3:00 **Paleoparasitology of 1300 year-old human mummies from Nubia.** J.E. LOUDON, R.B. ADAMS, D.P. VAN GERVEN, V.J. MCKENZIE.
- 3:15 **Is enthesal change a marker of activity?** B. MULDER, B.V. RIETBERGEN, A. WATERS-RIST.
- 3:30 **Enthesal changes as a reflection of activity patterns at 1st century B.C./A.D. Petra.** T. STANKO, M. PERRY.
- 3:45 **Relationship between macroscopic morphology of thenar and hypothenar entheses and their microstructural design in modern humans.** K.N. RABEY, S. HILES, E. WILLIAMS-HATALA.
- 4:00 **Break.**

Session **Paleoanthropology: Early hominins**

16 **Contributed Podium Presentations.** Chair: Melanie M. Beasley.
Imperial Ballroom A.

- 1:00 **Reconstructing early hominin brain evolution from South African *Australopithecus* endocasts.** A. BEAUDET, J. DUMONCEL, L. BAM, S. DURRLEMAN, E. GILISSEN, J. HOFFMAN, A. OETTLÉ, J. THACKERAY, J. BRAGA.
- 1:15 **First steps of bipedality in hominids: evidence from the pelvis of *Proconsul* and atelids.** A.L. MACHNICKI, L.B. SPURLOCK, K.B. STRIER, P.L. RENO, C. LOVEJOY.
- 1:30 **Virtual reconstruction of the MH2 pelvis (*Australopithecus sediba*) and obstetrical implications.** M. HAEUSLER, P.

FRÉMONDIÈRE, C. FORNAI, N. FRATER, S. MATHEWS, L. THOLLON, F. MARCHAL.

- 1:45 **Body mass and femur length of *Orrorin tugenensis*.** T.W. HOLLIDAY, L. FRIEDL.
- 2:00 **Shape Variation in the Distal Femur of Modern Humans and Hominins.** N. SQUYRES, A. SYLVESTER, M. LANKIEWICZ, C. RUFF.
- 2:15 **Ratios of humeral to femoral mid-shaft cortical area reflect differences in locomotor behavior in primates, including fossil hominins.** A.J. ZACHWIEJA, B. DEMES, W.L. JUNGERS, K.J. CARLSON, F.E. GRINE, O.M. PEARSON, L.L. SHACKELFORD, J.D. POLK.
- 2:30 **Wading, and seeing, through mud: A biplanar x-ray study of human foot motion and footprint formation within deformable substrates.** K.G. HATALA, D. PERRY, S.M. GATESY.
- 2:45 **Testing biomechanical models for lumbar lordosis variation in hominins.** E.R. CASTILLO, C. HSU, R.W. MAIR, D.E. LIEBERMAN.
- 3:00 **Birth since the LCA: Reconstructing the twisted evolution of human parturition.** M. GRABOWSKI, S.A. WILLIAMS.
- 3:15 **The KSD-VP-1/1 postcranial skeleton from Woranso Mille, Ethiopia: brachial plexus enlargement and the capacity for fine motor skills in *Australopithecus afarensis*.** M.R. MEYER, Y. HAILE-SELASSIE.
- 3:30 **Exploring C₄ plant foods: the nutritional properties of South African savanna vegetation .** O. PAINE, M. SPONHEIMER, A. HENRY, A. HUTSCHENREUTHER, J. LEICHLITER, J. CODRON, D. CODRON, J. LOUDON, I. VINSONHALER.
- 3:45 **Seasonal variation in rainfall at Allia Bay, Kenya 3.97 Ma.** M.M. BEASLEY, I.J. ORLAND, J.W. VALLEY, M.J. SCHOENINGER.
- 4:00 **Break.**

Session **Evolutionary Approaches to Bioarchaeology**

17 **Invited Poster Symposium.** Chair: Jim Watson.

Co-organizers: James T. Watson and Rachael M. Byrd.

A 701.

Although a sub-discipline of physical anthropology, bioarchaeological research is often missing an evolutionary perspective. Advances in the application of social theory regularly reject integrative interpretations of human biocultural adaptations and their consequences. Some exceptions to this observation include the application of molecular and morphological approaches to tracing modern human variation across time and geographical space using ancient population samples to understand migration. However, these studies often focus on the proximate interpretations rather than ultimate causations or consequences. This symposium seeks to highlight the ways in which a modern synthetic evolutionary approach can not only better inform our understanding of human biology among (pre)historic groups, but demonstrate how social and behavioral systems are affected by and reflect these relationships. Participants seek to approach bioarchaeological datasets from an evolutionary perspective to answer questions about how human biocultural diversity is shaped by both social and evolutionary processes.

12:45 – 1:00 Poster set-up/ 4:45 – 5:00 Poster take down

Even numbered poster authors present 2:30 – 3:00; odd numbered poster authors present 3:00 -3:30

3:30 **Discussion: John H. Relethford.**

- 1 **Sex, topography, and anatomical variation in the femoral notch: non-contact ACL injury in evolutionary perspective.** J.T. WATSON, B. HERNDON, C. SMITH.
- 2 **Deconstructing human cranial phenotypes to clarify individual prehistoric population histories.** R.M. BYRD.
- 3 **Skeletal adaptability in response to thermal stress: the paradox of inferring mechanisms of human adaptation.** J.T. STOCK.
- 4 **Northern genomes: Ancient mitogenomes and Arctic prehistory.** J.C. TACKNEY, A.M. JENSEN, W.S. WATKINS, E. FAIR, J. BRENNER-COLTRAIN, D. ANDERSON, D.H. O'ROURKE.
- 5 **Rethinking Environmental Effects on Diachronic Change in Adult Human Stature.** B.M. AUERBACH.
- 6 **Climate and diet signatures in human skull shape: a mixed model approach.** D.C. KATZ, M.N. GROTE, T.D. WEAVER.
- 7 **Population genetic evaluation of tooth size reduction in Late Pleistocene and Holocene Europe: A reappraisal of Brace's hypothesis using modern human teeth.** A.N. EMMERT, D.H. TEMPLE.
- 8 **Paleoamerican cranial variation in global microevolutionary perspective: Implications for the settlement of the Americas.** M. HUBBE, A. STRAUSS, N. VON CRAMON-TAUBADEL.
- 9 **A biohistory of Mexico from ~1250 to the present.** C.S. RAGSDALE, H.J. EDGAR, A. CUCINA.
- 10 **Applying modern human population models to estimate variance/covariance structure in bioarchaeology: assessing drift and selection in prehistoric skeletal populations.** N. VON CRAMON-TAUBADEL, L. SCHROEDER.
- 11 **The New World settlement as seen from different craniofacial morphospaces: An Evo-Devo approach.** M. GALLAND, S. DE AZEVEDO, N. MARTÍNEZ-ABADÍAS, R. GONZÁLEZ-JOSÉ.
- 12 **Genomic validation of the differential preservation of population history in modern human cranial anatomy.** H. REYES-CENTENO, S. GHIROTTI, K. HARVATI.

Session **Malaria in Antiquity: Methodological and Theoretical Approaches**

- 18 **Invited Poster Symposium.** Chair: Nicole E. Smith-Guzmán.
Co-organizers: Teddi Setzer,
A 702.

Malaria, one of the oldest known human infectious diseases, continues to be a major health problem in spite of increases in eradication efforts and distribution of anti-malarial drugs. The World Health Organization (2014) estimates that there were 198 million cases of malaria in 2013, resulting in 584,000 deaths worldwide. With predicted increases in malaria prevalence due to climate change and drug resistance, knowledge of the evolution and history of the disease is more important now than ever. Anthropologists are uniquely poised to provide new perspectives to the global effort to eradicate malaria by contributing to the understanding of its social and historical aspects. Recent research has shed light on the presence and impact of malaria on ancient human societies through various approaches to paleopathology, including ancient DNA, immunology, histology, and bioarchaeology. This symposium brings together individuals with these diverse skill sets to improve our efforts at diagnosing malaria in ancient human remains through which the complex questions about the biocultural co-evolution of *Homo sapiens* and *Plasmodium spp.* can be explored.

12:45 – 1:00 Poster set-up/ 4:45 – 5:00 Poster take down
Odd numbered poster authors present 2:00 -2:30; Even numbered poster authors present 2:30 – 3:00

3:00 **Discussion: Nicole E. Smith-Guzman and Teddi Setzer.**

- 1 **Detecting malaria parasites postmortem: experiments, results, and implications.** T.J. SETZER, I. SUNDELL-RANBY, C. LES, C. PECHY, S. BESTE.
- 2 **Skeletal evidence of malaria at Tombos: Disease patterns from the New Kingdom through Napatan Periods in Upper Nubia.** M.R. BUZON, K.S. SANDERS.
- 3 **Malaria at Amarna, Egypt: Evidence from the South Tombs Cemetery.** N.E. SMITH-GUZMÁN, J.C. ROSE, H.S. DAVIS.
- 4 **Evidence of malaria in a preliminary sample from the Amarna North Tombs Cemetery.** G.R. DABBS, H.S. DAVIS, A.E. SHIDNER, J.C. ROSE.
- 5 **Pathophysiological isotopic fractionation: Assessing the impact of anemia on enamel apatite and bone collagen $\delta^{15}\text{N}$, $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ values.** G.M. CARROLL, S. INSKIP, A. WATERS-RIST.

Session 19 **Old Questions, New Approaches and New Solutions: Celebrating the 30th Anniversary of the Dental Anthropology Association**

Invited Poster Symposium. Chair: Brian E. Hemphill.
Co-organizers: Brian E. Hemphill and Heather J. Edgar.
Atrium Ballroom C.

The 1986 annual meetings of the American Association of Physical Anthropologists witnessed the founding of the Dental Anthropology Association. This association was formed to encourage communication among scholars with diverse interests, but who shared an interest in using investigations of the teeth and supporting structures to address anthropological questions. Over the course of the last three decades, dental anthropology has become an increasingly integral avenue of biological investigation within anthropology. Symposium participants will reflect upon where dental anthropology was three decades ago and where it stands now by highlighting investigations in four critical areas: 1) Growth and Development; 2) Odontometrics and Applications of Dental Field Theory; 3) Dental Morphology; and 4) Bioarchaeological and Forensic Applications. We will consider recent technological breakthroughs, including 3-dimensional imaging and the use of micro-CT scanning. These investigations demonstrate that old questions asked by dental anthropologists 30 years ago are now being addressed with new theoretical, statistical and technological approaches. These innovations yield new and often more complex insights into lifeways of the past and the evolution of patterns and processes of dental development at the level of the individual, population, species, and beyond.

12:45 – 1:00 Poster set-up/ 4:45 – 5:00 Poster take down.

1:30 **Presentations: Posters 1 - 9.**

2:30 **Presentations: Posters 10 - 18.**

3:15 **Discussion: Clark S. Larsen and Richard G. Scott.**

- 1 **Using the periodicity of enamel incremental structures to provide new insights into the initiation, development and timing of crown formation.** D. ANTOINE, S. HILLSON.
- 2 **Recent analytical developments yield new insights into the timing of tooth formation and standards for age estimation.** H.M. LIVERSIDGE, L.W. KONIGSBERG.
- 3 **Perikymata distribution relative to total perikymata number within the genus *Homo*.** D. GUATELLI-STEINBERG, M. O'HARA, S. XING, D.J. REID.
- 4 **New insights on the evolution of third molar agenesis and impaction.** K.E. CARTER.
- 5 **Big questions, microscopic solutions: the utility of linear enamel hypoplasia to studies of stress over the past 30 years.** J.A. THOMAS, R. ALEXANDER, D.H. TEMPLE.
- 6 **The modern human dentition: insights from three decades of studies on twins.** T.E. HUGHES, G.C. TOWNSEND, A.H.

- BROOK, M.R. BOCKMANN, S. MIHAILIDIS.
- 7 **Evolution of the Human Dentition: 5,000 years in the San Francisco Bay Area.** S.B. SHOLTS, M. HUFFMAN, L.J. HLUSKO.
 - 8 **A morphometric approach to Butler's field concept: the deciduous and permanent molars.** S.E. BAILEY, S. BENAZZI, L. BUTI, K. PAUL, C. ASTORINO, J. HUBLIN.
 - 9 **A 30-year perspective on the eclipse and rejuvenation of tooth size allocation analysis for reconstruction of population affinities.** B.E. HEMPHILL.
 - 10 **Dental anthropology in the Eocene: Using modern approaches to answer long-standing questions in the study of fossil primates.** R.L. ANEMONE, B. NACHMAN, W. DIRKS.
 - 11 **Tracing the "Bantu Expansion" from its source: Dental nonmetric affinities among West African and neighboring populations.** J.D. IRISH.
 - 12 **Can dental morphology contribute to the identification of undocumented border crossers?** H.J. EDGAR, A. CUCINA, S.R. DANESHVARI.
 - 13 **Revisiting the Caries Hypothesis as a mechanism of tooth size selection.** S.A. LACY, J.M. CALCAGNO.
 - 14 **The teeth of Tell el-Amarna, Egypt: A reconstruction of past lifeways from the perspective of a century of Nile Valley research and 30 years advancement in dental anthropology.** J.C. ROSE, E.L. MOREY.
 - 15 **Being a Royal: Dental Anthropology of Ancient Maya Paramounts.** A. CUCINA, V. TIESLER.
 - 16 **The relationship between dental topography and dental microwear in *Sapajus apella*.** A.N. WIMBERLY, C.A. HEALY, C.L. HARTGROVE, M.F. TEAFORD, P.S. UNGAR.
 - 17 **History of the study of the enamel-dentine junction and new insights using microtomography.** R.M. MARTIN, M.M. SKINNER.
 - 18 **Why in 3-4D? What new insights virtual imaging are revealing in dental (palaeo)anthropology.** R. MACCHIARELLI, P. BAYLE, C. ZANOLLI, J. BRAGA.

Friday, Morning sessions.

Session 20 **Hands, Brains, and Tools: Integrating concepts in human evolution**
Invited Podium Symposium. Chair: Dietrich W. Stout.
Imperial Ballroom B.

Physical anthropology has a long history of positing interaction between bodies, brains, and culture in human evolution, but (sub)disciplinary insularity and a lack of overarching theory has limited the concrete exploration of such interactions. Meanwhile, fields such as evolutionary biology, neuroscience and psychology are being revolutionized by new theory and methods explicitly focusing on the interaction of organisms and environments over time. An "extended evolutionary synthesis" incorporating concepts such as niche construction, the evolution of development, phenotypic accommodation, and gene-culture co-evolution is paralleled by psychological and neuroscientific recognition of the bodily and environmental "grounding" of cognitive processes and the emergence of structure from extended brain-body-behavior networks operating on multiple time-scales. These innovations provide a promising framework for renewed integration in human evolutionary studies. The aim of this session is to promote theoretical and methodological integration by bringing together researchers working across key elements of the classic "bio-cultural feedback" model of human evolution: hands, brains and tools. These topics benefit from theoretical relevance as well as the practical availability of data from fossil, comparative, experimental, and archaeological evidence. This provides a practical focus for exploring the complex inter-relations between brains, bodies, social and physical environments in human evolution. In particular, participants will address evolutionary interactions between upper limb functional morphology and biomechanics; neural systems for perception, action, and social learning; social and environmental scaffolding of technological skill acquisition; and the evolution of brain development. To achieve this interdisciplinary synthesis, the session includes contributions from physical anthropologists, primatologists, archaeologists, developmental and comparative psychologists, evolutionary biologists and neuroscientists, ranging from integrative syntheses to primary research reports.

- 8:00 **An integrated perspective on the origin and evolution of *Homo*.** S.C. ANTÓN, R. POTTS, L.C. AIELLO.
- 8:15 **Evolutionary consequences of learning, culture and complex behaviors.** T.J. MORGAN, T.L. GRIFFITHS.
- 8:30 **Simple gifts aid others to learn to use tools: a platyrrhine example.** Y. ESHCHAR, D.M. FRAGASZY.
- 8:45 **Rethinking chimpanzee tool use: Niche construction and developmental bias in maintaining technological traditions among African apes.** C.M. SANZ, D.B. MORGAN.
- 9:00 **Hands and the origins of socially shared attention in human infants.** L.B. SMITH.
- 9:15 **Neural basis of tool-making skill learning: structure, function and evolution.** D.W. STOUT, N. KHREISHEH, E. HECHT, Z. LI, X. HU.
- 9:30 **Constructions: From Hands and Tools to the Evolution of Language.** M. ARBIB.
- 9:45 **Action Grammars - Extraction, recognition and prediction of movement primitives in tool-making.** A.A. FAISAL.

- 10:00 **Break.**
- 10:15 **Embodied foundations of stone tool use shared by humans and bearded capuchin monkeys.** M. MANGALAM, D.M. FRAGASZY.
- 10:30 **New questions about tools raised by recent finds of fossil hominin hands.** M.W. MARZKE.
- 10:45 **Predictions for an osteological signature of stone tool behaviors in hard tissue anatomy.** E. WILLIAMS-HATALA, A. KEY, N.B. STEPHENS, T. KIVELL.
- 11:00 **The human cognitive-motor action interface: integration of central and peripheral nervous systems for tool use.** L.A. WHEATON.
- 11:15 **Endocranial asymmetry and brain-lateralization: a comprehensive geometric morphometric approach.** S. NEUBAUER, P. MITTEROECKER, N. SCOTT, J. HUBLIN, P. GUNZ.
- 11:30 **Evidence for precuneus expansion in recent human evolution.** E. BRUNER, T.M. PREUSS, X. CHEN, J.K. RILLING.
- 11:45 **Discussion: Agustín Fuentes.**

Session **Skeletal Biology: Growth and Development**

21 **Contributed Podium Presentations.** Chair: Daniel García-Martínez.
A 703/704.

- 8:00 **Pelvic shape variation through growth and its implications for subadult sexing.** S.L. COX, J.T. STOCK, J.E. ROBB.
- 8:15 **Temporal variation in the neural canal among southern African foragers: implications for dynamic foraging strategies and social conditions in the later Holocene.** L. DOYLE.
- 8:30 **A Proposed Model of Postnatal Ontogeny in the Human Craniofacial Complex.** A.D. WHEAT.
- 8:45 **Developmental control and stabilizing selection in the human cranium: a novel morphometric approach.** P. MITTEROECKER, C. MATIASCH.
- 9:00 **A Metric Approach to Sex Estimation Using Fragmented Os Coxae.** S.E. BAUMGARTEN.
- 9:15 **A Computational Method for Age-at-Death Estimation Based on the Surface and Outline Analysis of 3D Laser Scans of the Human Pubic Symphysis.** D. STOYANOVA, B.F. ALGEE-HEWITT, J. KIM, D.E. SLICE.
- 9:30 **Multivariate ordinal probit analysis of the McKern and Stewart pubic symphysis scoring system.** M.C. GO, L.W. KONIGSBERG.
- 9:45 **A geometric morphometric approach to the study of juvenile long bones from medieval Wharram Percy.** S. STARK, S. MAYS, J. SOFAER, S. ZAKRZEWSKI.
- 10:00 **Break.**
- 10:15 **The application of volumetric x-ray technology to skeletal biology.** H. CHO, D. BOYE, R. KOZLOWSKI, P. WALL, S. KELLER.
- 10:30 **Multivariate regression analysis of human diaphyseal growth.** L.W. KONIGSBERG, K.E. STULL.
- 10:45 **Ontogeny of modern human longitudinal body and transverse shoulder proportions: implications for the Upper Paleolithic Sungir children.** M.A. FRELAT, M. COQUERELLE, E. TRINKAUS.
- 11:00 **Secular change in the timing of epiphyseal fusion in the bones of the hand-wrist.** M.E. BOEYER, R.J. SHERWOOD, D.L. DUREN.
- 11:15 **Insights into developmental stress exposure from the bony labyrinth.** D.L. WARD, E. POMEROY, J.T. STOCK.
- 11:30 **Cold exposure decreases trabecular bone mass in young mice: implications for human bone acquisition.** M.J. DEVLIN, A. ROBBINS, L. SHIPP, K. ALAJBEGOVIC.
- 11:45 **Understanding developmental factors in the ontogeny of 3D rib curvature and its importance for human thorax growth.** D. GARCÍA-MARTÍNEZ, M. BASTIR.

Session **Primate Ecology**

22 **Contributed Podium Presentations.** Chair: Rebecca M. Stumpf.
A 706/707.

- 8:00 **Foiled again!: Playback experimental evidence that saki and titi monkey alarm calls deter ambush predators.** D.B. ADAMS, D.M. KITCHEN.
- 8:15 **A preliminary analysis of the behavioral contexts of red langur (*Presbytis rubicunda*) loud calls in the Wehea Forest, East Kalimantan, Indonesia.** J. D'AGOSTINO, S.N. SPEHAR, R.A. DELGADO.
- 8:30 **Vervet monkey (*Chlorocebus pygerythrus*) alarm calls affect leopard (*Panthera pardus*) behavior.** L.A. ISBELL, L.R. BIDNER, E.K. VAN CLEAVE.
- 8:45 **The Microbiome and Primate Conservation: New Tools and Applications.** R.M. STUMPF, A. GOMEZ, K. AMATO, J.D. POLK, S.R. LEIGH.
- 9:00 **Intestinal parasites of wild orangutans in Gunung Palung National Park, Borneo, Indonesia.** C.A. O'CONNELL, C.D. KNOTT, I. FOITOVA.
- 9:15 **Nutritional and isotopic correlates of diet in forest-living olive baboons (*Papio anubis*).** C.A. JOHNSON, S.A.

BLUMENTHAL, K.L. CHRITZ, T.E. CERLING, J.M. ROTHMAN.

- 9:30 **A multi-species approach to elucidating the ecological function of primate geophagy.** B.P. SEMEL, M.T. IRWIN, M.A. KEELEY, M. KONEN.
- 9:45 **The strategy of cognitive buffering to deal with environmental seasonality is unique to higher primates.** S.M. GRABER, C. VAN SCHAİK, K. ISLER.
- 10:00 **Break.**
- 10:15 **Toward a working model of chimpanzee ecology in anthropogenic landscapes.** A.R. HALLORAN.
- 10:30 **Howler monkey foraging ecology suggests convergent evolution of routine trichromacy as an adaptation for folivory.** V. KHETPAL, B. WELKER, Y. MATSUSHITA, S. KAWAMURA, A.D. MELIN.
- 10:45 **Testing the adaptive radiation theory for the evolution of lemurs on Madagascar.** J. HERRERA.
- 11:00 **Comparing the spatial dimensions of gorilla and chimpanzee sleeping sites: Nearest-neighbor nest distances of sympatric apes along a conservation gradient.** D.B. MORGAN, W. WINSTON, C.M. SANZ.
- 11:15 **An analysis of factors affecting surili (Genus: *Presbytis*) population densities.** L.M. PACIULLI, R.F. PHAN, L.S. BENDER.
- 11:30 **Communication for conservation: reducing disease transmission to mountain gorillas (*Gorilla beringei*) through better message framing to tourists.** S.J. GESSA, J.M. ROTHMAN.
- 11:45 **Life in a new world: The Silver River rhesus macaques' feeding ecology and encounters with humans.** E.P. RILEY, T.W. WADE.

Session **Human genetic variation**

23 **Contributed Podium Presentations.** Chair: Jada P. Benn Torres.
Imperial Ballroom A.

- 8:00 **Variation of skin in recent human evolution: Loss of function and structural variation affecting *filaggrin* gene.** E. MUTHUKRISHNAN, D. XU, M. RZHETSKAYA, G. HAYES, O. GOKCUMEN.
- 8:15 **Unravelling the evolutionary forces driving skin color diversity in India.** F. ILIESCU, G. CHAPLIN, C. BASU MALLICK, N. RAI, A. MISHRA, R. GOTO, R. TAMANG, G. CHAUBEY, I. GALLEGU ROMERO, F. CRIVELLARO, R. PITCHAPPAN, L. SINGH, M. MIRAZON-LAHR, M. METSPALU, K. THANGARAJ, N.G. JABLONSKI, T. KIVISILD.
- 8:30 **Genetic History of the Major Tribes of Pakistan.** T.G. SCHURR, M. TARIQ, H. AHMAD.
- 8:45 **The legacy of slavery in the Middle East has been underappreciated by a factor of two.** J.A. HODGSON, V. CHUNDRU, R.L. RAAUM.
- 9:00 **Two-way gene-flow and ancestry-related assortative mating in African American populations.** J.M. GROSS, J.C. LONG.
- 9:15 **On the Trail of the First Caribbean Islanders: Genomic data from indigenous Trinidadians and St. Vincentians.** J.P. BENN TORRES, M.G. VILAR, T.G. SCHURR.
- 9:30 **Insight into the population history of the Chilean Patagonia through the analysis of ancient and modern genomic data.** C. DE LA FUENTE, M. AVILA-ARCOS, M.L. CARPENTER, J. HOMBURGER, A. BLANCO, P. CONTRERAS, A. MORENO-ESTRADA, P. F. CAMPOS, C. ENG, S. HUNTSMAN, E.G. BURCHARD, C. BUSTAMANTE, E. WILLERSLEV, E. LLOP, R. VERDUGO, M. MORAGA.
- 9:45 **Genome from Early Holocene Remains from Patagonia Suggest Demographic Shift, Supporting the Material Culture Transition.** M.G. VILAR, M. ALFONSO-DURRUTY, C. DE LA FUENTE CASTRO, F. MORELLO, P. CAMPOS, S. WELLS, E. WILLERSLEV.
- 10:00 **Break.**
- 10:15 **Telomere length: A possible mechanism linking racial discrimination and blood pressure.** P.H. REJ, C.C. GRAVLEE, C.J. MULLIGAN.
- 10:30 **Human nose shape variation can be explained, in part, by local adaptation to temperature.** A.A. ZAIDI, B.C. MATTERN, P. CLAES, C. HUGHES.
- 10:45 **Genetic and dental variation: Complementary data for understanding the population history of the Americas .** M.M. HUFFMAN, L.J. HLUSKO.
- 11:00 **Ancient Native American Exomes Reveal Immune-Based Adaptation to the Americas.** J. LINDO, E. HUERTA-SANCHEZ, M. DEGIORGIO, R.S. MALHI.
- 11:15 **Ancient pathogen genomics: a strategy for the parallel detection of multiple pathogens in archaeological samples.** S. MARCINIAK, A.T. DUGGAN, M. KUCH, J. ALLEN, C. JAING, S. GARDNER, K. MCLOUGHLIN, M. BORUCKI, H.N. POINAR.
- 11:30 **Impact of *Yersinia pestis* on immune response variation in humans.** J.F. BRINKWORTH, A. DUMAINE, V. YOTOVA, J. GRENIER, L.B. BARREIRO.
- 11:45 **Unambiguous assignment of male sex to a human tooth: use of proteomics when DNA is unavailable for sex assignment.** G.J. PARKER, K.E. MASON, L.A. REGAN, H.D. KLAUS, D.S. ANEX, B. HART.

Session **Humans in Marginal Environments**

24 **Invited Poster Symposium.** Chair: Sara L. Juengst.
Co-organizers: Elizabeth Berger

A 701.

Studies of human adaptation have often focused on populations who make a living in so-called “marginal environments”: from the tropics to arid steppelands, from high altitude mountain habitats to the Arctic circle, people have influenced and exploited a wide variety of ecosystems. Exploration of disease ecologies, diets, and evolution in these places reveals how human interaction with biotic and abiotic elements of ecosystems has shaped our species. Research on both living and past populations also challenges the narrative of deprivation and precarity often implied by the term “marginal”, by building a better understandings of ecosystem dynamics, human-animal relationships, and human-environment interaction.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.

11:00 Discussion: Lauren Butaric.

- 1 **The Biological Consequences of Social and Political-Economic Marginalization in Antebellum Warren County, North Carolina.** S.C. DENT.
- 2 **Altitude Sickness: Health in the Titicaca Basin of the Bolivia.** S.L. JUENGST.
- 3 **Can marginalization be politically and economically beneficial? A case study from Late Ottoman-period Hesban (Jordan).** M.A. PERRY.
- 4 **Food, fire, and free space: New tests of the Numic Expansion.** K. MAGARGAL, A. PARKER, W. RATH, K.B. VERNON, B. CODDING.
- 5 **Risky business: Subsistence change and reproductive decision making in an uncertain environment.** J.P. ZIKER, D.A. NOLIN, E. MOES.
- 6 **Not just a fallback food: Global patterns of insect consumption.** J.J. LESNIK.
- 7 **Growing up with altitude: patterns of stunting and wasting in Tibetan children living in rural and urban communities in Nepal.** E.A. QUINN, G. CHILDS.
- 8 **Dental health and dietary indicators in the Bronze Age Hexi Corridor of Western China.** E.S. BERGER, H. WANG.

Session
25

Birth, Death, and Migration: Bioarchaeology and Skeletal Biology of the Southeastern United States

Invited Poster Symposium. Chair: Kathryn A. King.

Co-organizers: Kathryn A. King and Tracy K. Betsinger.

A 705.

Archaeological work in the southeastern United States has produced several large, well preserved, and well documented skeletal collections ranging in age from the Archaic period (10,000 to 3,000 rcbp) to the historic (mid-16th century to early 20th century) era. These collections have been used for decades to answer questions about the lives and biology of these past populations. Primarily, bioarchaeological studies have focused on the reconstruction of lifeways, while projects focused on skeletal biology view these collections from an adaptivist or evolutionary perspective. Collectively, however, these varied studies can provide greater insight into the history of this region. The purpose of this symposium is to bring together biological anthropologists with a variety of specializations who study southeastern skeletal collections, thereby fostering discussions and collaborations. By encouraging greater interaction among researchers with an interest in this region, a more complete picture of the history of the southeastern United States, one that acknowledges the interplay between biology and culture, can be obtained.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.

Even numbered poster authors present 8:00 – 9:30; Odd numbered poster authors present 9:30 – 11:00

11:15 Discussion: Maria O. Smith.

- 1 **Population affinities and postcranial variation in the southeastern Archaic.** K.A. KING, M.S. HARLE.
- 2 **Babies, Culture, and Identity: An Analysis of Perinatal Mortuary Patterns.** T.K. BETSINGER, M.S. HARLE.
- 3 **The Shady Grove Ossuary (22QU525), Quitman County, Mississippi: Issues in Reconstructing Health Patterns.** R. HALFHILL, B. DAVIS, M. DANFORTH, S. OMBRE.
- 4 **The Complexities of Life in Death: A Comparison of Single and Multiple Burials from the Middle Tennessee Valley.** A.N. STEWART.
- 5 **Congenital Conditions and Genetic Traits in the Prehistoric Middle Tennessee River Valley.** B.S. THOMPSON.
- 6 **Skeletal Anomalies and Paleopathology of DeArmond (40Re12), a Mississippian Site in Eastern Tennessee.** D. MCCARTHY, K. HUFNAGL.
- 7 **Cribra Orbitalia and Porotic Hyperostosis: A Reanalysis of their Relationship.** T. SOMOGYI.
- 8 **Physiological stress in the Middle Cumberland Region of Tennessee: Mortality and survivorship differences during the Mississippian Period.** C.L. FOJAS.

- 9 **Salt, Spirits and the Soul: Exploring the Relationship between Health and the Use of Ceramics in the Mortuary Context**, Savannah, GA. R. BLACK.
- 10 **Assessing Geographic Origins Using Isotope Analysis of Skeletal Remains from a Colonial Period Cemetery**, New Orleans, Louisiana. G.A. LISTI, K.L. DELONG, M.H. MANHEIN.
- Session 26 **Biocultural perspectives on family health within and across generations**
Invited Joint AAPA-HBA Poster Symposium. Chair: Melanie A. Martin.
 Co-organizers: Lisa McAllister
Atrium Ballroom C.

Families impact child and adult health within and across generations. Biocultural perspectives recognize families as derived but highly plastic features of human evolution, varying in structure and function across time and cultures, and serving as units of intergenerational transfer and filters for early environments. While medicine and public health increasingly emphasize the importance of family health histories and integrated child, adult, and reproductive health services, the familial roles and behaviors that these practices target can be limited, generation-specific, or sociohistorically constructed. Biocultural perspectives offer expanded approaches to understanding and improving health of family members intergenerationally and across diverse environments. Anthropological research relevant to family health includes work in genetics, epigenetics, life history, reproductive ecology, parental investment, and kin structure, among other areas. Such research broadens our understanding of the dynamic genetic, somatic, and experiential exchanges that impact current and future health of family members. This symposium draws together researchers working across these fields in order to address the following themes: (1) how the plasticity of family structure, parental investment, and reproduction affects health behaviors and outcomes; (2) how different environmental challenges evoke proportional or divergent responses among individual family members across the lifespan; and (3) how epigenetic and intergenerational influences affect health outcomes of current and future generations. The research presented in this symposium addresses family health challenges both broadly and across diverse local environments. By merging these perspectives, we aim to provide a comprehensive framework for examining how family relationships and shared environments affect health and development of all family members, now and in subsequent generations. Ultimately, this integrated approach may be harnessed to inform family health policies that are more reflective of evolved physiological mechanisms, and cultural and environmental diversity.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.

9:30 – 10:45 5 minute presentations by authors

10:45 **Discussion and Q & A: Carol Worthman.**

- 1 **“What beautiful days we lived in the past”:** Untangling the conundrum of increased perception of mortality and morbidity risk in rural Bangladesh. M.K. SHENK, M.C. TOWNER.
- 2 **Too sick to have another baby:** Effects of perceived health on family planning in the Bolivian Amazon. L.S. MCALLISTER, M.D. GURVEN.
- 3 **Effects of Different Family Economic Strategies on Individual Family Members' Health Among the Boat-Dwelling Shodagor.** K. STARKWEATHER.
- 4 **Cooperative breeding among Agta foragers: How reproduction, health and transition intersect today.** A.E. PAGE, S. VIGUIER, M. DYBLE, D. SMITH, N. CHAUDHARY, G. SALALI, J. THOMPSON, L. VINICIUS, R. MACE, A.B. MIGLIANO.
- 5 **“I don’t have any friends”:** Narrative Self-Reports of Social Support and Resource Management, and Assessments of Nutritional Status in Jamaicans Across the Lifespan. R.G. NELSON.
- 6 **Substitution or Augmentation: is early complementary feeding that does not reduce breastfeeding intensity really “suboptimal”?** M.A. MARTIN, M. GURVEN.
- 7 **Androgen receptor gene CAG repeats, testosterone, and male life history.** L.T. GETTLER, D.T. EISENBERG, M. HAYES, A.B. FERANIL, C.W. KUZAWA.
- 8 **When Do Fathers Matter? Father Absence and Child Health in Northern Tanzania.** D.W. LAWSON, A. HASSAN, S. SCHAFFNIT, S. JAMES, M. BORGERHOFF MULDER.
- 9 **Male migration, family structure and children's health in a seasonal agricultural community in Veracruz, Mexico.** A. NUNEZ-DE LA MORA.
- 10 **Down through the generations: the role of developmental programming in the intergenerational inheritance of cardiometabolic disease risk among high-prevalence populations.** D.C. BENYSHEK.
- 11 **Epigenetic analysis of intergenerational effects of maternal stress and war trauma in the Democratic Republic of Congo.** J. QUINLAN, C. CLUKAY, D.A. HUGHES, N.C. RODNEY, F.M. MAISHA, C.J. MULLIGAN.
- 12 **Grandparent Contribution to Child Nutritional Status: Evidence from the Young Lives Study.** M.E. COSTA.
- 13 **Understanding child obesity risk at the household level: The influence of parental and grandparental health beliefs and practices in Chinese families.** A.L. THOMPSON.

Friday, All day sessions.

- Session 27 **Skeletal Biology: Violence, Trauma and Disease**
Contributed Poster Presentations. Chair: Treena M. Swanston.
Atrium Ballroom A/B.
 7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45
- 1 **Wearing the marks of violence: Unusual trauma patterning at Coyo Oriente, northern Chile (AD 400-1000).** C. TORRES-ROUFF, W.J. PESTLE, M. HUBBE, G. PIMENTEL, E. SMITH.
 - 2 **Subadult Human Sacrifices in Midnight Terror Cave, Belize.** M.G. PROUT.
 - 3 **Injury-Related Morbidity and Mortality in Neolithic Syria.** S.P. DOUGHERTY, A. TSUNEKI.
 - 4 **In the Wake of War: Population Health and Ottoman-Occupation in 14th – 16th Century Croatia.** S.J. CALDWELL, M. ŠLAUS.
 - 5 **Little Indiana vs. Big Kentucky: Violence in the Middle-Late Archaic.** F.B. ZALZALA, R.L. QUATAERT.
 - 6 **Women in war: A multi-isotopic analysis of females discovered in a mass grave with Napoleonic soldiers.** S. HOLDER, L.J. REITSEMA, T. DUPRAS, R. JANKAUSKAS.
 - 7 **Stable isotopic evidence for diet and nutritional stress in a potentially cannibalized human skeletal sample from Ana Manuku, Mangaia, Cook Islands.** M. BARCA, R.L. QUINN, S.C. ANTÓN.
 - 8 **A case of neolithic cranial trepanation in Qinghai, China.** Q. ZHANG, Q. ZHANG, X. GAO, Z. SUN, H. ZHU.
 - 9 **Troubled Times in Late Prehistoric Wisconsin: Violent Skeletal Trauma Among the Winnebago Phase Oneota.** A.M. OEMIG, J.K. KARSTEN.
 - 10 **Fragmentary skeletal remains, trauma, and sampling biases: Quantifying antemortem traumatic data lost due to fragmentation in samples from Hasanlu Tepe, Iran (12th-9th Centuries B.C.E).** V. HUTTON ESTABROOK, H.D. POLASKY, J.M. MONGE.
 - 11 **Deviant burials and social identity in a post-medieval Polish cemetery as interpreted using stable oxygen and carbon isotopes.** L.A. GREGORICKA, A.B. SCOTT, T.K. BETSINGER, M. POLCYN.
 - 12 **Children's Health and Social Changes in Ancient Albania.** M.J. WARNE, B. KYLE.
 - 13 **Comorbidity of linear enamel hypoplasia, periosteal lesions, and cribra orbitalia in medieval and post-medieval central European populations.** L.L. WILLIAMS, K.E. QUAVE.
 - 14 **The diseased, the disabled and vampires in early medieval Culmine in Poland.** M.D. MATCZAK, T. KOZŁOWSKI.
 - 15 **Occupational Stress on Oaxaca's Pacific Coast, a Bioarchaeological Analysis of the Rio Viejo Weaver.** A.T. MAYES, S. BARBER, A. JOYCE.
 - 16 **Change in Nonspecific Stress through Time in Durres, Albania.** M. CHOWNING, B.R. KYLE.
 - 17 **A Mortuary Profile Analysis of Cerro de la Cruz, Oaxaca, Mexico as an Investigation into Formative Period Regional Interactions.** C. SPESSARD, A.T. MAYES, A. JOYCE.
 - 18 **Changing Economic Landscapes in Late Antique Tuscany: Osteological Analysis of Burials from an Abandoned Workshop.** E. STREETMAN, C.C. VOGELSBERG, M.I. ISA, T.W. FENTON, A. SEBASTIANI.
 - 19 **Musculoskeletal manifestations of diabetes mellitus in the William M. Bass Donated Skeletal Collection.** C.F. UPSON-TABOAS.
 - 20 **Sex and Famine: Mortality Differentials in Medieval London.** S.L. YAUSSY, S.N. DEWITTE.
 - 21 **Biological Stress Status and Survivorship in Historical Populations.** J.D. MINSKY-ROWLAND.
 - 22 **Keeping Up with the Kids: Mobility patterns of young individuals from the St. Mary Magdalen Leprosy Hospital (Winchester).** K. FILIPEK-OGDEN, C. ROBERTS, J. MONTGOMERY, J. EVANS, R. GOWLAND, K. TUCKER.
 - 23 **Osteochondritis Dissecans, Osteoarthritis, and Enthesopathies: Physical Activity and Microtraumas among a post-Wari Population from the Peruvian Andes.** T.A. TUNG, E. NELSON, K. KILLGROVE, J. VELEZ VAZQUEZ.
 - 24 **Degenerative Joint Disease and its Relation to the Osteological Paradox: A Study of Modern Geriatric Cypriot Skeletons.** L.C. HIGHSMITH, R.R. PAINE.
 - 25 **Bone-years: Accounting for differences in preservation and age distribution when comparing lesion prevalence between skeletal collections.** J.N. CAHN.
 - 26 **Mining and Mercury: An Examination of Enteseal Changes and Skeletal Deformities at the Santa Bárbara Encampment.** T.K. PROCTOR, D.K. SMIT.
 - 27 **A Case Study of Skeletal Dysplasia Inheritance and Maternal/Fetal Health from a Middle Woodland Context at the Elizabeth Site (11PK512), Illinois.** A.A. CORMIER, J.E. BUIKSTRA.
 - 28 **Artificial Cranial Modification on the Copacabana Peninsula.** D.W. HANSEN II, S.L. JUENGST, S.J. CHAVEZ.
 - 29 **An evaluation of skeletal fractures in an adult community from Medieval Nubia.** V.A. LEAH.
 - 30 **Femoroacetabular impingement: relationship to non-metric pathologies of the proximal femur.** A.B. LAWRENCE, P.A. SANDBERG.

- 31 **Multiple Paleopathological Indicators on Individuals in a Lower Status Compound of the Ancient City of Teotihuacan, Mexico.** R. STOREY.
- 32 **An Investigation of the Relationship Between Cranial Porosity and Cranial Modification Intensity in Late Intermediate Period (AD 1000-AD 1400) Andahuaylas, Peru.** D.N. GADISON, B.L. TURNER, D.S. KURIN.
- 33 **Bioarchaeology of Cremated Human Remains from the McQueen Shell Ring (9Li1648) on St. Catherines Island, Georgia.** B.D. PADGETT, C.S. LARSEN, D.H. THOMAS, M. SANGER, A.R. COMSTOCK.
- 34 **Bioarchaeological profile of three ancient high altitude sites in Mustang and Manang districts, Nepal.** J.T. ENG, M. ALDENDERFER.
- 35 **Anthropological studies of past societies from the Hualfin valley in northern Argentina: A preliminary report.** H. DRUBE, B. DESÁNTOLO, G. LAMENZA, E. SILVERA, S. MARTÍNEZ, S. SALCEDA.
- 36 **Brushing Off the Dust: A Dietary Study of a Forgotten Collection.** B.A. HUNDMAN, B.L. TURNER, N. SHARRATT.
- 37 **A Morphometric Approach for Assessing Cranial Vault Modification in Middle Cumberland Region Crania.** G.J. WEHRMAN.
- 38 **Metabolic Bone Disease of Infancy and Early Childhood in the Pre-Historic Atacama Desert, Northern Chile (2350 – 1500 BP).** A.E. SOHLER-SNODDY, S.E. HALCROW, H.R. BUCKLEY, V. STANDEN, B. ARRIAZA.
- 39 **Identifying Scurvy on Infant Remains on the Southern Plains.** C. ELLIS.
- 40 **Sex and site based differences in subsistence procurement and daily activities amongst the Ipiutak and Tigara of Point Hope, Alaska.** M. PANAKHYO, J.R. SPENCER, L.G. ROBERTS, G.R. DABBS.
- 41 **Fermentation Mechanisms and Possible Antibiotics in Ethiopian T'ej: Bioarchaeological Implications.** J.B. MARSHALL, B.L. TURNER, B.A. STUBBLEFIELD.
- 42 **Lead Uptake in the 19th Century: High Resolution Imaging Uncovers Details Associated with the Franklin Expedition and Contemporary Populations.** T.M. SWANSTON, B. BEWER, A. KEENLEYSIDE, A. NELSON, R.R. MARTIN, D.R. STENTON, T. VARNEY, I. COULTHARD, M.J. PUSHIE, D.M. COOPER.
- 43 **I C(T) Dead People.** B. PEARE BARTHOLDY.
- 44 **Spinal Pathologies and Morphological Alterations in Native Populations of the Lower Tennessee River Valley.** S.A. BONCAL.
- 45 **A probable case of rheumatoid arthritis from medieval transylvania.** S.L. BAILEY, S.B. KONDOR, J.D. BETHARD, Z. NYARADI, A. GONCIAR.
- 46 **More than meets the eye: Paget's Disease within archaeological remains.** C.L. BURRELL, S. GONZALEZ, L. SMITH, M.M. EMERY, J.D. IRISH.
- 47 **Metastatic Carcinoma... and other Differential Diagnoses.** A.C. CAINE, D.S. KURIN.
- 48 **The origin of *Mycobacterium leprae*: A comprehensive meta-analysis of the paleopathological literature.** M.A. SCHREIER.
- 49 **Molecular Identification of *Mycobacterium tuberculosis* in the Milwaukee County Institution Grounds Cemetery.** H.M. WERNER.
- 50 **Dissection Practices Observed from Analysis of Remains from the Tukthuset Poorhouse Cemetery, Oslo, Norway: Contextualization of dissection practices around the turn of the 19th century.** G.D. MADDEN, R. DREW, P. HOLCK.
- 51 **Segregation of burial areas in the Riga Dome Church cemetery (13th-17th centuries) in Riga, Latvia.** E. PETERSONE-GORDINA, G. GERHARDS, T. JAKOB.
- 52 **Iterative Closest Point (ICP) Algorithm Application for Intentional Cranial Modification Determination: Developing an Automated Classification Method to Assess Cranial Shape from Fragmentary Remains.** K.O. MIYAR, B. POMIDOR, D.E. SLICE.
- 53 **A possible case of unilateral cleft lip and palate from the late Neolithic site of Vertebea Cave, Ukraine.** M.C. WOJCINSKI, J.K. KARSTEN, S.E. HEINS, G.D. MADDEN, W.M. KARRIGER.

Session
28

Human Biology: Past and Present

Contributed Poster Presentations. Chair: Corina M. Kellner.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Sex differences in hair cortisol and self-reports of stress in college freshmen during their first final exam period.** D.E. BROWN, D.T. KOOMOA, E.R. TSUJI, A. CHING, A. DAUB, C. CAULEY.
- 2 **Maternal environment, prenatal stress, and offspring cortisol reactivity: A meta-analysis.** S.A. FARDI, R.M. BERNSTEIN.
- 3 **Early-Life Stress and Adult Mortality Patterns During Natufian Economic Intensification: The Linear Enamel Hypoplasia Evidence.** A.J. STUTZ, F. BOCQUENTIN.
- 4 **An Epigenetic Investigation of Methylation Complex Genes in Relation to Stress in Mothers-Newborn Dyads.** C.J. CLUKAY, D.A. HUGHES, N.C. RODNEY, C.J. MULLIGAN.
- 5 **The impact of illness behavior of patients and caregivers on the spread of an influenza epidemic.** J. DIMKA, L. SATTENSPIEL.

- 6 **The interrelationship of cytomegalovirus and Epstein-Barr virus antibodies among Shuar of Amazonian Ecuador.** T.M. BARRETT, M.A. LIEBERT, G. EICK, J.G. RIDGEWAY-DIAZ, F.C. MADIMENOS, A.D. BLACKWELL, L.S. SUGIYAMA, J. SNODGRASS.
- 7 **Tattooing to "toughen up": Reduced immunological depression among the heavily tattooed as a signal of biological quality.** C.D. LYNN, J.T. DOMINGUEZ, J.A. DECARO.
- 8 **Secular belongingness in religious congregation leads to lower stress.** I. RIVERA, A.N. ROSATO, C.D. LYNN.
- 9 **Environmental and Dietary Factors Shaping African Gut Microbiomes.** M. RUBEL, M.E. HANSEN, A. BAILEY, K. BITTINGER, A. LAUGHLIN, W.R. BEGGS, A. RANCIARO, S.R. THOMPSON, F. BUSHMAN, S.A. TISHKOFF.
- 10 **Prenatal supplementation, breast milk composition, and infant growth in rural Gambia.** M.A. GRUCA, S. MOORE, M. DARBOE, R. BERNSTEIN.
- 11 **Globalized diet and individual choices: stable isotopic analysis of hair keratin from a modern population.** C.M. KELLNER.
- 12 **Nutrition and proportionality: A study of undocumented migrants from the Texas-Mexico border.** A. AYALA BAS, M. SPRADLEY.
- 13 **Migration in Imperial Roman contexts (ca. 1st to 3rd c. CE): a multi-isotopic investigation of human mobility at Isola Sacra and Velia, Italy.** R.J. STARK, T. PROWSE, A. SPERDUTI, L. BONDIOLI.
- 14 **Metabolic Limits and Adaptation in Humans: Daily Energy Expenditure in *Race Across the USA* Athletes.** C. THURBER, B. CARLSON, C. OCOBOCK, L. DUGAS, H. PONTZER.
- 15 **Refugee presence is positively correlated with host community energetic status in Turkana County, Kenya.** R.G. GENGO, R.C. OKA, L.T. GETTLER.
- 16 **Time to kick the treadmill habit? How self-selected walking speed and minimum cost of transport differ between treadmill and overground walking during load carrying.** M.J. MYERS, C.M. WALL-SCHEFFLER.
- 17 **Gait ontogeny and the avoidance of impact forces.** J.T. WEBBER, A.D. FOSTER, D.A. RAICHLEN.
- 18 **Human female pelvic dimensions are adapted for load carrying.** C.M. WALL-SCHEFFLER, M.J. MYERS.
- 19 **Development in adolescent girls: physiological, social, and life history factors.** S.R. SANFORD, M. ROGERS, C.D. HUNTER, J. AMOS, K.B. CLANCY.
- 20 **Comparative analysis of the growth and development of the temporal bone in mice and humans.** A.M. VARVARES, M.A. MCNULTY, M.A. HOLMES, V.B. DELEON.
- 21 **Developmental age and size variation in mouse embryos from embryonic days 12-16 as a window to heterochronic processes.** K. FLAHERTY, V. MAZOCCO, J. RICHTSMIEIER.
- 22 **Facial width-to-height ratio (fWHR) is not associated with pubertal testosterone.** C.R. HODGES-SIMEON, K.N. HANSON SOBRASKE, T. SAMORE, M. GURVEN, S.J. GAULIN.
- 23 **Male Excess Infant Mortality In Four Post-Medieval London Populations.** H.S. HAYDOCK.
- 24 **Genetic structure of the Chilean population.** F.I. MARTINEZ, S. EYHERAMENDY.
- 25 **On the correlation between latitude and orbital volume in humans.** J.H. SENJEM, M.P. MASTERS, S.E. TRAYNOR.
- 26 **Predicting language ability from cortical surface morphology.** I.D. GEORGE, K. ALDRIDGE.
- 27 **Analysis of Craniofacial Variation and Sexual Dimorphism using the 3D Facial Norms Database.** M.J. KESTERKE, S.M. WEINBERG.
- 28 **Cold acclimation among residents of the Chicago Metro Area: Changes in brown adipose tissue thermogenesis, energy expenditure and vasoconstriction.** S.B. LEVY, D. ATALLAH, M. BONDY, W.R. LEONARD.
- 29 **Faces by the fire: Investigating facial affect around daytime and nighttime campfires.** A.S. BOATWRIGHT, E. DUNCAN, C.D. LYNN.
- 30 **Sexual Fluidity Positively Influences Group-Oriented Prosocial Behavior.** A.S. DAUGHERTY, N.D. ROY, C.M. WALKER, C.D. LYNN.
- 31 **Autism related endophenotypes in a healthy random sample: En2, HOXA1 and NLGN3 common variants and differences in regional brain volumes.** J. STARNES.
- 32 **Evaluating Deamination-based Approaches for Inferring DNA Methylation: Insights from Two Ancient Genomes.** R.W. SMITH, E.K. MALLOTT, J. LINDO, M. ROGERS, D.A. BOLNICK, A.L. NON, T.A. TUNG, R.S. MALHI.
- 33 **Social Organization and Biological Relatedness of the Burials from Naton Beach Site, Tumon Bay, Guam.** C.K. WALTH.
- 34 **Population Dynamics of Ancient Egypt and the Neighboring World: A Craniometric Analysis.** K.E. SANDERS.
- 35 **Sex, age, and reproduction: tooth loss among the Tsimané in lowland Bolivia.** M.R. SCHWARTZ, B.C. TRUMBLE, M.D. GURVEN, H. KAPLAN.

Session 29 **Skeletal Biology: Non-human Primates**
Contributed Poster Presentations. Chair: Andrea B. Taylor.
Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **A new approach for comparison of cranial ontogenetic trajectories, using cercopithecine monkeys as an example.** E.A. SIMONS, S.R. FROST, M. SINGLETON.
- 2 **Supporting big eyes: bone or no bone?** B.M. HARVEY, K.P. BHATNAGAR, V.B. DELEON, A.M. BURROWS, S.J. REHOREK, T.D. SMITH.
- 3 **Preliminary analysis of zygomaticotemporal sutural complexity in relation to diet in haplorhine primates.** H.M. EDMONDS.
- 4 **Skulls of Orangutans with unilateral divided zygoma .** Q. WANG, P.C. DECHOW.
- 5 **Comparative morphology of the glottis in the hylobatids using a high-resolution MRI.** T. NISHIMURA, H. IMAI, T. MATSUDA.
- 6 **Osteocyte Morphology in the Primate Craniofacial Skeleton.** L.C. PRYOR, J. FENG, P.C. DECHOW.
- 7 **Quantitative Occlusal Surface Complexity Metrics and Dental Wear in *Alouatta palliata*.** J.D. PAMPUSH, A.R. HARRINGTON, J.P. SPRADLEY, A.Q. VINING, K.L. ALLEN, R.F. KAY.
- 8 **Use of Standard Perikymata Profiles to Estimate Chronologies of Linear Enamel Hypoplasia (LEH) .** M. O'HARA, D. GUATELLI-STEINBERG.
- 9 **Fiber phenotype of the jaw adductors in the hard-object feeding sooty mangabey (*Cercocebus atys*).** A.B. TAYLOR, M. TOLER, C.E. WALL.
- 10 **Inhomogeneous nature of canine composition does not affect their isostress shape.** A.J. RAPOFF, J.W. COULL, S. MCGRAW, D.J. DAEGLING.
- 11 **Tooth Size and Diet among the Extinct Monkeys of the Caribbean.** Z.S. KLUKKERT.
- 12 **Relationship of molar root and mandibular size in extant great apes.** M. BAEUCHLE.
- 13 **Ectopic eruption in a zoo chimpanzee and its implications for testing the jaw spatial constraints hypothesis.** M.A. KUNKEL, R.C. MCCARTHY.
- 14 **Eating seeds or cracking hard food? Mechanically-informed dietary categories and the dental topography of anthropoid primates.** G. THIERY, V. LAZZARI, F. GUY.
- 15 **Zygomaxillary shape variation in *Lophocebus* and *Papio*: a comparative allometric analysis.** M. SINGLETON, J.R. KRECIOCH, O. FURSOV.
- 16 **Dental maturity ages in *Pan*: can estimation error be improved?** K.L. KUYKENDALL, J.C. BOUGHNER, C.S. BRIMACOMBE.
- 17 **Patterns of Mandibular Molar Expansion in Megadont Primates.** E.S. GLAZE, S.E. BAILEY.
- 18 **Geometric morphometric analysis of strepsirrhine upper second molars.** E.M. ST CLAIR.
- 19 **Topographic complexity of second mandibular molars increases with a wear proxy in five species of cercopithecoid primates.** J.M. WINCHESTER.
- 20 **Relationship between macrowear and dentin hardness in *Macaca fascicularis* molars.** E. GEISSLER, D.J. DAEGLING, W.S. MCGRAW.
- 21 **Ontogenetic shifts in the pattern and magnitude of mandibular covariance.** M.A. HOLMES, V.B. DELEON, M.A. MCNULTY, J. MUSSEL.
- 22 **Patterns of variation in the hominoid appendicular skeleton: implications for fossil hominins.** V.C. POWELL, S. ALMÉCIJA, A. BARR, B.A. WOOD.
- 23 **Distal humerus morphology and ecological variation among *Gorilla* subspecies.** R.S. JABBOUR, R. BAYNES.
- 24 **Patterns of joint congruence in the primate elbow.** M.E. MACIAS.
- 25 **Olecranon and trochlear notch orientation is related to extended limb postures during locomotion.** M.S. SELBY, C. LOVEJOY.
- 26 **3D Morphometrics of the cercopithecoid distal humerus: implications for the reconstruction of paleohabitats.** E.K. CURTIS.
- 27 **Carpal kinematics and morphological correlates of ulnar deviation mobility in anthropoids.** C.M. ORR, R. ATKINSON.
- 28 **The effects of posture on neck and trunk musculature in *Hylobates lar* and *Macaca fuscata*.** N. GRIDER-POTTER, R. GOTO, Y. NAKANO.
- 29 **Scapular morphology and its implications for the study of locomotor behaviors in primates and carnivorans.** R. LAMELA LOPEZ, E. KOZMA, S.A. WILLIAMS.
- 30 **Skeletal Development with Reference to Ontogeny and Phenotypic Plasticity; A Cross-Sectional Study of Primate Limb Bones.** J.A. NADELL, K. KOVAROVIC, S. ELTON.
- 31 **Ontogenetic variation in limb bone structure in *Pan paniscus* compared to *P. troglodytes*.** M. BURGESS, J. JUNNO, C.B. RUFF.
- 32 **Secondary bone distribution in the humerus and femur of four West African cercopithecoid monkeys.** S.E. LAD, W. MCGRAW, D.J. DAEGLING.
- 33 **Gorilla limb kinematics and hominoid locomotor diversity: Implications for hominin locomotor evolution.** D. SCHMITT, A. ZEININGER, E. HAMRICK, M.L. SNYDER, T.L. KIVELL, R.E. WUNDERLICH.

- 34 **Developmental shift or postnatal plasticity? Manual and pedal variation in two populations of *Microcebus griseorufus* at Beza Mahafaly.** G. AGOSTINI, E. RASOZANABARY, L.R. GODFREY.
- 35 **A Matter of Perspective: The Influence of Anatomical Reference Frame Construction on Cross-Species Biomechanical Comparisons.** T.M. GREINER.
- 36 **History of Exercise, Cross-sectional Geometry, and Bending Mechanics: Inferences Based on Three Strains of Mice.** S.J. PEACOCK, B.R. COATS, J.K. KIRKLAND, C.A. TANNER, T. GARLAND JR., K.M. MIDDLETON.
- 37 **Intraspecific variation in hominoid lumbar vertebral morphology.** A.D. KEMP, L. SHAPIRO.
- 38 **Tail kinematics during asymmetrical gaits in mouse lemurs (*Microcebus murinus*).** L.J. SHAPIRO, B.A. CHADWELL, J.W. YOUNG.
- 39 **Characterizing the trabecular bone of the primate ischium and its relationship to locomotion in *Rudapithecus hungaricus*.** D. SHAPIRO, D.R. BEGUN.
- 40 **Effects of exercise-induced loading on internal bone morphology of the mouse ilium: implications for lower ilium robusticity in primates.** K.L. LEWTON, T. RITZMAN, L.E. COPE, T. GARLAND, JR, T.D. CAPELLINI.
- 41 **Interspecific variation in pubic bone morphology and its association with body size, locomotor classification, and phylogeny.** D. DURAND, J. PLAVCAN.
- 42 **The ontogeny of pelvic sexual dimorphism: Age, parity, and pelvic form in *Macaca mulatta*.** E.A. MOFFETT.
- 43 **A preliminary investigation into the femoral neck cortical thickness of another obligate biped.** A.G. CLAXTON.
- 44 **The impact of proximal femoral shape on midshaft cross-sectional properties: A case study involving *Pongo*.** T.R. REIN.
- 45 **Relationship of proximal femoral morphology to leaping in two African colobine monkeys.** T.A. POLVADORE, W.S. MCGRAW, D.J. DAEGLING.
- 46 **Hierarchical variation of bone hardness in the colobine femoral midshaft.** R.M. GALLUSCIO, W.S. MCGRAW, A.J. RAPOFF, D.J. DAEGLING.
- 47 **Femoral angles and cross-sectional geometry across subsistence economies.** S.L. CHILD, L.W. COWGILL.
- 48 **Dental and hind limb development in the sifaka and ring-tailed lemur: how they get up and go.** M.E. MILLEN, M.J. MCMAHON, C.M. FICORILLI, K.D. JANKORD, C.J. VINYARD, V.B. DELEON, J.W. YOUNG, T.D. SMITH.
- 49 **Pattern of ossification in tarsals reflects locomotor specialization in Primates.** C. LLERA, T. SMITH, J. YOUNG, V. DELEON.
- 50 **Congruence of articular surface curvature and dynamic range of motion in the subtalar joints of lorisisds and cheirogaleids.** G.S. YAPUNCICH, M.C. GRANATOSKY.
- 51 **Functional morphology of the fourth metatarsal in monkeys, apes, and *Australopithecus afarensis*.** S. KUO, C.V. WARD, W.H. KIMBEL, K.A. CONGDON, D.C. JOHANSON.
- 52 **Trabecular mapping: Leveraging sliding landmarks for analyses of bone microstructure.** A.D. SYLVESTER, C.E. TERHUNE, A.B. TAYLOR.
- 53 **Biology trumps mechanics: bone adaptation to exercise correlates more closely to bone marrow stem cell responsivity than peak forces.** J. RUBIN-SIGLER, G.M. PAGNOTTI, I.J. WALLACE.
- 54 **Combining data from multiple sources: A cautionary tale.** C.A. ROBINSON, C.E. TERHUNE.
- 55 **Black-mantled pacifists: Skeletal trauma in free-ranging *Saguinus nigricollis*.** S.S. LEGGE, R. LUTHER, C. MAYER.
- 56 **The penalty for brawling: Patterns of healed skeletal trauma in free-ranging *Saimiri sciureus*.** R.L. LUTHER, C. MAYER, S.S. LEGGE.
- 57 **How tough is the grey-cheeked mangabey: Patterns of trauma in *Lophocebus albigena*.** C. MAYER, R. LUTHER, S.S. LEGGE.
- 58 **Forgotten but not Lost: Utilising underused museum collections for research.** W. BIRCH, M. CLEGG, H. CHATTERJEE.

Session 30 **Human Skeletal Biology: Functional Studies**
Contributed Poster Presentations. Chair: David Agoada.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Trabecular bone density in recent modern humans.** H. CHIRCHIR, C.B. RUFF.
- 2 **Spatial Patterning (or lack thereof) in Osteon Population Density in the Human Rib.** T.P. GOCHA, V.M. DOMINGUEZ, A.M. AGNEW.
- 3 **Sealed osteons do not increase in the human femur with aging or in association with a total hip replacement.** M.S. DOUTRE, M.G. ADONDAKIS, R.D. BLOEBAUM, J.G. SKEDROS.
- 4 **Histological age determination using the micro-anatomy of 3rd metatarsal and metacarpal bones.** H. SMITH, R.R. PAINE, J.A. BYTHEWAY.
- 5 **Do disparities in ex vivo strain data for the human fibula reflect heterogeneous load conditions or limitations of**

- experimental designs? D.J. WEAVER, J.G. SKEDROS.
- 6 **Patterns of collagen fiber orientation in the human fibula middle-to-proximal diaphysis suggest a history of anterior-posterior bending and torsion consistent with “intermediate complexity” loading.** J.G. SKEDROS, K.E. KEENAN.
 - 7 **Gape cycle kinematic variance and occlusal topography in modern humans.** M.F. LAIRD, H. PONTZER.
 - 8 **Investigating the relationship between cranial superstructures and activity in modern humans.** A.M. TAYLOR, H.M. GARVIN.
 - 9 **A 2D Geometric Morphometric Analysis of Changes in the Basicranium in Relation to Trunk Posture in Mammals.** A. PEÑA.
 - 10 **Assessing the relationship between mandibular shape and endocranial volume.** S.E. EDLUND, J. UY, S.E. TRAYNOR, J. HAWKS.
 - 11 **Ancestral and Sex Differences in the Posterior Nasal Aperture.** J. CONLEY, S. OUSLEY.
 - 12 **A comparative analysis of upper limb cross-sectional properties in the Lake Mungo 3 skeleton from the Willandra Lakes, Australia.** E.C. HILL, O.M. PEARSON, A.C. DURBAND.
 - 13 **Clavicle length and shoulder breadth in hominoid evolution.** N.M. LAUDICINA, M. CARTMILL.
 - 14 **Obesity-related cross-sectional changes in the femur due to body proportion changes.** R.A. JOHNSTON, L.W. COWGILL.
 - 15 **Three-dimensional finite element analysis of femoral neck stress.** P.A. KRAMER, A.D. SYLVESTER.
 - 16 **Femoral bone remodeling comparisons between adult males and females from medieval England.** J.J. MISZKIEWICZ, C. BENNETT, S.E. JOHNS, P. MAHONEY.
 - 17 **Size-related and Demographic Effects on the Morphology of the Lateral Meniscal Notch of the Proximal Tibia.** C. RUSSELL.
 - 18 **Comparison of different quantitative data acquisition methods for the bony knee joint within the same sample.** S. MEYER, D. GASCHO, T. BÖNI, F. RÜHLI.
 - 19 **Exploring the relationship between radiographic and osteologic measurements of the human talus.** D. AGOADA, P.A. KRAMER.
 - 20 **Does a mobile foot become more rigid when walking?** S.G. LAUTZENHEISER, P.A. KRAMER.
 - 21 **Plantar pressure distribution in Pacific Island and Malagasy populations: implications of variation for the interpretation of the fossil record.** R.E. WUNDERLICH.
 - 22 **The effect of natural substrate inclination on foot strike position in a habitually unshod population.** E.K. BOYLE, D.M. BERNARDONI, A.L. SCHNEIDER.
 - 23 **Variation in Lateral Plantar Process Position and Functional Implications in Living Humans.** Z.S. SWANSON, J.M. DESILVA, E.K. BOYLE, K.M. JOSEPH, E.J. MCNUTT.
 - 24 **Social identity through the life-course at historical Middenbeemster: A biocultural approach.** C. CHILCOTE, S. AGARWAL.
 - 25 **Integration of contextual information with bioanthropological data from skeletal collections.** F. ENGEL, S. SCHLAGER, S. DROTZIGER.

Session
31

Skeletal Biology: Bioarchaeology

Contributed Poster Presentations. Chair: Nicholas P. Herrmann.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Childhood diet at medieval (1240s AD) Solt-Tételhegy, Hungary as reconstructed from stable carbon and nitrogen isotope analyses.** A.D. GUGORA, T.L. DUPRAS, E. FÓTHI.
- 2 **How Diet Influences Mortality: Dietary reconstruction of epidemic and non-epidemic populations in 19th century Italy.** A.K. SMITH, L.J. REITSEMA, F.L. WILLIAMS, A. FORNACIARI, G. FORNACIARI.
- 3 **Fetal and infant health in prehistoric and colonial Ifugao.** A.N. FRANCOIS, A. LAUER.
- 4 **Nutritional change following social change in Illyria (modern Albania).** C.J. PFLEIDERER, B.R. KYLE.
- 5 **Isotopic profiling of diet, health, and mobility amongst the non-adult Gepid population buried at the Archuid Cemetery in Transylvania, Romania (4th – 7th centuries AD).** K.D. CROWDER, J. MONTGOMERY, K.L. FILIPEK-OGDEN, J. EVANS, D.R. GRÖCKE.
- 6 **Dietary trends in early medieval Croatia as evidenced by stable isotope analysis.** M. NOVAK, R. HOWCROFT, R. PINHASI, M. SLAUS.
- 7 **Subsistence and mobility at Morton Shell Mound (16IB3): Analysis of femoral cross-sectional properties.** S.M. ZALESKI, N.P. HERRMANN.
- 8 **Paleodiet of Rural and Urban Medieval English Populations: Further Studies of Extracting Stable Carbon and Nitrogen Isotopes from Dental Calculus.** E.A. CHAMBERLAIN, S.R. POULSON, C. DAVENPORT, C. BURRELL, S. GONZALEZ, G. SCOTT.
- 9 **Evidence of C₄ plant intake and dietary heterogeneity in Late Prehistoric burial populations of Spain and Portugal.** A.J.

- WATERMAN, P. DÍAZ-DEL-RÍO, R.H. TYKOT.
- 10 Carbon and nitrogen stable isotope ratios of anadromous fish: Is there a distinctive isotopic signature? C.M. HALFFMAN.
 - 11 Investigating heterogeneity in diet across early Iron Age assemblages from Slovenia using stable isotopes. H.E. KOON, R.A. NICHOLLS.
 - 12 An examination of biological distance between Late Woodland and Mississippian individuals using non-metric dental trait analysis. K. ZEJDLIK.
 - 13 Phenotypic variability, cemetery structure, and kinship in an early Iron Age mortuary complex at Wadi Fidan, Jordan. A.R. HOFF, M.M. BEASLEY, C.M. STOJANOWSKI, T.E. LEVY.
 - 14 Morphological and genetic analysis of Nubian populations from the Early to Late Holocene. K.A. SIRAK, M. GALLAND, D.M. FERNANDES, D.P. VAN GERVEN, R. PINHASI.
 - 15 A Bioarchaeological Approach to Ancient Maya Social Organization at Copan, Honduras using Biodistance and Radiogenic Strontium Isotope Analysis. K.A. MILLER WOLF.
 - 16 On the edge of the empire: A craniometric analysis of group affinities from an Ottoman garrison in western Romania. K.G. ALLEN, N. VON CRAMON-TAUBADEL.
 - 17 Biological relationships of the Early and Middle Neolithic of the Taiwan Strait using skulls and teeth. A.J. LAUER.
 - 18 High terrestrial mobility is geographically widespread among southern African Later Stone Age populations. M.E. CAMERON, J.T. STOCK.
 - 19 Bodies in motion: Isotopic analyses of mobility and diet at Marroquíes Bajos, Spain. J. BECK, M. DÍAZ-ZORITA BONILLA.
 - 20 Sorting the fragments and assessing the relationships of the Ayioi Omoloyites tombs of Hellenistic to Roman Period Cyprus. N.P. HERRMANN, D. PILIDES, Y. VIOLARIS.
 - 21 Cross-sectional geometry vs traditional indices: capturing tibial morphology as a means of studying mobility in the Nile Valley. S.L. HACKNER, D. ANTOINE.
 - 22 Musculoskeletal Stress Markers of Humerii from Two Lower Mississippi Valley Populations: Implications for Subsistence-Based Activity Patterns. B.M. THIBODEAUX.
 - 23 Asymmetric Femoral Torsion Among the Oneota of Illinois. A. TREMBLAY, M. VERES.
 - 24 Does Industrialization Always Result in a Reduction in Skeletal Robusticity? J.G. CLEMENTZ, A.L. MAGENNIS.
 - 25 Computerized cementochronology - taking the (16)bit between the teeth. B. BERTRAND, J. RAMOS MAGALHAES, H. PHELIPPEAU, F. GERMAIN, S. NAJI, T. COLARD.
 - 26 Intentional Cranial Vault Modification and the Biomechanics of Head Balance. J.E. ROTHWELL.
 - 27 Practical reality of taking semi-landmark data on archaeological human remains. N. SEGUCHI, M. MURPHY, S. YONEMOTO, B. DUDZIK.
 - 28 Craniometric analysis of unaffiliated native american remains from texas . C.C. SIEGERT, K. SPRADLEY, A. GOOTS, M.D. HAMILTON.
 - 29 Vertebral neural canal (VNC) diameters and their association with earlier age at death in a Medieval Polish population. R.L. HUNTER, H.M. JUSTUS, A.M. AGNEW.
 - 30 Sex differences in dental caries in medieval Alkmaar, The Netherlands. L. ZACHARY, S. INSKIP, A. WATERS, M. HOOGLAND.
 - 31 The influence of sex and allometry on subnasal prognathism in modern humans. K.M. LESCIOTTO, L.L. CABO, H.M. GARVIN.
 - 32 Variation in human lower limb morphology and the relative influence of neutral and selective evolutionary processes. M.B. RIVERA, L. BETTI, J.T. STOCK.
 - 33 Central Saharan Population History as Inferred from Postcranial Limb Proportionality. R. BOOKMAN, C. STOJANOWSKI.
 - 34 The Degree of Limb Bones Asymmetry in Relation with Health and Environmental Stress in Medieval Lower Socioeconomic Society. L. ČERVENKOVÁ, L. BIGONI, J. DUPEJ, P. VELEMÍNSKÝ, J. VELEMÍNSKÁ.
 - 35 Preliminary osteological analysis and stature estimates of adults in an early Medieval Prussian population at Bezlawki, Poland. M. RAMSIER, A. GRUENTHAL-RANKIN, A. KOPERKIEWICZ, M. POLCYN.
 - 36 Analysis of Long Bone Osteometrics in a Commingled Skeletal Sample from a High Altitude Site in the Ancient Peruvian Andes. K. YARLAGADDA, T.A. TUNG.
 - 37 Coalition frequencies in the feet of modern Thai. L.A. WINTERS, S.E. BURNETT, D. CASE, S. RUENGDIT, P. MAHAKKANUKRAUH.
 - 38 Bioarchaeology of the Wall of the Crow Cemetery, Giza: Changes in the Levels of Systemic Stress from the Saite to the Roman Period. J.E. KAISER.
 - 39 Socioeconomic status, bioarchaeology, and space: Using ArcGIS to examine mortuary behavior in a medieval Italian cemetery. M.C. STEWART, G. VERCELLOTTI, J.S. FIELD.
 - 40 Tracking adaptations in sexual dimorphism between subgroups of an historic population. D.L. HARRISON.
 - 41 Sailors lost in time: A Pathological study of Dead Man's Island. K.E. TSCHINKEL.

- 42 **Effects of X-ray microtomography on stable isotope values and sample quality.** L.E. CIRILLO, A.T. MACKINNON, J.R. PRINCE, E.J. BARTELINK, G.D. RICHARDS.
- 43 **Did Potters Urn? Potential Skeletal Evidence of Ceramic Production from the Ch'iji Jawira Site in Tiwanaku, Bolivia.** S.K. BECKER.

Friday, Afternoon sessions.

Session 32 **In search of the last common ancestor: perspectives on the ancestral morphotype of hominins**
Invited Podium Symposium. Chair: Scott A. Williams.
 Co-organizers: Mark Grabowski.
Imperial Ballroom A.

Reconstructing the morphology and behavior of the last common ancestor (LCA) of hominins and our closest relatives has been a primary area of interest for anthropologists since the origins of the discipline. Darwin drew our attention to the African great apes, as did Huxley, and more explicitly, Weinert and Keith, but it was not until molecular studies on blood proteins and later phylogenetic studies placed humans firmly within the African ape clade that paleoanthropologists began to consider models based on great apes for reconstructing the LCA. In the interim period and ever since, various models based on lesser apes (hylobatids), Old World monkeys, and even more distantly related taxa (e.g., tarsiers) were proposed. Along with great ape models and even those based on living humans, these have often been proposed as “best extant models” and more rarely as “living fossils.” Models based on extinct taxa represented by fossils have also been proposed. These include various Miocene hominoids, such as *Ramapithecus* (now recognized as female *Sivapithecus*), *Kenyapithecus*, and *Proconsul*, and more recently, new species such as *Pierolapithecus* and *Orrorin*, and are often reliant on the interpretation of partial skeletons and fragmentary remains. It is of primary importance to recognize that each taxon, extant and extinct, is derived in various ways and therefore does not represent the primitive condition, although some may be argued to approximate it in some cases. Finally, within the extant great ape category, orangutan, gorilla, chimpanzee, bonobo, and more generalized “African great ape” models have each been favored (and criticized) over the years. This symposium provides a historical perspective on these models and at the same time explores new models and new data, including recent fossil, skeletal, behavioral, and theoretical advances.

- 1:00 **Elucidating the evolutionary pathways of hominoid and hominin basicranial morphology using a formal phylogenetic comparative primate approach.** G.A. RUSSO, E. KIRK, J.B. SMAERS.
- 1:15 **The evolutionary history of the hominin cervical vertebral column.** T.K. NALLEY, N. GRIDER-POTTER.
- 1:30 **Standing on the shoulders of apes: evidence for the hominin ancestral morphotype from the limbs and girdles.** N.M. YOUNG.
- 1:45 **The hominoid wrist and the role of developmental perspectives on inferring homoplasy.** P.L. RENO, K.M. KJOSNESS.
- 2:00 **The foot of the last common ancestor of humans and chimpanzees.** J.M. DESILVA, B. ZIPFEL.
- 2:15 **The enigmatic Burtele partial foot: further evidence for middle Pliocene hominin locomotor diversity.** Y. HAILE-SELASSIE.
- 2:30 **Body shape and hominin origins.** C.V. WARD, E.R. MIDDLETON.
- 2:45 **Models for, and predictions about, the head, neck, pectoral and upper limb musculature of the last common ancestor of hominins, and notes on the myth of human morphological complexity.** R. DIOGO, J. MOLNAR, B. WOOD.
- 3:00 **Frontal plane trunk mechanics in humans and chimpanzees, and implications for the bipedal gait of the last common ancestor.** N.E. THOMPSON, B. DEMES, M.C. O'NEILL.
- 3:15 **Implications of the interpretation of homoplasies in *Oreopithecus* and other Miocene ape genera for elucidating the chimpanzee-human LCA.** J. CARLSON.
- 3:30 **Mosaic and homoplastic evolution of the hominoid skeleton precludes ‘overall’ ancestral reconstructions based on single-taxon models.** S. ALMÉCJA, S. MOYÀ-SOLÀ, D.M. ALBA, A.S. HAMMOND, M. TALLMAN, W.L. JUNGERS.
- 3:45 **Is the chimpanzee a living fossil?** D.R. BEGUN.
- 4:00 **Discussion: Scott Williams and Mark Grabowski.**

Session 33 **Allomother-infant relationships across the Primate order: biomarkers, bonding, buffering, and other bidirectional effects**
Invited Podium Symposium. Chair: Stacy Rosenbaum.
 Co-organizers: Lee Gettler.
Imperial Ballroom B.

Advances in molecular genetics and endocrinology have meaningfully broadened anthropologists' understanding of the role that social partners other than mothers have on infant survival, growth, and development, and the effects that infants have on their allomaternal (sub)adult social partners. Understanding the fitness consequences of such relationships is crucial for modeling primate life histories and social group structure. The goal of this symposium is to bring together work that incorporates behavioral

and biomarker data to better understand proximate and ultimate causation of the complex, oft-overlooked relationships that occur between infants and their allomaternal caretakers. Participants use a range of methods to address questions from a comparative perspective, providing insight into the range of behaviors that occurs in the Primate order and the functional consequences of such variation.

- 1:00 **Profiling caregivers: hormonal variation underlying allomaternal care in wild red-bellied lemurs.** S.R. TECOT, J. COSTANZO, E. EADIE, C. HAWLEY, S. RAZANAJATOVO, A.S. ARROYO, A.L. BADEN.
- 1:15 **Father's parenting style influences infant development in common marmosets, *Callithrix jacchus*.** T.E. ZIEGLER.
- 1:30 **Could male *Colobus vellerosus* be using behavioural cues to estimate paternity?** S.A. FOX, E.C. WIKBERG, J. VAYRO, N.D. SIMONS, M.J. RUIZ-LOPEZ, A. CROTTY, D. CHRISTIE, E. POTVIN-ROSSELET, N. TING, P. SICOTTE.
- 1:45 **Dads and cads? Male reproductive success, androgen profiles, and male-infant social bonds in wild mountain gorillas (*Gorilla beringei beringei*).** S. ROSENBAUM, J. HIRWA, L. VIGILANT, R. SANTYMIRE, T.S. STOINSKI.
- 2:00 **Infant handling and urinary oxytocin in sub-adult bonobos (*Pan paniscus*): support for the learning to mother hypothesis.** K.J. BOOSE, F.J. WHITE, E. SQUIRES, A. MEINELT, J.J. SNODGRASS.
- 2:15 **Men's reproductive ecology and diminished hormonal regulation of skeletal muscle phenotype: An analysis of between- and within-individual variation among rural Polish men.** L.C. ALVARADO, M.N. MULLER, M. EMERY THOMPSON, M. KLIMEK, I. NENKO, G. JASIENSKA.
- 2:30 **Hormones and behavior in same-sex male parents: implications for the evolution of paternal care in humans.** E.E. BURKE, R.G. BRIBIESCAS.
- 2:45 **Early Life Social Influences on Men's Testosterone & Parenting Behavior.** M.S. SARMA, C.W. KUZAWA, A.B. FERANIL, L.T. GETTLER.
- 3:00 **The impact of a natural disaster on physical and mental health: Offspring morbidity and crop loss as mediators of paternal testosterone, cortisol, and depression among Bolivian forager-farmers.** B.C. TRUMBLE, J. STIEGLITZ, A. JAEGGI, B. BEHEIM, M. SCHWARTZ, H. KAPLAN, M. GURVEN.
- 3:15 **Paternal investment and child well-being in two small-scale human societies.** C.R. VON RUEDEN, T. BROESCH.
- 3:30 **Cooperative Breeding and the Costs and Benefits of Infant Allocare in Hunter-Gatherers and Agriculturalists.** K.L. KRAMER, A. VEILE.
- 3:45 **Discussion: James McKenna.**
- 4:00 **Break.**

Session **Human Biology: Nutrition and Variation**

34 **Contributed Podium Presentations.** Chair: Pablo A. Nepomnaschy.
A 703/704.

- 1:00 **The Financial Hunter-Gatherer: How do Foragers Diversify their Dietary Portfolios?** E.R. OTÁROLA-CASTILLO, R.D. GREAVES, T.S. KRAFT, A.J. VEILE, V.V. VENKATARAMAN, K.L. KRAMER.
- 1:15 **Physical activity, sedentary behavior and pubertal maturation among the Tsimane'.** A.E. CALDWELL HOOPER, P.L. HOOPER.
- 1:30 **Physical activity and anthropometry effects on bone turnover biomarkers in rural Polish women.** K.M. LEE, M.P. ROGERS, A. GALBARCZYK, G. JASIENSKA, J.D. POLK, K.B. CLANCY.
- 1:45 ***E. coli* exposure, intestinal barrier function and immune health in Galapagos, Ecuador.** K.M. HOUCK, A.L. THOMPSON, M.V. SORENSEN.
- 2:00 **Sleep duration, quality and timing in a non-electric population in Madagascar.** D.R. SAMSON, M. MANUS, C.L. NUNN.
- 2:15 **The role of obesity on water intake and hydration status in U.S. adults: 2009-2012.** A. ROSINGER, C. OGDEN.
- 2:30 **Reproductive History and the Pace of Aging in Women.** P.A. NEPOMNASCHY, C.K. BARHA, K.G. SALVANTE.
- 2:45 **Sitting, squatting, and the evolution of human inactivity.** D.A. RAICHLEN, H. PONTZER, J.A. HARRIS, T.W. ZDERIC, M.T. HAMILTON, B.M. WOOD.
- 3:00 **Multivariate asymmetry in the femur as a basis for "pair-matching".** A.B. LEE, L.W. KONIGSBERG.
- 3:15 **Procrustes-based vector-moving average models allow patterns of motion to be statistically distinguished.** K.J. SODA, P.H. MORRIS, D.E. SLICE.
- 3:30 **The sex difference in depression is explained by the sexual dimorphism in upper body strength.** E.H. HAGEN, T. ROSENSTRÖM.
- 3:45 **Anthropologists under pressure: perceptions of stress, conflict and support in the pursuit of career-family balance.** M. HOWELLS, C. LYNN, B. HALL.
- 4:00 **Break.**

Session **Paleoanthropology: Methods**

35 **Contributed Podium Presentations.** Chair: Michael J. Plavcan.
A 706/707.

- 1:00 **Statistical Analysis of 3D Measurements: A Look into the World of Pleistocene Hand Modeling.** S.E. LOVE.
- 1:15 **Using geometric morphometric visualizations of directional selection gradients to investigate morphological differentiation.** T.D. WEAVER, P. GUNZ.
- 1:30 **Asymmetry of Broca's cap using GIS.** L.M. RUCK, K.H. MACDOWELL, R.L. HOLLOWAY, D.C. BROADFIELD.
- 1:45 **Craniodental versus postcranial variables as estimators of body mass in extinct taxa.** J. PLAVCAN, A.D. GORDON.
- 2:00 **Examining the fundamental niche parameters of Neanderthals and Modern Humans in Iberia.** R.C. BIBLE.
- 2:15 **Super-ordination is a simple method to build consensus from alternative taxonomic ordinations.** J.J. MAGARO, T.J. DEWITT.
- 2:30 **Hominin Taxic Diversity: Fact or Fantasy?** B. WOOD, E. BOYLE.
- 2:45 **The paleontology "connectome" project: Predicting the location of fossiliferous sediments using Remote Sensing (RS) and Geographical Information System (GIS) techniques.** G.C. CONROY, G.F. GUNNELL, R.L. ANEMONE.
- 3:00 **Spatial taphonomic reconstruction of the Dinaledi Chamber, Rising Star Cave, by the use of high resolution three-dimensional modalities lends support to the deliberate disposal of hominin remains.** A. KRUGER, P. RANDOLPH-QUINNEY, J. HAWKS, P. DIRKS, E. ROBERTS, M. ELLIOTT, L. BERGER.
- 3:15 **The deposits of Jacovec Cavern, Sterkfontein: A high resolution application of sedimentological analyses for palaeanthropological studies.** S.S. MAVUSO, D.J. STRATFORD.
- 3:30 **Forensic Residue Analysis at Olduvai Gorge, Tanzania: Methodological Challenges in the Study of Tool Use and Diet 1.8-1.3Ma.** J. MERCADER, P. CHRISTAKIS, J. FAVREAU, S. IKAYO, M. ITAMBU, P. LEE, R. PATALANO, L. TUCKER.
- 3:45 **Establishing Philopatry and Home Range Size with Strontium Isotopes: An Extant Model from Kibale National Park.** M.I. HAMILTON.
- 4:00 **Isotopic variability in chimpanzee and baboon plant foods at Gombe National Park, Tanzania.** R.S. NOCKERTS, R.C. O'MALLEY, M.L. WILSON, D.L. FOX, D. COLLINS.
- 4:15 **Break.**

Session **Migration: An anthropological perspective**
 36 **Invited Poster Symposium.** Chair: Lorena Madrigal.
 Co-organizers: Lorena Madrigal and Rachel Caspari
A 701.

Migration has always been a critical part of the human condition, with far reaching biological and cultural consequences. As a major driver of gene flow, migration is a fundamental evolutionary force, the conduit of continuing evolutionary change in human and non-human primate species. The cultural impacts of migration and the biocultural interactions it promotes have always had a profound effect; however, the volume and impact of migration today are historically unprecedented. As environmental and political turmoil force displaced peoples across political borders, we are witnessing global problems with political, environmental, legal, ethical, medical, cultural, educational, linguistic implications, to name only a few. Anthropology, with its holistic, biocultural approach, can provide unique perspectives to the current crises by contextualizing migration within the broader human experience while bringing attention to the lived experiences of migrants and the ecological and social impacts of migration. In an effort to extend a hand of solidarity across associations, and honoring anthropology's holistic perspective, the AAA and the AAPA are pleased to sponsor a symposium, which brings to the AAPA a variety of anthropological perspectives on migration and contributions from experts who would not usually attend these meetings. The organizers of the symposium and its participants hope to explore not only how anthropology has studied migration but also how anthropology may offer real world answers to policy makers. We hope to encourage holistic studies on migration so that anthropology is visible and relevant in the public arena. Precisely because we see migration from such a multitude of perspectives, anthropologists should be part of governmental and non-governmental entities which seek to mitigate its associated problems. Our associations should join forces to educate the public and policy makers on how we understand and can contribute to alleviate these problems.

12:45 – 1:00 Poster set-up/ 4:45 – 5:00 Poster take down

- 1:00 **Introduction: Lorena Madrigal.**
- 3:30 **Discussion: Edward Liebow.**
- 1 **The Importance of Culture and Biology in the Analysis of Contemporary Migration: Approaching stress among Latino immigrants to Columbus, Ohio.** J.H. COHEN, D.E. CREWS.
 - 2 **Nonhuman Primate Migration: Phylogeny, Demography, and Social Consequences of Dispersal.** K.B. STRIER.
 - 3 **Dynamic contact: examining histories of migration, hunting, and conflict at the human-nonhuman primate interface.** C.A. JÖST ROBINSON.
 - 4 **Dispersal, constraint, and the evolutionary niche of early *Homo*.** A.P. VAN ARSDALE.
 - 5 **Tracking hominin mobility in late Pleistocene Central Asia with an agent based approach.** E. HATCHER, M. GLANTZ, A. BLISS, R. BOONE.
 - 6 **Causes and evolutionary consequences of human migration: Anthropological genetic perspectives.** M.H. CRAWFORD, K.G. BEATY.

- 7 **Human Migration Across the US/Mexico Border.** L.E. BAKER.
- 8 **Life, Death, and Time: Rethinking the Social Process of Undocumented Migration in the 21st Century.** J. DE LEÓN.
- Session 37 **The suite with many names: An exploration of “market integration” and its effects on human biology, health, and behavior**
Invited Poster Symposium. Chair: Anne C. Pisor.
 A 705.

For almost three decades, human biologists and increasingly, human behaviorists have been mapping how changes in a suite of phenomena -- alternatively called acculturation, globalization, market integration, social change, and urbanization -- impact health and behavior, from heart disease and chronic stress to cooperation and family structure. While this suite, called “market integration” here for brevity, has a great deal of predictive power, research on the subject is difficult to amalgamate due to a lack of shared terminology and methodology, further compounded by limited communication between human biologists and behaviorists. Addressing how these approaches intersect can pave the way for cross-population comparisons of the processes of market integration and associated outcomes. This symposium begins the conversation by asking, first, what is the state of knowledge on market integration, in terms of its impact on both human biology and behavior? Second, how do we arrive at a working definition of market integration? Though researchers tend to utilize locally appropriate measures that have predictive power within their study populations, those that are not predictive in a given context can be equally informative for comparative work. Third, do aggregate measures of market integration predict different outcomes than more fine-grained measures? For example, market integration measured at the population- or community-level may have different effects on health and behavior than market integration measured at the household- or individual-level. This symposium unites human biologists and behaviorists working under a variety of terminologies to detail how market integration affects health, physiology, and behavior in transitioning populations around the globe. We will address the above questions and discuss how to best foster cross-population comparisons of market integration and its effects on biology and behavior.

12:45 – 1:00 Poster set-up/ 4:45 – 5:00 Poster take down
 Poster visiting and Q & A 2:35 - 3:00

1:00 **Discussion: Josh J. Snodgrass.**

1:15 **Poster Synopses.**

3:00 **Discussion: William Dressler.**

3:15 **Roundtable discussion.**

- 1 **Levels of Analysis: What unit is the most appropriate for understanding the effects of market integration?** S.M. MATTISON, B. BEHEIM.
- 2 **From foraging to Facebook: Market integration and health among the Shuar of Southeastern Ecuador.** L.S. SUGIYAMA, M.A. LIEBERT, F.C. MADIMENOS, A.D. BLACKWELL, S.S. URLACHER, T.J. CEPON-ROBINS, T. GILDNER, R.G. BRIBIESCAS, J.J. SNODGRASS.
- 3 **The embodiment of market integration: Modeling cultural consonance among Shuar children of Amazonian Ecuador.** M.A. LIEBERT, F.C. MADIMENOS, S.S. URLACHER, T.E. GILDNER, T.J. CEPON-ROBINS, J. SNODGRASS, L.S. SUGIYAMA.
- 4 **Influence of acculturation and lifestyle change on metabolic health among the Sakha (Yakut) of Northeastern Siberia.** H.J. WILSON, W.R. LEONARD, S.B. LEVY, J.J. SNODGRASS, L.A. TARSKAIA, T.M. KLIMOVA, V.I. FEDOROVA, M.E. BALTAKHINOVA.
- 5 **Valid/relevant correlates and meaningful outcomes: How has market integration affected the Toba/Qom of Argentina.** C.R. VALEGGIA.
- 6 **Is market integration associated with physical, mental, and social wellbeing among Ethiopian young adults? It all depends on the measure.** C. HADLEY.
- 7 **Market integration and out-group valuation among three horticultural populations: The effect depends on the measure.** A.C. PISOR, M. GURVEN.
- 8 **Mechanisms of collective action in transitioning economies: A case study from the Peruvian Altiplano.** C. MOYA.

- Session 38 **Innovative approaches to human brain evolution: molecules to systems**
Invited Poster Symposium. Chair: Daniel J. Miller.
 Co-organizers: Todd M. Preuss, Daniel J. Miller, Aida Gomez-Robles, and Chet C. Sherwood.
 Atrium Ballroom C.

The pronounced diversity of primate behavior reflects variation in the structure and function of the brain as it is shaped throughout life by selective pressures acting at multiple levels of organization. Recent years have witnessed the development of novel methods that are now transforming our ability to relate primate neurobiological evolution to processes underlying human behavior. Specifically, contemporary tools to investigate the brain at the molecular, cellular and systems levels of organization provide data to complement results from comparative analyses of the fossil record to deepen our understanding of the human phenotype. In particular, cutting-edge tools have revolutionized our understanding of the relationship between the brain and behavior, from correlated changes in molecular networks to the neural circuits underlying the emergence of tool manufacturing and language. Indeed, work from multiple levels of organization substantiates the stark contrast between the seemingly modest changes in DNA

but striking behavioral differences observed in humans relative to our closest extant relatives. Accordingly, this symposium's multidisciplinary investigations of human brain evolution impact a variety of topics of interest in primate behavior. Specific contributions to the symposium address important aspects of human brain evolution and include studies of development, allometry, gene expression, social interaction and anatomical reorganization using approaches drawn from genomics, proteomics, neuroimaging, multivariate morphometrics and quantitative phylogenetic analysis. This symposium serves to demonstrate the efficacy of interdisciplinary research focused on the evolution of the human brain to deepen our understanding of human behavior and suggests novel approaches capable of furthering our knowledge of other critical aspects of hominin evolution.

12:45 – 1:00 Poster set-up/ 4:45 – 5:00 Poster take down

Odd numbered poster authors present 2:00 -2:30; Even numbered poster authors present 2:30 – 3:00

3:30 Discussion: Leslie Aiello.

- 1 **Comparative approaches to human brain evolution: New methods, resources, and discoveries.** T.M. PREUSS.
- 2 **Evolution of human-specific gene coexpression networks in neocortex.** G. KONOPKA.
- 3 **Evolution of human language circuits revealed with comparative diffusion tensor imaging.** J.K. RILLING.
- 4 **Neurodevelopmental disorders as models for developmental interactions between brain and skull in human evolution.** K. ALDRIDGE, J.R. AUSTIN, C.A. HILL, J.T. RICHTSMEIER.
- 5 **Evolutionary neurocartography: mapping sensory system organization in human brain evolution.** D.J. MILLER, R. BIJLANI, J.H. KAAS.
- 6 **Brain evolution and the evo-devo of endocranial shape.** P. GUNZ, B. DREWS, S. NEUBAUER, N.A. SCOTT, T. HILDEBRANDT, J. HUBLIN.
- 7 **A comparison of high-throughput genomic and proteomic techniques in quantitative molecular analyses of primate brain.** A.L. BAUERNFEIND.
- 8 **From action perception to toolmaking: adaptations to fronto-parietal circuits in human brain evolution.** E.E. HECHT, D. STOUT, T.M. PREUSS.
- 9 **The neural correlates of multimodal communication in chimpanzees (*Pan troglodytes*) and bonobos (*Pan paniscus*) and their implications for the evolution of human language.** J.P. TAGLIALATELA.
- 10 **Brain size evolution in primates - testing effects of social vs. ecological complexity.** C. VAN SCHAIK, S.M. GRABER, C. SCHUPPLI, S.A. HELDSTAB, K. ISLER.
- 11 **The heritability and plasticity of chimpanzee and human brain asymmetry.** C.C. SHERWOOD, W.D. HOPKINS, S.J. SCHAPIRO, A. GÓMEZ-ROBLES.
- 12 **Why Paleoneurology Needs the Lunate Sulcus.** R.L. HOLLOWAY, P.T. SCHOENEMANN, D.C. BROADFIELD.
- 13 **An ALE meta-analysis of shared and unique neural activation in the human brain during speech production and tool-use.** L.D. REYES, S. BIANCHI, C.C. SHERWOOD.
- 14 **The social brain in human evolution: neuron density in the prefrontal cortex in Williams Syndrome.** C.F. HORTON, C. BROWN, U. BELLUGI, K. SEMENDEFERI.
- 15 **Increased dopaminergic innervation of the medial caudate nucleus in humans: implications for the evolution of speech and language.** M. RAGHANTI, M.K. EDLER, A.R. STEPHENSON, L.J. WILSON, W.D. HOPKINS, J.J. ELY, J.M. ERWIN, B. JACOBS, P.R. HOF, C.C. SHERWOOD.
- 16 **Co-variation in the maturational timing of cortical GABAergic interneurons and pyramidal neurons in primate brain evolution** C.J. CHARVET, S.J. MONGOLD, F.M. KRIENEN, C.C. SHERWOOD.
- 17 **Reorganization of Temporal Association Cortico-cortical Connectivity in Hominoids.** K.L. BRYANT, L. LI, T.M. PREUSS.
- 18 **Brain function and Broca's Cap: A meta-analysis of fMRI studies.** P. SCHOENEMANN, R.L. HOLLOWAY.

Saturday, Morning sessions.

Session 39 **Biology and context of *Homo naledi* from the Rising Star cave system, South Africa**
Invited Podium Symposium. Chair: John Hawks.
 Co-organizers: John Hawks and Lee R. Berger.
Imperial Ballroom A.

Hominin remains were discovered in October, 2013 within the Rising Star cave system, inside the Cradle of Humankind World Heritage Site, South Africa, within a remote chamber of the cave system, named the Dinaledi Chamber, presently accessible only through a narrow vertical shaft. Lee Berger organized excavations with a skilled team of archaeologists and support of local cavers, which have to date uncovered 1550 hominin skeletal specimens. In May and June, 2014, the University of the Witwatersrand held a workshop to analyze these remains, bringing together 35 early career scientists grouped with mentors to prepare initial description and taxonomic assessment of the remains. The hominin remains from Rising Star represent a minimum of 15 individuals of a

previously undiscovered hominin species, which has been named *Homo naledi*. At the time of submission of this symposium, the age of the Dinaledi fossil deposit is unknown. This symposium reports results from the Rising Star workshop and subsequent work undertaken by the team. The papers include detailed description of the skeletal biology of *Homo naledi* focusing on the functional and phylogenetic implications of each region of the skeleton: cranium, dentition, upper limb, hand, trunk, pelvis, lower limb and foot. Study of the sample has illuminated aspects of population biology, adaptation, and growth and development, and the geological and taphonomic context of the Dinaledi Chamber. This is a comprehensive initial description of the biology of a new hominin species, and all papers present new and (at the time of submission) unpublished material by early career first authors. The discussion period in the symposium will allow additional coverage of the design of the excavation and workshop, and will provide flexibility to describe findings on new skeletal material and geological context of the Rising Star site that may emerge after the abstract submission deadline.

- 8:00 **Geological and taphonomic context of excavations within the Rising Star cave system.** M.C. ELLIOTT, P.H. DIRKS, L.R. BERGER, E.M. ROBERTS, J.D. KRAMERS, J. HAWKS, P.S. RANDOLPH-QUINNEY, C.M. MUSIBA, S.E. CHURCHILL, D.J. DE RUITER, P. SCHMID, L.R. BACKWELL, G.A. BELYANIN, P. BOSHOFF, K. HUNTER, E.M. FEUERRIEGEL, A. GURTOV, J.D. G. HARRISON, R. HUNTER, A. KRUGER, H. MORRIS, B. PEIXOTTO.
- 8:15 **Skull diversity within the *Homo* lineage and the relative position of *Homo naledi*.** L. SCHROEDER, J.E. SCOTT, H.M. GARVIN, M.F. LAIRD, M. DEMBO, D. RADOVČIĆ, L.R. BERGER, D.J. DE RUITER, R.R. ACKERMANN.
- 8:30 **Metric and nonmetric features of the *Homo naledi* dentition.** L.K. DELEZENE, J.K. BROPHY, M.M. SKINNER, A.N. GURTOV, J. HAWKS, J.D. IRISH, L.R. BERGER, D.J. DE RUITER.
- 8:45 **Enamel-dentine junction morphology and enamel thickness of the Dinaledi dental collection.** M.M. SKINNER, A.L. LOCKEY, P. GUNZ, J. HAWKS, L.K. DELEZENE.
- 9:00 **The shoulder and upper limb of *Homo naledi*.** E.M. FEUERRIEGEL, D.J. GREEN, C.S. WALKER, P. SCHMID, J. HAWKS, L.R. BERGER, S.E. CHURCHILL.
- 9:15 **Functional interpretation of the *Homo naledi* hand.** T.L. KIVELL, A.S. DEANE, M.W. TOCHERI, C.M. ORR, P. SCHMID, J. HAWKS, L.R. BERGER, S.E. CHURCHILL.
- 9:30 **Primitive pelvic features in a new species of *Homo*.** C. VANSICKLE, Z.D. COFRAN, D. GARCIA-MARTINEZ, S.A. WILLIAMS, S.E. CHURCHILL, L.R. BERGER, J. HAWKS.
- 9:45 **The axial skeleton and scaling of the trunk in *Homo naledi*.** S.A. WILLIAMS, D. GARCÍA-MARTÍNEZ, M.R. MEYER, S. NALLA, P. SCHMID, J. HAWKS, S.E. CHURCHILL, L.R. BERGER, M. BASTIR.
- 10:00 **Break.**
- 10:15 **Thigh and leg remains of *Homo naledi*.** D. MARCHI, C.S. WALKER, P. WEI, T.W. HOLLIDAY, S.E. CHURCHILL, L.R. BERGER, J.M. DESILVA.
- 10:30 **Relative length of the immature *Homo naledi* tibia U.W. 101-1070: evidence for elongation of the leg.** C.S. WALKER, J.M. DESILVA, T.W. HOLLIDAY, D. MARCHI, H.M. GARVIN, Z. COFRAN, J. HAWKS, L.R. BERGER, S.E. CHURCHILL.
- 10:45 ***Homo naledi* strides again: preliminary reconstructions of an extinct hominin's gait.** Z. THROCKMORTON, W.E. HARCOURT-SMITH, K. CONGDON, B. ZIPFEL, J. DESILVA, C. VANSICKLE, S. WILLIAMS, M. MEYER, T. PRANG, C. WALKER, D. MARCHI, D. GARCIA-MARTINEZ, S. CHURCHILL, J. HAWKS, L. BERGER.
- 11:00 **Body size and sexual dimorphism in *H. naledi*.** H.M. GARVIN, M.C. ELLIOTT, L.K. DELEZENE, J.D. HAWKS, S.E. CHURCHILL, L.R. BERGER, T.W. HOLLIDAY.
- 11:15 **Assessment of life stages of the individuals at Rising Star.** D.R. BOLTER, Z. COFRAN, C.S. WALKER, M.M. SKINNER, B. BOGIN, N. CAMERON, L.R. BERGER, J. HAWKS.
- 11:30 **Discussion: Darryl de Ruiter and Steve Churchill.**

Session **Population Genetics: Human and Non-Human Primates**

40 **Contributed Podium Presentations.** Chair: Christina Warinner.
A 602.

- 8:00 **A new *Cheirogaleus* (Cheirogaleidae) species from Ankarana, Madagascar.** A.T. MCLAIN, R. LEI, C.L. FRASIER, J.M. TAYLOR, C.A. BAILEY, S.E. ENGBERG, A.L. GINTER, S.D. NASH, R. RANDRIAMAMPIONONA, C.P. GROVES, R.A. MITTERMEIER, E.E. LOUIS, JR..
- 8:15 **No evidence for genomic convergence between true echolocating mammals and the aye-aye (*Daubentonia madagascariensis*), a primate percussive foraging and auditory specialist.** R.J. BANKOFF, B. HOHMAN, E. LAUTERBUR, L. KISTLER, G. PERRY.
- 8:30 **Using ancient DNA from museum specimens for phylogenetic correction to interpret island dwarfing in *Macaca fascicularis*.** L. YAO, H. LI, R.D. MARTIN, R.S. MALHI.
- 8:45 **Neurophysiological differences between hamadryas and anubis baboons are maintained by natural selection.** C.M. BERGEY, J.E. PHILLIPS-CONROY, T.R. DISOTELL, C.J. JOLLY.
- 9:00 **The application of gene tree-based phylogenetic methods to primate morphological data sets.** M.E. STEIPER, E.E. GUEVARA, K.D. PUGH.
- 9:15 **Mating asymmetry in the formation of the Kinda x chacma baboon hybrid zone.** M.M. MCDONALD, J. PHILLIPS-CONROY, C.J. JOLLY.

- 9:30 **Loss of MHC immunogenetic diversity in bonobos (*Pan paniscus*)**. E.E. WROBLEWSKI, L.A. GUETHLEIN, Y. LI, C. SHAW, S. AHUKA-MUNDEKE, M. PEETERS, B.H. HAHN, P. PARHAM.
- 9:45 **Genetic Variation between the Population of the Ancient Xiongnu and Modern Populations in Central Mongolia**. L.L. ROGERS, T. D., F. KAESTLE.
- 10:00 **Break.**
- 10:15 **Archaeogenomic analysis of ancient Anatolians: first genetic indication for Neolithic cultural diffusion in the Near East**. M. SOMEL, G.M. KILINC, F. OZER, A. OMRAC, R. YAKA, M. DONERTAS, N.D. DAGTAS, E. YUNCU, D. KOPTEKIN, A.M. BÜYÜKKARAKAYA, S.C. AÇAN, C. ALKAN, I. HODDER, S. HADDOW, C. KNÜSEL, C.S. LARSEN, Y.S. ERDAL, E. BICAKCI, D. BAIRD, M. JAKOBSSON, I. TOGAN, A. GÖTHERSTRÖM.
- 10:30 **Ancient DNA and isotope analyses from Misión Salesiana, Tierra del Fuego**. A.C. STONE, J.M. MOTTI, K. HARKINS, P. GARCÍA LABORDE, L.O. VALENZUELA, M. CUELLO, M.A. NIEVES COLÓN, J.E. BUIKSTRA, C.M. BRAVI, R.A. GUICHÓN.
- 10:45 **Reconstructing the Population Genetics of Hakkari Mountains: A mtDNA Study of Assyrian Highlanders**. M. SHAMOON POUR, N. AL-JELOO, D. MERRIWETHER.
- 11:00 **Allele Sharing between Archaic and Modern Humans**. A.R. ROGERS, R.J. BOHLENDER.
- 11:15 **Long-term genetic stability and a high altitude East Asian origin for the peoples of the high valleys of the Himalayan arc**. C. JEONG, A.T. OZGA, D. WITONSKY, H. MALMSTROM, M. JAKOBSSON, C.M. LEWIS, M. ALDENDERFER, A.D. RIENZO, C. WARINNER.
- 11:30 **Cultural and Demographic Influences on Native American mtDNA Diversity in the Southern United States**. A.T. MIRÓ-HERRANS, M. BRIGGS-CLOUD, A. SYLESTINE, D.A. BOLNICK.
- 11:45 **Using coalescent simulation to understand the bias inherent in maximum likelihood estimation of ancestry proportions**. A.J. KOEHL, J.C. LONG.

Session **Primate evolution and taxonomy**

41 **Contributed Podium Presentations**. Chair: Andrew S. Deane.
A 703/704.

- 8:00 **Dietary inference from P₄ topography in prosimians**. D. DE VRIES, J.M. WINCHESTER, E.M. ST CLAIR, D.M. BOYER.
- 8:15 **Canine sexual dimorphism in “*Micropithecus*” *leakeyorum* from Maboko Island, Kenya and other African Miocene small-bodied non-cercopithecoid catarrhines**. B.R. BENEFIT, M.L. MCCROSSIN, E. DAVIS.
- 8:30 **Phenotypic integration of the cranium and face in fossil Cercopithecidae with implications for interpreting species in the Old World Monkey fossil record**. T.A. MONSON, M.F. BRASIL, D.J. STRATFORD, L.J. HLUSKO.
- 8:45 **A phylogenetic hypothesis of fossil colobine relationships**. S.L. CARNATION.
- 9:00 **A reevaluation of taxonomic divisions within South African *Parapapio***. M.F. BRASIL, T.A. MONSON, D.J. STRATFORD, L.J. HLUSKO.
- 9:15 **Another partial skull from the early Miocene: the first cranial fragments associated with both upper and lower dentition of *Limnopithecus legetet***. R.J. JANSMA, K.P. MCNULTY, H.M. DUNSWORTH, W.E. HARCOURT-SMITH, K.E. JENKINS, T. LEHMANN, D.J. PEPPE.
- 9:30 **Taxonomic affinities of catarrhine capitates from Songhor, early Miocene, Kenya**. C. WUTHRICH, C.M. ORR, B.A. PATEL, I.O. NENGO.
- 9:45 **A hominoid-like femur from the late Oligocene of Kenya**. A.S. HAMMOND, E.R. SEIFFERT.
- 10:00 **Break.**
- 10:15 **Mathematical model of spinal curvature: implications to human evolution**. E. BEEN, A. GÓMEZ-OLIVENCIA, P. KRAMER, M. ARLEGI, A. BARASH, Y. RAK.
- 10:30 **Characterizing differences in seminal plasma proteomes among hominids**. A.M. COLVIN, J.A. THOMAS, P. CHOVANEC, P. BASU, M.I. JENSEN-SEAMAN.
- 10:45 **A primate viewpoint on mandibular reduction in *Homo*: the impact of allometry and encephalisation**. A. VENEZIANO, C. MELORO, J.D. IRISH, C. STRINGER, I. DE GROOTE.
- 11:00 **A fully terrestrial lifestyle allowed humans to become both fat and smart: Comparative evidence**. S.A. HELDSTAB, C. VAN SCHAİK, K. ISLER.
- 11:15 **Looking for suspensory apes and climbing hominins (in all the wrong places): Evaluating multivariate approaches to inferring fossil hominoid locomotor behavior from manual phalangeal shaft length and curvature**. A.S. DEANE.
- 11:30 **Cranial contrasts: thin ideas about vault bone thickness in LBI and robust inferences about Down syndrome diagnosis**. M. HENNEBERG, S. CHAVANAVES, R.B. ECKHARDT.
- 11:45 **Dinaledi Chamber hominins do not support hypothesis of early African *Homo* ancestry for “*Homo floresiensis*” taxon based on LBI specimen**. R.B. ECKHARDT, S. CHAVANAVES, A.N. KUKOROWSKI, M. HENNEBERG.

Session **Human Biology: Growth, Reproduction and Adaptation**

42 **Contributed Podium Presentations**. Chair: Kathryn B.H. Clancy.
A 706/707.

- 8:00 **Prenatal androgen exposure (2D:4D) and its relationship to early growth and adult reproductive effort in men from Cebu, The Philippines.** A.V. GEORGIEV, C.P. RYAN, L.T. GETTLER, T.W. MCDADE, C.W. KUZAWA.
- 8:15 **Does puberty influence systolic blood pressure independent of the effects of adolescent growth and body size?** B.I. STRASSMANN, C.S. SMITH, C. VINCENZ.
- 8:30 **Environmental factors associated with luteal phase endometrial thickness in a sample of rural Polish women.** K.B. CLANCY, M.P. ROGERS, K.M. LEE, A. GALBARCZYK, G. JASIENSKA.
- 8:45 **Strategic trade-offs between immune and reproductive functions during the ovarian cycle: Empirical tests of an evolutionary hypothesis.** V.J. VITZTHUM, T.K. LORENZ, J. THORNBURG, C.M. WORTHMAN.
- 9:00 **Paternal age at conception predicts offspring telomere length in chimpanzees to a greater degree than in humans.** D.T. EISENBERG, J. TACKNEY, R.M. CAWTHON, C.T. CLOUTIER, H. BETHANCOURT, K. HAWKES.
- 9:15 **Obstetric pressures as a driving force of differences in trunk modularity between recent humans and chimpanzees?** E.R. MIDDLETON.
- 9:30 **Evidence of adaptation? Human tooth size and sexual dimorphism covary with elevation in India and Pakistan.** E. MUZZALL, L.J. HLUSKO, B. HEMPHILL.
- 9:45 **Dominance and intelligence: Testing two sexual selection theories of leadership against the ethnographic record.** Z.H. GARFIELD, E.H. HAGEN.
- 10:00 **Break.**
- 10:15 **Epigenetic signatures of high-altitude adaptation in the Andes.** A. CHILDEBAYEVA, D.C. DOLINOY, T.R. JONES, F. LEON-VALERDE, M. RIVERA-CH, M. KIYAMU, T.D. BRUTSAERT, A.W. BIGHAM.
- 10:30 **Sociodemographic and lifestyle factors associated with lung function in five countries.** J.M. SCHROCK, M.A. LIEBERT, P. KOWAL, J. SNODGRASS.
- 10:45 **Shining Evolutionary Light on Human Sleep: Sleep Intensity and Human Cognition.** C.L. NUNN, D.R. SAMSON.
- 11:00 **Sleeping exposed to the elements: Tsimane sleep conditions reduce sleep efficiency.** G. YETISH, H. KAPLAN, M. GURVEN.
- 11:15 **The emergence of inequality: An analysis of fifty years of anthropometric data from Nuñoa, Peru.** M.K. HOKE, T.L. LEATHERMAN, W.R. LEONARD.
- 11:30 **Delayed reciprocity in sharing networks of Batek hunter-gatherers in Peninsular Malaysia.** T.S. KRAFT, V.V. VENKATARAMAN, I. TACEY, A. KAWAI, K.M. ENDICOTT.
- 11:45 **Linking individual foraging and residential mobility: testing the marginal value theorem with data from southeast Asian tropical rainforest foragers.** V.V. VENKATARAMAN, T.S. KRAFT, K.M. ENDICOTT.

Session 43 **Bioarchaeology of Indigenous Peoples of Cuba**
Invited Poster Symposium. Chair: Mirjana Roksandic.
 Co-organizers: Alfredo Coppa and Mirjana Roksandic.
 A 701.

Our session brings forth the much needed Cuban evidence to main points of controversy in archaeological debates in the region: 1) the source and direction of migrations, 2) the origins of food production in the Circum-Caribbean and 3) the fate of indigenous groups after the contact. Caribbean archaeology has experienced a remarkable growth over the last 30 years, contributing to and leading the debate on critical issues such as colonization, migration, identity, subsistence, and human-landscape-climate interaction. Although Cuba joined this debate only recently, its sustained contribution is critical for further advancement of the field. Cuba is not only the largest and most ecologically varied Caribbean island – whose population remained diverse throughout its past and well into the contact times – but it is also geographically the most centrally positioned one in the archipelago. The emphasis on bioarchaeology and its multidisciplinary nature, allows us to weave Cuban evidence into multidirectional networks of trade, migration and cultural influences in the ancient Caribbean, whose complexity is not at this point completely understood.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.
 Poster authors present 10:15 – 10:45

- 10:45 **Discussion: Odlanyer Hernández de Lara.**
- 1 **Dental morphological variation in autochthonous Cuban populations.** A. COPPA, A. CUCINA, M. HOOGLAND, G. TAVAREZ, R. VALCÁRCEL ROJAS, F. CANDILIO.
 - 2 **Biological and cultural approaches to the study of population affinity among contemporary Pre-Columbian Cuban burial populations, through the analysis of cultural dental modifications and dental non-metric trait analysis.** K.R. ALARIE, M. ROKSANDIC.
 - 3 **Dental wear and pathology at Chorro de Maíta, Cuba.** H.L. MICKLEBURGH.
 - 4 **Bioarchaeology at the site of Canímar Abajo: The issue of identity.** M. ROKSANDIC, A. COPPA.
 - 5 **Reconstruction of breastfeeding and weaning practices in aboriginal populations from Western Cuba.** Y. CHINIQUE DE ARMAS, M. ROKSANDIC, R. RODRÍGUEZ, D. SMITH, D. NIKITOVIC, D. GARCIA-JORDA, W. BUHAY.
 - 6 **Isotopic insights into indigenous diets in early colonial Cuba.** J. LAFFOON, R. VALCÁRCEL ROJAS, D. WESTON, G. DAVIES, C. HOFMAN.

- 7 **Prehistoric Vertebrate Faunal Exploitation On Cuba.** R. COLTEN, B. WORTHINGTON.
- 8 **Life under early colonial occupation: the encomienda as experienced by the people of El Chorro de Maíta, Cuba.** D.A. WESTON, R. VALCÁRCEL ROJAS, M.L. HOOGLAND.
- 9 **The Cuban Infectious disease experience: 2000 ybp Ciboneys treponemal virgins and SAPHO.** B. ROTHSCHILD, C. ROTHSCHILD, J. GARCELL DOMINGUEZ, R. TRAVIESO RUIZ.

Session
44

Blood in the Villages: Bioarchaeological and Forensic Evidence for Massacres

Invited Poster Symposium. Chair: Cheryl P. Anderson.

Co-organizers: Cheryl P. Anderson and Debra L. Martin.

A 702.

Bioarchaeology and forensic anthropology offer unique perspectives on studies of mass violence and present opportunities to interpret human skeletal remains in a broader cultural context. Massacres and other forms of large-scale violence have been documented in many different ancient and modern contexts. Moving the analysis from the victims to the broader political and cultural context necessitates using social theories about the nature of mass violence. Massacres can be seen as a process, that is as the unfolding of nonrandom patterns or chain of events that precede the events and continue long after. Mass violence has a cultural logic of its own that is shaped by social and historical dynamics. Massacres can have varying aims including subjugation or total eradication of a group based on status, ethnicity or religion. Important research has been performed interpreting lethal skeletal trauma but a broad spectrum of different types of violence exists that must be taken into consideration. This includes incidents where multiple individuals are massacred as part of some larger cultural performance or cases of ethnocide where certain groups are targeted. Massacres can be part of large scale warfare, or they can be isolated incidents. It is an important part of violence studies to be able to explore the cultural history that may lead to a specific manifestation of massacre. The goal of this session is to present case studies that integrate the evidence from human remains with the broader cultural and historical context through the utilization of social theory to provide a framework for interpretation. This organized session will highlight case studies of massacres across time and space that stress innovative theoretical models that help make sense of this unique form of violence. The primary focus will be on how massacres are used as a strategy of violence across time and cultural/geopolitical landscapes.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.

Poster authors present 10:15 – 11:30

11:30 Discussion: Ryan Harrod.

- 1 **Blood in the Villages: Situating Massacres within Broader Social Processes.** C.P. ANDERSON, D.L. MARTIN.
- 2 **Rethinking Massacres: Bioarchaeological and Forensic Investigation of Prehistoric Multiple Burials in the Tennessee Valley.** W.E. DEVORE, D.H. DYE, K.P. JACOBI.
- 3 **Disturbing the massacred dead: clues to Archaic Period socio-politics.** M.O. SMITH.
- 4 **Each one the same: performance, demography, and violence at Sacred Ridge.** A.J. OSTERHOLTZ.
- 5 **Mesa of Sorrows: A History of the Awat'ovi Massacre.** J.F. BROOKS.
- 6 **Bones in the village: Indications of the Crow Creek massacre from scattered human remains found in the habitation area.** P. WILLEY.
- 7 **Using Big Data to Assess Patterns of Traumatic Injury: Skeletal Trauma on the North American Great Plains.** A.E. KENDELL.
- 8 **Forensic perspectives on mass violence in prehistoric California.** M.A. PILLOUD, A.W. SCHWITALLA.
- 9 **Only the men will do. Exploring sex and gender in Andean mass death assemblages.** J. TOYNE.
- 10 **Khmer Rouge massacres: Skeletal evidence of violent trauma in Cambodia.** J.M. FLEISCHMAN.
- 11 **Sowing the Dead: Massacres and the Missing in Northern Uganda.** T. HEPNER, D.W. STEADMAN.
- 12 **Applying Sociopolitical Theory to Better Understand Processes of Migrant Death along the Texas-Mexico Border.** J. MAIERS, K.E. LATHAM, A. O'DANIEL.

Session
45

Forensic applications of human skeletal biology and variation

Invited Poster Symposium. Chair: Nicholas V. Passalacqua.

Co-organizers: Alexandra R. Klales, Kyra E. Stull and Christopher W. Rainwater.

Atrium Ballroom C.

Forensic anthropology is a diverse scientific discipline initially derived from physical anthropology. Modern forensic anthropology necessitates a more holistic anthropological approach often utilizing aspects of cultural anthropology, archaeology, physical anthropology, and human biology within a medicolegal context. Though drawing on the theoretical basis of many anthropological disciplines, forensic anthropology is frequently disregarded in the field due to its applied nature. The goal of this symposium is two-fold: (1) to increase the visibility of the theoretical and scientific nature of forensic anthropology within the larger anthropological community and (2) to encourage collaboration among professionals utilizing physical anthropology principles within the context of forensic anthropology. Presentations focus on hypothesis-driven, original research augmented with case study examples demonstrating how forensic anthropologists routinely rely on a thorough understanding of human evolution, variation, biology, physiology, and functional morphology when interpreting unknown skeletal remains and archaeological and taphonomic

principles when responding to a scene. Emphasis will be placed on the scientific theories that permit the application of various skeletal methods in a medicolegal setting and the underlying nature of their derived analytical conclusions. Research topics include biological profile estimation, skeletal health and pathology, secular variation, skeletal trauma, and taphonomic site reconstruction. These topics will not only be addressed at the macroscopic, skeletal level but will also through histological, isotopic, and genetic analyses.

7:45 – 8:00 Poster set-up/ 11:45 – 12:00 Poster take down.

Even numbered poster authors present 9:30 – 10:00; odd numbered poster authors present 10:30 – 11:00

11:00 Discussion: Susan Anton.

- 1 **Are we using the appropriate reference samples to develop juvenile age estimation methods for a forensic context in developed nations?** L. SPAKE, H.F. CARDOSO.
- 2 **To Lump or to Split: Age Estimation in Forensic Anthropology.** N.R. LANGLEY, B. DUDZIK.
- 3 **Estimating Age from Adult Skeletons: New Directions in Transition Analysis Using a Wide Array of Traits.** G.R. MILNER, J.L. BOLDSSEN, S.D. OUSLEY, S.M. GETZ, S. WEISE, P. TARP.
- 4 **The mental eminence as a marker of sexual dimorphism in dentate and edentulous individuals: An analysis using geometric morphometry.** B. DUDZIK, H. MAIJANEN, K. HAUTHER.
- 5 **Molar Morphometric Variation Within Modern U.S. Populations.** M.W. KENYHERCZ.
- 6 **A geometric morphometric comparison of within-individual levels of pelvic and cranial sexual dimorphism.** K.C. BEST, L.L. CABO, H.M. GARVIN.
- 7 **Worldwide population variation in pelvic sexual dimorphism.** A.R. KLALES, M.W. KENYHERCZ, K.E. STULL, K.A. MCCORMICK, S.J. CALL.
- 8 **Evaluating the use of long bone segments to estimate bone lengths for stature estimation.** M.E. CHAPIN, L.L. CABO, H.M. GARVIN.
- 9 **Contextualizing body size assessments in the genus *Homo*.** C.W. RAINWATER, N.M. UHL.
- 10 **Using Non-metric Traits to Estimate Ancestry in the 21st Century.** M. SPRADLEY, J.T. HEFNER.
- 11 **Biological health as a possible factor in the estimation of biological parameters from the human skeleton.** N.V. PASSALACQUA, N. MARQUEZ-GRANT, V. RICHARDS, J. TRUESDELL.
- 12 **The foundational principles of human biological variation in forensic DNA comparisons.** K.E. LATHAM, J. MAIERS.
- 13 ***A priori* postulates, immanent properties, diluted inferential confidence and unexplainable residues: a consideration of the scientific basis of taphonomic theory.** M.O. BEARY.
- 14 **Forensic Taphonomy: Research Wanted!** D.C. DIRKMAAT, L.L. CABO.

Saturday, All day sessions.

Session **Human Variation: Diet, Disease and Morphology**
46 **Contributed Poster Presentations.** Chair: Richard J. Sherwood.
Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Meat or potatoes?: Re-evaluating the role of plant foods in human evolution.** C. LEONARD, S. ADOLPH, A. HENRY.
- 2 **The impact of food insecurity and food-based coping on serum folate status: A case study among breastfeeding Ariaal women in northern Kenya.** A. APLAND, M. FUJITA, T. CHANG.
- 3 **Modeling the impact of coping through animal milk rationing on dietary quality of Ariaal agro-pastoral mothers facing food insecurity and poverty in drought-prone northern Kenya.** M. FUJITA, A. APLAND, T. CHANG.
- 4 **Supermarket Produce Nutritional Properties across Socioeconomic Areas and Seasons.** I.M. VINSONHALER, A. COWPER, J. LEICHLITER, O. PAINE, M. SPONHEIMER.
- 5 **Food Preferences and Social Change in Highland New Guinea: Biological and Cultural Implications.** A.D. SOMERVILLE, M. MARTIN, M.J. SCHOENINGER.
- 6 **Eating oneself? Stable isotopic enrichment during weight loss and tissue turnover in humans.** J.A. CANTERBURY, C.W. BECK, C.A. DOZIER, M.L. GREENFELDER, J. MAGARO, A. MENDHA, A. PEROTTI, C.W. RIGGS, A. TAYLOR, L.E. WRIGHT.
- 7 **Lipid metabolism and nutritive factors of the gut microbiota in human foragers.** S.L. SCHNORR, A.G. HENRY, A.N. CRITTENDEN.
- 8 **Basal Metabolic Rates among Rural Agriculturalists of Ngilo Ilo, East Java.** A.A. MILLER, E. INDRIATI, W.R. LEONARD.

- 9 **Comparative study of metabolic disease risk factors during nutritional transitions among traditional populations.** K. ARSLANIAN, C. VALEGGIA.
- 10 **Effects of Human Maternal Placentophagy on Postpartum Iron-Status.** L.K. GRYDER, S.M. YOUNG, D. ZAVA, D. KIMBALL, D.C. BENYSHEK.
- 11 **Experimental Coevolution with Bacteria and Phage Provide Insights into Human-Pathogen Coevolutionary Dynamics.** L.R. WILLIAMS, R.S. SCOTT, S. DUFFY.
- 12 **Hair cortisol levels in prehispanic populations of San Pedro de Atacama, northern Chile.** R. LÓPEZ-BARRALES, M. HUBBE, E. ASPILLAGA, H.M. NIEMEYER.
- 13 **Factors associated with generalised and abdominal obesity among Bangladeshi migrants in UK.** N. AKHTER, P. NAHAR, K. BEGUM, G.D. COOPER, A. KASIM, G.R. BENTLEY.
- 14 **Vitamin D Intake and Serum Leptin Levels in Central Kansas Mennonite: The Kansas Nutrition Project.** C.E. BARRETT, M. CRAWFORD, M. MOSHER.
- 15 **Leprosy and plague interaction in Medieval Europe: revisiting the paradoxical cross-immunity hypothesis.** C.L. DENNISON, F.A. CRESPO.
- 16 **Chronic Non-Communicable Diseases among Urban and Rural Deorukhe Brahmin Women of Maharashtra, India: A Comparative Analysis.** G. PITALE, R. CORRUCINI, U. REICHARD, Y. NANYAM, P. VADDADI.
- 17 **Investigating musculoskeletal health and limb biomechanics in Mandena, Madagascar: A quantitative approach to understanding normal and pathological gait patterns.** T.P. TRENTADUE, C.L. NUNN, D. SCHMITT.
- 18 **The relationship between social status, body size, and salivary hormone levels among Garisakang forager-horticulturalist men of lowland Papua New Guinea.** S.S. URLACHER, M. KONEČNÁ.
- 19 **Bone mineral density is associated with waist circumference and blood pressure but not lipid profile among the Amazonian Shuar of 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.
- 20 **The Effect of Trisomy 21 on Facial Morphology and Variation.** J.M. STARBUCK, T.M. COLE III, R.H. REEVES, J.T. RICHTSMEIER.
- 21 **A comparative analysis of evolutionary changes in human physiological traits.** A.Q. VINING, C.L. NUNN.
- 22 **Analysis of Humeral Trochlear Angles As Possible Biological Sex Characteristic.** A.M. PENNAVARIA, G. THOMAS.
- 23 **Post-Marital Residence and Patterns of Cranial Morphological Diversity.** O. CHERONET, R. PINHASI.
- 24 **Quantifying Phenotypic Differences in Human Scalp Hair Morphology Associated with Ancestry and Sex.** E. BRAMEL, S. KOCH, N. JABLONSKI, M.D. SHRIVER.
- 25 **Geographic and temporal variation in morphological sexing traits of the pelvis.** S.R. RENNIE, M. CLEGG, S. GONZALEZ.
- 26 **Secular Change in Pelvic Morphological Age Indicators.** D.V. CHAPMAN, A.M. SHADE, S.D. OUSLEY.
- 27 **Geometric morphometrics of sexual dimorphism and pulmonary kinematics in *Homo sapiens*.** S. TORRES-TAMAYO, D. GARCÍA-MARTÍNEZ, C. UTRILLA, I. TORRES, F. GARCÍA-RÍO, M. BASTIR.
- 28 **The differential role of cranial modules in the diversification of the human skull.** D.V. BERNARDO, T.F. ALMEIDA, C.D. SILVA, W.A. NEVES.
- 29 **The Jiri Dental Study: Uncovering Genetic Influences on Orofacial Morphology.** R.J. SHERWOOD, D.L. DUREN, J. SUBEDI, S. WILLIAMS-BLANGERO.
- 30 **Intrapopulation Variation in Craniometric Ancestry Proportions of a Modern Cuban Sample.** M.L. TISE.
- 31 **Reconstruction of Cranial Surfaces from 3D Point Data.** B.J. POMIDOR, D.E. SLICE, B.D. CORNER, J.A. HUDSON.
- 32 **Cranial Bone Mineral Density as a Possible Age Indicator.** A.K. PASCHALL, A.H. ROSS.
- 33 **Scapula morphology variation at Point Hope, Alaska.** A.M. SHARPLIN, W.E. HARCOURT-SMITH, M.E. MACIAS.
- 34 **The influence of speed and foot shape on lateral midfoot loading in an ontogenetic and adult human sample.** A.N. HEARD-BOOTH, R.E. WUNDERLICH.
- 35 **Subadult Age-at-Death and Mortuary Practice during the Neolithic Transition at Niah Cave, Sarawak, Malaysia.** A. SCHRENK.
- 36 **Height trends in early childhood: Easter Island and Chile from a global perspective.** R. RETAMAL, C. MASCIE-TAYLOR.
- 37 **Visualization and Materialization for High-dimensional Morphometric Data.** D.E. SLICE, B.J. POMIDOR, B.D. CORNER, F.J. ROHLF.
- 38 **Exploring the ultrastructure of human hair: Preliminary results and prospects for correlation with genetic variation.** S. KOCH, N. JABLONSKI, M.D. SHRIVER.
- 39 **Comparing narrow-band to full-spectrum based methods for measuring human skin pigmentation.** J.D. WHITE, R.T. LAI, A.A. ZAIDI, B.C. MATTERN, M.D. SHRIVER.
- 40 **Diurnal testosterone variation among indigenous Shuar men from Amazonian Ecuador.** T.E. GILDNER, M.A. LIEBERT, R.G. BRIBIESCAS, L.S. SUGIYAMA, S.S. URLACHER, T.J. CEPON-ROBINS, F.C. MADIMENOS, J. SNODGRASS.
- 41 **Validation of field methods for freezing whole blood for later analysis with flow cytometry.** A.D. BLACKWELL, A.

- GARCIA, N. KEIVANFAR, S. BAY.
- Session **Primate ecology and behaviour**
47 **Contributed Poster Presentations.** Chair: Timothy D. Smith.
Atrium Ballroom A/B.
7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45
- 1 **Baboons (*Papio anubis*) in Kibale National Park, Uganda, disperse seeds into diverse habitats: preliminary results from spatial analysis and seed fate experiments.** J. BONAVIA, C.A. JOHNSON, J.M. ROTHMAN, G. VAN DER HEIDE, J.E. LAMBERT.
 - 2 **How primates move seeds: movement ecology and dispersal kernels in a Cercopithecoid community.** G. VAN DER HEIDE, J. BONAVIA, J.E. LAMBERT.
 - 3 **A primate and a bird, sitting in a tree, c-o-m-p-e-t-i-n-g: Co-occurrence patterns of primates and their potential dietary competitors.** I.E. SMAIL, J.M. KAMILAR.
 - 4 **An organism-focused view of heterogeneity: the effect of landscape spatial pattern at multiple scales on the habitat use, behavior, and movement patterns of five diurnal lemurs in Betampona Natural Reserve, Madagascar.** E. MERTZ.
 - 5 **Nocturnal leopard (*Panthera pardus*) predation risk for olive baboons (*Papio anubis*) in Kenya.** L.R. BIDNER, L.A. ISBELL, A. MATSUMOTO-ODA.
 - 6 **Food patch characteristics and dynamics of patch use and sharing in two sympatric lemur species at Tsinjoarivo, Madagascar.** M.A. KEELEY, M.T. IRWIN, J. RAHARISON.
 - 7 **Determinants of terrestrial feeding in an arboreal primate: the case of *Hapalemur meridionalis*.** T.M. EPPLEY, G. DONATI, J.U. GANZHORN.
 - 8 **Dynamics of human-chimpanzee encounters at Fongoli, Senegal, 2006-2014.** K. BOYER ONTL, J.D. PRUETZ.
 - 9 **Dietary correlates of gut microbe composition in white-faced capuchins (*Cebus capucinus*).** E.K. MALLOTT, P.A. GARBER, R.S. MALHI.
 - 10 **Plastic digestive response to variation in dietary nutrient density and energetic status.** J.E. LAMBERT, J.M. ROTHMAN.
 - 11 **The effect of dental impairment on food digestion in wild ring-tailed lemurs (*Lemur catta*) using fecal nutritional content.** J.B. MILLETTE, M.L. SAUTHER, C.P. FRANK.
 - 12 **Dietary chemical and energetic values differ in *Lemur catta* sexes.** N. YAMASHITA, M. LAFLEUR, R. HOOD.
 - 13 **Nutritional composition of plant foods consumed by the chimpanzees of Gombe National Park, Tanzania.** R.C. O'MALLEY, C.M. MURRAY, R.S. NOCKERTS, M.L. POWER.
 - 14 **Relative tooth size at birth in primates: Life history and dietary correlates.** T.D. SMITH, M.N. MUCHLINSKI, C.J. BONAR, S. EVANS, L. WILLIAMS, C.J. VINYARD, V.B. DELEON.
 - 15 **Longitudinal body mass variation in wild primate populations: are individuals or populations more variable?** E.C. LAUB, G.S. YAPUNCICH, K.E. GLANDER, A.E. PUSEY.
 - 16 **Lemurs are not Special, but Aye-Ayes are: Primate Basal Metabolic Rates in Phylogenetic Context.** M. LAUTERBUR.
 - 17 **Dietary Survey of Captive Housed Chimpanzees (*Pan troglodytes* sp.).** B. SMITH.
 - 18 **Low Mortality Rates among Ngogo Chimpanzees: Ecological Influences and Evolutionary Implications.** B.M. WOOD, D.P. WATTS, J.C. MITANI, K.E. LANGERGRABER.
 - 19 **Somatic senescence in female chimpanzees (*Pan troglodytes*) occurs earlier and more rapidly than in women.** C.T. CLOUTIER, K. HAWKES.
 - 20 **Habitat quality and maternal rank predict intraspecific variation in development among olive baboons.** S.K. PATTERSON, E.K. ROBERTS, J.B. SILK, S.C. STRUM.
 - 21 **Comparative growth and static allometry in the genus *Chlorocebus*.** C.A. SCHMITT, T.R. TURNER, J. DANZY CRAMER, J. LORENZ, J. GROBLER, N.B. FREIMER.
 - 22 **Infant weight growth and weaning age in free-ranging rhesus macaques (*Macaca mulatta*).** D. LEE, C. DUBUC, T. MANDALAYWALA, D. MAESTRIPIERI, A. WIDDIG, J.P. HIGHAM.
 - 23 **Maternal body composition predicts prepubertal fat mass accrual in female offspring.** A. MUMMERT, K.F. ETHUN, M.E. WILSON, A. MUIR.
 - 24 **Energy expenditure and physical activity levels in captive tufted capuchins (*Cebus apella*).** W. EDWARDS, H. PONTZER, E. LONSDORF.
 - 25 **Low body temperature among primates and implications for energy expenditure.** C.M. MCCABE, R.W. WRANGHAM.
 - 26 **Effect of habitat type and sex on morphometrics and body mass of the silvery-brown tamarin (*Saguinus leucopus*).** L.M. VALENCIA, A. DI FIORE.
 - 27 **Life History Variation in Strepsirrhine Primates from the Duke Lemur Center.** J.K. SCHAFER.
 - 28 **Male reproductive skew in multimale social groups of Verreaux's sifaka (*Propithecus verreauxi*) at Kirindy Mitea**

- National Park, Madagascar. L. ABONDANO, A. DI FIORE, R. LEWIS.
- 29 **The Monkeybar Project: Population Density of Long-Tailed Macaques (*Macaca fascicularis*) in Two Different Forest Types in Kudat District, Sabah, Malaysia.** L. GILHOOLY, A. MCINTYRE, M. GRIGG, K. FORNACE, J. COX, C. DRAKELEY, M. SALGADO LYNN, D. STARK.
- 30 **Phenotypic and genetic ontogenetic integration of squirrel monkey (*Saimiri boliviensis*) age-specific body mass.** G.E. BLOMQUIST, L.E. WILLIAMS.
- 31 **Validation of Urine Test Strips to Measure Relative Ketone Body Levels in Wild Bornean Orangutans, *Pongo pygmaeus wurmbii*.** D.J. NAUMENKO, M. WATFORD, W.M. ERB, E.R. VOGEL.
- 32 **Heterochrony of nasal turbinal development in Primates.** M.C. MARTELL, T.D. SMITH, J.B. ROSSIE, V.B. DELEON.
- 33 **A preliminary examination of genetic diversity in mantled howler monkeys (*Alouatta palliata*) in a fragmented forest in Costa Rica.** A.L. SCHREIER, M. FRANCO, M. BARTON, N.P. PRYOR, N.L. BARRICKMAN.
- 34 **Detection of *Entamoeba* spp. and *Entamoeba histolytica* in seven lemur species in Ranomafana, Madagascar.** L. RAGAZZO, S. ZOHDY, P.C. WRIGHT, T.R. GILLESPIE.
- 35 **Three-dimensional photogrammetry of wild primates.** J.T. KERBY, V.V. VENKATARAMAN, N. NGUYEN, P.J. FASHING.
- 36 **Have You Seen a Pet Lemur? Using Online Surveys for Data Collection.** M.S. SCHAEFER, K.E. REUTER.
- 37 **Acoustic monitoring: transforming primate conservation strategies in African tropical forest protected areas.** J.M. LINDER, C. ASTARAS, P.H. WREGE.
- 38 **Are Roads a Dispersal Barrier for *Microcebus*?** M.S. RAMSAY, A. RAZAFINDRAKOTO, S.M. LEHMAN.
- 39 **Predicting the climatic niche breadth of African catarrhines.** E.M. LOCKE, J.M. KAMILAR.
- 40 **Beauty, brains, and brawn: phylogenetic and ecological interpretations of new virtual endocasts of large-bodied subfossil lemurs.** K.L. ALLEN, T. CLARKE.

Session
48

Human Genetic Variation: Population Studies and Adaptation

Contributed Poster Presentations. Chair: Kara C. Hoover.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Human structural variants shared with Neandertal and Denisovan genomes.** Y. LIN, P. PAVLIDIS, E. KARAKOC, J. AJAY, O. GOKCUMEN.
- 2 **Neanderthal Introgression to Western Asian Human Populations.** R.O. TASKENT, D. XU, D. ALIOGLU, H.M. DONERTAS, E. FER, M. SOMEL, O. GOKCUMEN.
- 3 **Neanderthal ancestry in Yemeni populations.** D.N. VYAS, A. AL-MEERI, C.J. MULLIGAN.
- 4 **Ancient dental calculus as a reservoir of whole human mitogenomes.** A.T. OZGA, M. NIEVES COLÓN, T. HONAP, K. SANKARANARAYANAN, C. HOFMAN, G. MILNER, C. LEWIS, JR., A. STONE, C. WARINNER.
- 5 **Genetic diversity of Sanggan River Valley population provides evidence of Neolithic introgression from people of two farming centers in North China.** H. ZHOU, Y. ZHANG, J. LI.
- 6 **Ancient Mitochondrial Genome Reveals Trace of Prehistoric Migration in the East Pamir by Pastoralists.** Y. CUI, H. ZHOU, C. NING.
- 7 **The distribution of the C677T allele of the MTHFR human gene in Eurasia: evidence of two distinct clines.** K. TRAZMONTE, D. GODFREY, L. MADRIGAL.
- 8 **Building ancient noses: a functional approach to paleogenomic data.** K.C. HOOVER.
- 9 **No role for strong purifying selection on *MC1R* in populations from Northern Island Melanesia.** H.L. NORTON, E.A. WERREN, J.S. FRIEDLAENDER.
- 10 **Holocene Gene Flow Patterns between New Guinea and Australia.** S. RAGSDALE, H. MARSH.
- 11 **Simulating the effects of migration rates on Neolithic range expansion.** N.J. ANGAL, C.R. TILLQUIST.
- 12 **A search of human beta-globin polymorphisms in ancient DNA of European populations.** C. VIGANÒ, G. AKGÜL, F.J. RÜHLI, A. BOUWMAN.
- 13 **Tracing the geographic origin of the Indian Ocean slave trade: Genomic ancient DNA data from the historical cemetery of Le Morne (Mauritius).** R. FREGEL, M. SANDOVAL, M. SIKORA, M. AVILA, M. CARPENTER, D. POZNIK, C.R. GIGNOUX, K. SEETAH, S. CAVAL, D. CALAON, C. BUSTAMANTE.
- 14 **Migration Waves and Genetic Drift in the Peopling of Fuego-Patagonia.** M.P. ALFONSO-DURRUTY, M.G. VILAR, F. MORELLO.
- 15 **Sub-Regional Population Structure within South America Using MtDNA.** B.C. HERRERA, M. HUBBE.
- 16 **Genes determining Andean high-altitude adaptive phenotypes.** A.W. BIGHAM, M. KIYAMU, G. ELIAS, F. LEON-VALERDE, M. RIVERA-CHIRA, T.D. BRUTSAERT.
- 17 **Genomic identification of recent positive selection in populations from Andean highlands and south-central Chile.** P.S.

- CONTRERAS, A.E. BLANCO, A. MORENO-ESTRADA, K. SANDOVAL, C. ENG, S. HUNTSMAN, E.G. BURCHARD, C. GIGNOUX, C. BUSTAMANTE, E. LLOP, M. MORAGA, R. VERDUGO.
- 18 **Investigating patterns of admixture in rural Mesoamerica due to Spanish colonialism: genome-wide evidence from Xaltocan, Mexico.** J. MATA-MIGUEZ, A.T. MIRÓ-HERRANS, D.A. BOLNICK.
 - 19 **Investigating possible signals of natural selection due to historic epidemics in Mesoamerica using ancient DNA.** A.W. REYNOLDS, O.A. GARCIA, J. MATA-MÍGUEZ, A.W. BIGHAM, D.A. BOLNICK.
 - 20 **Genetic analysis of a British colonial cemetery in Belize.** L.C. SPRINGS, J.F. GARBER, D.A. BOLNICK.
 - 21 **The third root of Mexico: Genetic structure of Mexicans of African descent.** M.C. ÁVILA-ARCOS, A. MORENO-ESTRADA, K. SANDOVAL-MENDOZA, M.W. FELDMAN, C.D. BUSTAMANTE.
 - 22 **Basal pigmentation is a poor predictor of tanning response in Mexican Americans.** E.E. QUILLEN, J. TURNER, A. SHELDRAKE, M.D. SHRIVER.
 - 23 **Genetic diversity of A2 and C1 haplotypes in Puerto Rico: Implications for initial migration and settlement patterns of the Caribbean.** R.E. FLESKES, M.G. VILAR, C. MELENDEZ, T.G. SCHURR.
 - 24 **Examining Mitochondrial Haplotype Diversity in Ancient and Modern Indigenous Caribbean Populations.** F. SAAVEDRA, J.P. BENN TORRES.
 - 25 **Heritable traits and their impacts on child health in a Caribbean village.** M.H. AHSAN, M.V. FLINN, J.C. BAIN.
 - 26 **Ancient DNA Analysis of the Prehistoric Inhabitants of the Lower Pecos Region of Texas and Northern Mexico.** J.A. RAFF, J. MATA-MÍGUEZ, C.R. KU, D.A. BOLNICK.
 - 27 **Isotopic and Genetic Analyses of a Mass Grave in Central California: Implications for Precontact Hunter-Gatherer Warfare.** H. LI, J.W. EERKENS, R.S. MALHI.
 - 28 **Ancient DNA Analysis of San Nicolas Island, California.** A.B. POTTER, S. KERR.
 - 29 **Improved mitochondrial aDNA sequence quality and recovery rates using Next-Generation Sequencing (NGS): A case study using highly degraded material from Cahokia Mound 72.** J.L. HARRISON, F.A. KAESTLE.
 - 30 **Additional IGG haplotype data supporting two founding populations of Native Americans.** M.S. SCHANFIELD, B.J. ARAUJO JATOBA, B.C. DIAS DE OLIVEIRA, S. PACHECO ALBANO.
 - 31 **Serum leptin, anthropometric phenotypes and epigenetic programming across 7 Leptin (LEP) core promoter CpG sites in two diverse populations: The Western Buryat of Siberia and the Mennonites of Central Kansas.** M. MOSHER, P.E. MELTON, P. STAPLETON, M.H. CRAWFORD.
 - 32 **An Initial Investigation of the Biological Affinity of the Arikara and Caddo Using Dental Metrics.** K.E. KULHAVY.
 - 33 **Drift and selection in material culture on the High Plains: A quantitative analysis of inter-tribe parfleche characteristics.** S.J. LYCETT.
 - 34 **Exploring the limits of approximate Bayesian computation as a method for human demographic analysis.** F.A. VILLANEA.
 - 35 **Copying error, artifactual mutation, and phylogenetic signal in cultural evolution: Experimental approaches to “model artifacts”.** K. SCHILLINGER, A. MESOUDI, S.J. LYCETT.
 - 36 **Patterns of mutations in exome sequencing seen as an effect of sampled genes.** T.F. ALMEIDA, D.V. BERNARDO, M.S. PASSOS-BUENO.
 - 37 **Evolution of *MUC7*: Insights into human salivary adaptation.** D. XU, P. PAVLIDIS, C. FLANAGAN, S. THAMADILOK, E. REDWOOD, S. FOX, R. BLEKHMEN, S. RUHL, O. GOKCUMEN.
 - 38 **Optimisation of metagenomic next generation sequencing shotgun techniques for the study of ancient anthropogenic sediments.** T.C. COLLIN, R. PINHASI, R.N. FEENEY.
 - 39 **Phylogeographic signals in an immune gene family reflect linkage disequilibrium.** R.K. LEITER, C.R. TILLQUIST.
 - 40 **Genetic factors influencing the phenotypic variation leading to clinical complaints in sickle cell trait athletes.** C.M. BALENTINE, R.W. GRIEGER, J. LUND, M. CIAMBELLA, C. FLANSBURG, L. MADRIGAL, A.C. STONE.
 - 41 **Differences in DNA yield among buccal swab types: Medical-grade vs. standard cotton swabs.** C.A. RUIZ, M.E. CHANEY, A.J. TOSI.
 - 42 **Evaluating minimally invasive methods of telomere length measurement: A sub-study of the WHO Study on Global AGEing and Adult Health (SAGE).** E.A. GOLDMAN, G. EICK, D. COMPTON, P. KOWAL, J. SNODGRASS, D.T. EISENBERG, K.N. STERNER.
 - 43 **Simplified access to human genomic evidence for clinical variants with new NCBI services.** S. SHERRY, C. XIAO, D. SLOTTA, K. RODARMER, M. FEOLLO, M. KIMELMAN, G. GODYNSKIY, C. O'SULLIVAN, E. YASCHENKO.
 - 44 **Association of *ACE*, *TPA*, and *WNK1* *Alu* polymorphisms, perceptions of unfair treatment, and personal networks with hypertension in African Americans.** K.C. FULLER, C. MCCARTY, R. VACCA, C.C. GRAVLEE, A.C. BOULTER, C.J. MULLIGAN.

Session
49

Dental Anthropology

Contributed Poster Presentations. Chair: Christopher W. Schmidt.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 Enamel defects in *Paranthropus robustus* relative to other South African hominins. I.E. TOWLE, J.D. IRISH, I. DE GROOTE.
- 2 Elliptical best fits as shape descriptors: a case study on Neanderthal and modern human teeth. C.C. BAUER, P.D. BONIS, S. BENAZZI, K. HARVATI.
- 3 Dental microwear texture differences between permanent and deciduous enamel. K.L. KRUEGER.
- 4 Putting the X in Expression: Tooth Crown Morphology and Chromosome Number. C. MAIER, J. DUMANČIĆ, H. BRKIĆ, Z. KAIC, G. SCOTT.
- 5 Seeing RED: A new statistical solution to an old categorical data problem. C. WILLERMET, J. DANIELS, H.J. EDGAR.
- 6 Measurement Strategies in Dental Metrics: Caliper Measurements versus Computer Measurements Taken from Photographic Images. J.D. SYKES.
- 7 Covariation and modularity in the human dentition. A. NESBITT.
- 8 Investigating the Effects of Dental Wear on the Scoring of Morphological Traits. D.E. EHRLICH, S.E. BAILEY.
- 9 Energetic costs of eating raw foods in humans. J.B. HANNA, C.E. WALL.
- 10 Experiencing Childhood at Roonka: An Analysis of Enamel Hypoplasia in the Permanent Dentition of Australian Aboriginal Hunter-Gatherers. C.B. SMITH, J. LITTLETON.
- 11 Environment, culture and society as reflected in the dental wear and pathology of the inhabitants of the 4th cataract, Sudan. R. WHITING, S. HILLSON, D. ANTOINE.
- 12 Dietary Nuances of Late Prehistoric Agriculturists Determined Via Dental Microwear Texture Analysis. C.W. SCHMIDT, A.J. REMY.
- 13 Tooth Tales from Lima: Dental Health and Socio-Political Change Along the Pre-Columbian Central Coast of Peru. J. DEFRANCQ, K. GERDAU RADONIC.
- 14 An assessment of correlation between linear enamel hypoplasias and Wilson bands in a cemetery from the Bronze Age Levant. T.V. WILSON.
- 15 Ancient Celts: Myth, invention or reality? Dental affinities between continental and non-continental Celtic groups. M.J. FISHER.
- 16 Diet and Weaning in Late Iron Age Dorset. M.A. CLARK, J. BEAUMONT, R. REDFERN.
- 17 On the cusp of a great discovery: Dental morphology in medieval England. J.H. KUOSA, J.D. IRISH, I. DE GROOTE.
- 18 Biological affinities of Manasota Period populations in Southwestern Florida as derived from dental nonmetric traits. A.A. ELGART.
- 19 Co-occurring extreme torus mandibularis, palatine torus, and oral exostoses: a case study. L.R. LEASE, C. BOUCHIE, J.S. OHR, JR..
- 20 Evidence for intense migration influx into the Greek colony of Metaponto: A study of dental nonmetric variation. H. RATHMANN, G. SALTINI SEMERARI, K. HARVATI.
- 21 Concerning Dental Wear: an examination of macro-wear in the Erie County Poorhouse Cemetery (1851-1913). K.C. KNOWLES, J.E. SIRIANNI.
- 22 Dental characteristics of clinically diagnosed cases of congenital syphilis in the United States of America prior to 1910. S. IOANNOU, M. HENNEBERG.
- 23 The reconstruction and analysis of oral microbiome composition using dental calculus from the Mississippi State Asylum (1855-1935), Jackson, MS. J.R. BELANICH, M.K. ZUCKERMAN, H.R. JORDAN, N.P. HERRMANN, J.W. ROSCH.

Session
50

Genetics of Non-human primates

Contributed Poster Presentations. Chair: Lisa Nevell.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 A simple, economical protocol for DNA extraction and amplification where there is no lab. E.E. GUEVARA, J. RANAIVONASY, A.F. RICHARD, J. RATSIRARSON, R.R. LAWLER, B.J. BRADLEY.
- 2 Glucocorticoid mediated responses to calorie restriction, sleep deprivation and wheel running in the mouse brain and its evolution among placental mammals. L. NEVELL.
- 3 Parentage complexity in socially monogamous wild lemurs (*Eulemur rubriventer*). D.C. FRANKEL, R.L. JACOBS, R.J. RICE, B.J. BRADLEY.
- 4 Phylogenetic history of tarsiers: Uncovering the history of a deeply rooted family. R.A. MUNDS, M.H. AHSAN.
- 5 A comparative study of human and howler monkey Toll-Like Receptor 7 under the selective pressure of yellow fever virus. N. TOROSIN, K. FISCHER, J. ROUND, L.A. KNAPP.
- 6 Mitochondrial relationships of red colobus monkeys from the TL2 region (Tshuapa, Lomami, Lualaba River Basins), Democratic Republic of Congo, relative to other central African populations. M.E. CHANEY, C.A. RUIZ, J.A. HART, K.M. DETWILER, A.J. TOSI.

- 7 **Associations between skeletal DNA methylation and baboon femur morphology.** G.A. HOUSMAN, L.M. HAVILL, E. QUILLEN, A.C. STONE.
- 8 **Spatial analysis of mitochondrial genetic diversity across the genus *Pan*.** M.A. NIEVES-COLON, C.E. TILL, A.C. STONE.
- 9 **A genetic survey of the bonobos (*Pan paniscus*) at the Iyema field site, DRC.** C.M. BRAND, F.J. WHITE, M. RUIZ-LOPEZ, M.T. WALLER, M.L. WAKEFIELD, N. TING.
- 10 **Genetic evidence for the prehistoric expansion of *Enterobius vermicularis* parasites and their human hosts in the greater American Southwest.** A. ROLLINS, F. KAESTLE, K. REINHARD.

Session
51

Human Biology: Demography

Contributed Poster Presentations. Chair: Luseadra McKerracher.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **Human males have low reproductive skew compared to other mammals: An analysis of new data from small-scale human societies.** P.L. HOOPER, C. ROSS, S. GAVRILETS, M. BORGERHOFF MULDER.
- 2 **Historical Demography of Todos Santos, California Baja Sur, Mexico: population growth and environmental constraints.** J.L. BURNS, S. MACFARLAN.
- 3 **Reproductive history of three generations of women from the municipality Plaza de la Revolución, Havana, Cuba.** V. VAZQUEZ, A. DAUDINOT, J. GONZALEZ.
- 4 **Breastfeeding and ovulatory status affect $\delta^{15}\text{N}$ values: Evidence from living Maya women from Guatemala.** L.J. MCKERRACHER, M. COLLARD, P. NEPOMNASCHY, M.P. RICHARDS.
- 5 **Differences in circadian electrolyte excretion between women with and without a family history of hypertension: reproducibility over the menstrual cycle.** G.D. JAMES.
- 6 **Pellagra in the Mississippi State Asylum: An examination of differential survivorship.** M.L. DAVENPORT, N.P. HERRMANN, M.K. ZUCKERMAN, M. MURPHY.

Session
52

Education and Outreach

Contributed Poster Presentations. Chair: J. Lynn Funkhouser.

Atrium Ballroom A/B.

7:30 - 8:00 Poster set-up. 5:30 - 6:00 Poster take-down. Even numbered poster authors present for discussion 10:30-11:00 and 4:45-5:30- Odd numbered poster authors present for discussion 9:30-10:00 and 4:00-4:45

- 1 **The 'Paleo' diet in the United States: Why, how, and what now?** M. PATIÑO.
- 2 **The effect of context on visitor responses to the question "What does it mean to be human?"**. J.N. OBENDA, B. POBINER, R. POTTS.
- 3 **Classroom optional: Service learning and community engagement in anthropology.** C.A. BRADBURY, S.H. BLATT, P. YU.
- 4 **The need for revising and modernizing postcranial measurement definitions: New standards.** K.A. CARPENTER, S.D. OUSLEY, N.R. LANGLEY.
- 5 **Open access to Fayum primate fossils through the digital data archive MorphoSource.** E.R. SEIFFERT, G.F. GUNNELL, S.W. HERITAGE, H.M. SALLAM, D.M. BOYER.
- 6 **Forensics in the Classroom: Anthropology as a Tool in K-12 Education.** A. CASADO, M. CLARK.
- 7 **Digitizing "Roger": Creating a Recommended Osteology Guide for eReaders [ROGeR].** M.E. ZECHINI, M.R. VOAS, J.E. HOLMSTROM, K. KILLGROVE.
- 8 **The Forensic Anthropology Center at Texas State and Associated Texas State University Donated Skeletal Collection.** S.R. MAVROUDAS.
- 9 **GriffinVC: Video Coding Software for Microanalysis of Complex Behavior.** S.V. SINGH, S. RAGIR.
- 10 **Anthropology is Elemental: Observations from the first four years of an outreach initiative.** J. FUNKHOUSER, M. CARR, J. FRIEL, C. LYNN.
- 11 **Flipping Anthropology: an assessment of student knowledge and evaluation in a flipped introductory anthropology course.** J. WIECZKOWSKI, L. ANSELM, S.E. MAGUIRE, M.M. MAYBERRY.
- 12 **The Mesoamerican Corpus of Formative Period Art and Writing.** C.J. BERKLEY, M.D. CARRASCO, J. ENGLEHARDT, D.E. SLICE.

Saturday, Afternoon sessions.

Session
53

Early-life stress in the past: bioarchaeological approaches to the evolution, ecology, and cultural contingencies of human life history

Invited Podium Symposium. Chair: Daniel H. Temple.

Imperial Ballroom A.

The human dentition and skeleton are two of the most data-rich sources for evaluating individual life histories. Specifically, mineralized hard tissues detail evidence of stressors experienced early in the life course and the consequences of these experiences on future developmental pathways. The goal of this symposium is to unlock the potential of the human skeleton and dentition to elucidate early-life stress events and to evaluate how these experiences place physiological constraints on energetic investments in future growth, maintenance, and reproduction. Here, plasticity is found in the human capacity to survive stressful events early in life, and these events are recorded on bones and teeth. Skeletal and dental evidence for physiological constraints are also possible to observe, particularly disease, growth faltering, and mortality. Together, these represent a broader series of trade-offs where the human body may survive early-life stress events, but reduces energetic investments into future physiological functions. Because bioarchaeological research examines the human skeleton within the broader context of culture, many of these presentations will also provide evidence for the cultural and environmental contingencies acting to ameliorate or exacerbate the impact of early-life stress on individual life histories.

- 2:00 **Bioarchaeological approaches to the study of early-life stress: the potential of human skeletal and dental remains to studies of life history theory.** D.H. TEMPLE.
- 2:15 **The effect of multiple stress events on risk of mortality during the medieval Black Death.** S.N. DEWITTE.
- 2:30 **A stressful legacy: Childhood stress and longevity.** G. MCFARLANE, J.H. LITTLETON.
- 2:45 **Developmental variation in perikymata expression in co-interred child foragers.** L. HARRINGTON, S. PFEIFFER.
- 3:00 **Short bones, short life: Subadult selective mortality in Tirup Cemetery.** B.M. USHER.
- 3:15 **Stressful childhoods, (un)healed lesions, and lifelong impacts: A view of life history and frailty in West-Central Illinois.** J.J. WILSON, J.M. BAUDER.
- 3:30 **Growth disruption and adult mortality: the deferred consequences of early-life stress in industrializing London.** G.M. HUGHES-MOREY.
- 3:45 **Ill-health or the burial environment: differentiating developmental defects from postmortem stained enamel in deciduous dentition, prehistoric Tonga, Polynesia.** S.E. HALCROW, R.A. FARAH, L. PAINUTHARA, J.M. BROADBENT, H.R. BUCKLEY, A. BARKER.
- 4:00 **Famine, feast, and frailty: early-life histories from dentine.** J. BEAUMONT, J. MONTGOMERY.
- 4:15 **Exploring stress thresholds through dental enamel defects and skeletal evidence for life history trade-offs in adults.** J.A. GAMBLE.
- 4:30 **An examination of early stress, longevity, growth and childhood socioeconomic circumstances in a modern juvenile skeletal sample from Portugal.** H. CARDOSO.
- 4:45 **Discussion: Sabrina Agarwal.**
- 5:00 **Break.**

Session **Genetics and Evolution: Non-human Primates**
 54 **Contributed Podium Presentations.** Chair: Joseph Orkin.
A 602.

- 2:00 **Building heads: Morphological and genetic variation in facial length, cranial base angle, and endocranial volume in baboons.** J.L. JOGANIC, K.E. WILLMORE, J.T. RICHTSMEIER, K.M. WEISS, L.A. COX, J.L. VANDEBERG, M.C. MAHANEY, J. ROGERS, J.M. CHEVERUD.
- 2:15 **The embryonic origins of primate encephalization: allometric and growth analyses.** A.C. HALLEY, T.W. DEACON.
- 2:30 **Tales from the teeth: Investigating the potential of dental microstructure for phylogeny reconstruction.** C. KUFELDT, W. DIRKS, B. WOOD.
- 2:45 **Big primate, small primate: possible evidence for convergent dwarfism within nocturnal galagids.** L. POZZI.
- 3:00 **Genetic variability of two colobine primates in Vietnam.** A. ANG, Q. LE KHAC, B. LUU TUONG, B. TRAN VAN, L. VU, R. MEIER, D. HOANG MINH, H. COVERT. *Withdrawn*
- 3:15 **Longitudinal Variation in the Gut Microbiota of Free-ranging Capuchin Monkeys (*Cebus capucinus*).** J.D. ORKIN, A.D. MELIN.
- 3:30 **Comparison of the vaginal, fecal, and rectal microbiome in captive Pigtailed Macaques (*Macaca nemestrina*).** N.D. NGUYEN, S. YILDIRIM, A.J. RIVERA, Y.C. SWEENEY, D.L. PATTON, B.A. WILSON, R.M. STUMPF.
- 3:45 **Dietary adaptations in digestive enzymes of New World primates.** M.C. JANIAK.
- 4:00 **Disease-associated genetic variation drives differential expression of *MHC-DQA1* in vitro: A role for cis-regulatory variation in disease susceptibility in wild primates.** N.D. SIMONS, G.N. EICK, M.J. RUIZ-LOPEZ, C.A. CHAPMAN, T.L. GOLDBERG, N. TING, K.N. STERNER.
- 4:15 **Genetic analyses of pre- and post-contact North American *Mycobacterium tuberculosis* complex strains.** T.P. HONAP, Å. VÅGENE, A. HERBIG, M.S. ROSENBERG, J.E. BUIKSTRA, K.I. BOS, J. KRAUSE, A.C. STONE.
- 4:30 **Ring-tailed lemurs use olfactory signals to differentiate the MHC quality of potential mates.** K.E. GROGAN, M. BOULET, C.M. DREA.

4:45 **Accelerated evolution of marmoset genes implicate potential candidates for reproductive suppression.** M.J. MONTAGUE, W.C. WARREN.

5:00 **Break**

Session **Primateology: Life History**

55 **Contributed Podium Presentations.** Chair: Julienne Rutherford.
A 703/704.

2:00 **Hormonal Correlates of Sexual Swellings During Pregnancy in Wild Chimpanzees (*Pan troglodytes schweinfurthii*) of Kanyawara and Gombe.** E.E. BOEHM, A.E. PUSEY, Z. MACHANDA, M. MULLER, E. OTALI, R. WRANGHAM, M. EMERY THOMPSON.

2:15 **New data on female maturation milestones indicate longer development in wild chimpanzees.** K.K. WALKER, J. GOODALL, A.E. PUSEY.

2:30 **Testosterone, musculature, and development in Kanyawara chimpanzees and Tsimane forager-horticulturalists.** M.N. MULLER, M. EMERY THOMPSON, B.A. BEHEIM, D.K. ENIGK, M. GURVEN, K. SABBI, B.C. TRUMBLE, R.W. WRANGHAM, H.S. KAPLAN.

2:45 **Expensive tissues and gestation length in primates.** C.S. MONGLE, A. KOENIG, J.B. SMAERS, C. BORRIES.

3:00 **Fecal stable isotopes ($\delta^{13}\text{C}:\delta^{15}\text{N}$, %N) used to track infant nutritional development and reveal average weaning age in wild chimpanzees.** I. BADESCU, M.A. KATZENBERG, D.P. WATTS, D.W. SELLEN.

3:15 **Offspring survivorship in wild geladas (*Theropithecus gelada*).** A. LU, T.J. BERGMAN, J.C. BEEHNER.

3:30 **In the Thick of Things: Menstrual Bleeding Reflects Placental Development in Non-Human Primates.** E. ROWE.

3:45 **Metabolic hormone dynamics across marmoset monkey pregnancy: sources of variation and implications for birth outcomes.** J. RUTHERFORD, S. TARDIF, C. ROSS, A. SILLS, D. LAYNE COLON, L. RIESCHE, T. ZIEGLER.

4:00 **Comparison of maternal investment in two troops of wild olive baboons (*P. anubis*) at ecologically different sites in the Laikipia Plateau, Kenya.** C.A. MOST, S.C. STRUM.

4:15 **Development of female-dominance in lemurs coincides with androgenic development.** S.L. MEREDITH, M. O'MARA.

4:30 **Evidence that male face shape in rhesus macaques (*Macaca mulatta*) is subject to inter-sexual selection.** K.A. ROSENFELD, C. DUBUC, A.V. GEORGIEV, D. MAESTRIPIERI, S. SEMPLE.

4:45 **Cease and De-Cyst: Female geladas are more likely than males to fight off cyst-inducing tapeworms.** I.A. SCHNEIDER-CREASE, J.C. NOH, T.J. BERGMAN, J.C. BEEHNER.

5:00 **Break.**

Session **Paleoanthropology: Late Homo**

56 **Contributed Podium Presentations.** Chair: Juliet K. Brophy.
A 706/707.

2:00 **Niche expansion and the process of becoming human: using the Extended Evolutionary Synthesis to model the origins of modern human behavior.** M. KISSEL, A. FUENTES.

2:15 **Energetics and Economics of Foraging in Humans and other Apes.** H. PONTZER, D.A. RAICHLIN, J.A. HARRIS, B.M. WOOD.

2:30 **Seasonal foraging in Early Pleistocene Olduvai Gorge, Tanzania.** A.N. GURTOV.

2:45 **Analyses of Morphological Variation among Hominin Proximal Femora.** L.H. EASON.

3:00 **How Linguistic Instruction Reorganizes the Neural Networks Involved in Stone Tool Knapping.** S.S. PUTT, S. WIJEAKUMAR, R.G. FRANCISCUS, J.P. SPENCER.

3:15 **Lineage-specific patterns of brain expansion and dental reduction in hominins.** A. GÓMEZ-ROBLES, J.B. SMAERS, P. POLLY, B. WOOD.

3:30 **Cranial dimensions as predictors of phenotypic integration in the primate basicranium: implications for hominin evolution.** C.I. VILLAMIL.

3:45 **Diploic vessels and computed tomography: segmentation and comparison in modern humans and fossil hominids.** G. RANGEL DE LÁZARO, J. DE LA CUÉTARA, H. PÍŠOVÁ, C. LORENZO, E. BRUNER.

4:00 ***Homo erectus* paleoecology and behavior based on 1.5 million year old footprints from northwestern Kenya.** N.T. ROACH, K.G. HATALA, K.R. OSTROFSKY, B. VILLMOARE, J.S. REEVES, A. DU, D.R. BRAUN, J.W. HARRIS, A.K. BEHRENSMEYER, B.G. RICHMOND.

4:15 **A morphometric examination of *Homo naledi* teeth from Dinaledi Chamber, Rising Star cave system, South Africa.** J.K. BROPHY, L.K. DELEZENE, A.N. GURTOV, J. HAWKS, J.D. IRISH, D.J. DE RUITER.

4:30 **"By the skin of their teeth": Instrumental striations on Neandertal and early modern human anterior teeth challenge the assertion of differential visuospatial integration and extended cognition.** J.C. WILLMAN.

4:45 **Dental development and life history in *Homo naledi*.** Z. COFRAN, M.M. SKINNER, C.S. WALKER.

5:00 **Break.**

Session **Human Biology and Skeletal Studies**

57 **Contributed Podium Presentations.** Chair: Chelsey A. Juarez.
Atrium Ballroom C.

- 2:00 **Energetics and Muscle Use of Human Climbing.** E.E. KOZMA, D.A. RAICHLEN, B.M. WOOD, H. PONTZER.
- 2:15 **Investigating variation in age at menarche: relationships between gene methylation and reproductive traits in rural Polish women.** M.P. ROGERS, K.M. LEE, A. GALBARCZYK, G. JASIENSKA, R.S. MALHI, K.B. CLANCY.
- 2:30 **Cyclical Nursing Patterns in Wild Orangutans Recorded in Teeth.** T.M. SMITH, C. AUSTIN, K. HINDE, M. ARORA.
- 2:45 **Human pelvis shape, stature, and head size covary in a way that alleviates the obstetric dilemma.** B. FISCHER, P. MITTEROECKER.
- 3:00 **Analyzing the biological relatedness of individuals from a late 1800s Missouri cemetery.** C.E. SKIPPER, D.J. WESCOTT.
- 3:15 **Identifying Region of origin in a 18th Century Charleston Slave Cemetery.** C.A. JUAREZ, S. ABEL.
- 3:30 **Regional and extra-regional dental affinities of populations between the Late Neolithic and Copper Age in the Portuguese Estremadura.** K.T. LILLIOS, J.D. IRISH, A.J. WATERMAN, A.M. SILVA.
- 3:45 **Comparing Methodologies for Documenting Commingled and Fragmentary Human Remains.** E. SUSSMAN, M. PERRY.

Session **Injury Recidivism and Violence: Perspectives from Bioarchaeology and Forensic Anthropology**

58 **Invited Poster Symposium.** Chair: Caryn E. Tegtmeier.
Co-organizers: Debra Martin.
A 701.

The idea of injury recidivism has been a part of the forensic, clinical and medical literature for some time as have the concerns surrounding it. The goals of this session are to examine a wide range of case studies where injury recidivism has been interpreted to be part of a cultural pattern of violence targeting specific individuals or subgroups. For example, we are interested in addressing the possible long term effects of blunt force trauma on the cranium and other areas of the body among at-risk subgroups. Injury recidivism is often defined as the reoccurrence or accumulation of injuries and trauma (and their sequelae) over time as a result of beatings, altercations or provocations. In the clinical literature, injury recidivism is sometimes correlated with mild to moderate traumatic brain injury (TBI) which initially results from blunt force trauma to the head, leading to (often unrecognized) neurological and behavioral problems (short or longer term) with anger management and decision making. Consistently, worldwide studies have shown that individuals who are beaten early in life continue to sustain non-lethal injuries throughout their lifetime. In terms of overall health and well-being, nonlethal violence contributes to what epidemiologists call "allostatic load", referring to the accumulation of physiological stress and insults to the body over the course of a lifetime and can contribute to the overall deterioration of the body. Injury recidivism is particularly high in correctional facility populations, the homeless, victims of domestic abuse and minority populations. This session will help develop **methodological rigor and the application of standards** to the analysis of injury recidivism. Hopefully what will emerge is a "best practices" set of recommendations for how to identify, diagnose and predict for repeated trauma on skeletonized human remains and the ways that related (but often hidden) injuries can be better contextualized and understood.

Poster set-up 12:45 – 1:00; Poster take-down 4:45 – 5:00

Even numbered poster authors present 2:30 – 3:30; odd numbered poster authors present 3:30 – 4:30.

4:30 **Discussion: Debra Martin.**

- 1 **Just what the doctor ordered: Socioeconomic status and subsequent injury in Pre-Industrial and Industrial London.** D.A. BOYD, C.F. MILLIGAN.
- 2 **Witnessing Exploited Bodies: The Bioarchaeology of Violence Recidivism and Labor Abuse in 19th-Century Chinese America.** J.J. CRANDALL, R.P. HARROD.
- 3 **Patterns of trauma, recidivism, and violence in urban and institutionalized 19th-century-born African Americans and Euro-Americans.** C.M. DE LA COVA.
- 4 **Polytrauma or Injury Recidivism? A bioarchaeological analysis of individuals with multiple injuries.** R.P. HARROD, A.Y. WILLET, M.A. KINCAID, A.R. WOODS.
- 5 **Disability, disease, trauma, and stigma: did chronic infection with syphilis influence experiences of trauma and recidivistic trauma in post-medieval London?** M.K. ZUCKERMAN, M.L. DAVENPORT.
- 6 **Trauma Recidivists at Neolithic Catalhöyük (Turkey): Social Context and Implications.** C.J. KNÜSEL, B.A. GLENCROSS.
- 7 **Cranial Trauma and Victimization among Ancestral Pueblo Farmers of the Northern San Juan Region .** K.A. KUCKELMAN.
- 8 **A Life History of Skeletal Trauma: Cases from a Medical Examiner's Office.** J.C. LOVE, S.M. DERRICK.
- 9 **Injury recidivism and early mortality in the Danish West Indies: a case study from the Holy Trinity Lutheran Church.** S.A. MATHENA, M.K. ZUCKERMAN, V.R. PÉREZ.
- 10 **An Exploration of Skeletal Evidence of Injury Recidivism in Cases of Transients from Northern California.** J.R. PRINCE, H.L. MACINNES, C.F. MILLIGAN, E.J. BARTELINK.
- 11 **Do people with multiple injuries also have poor health?** R. REDFERN, S. DEWITTE, M. JUDD.

- 12 **Socializing Violence: Interpersonal Violence Recidivism at Abu Fatima (Sudan).** S. SCHRADER.
- 13 **Recidivism of Traumatic Injury in the Bass Donated Skeletal Collection.** D. STEADMAN, H. MAIJANEN.
- 14 **Patterns of Violent Crime and Injury Recidivism in Southern Nevada.** C.E. TEGTMEYER, D.L. MARTIN.

males to estimate paternity during periods of rank instability, but an effective cue during times of rank stability.

This research was funded by the Natural Sciences and Engineering Research Council of Canada, the American Society of Primatologists, the University of Calgary and the University of Oregon.

Fetal and infant health in prehistoric and colonial Ifugao

ALEXIS N. FRANCOIS¹ and ADAM LAUER².
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Infant death in prehistoric Ifugao villages has only been viewed through a lens of modern ethnography. Ifugao culture and subsistence practices in the Philippines Cordillera have been subject to periods of environmental change and two episodes of direct and indirect Western colonization. Recent excavations at the Old Kiyangan Village site have revealed new information on the resource base, trade networks and impact of outside groups on the prehistoric and early historic Ifugao. This work has produced a small sample (19) of sub-adult individuals. The age-at-death estimates for these individuals range from 26 weeks in utero to 1.5 years. Fetal and infant remains are subjected to either jar or open interment in a pattern that may reflect ritualized beliefs, health status or both. Skeletal lesions were recorded from five of the neonate and infant skeletons. Nutrition-related diseases are most likely the cause these lesions. One individual exhibits clear signs of infection in a femur. The location suggests this is likely due to a fall. New bone growth and the bowing of long bones are both most common in the tibia, humerus, and ulna. Fragmentation and poor preservation prevent the identification of porotic hyperostosis in the crania. This study establishes new information for Cordillera prehistoric and colonial period burial practices and fits into the larger Southeast Asian sample of high mortality in the late period of gestation and early infancy.

Parentage complexity in socially monogamous wild lemurs (*Eulemur rubriventer*)

DAVID C. FRANKEL¹, RACHEL L. JACOBS^{1,2,3,4}, RILEY J. RICE⁴ and BRENDA J. BRADLEY^{1,4}. ¹The Center for the Advanced Study of Human Paleobiology, Department of Anthropology, The George Washington University, ²Interdepartmental Doctoral Program in Anthropological Sciences, Stony Brook University, ³Centre ValBio Research Station, Madagascar, ⁴Department of Anthropology, Yale University.

Genetic analyses of parentage often reveal that socially monogamous species are not reproductively monogamous (i.e., offspring

result from extra-pair copulations). Thus, without genetic confirmation, pair-living species can be incorrectly or prematurely categorized as monogamous, which in turn can confuse behavioral studies and comparative analyses of social structure. Red-bellied lemurs (*Eulemur rubriventer*) live in groups generally comprising an adult male-female pair plus immatures. Adult males occasionally participate in infant care, and while mating behavior in this taxon is rarely observed, an earlier genetic analysis of parentage in a relatively small sample found no evidence of extra-pair matings (i.e., the resident pair could not be excluded as likely parents of immatures). Expanding on this, we combined behavioral observations of wild red-bellied lemurs in Ranomafana National Park with genetic parentage analysis of immatures from 10 groups ($N_{adults}=57$, $N_{immatures}=20$). Our panel of microsatellite loci has a low parentage non-exclusion probability ($p < 0.03$), and the majority of immatures ($N=16$) were likely offspring of the resident adult pair. However, the resident adult male was excluded as the likely father of four immatures ($N_{groups}=3$), although causes other than extra-pair copulations might explain these results. Moreover, both our genetic data and behavioral observations indicate that multiple females reproduced in at least two groups. These results suggest that social behavior in red-bellied lemurs may be more complex than previously thought, and multiple lines of evidence are important for inferring parent-offspring relationships within pair-living groups.

This research was funded by Yale University, Stony Brook University, The Wenner-Gren Foundation, The Leakey Foundation, National Science Foundation (DDIG BCS 1232535), and the RW Primate Fund.

Tracing the geographic origin of the Indian Ocean slave trade: Genomic ancient DNA data from the historical cemetery of Le Morne (Mauritius)

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During the period of slavery, millions of people were forcibly displaced from Africa. Recent studies have attempted to shed light on the origin of slaves, mostly on the trans-Atlantic trade. In contrast, the Indian Ocean slave trade has received much less attention. A clear example of the extensive manpower trade across the Indian Ocean is Mauritius, where at least 100,000 slaves were imported during colonial times. In this study, we used next-generation sequencing of ancient DNA to estimate the genome-wide ancestries of individuals sampled

in the historical cemetery of Le Morne ($n=26$), which is thought to contain the remains of runaway slaves.

Damage patterns and length distributions are consistent with ancient DNA molecules. Endogenous DNA accounted for 0.14–45.1% of the total. WISC capture allowed us to increase endogenous DNA content 4.5–27.6X, demonstrating the importance of capture methods for paleogenomics projects in tropical regions. MtDNA genome depth ranged from 29.3 to 228.0-fold. MtDNA lineages have a clear sub-Saharan African and Malagasy origin, although some South Asian types are also observed. Although the genome coverage was low, for 18 samples, at least 2,000 SNPs intersected with a reference panel. Principal component analysis and admixture estimates indicate that slaves from Le Morne came from mainland Africa and Madagascar, although European admixture and a South Asian component are also confirmed. Our results represent the first genomic project to recover data from African individuals involved in the Indian Ocean slave trade and provide insight into the complex demographic history of Mauritius.

This project has been funded by NSF award number 1201234 and by Fundación Canaria de Investigación Dr. Manuel Morales.

Ontogeny of modern human longitudinal body and transverse shoulder proportions: implications for the Upper Paleolithic Sunghir children

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Variation of modern human body size and shape has been widely studied in the context of ecogeographical clines. However the proportions of the adult human body derive from the differential growth of body segments and little is known on the relationship between the shoulder and longitudinal dimensions during ontogeny. The aim of this paper is to document the ontogenetic variation of the shoulder and longitudinal body (clavicular and long bone) proportions in recent humans in order to evaluate body proportions in the immature fossil record, and in particular in the Upper Paleolithic Sunghir children.

We studied postnatal ontogenetic development of the transverse and longitudinal proportions in cross-sectional ontogenetic samples of African, Amerindian and European human populations ($n=148$) and computed average population-specific ontogenetic trajectories from traditional growth curves, bivariate plots, and multidimensional phenotypic space. The Sunghir children and a sample of