



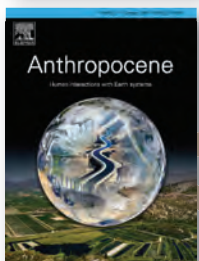
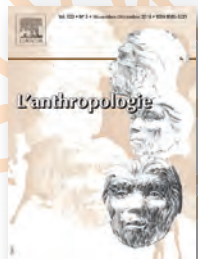
89th Annual Meeting
of the American Association of
Physical Anthropologists

April 15-18, 2020 • Los Angeles, CA

CONFERENCE PROGRAM



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PROGRAM OF THE
89TH ANNUAL MEETING
OF THE AMERICAN
ASSOCIATION OF PHYSICAL
ANTHROPOLOGISTS
APRIL 15-18, 2020

To be held at the

JW Marriott Los Angeles LA Live

900 West Olympic Boulevard • Los Angeles, CA 90015

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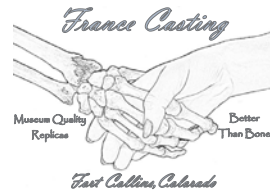
- AAAG** – American Association of Anthropological Genetics
- AAPA** – American Association of Physical Anthropologists
- AJHB** – *American Journal of Human Biology*
- AJPA** – *American Journal of Physical Anthropology*
- COD** – AAPA’s Committee on Diversity
- DAA** – Dental Anthropology Association
- HBA** – Human Biology Association
- JHE** – *Journal of Human Evolution*
- PAS** – Paleoanthropology Society
- PAWMN** – AAPA Physical Anthropology Women’s Mentoring Network
- PPA** – Paleopathology Association

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MESSAGE FROM THE AAPA PRESIDENT

Welcome to the 89th Annual Meeting of the American Association of Physical Anthropologists in Los Angeles, California! This year's meeting promises to be outstanding. Alongside the scientific program featuring over 1200 podium and poster presentations, running from Thursday morning, April 16th through Saturday afternoon, April 18th, there are 18 workshops offered this year (some scheduled for Wednesday April 15th), many AAPA Committee on Diversity (COD) initiatives, and a great line up of exhibitors. Once again, the AAPA will be sponsoring a booth featuring a professional photographer taking free headshots on Friday April 17th. Sign up at the booth in the morning and practice your smile. And, of course, remember to read each day's events in our meeting program so you don't miss a thing!

As most members are aware, two motions were presented at the Annual Business Meeting in 2019 to formally change the name of the American Association of Physical Anthropologists to the **American Association of Biological Anthropologists**. These motions will be voted upon for **final** approval at the 2020 Annual Business meeting on Friday April 17th from 6:30-8:30pm in the Platinum Ballroom. Since our Bylaws stipulate that regular members of the AAPA must be in attendance to cast their vote, I encourage everyone to attend this historic event!

Particularly important this year are initiatives that we are taking to recognize and end all forms of harassment and abuse in our field. Towards that end, we have implemented important measures.

- 1) We have strengthened our Code of Conduct to include actions that the AAPA will take in violation of the Code of Conduct, the AAPA Code of Ethics, and the AAPA Statement on Sexual and other Harassment.
- 2) We have a confidential reporting website in place, available 24/7: codeofconduct@burkinc.com. If you find yourself in a dangerous situation, do not hesitate to call 911. For support in other instances, call or text 703-592-9946 at any time during the meeting. This number reaches staff from Burk & Associates (our meeting management company), who are attending the conference.
- 3) There will be a Safe Space created behind the registration desk to welcome anyone who feels threatened, unsafe, or wishes to speak with a Safety Ally.
- 4) A new Harassment Report Committee has been formed whose task is to immediately respond to reports and assist the Executive Committee in taking subsequent actions.

MESSAGE FROM THE AAPA PRESIDENT

- 5) There will be approximately 30 individuals (including Executive Committee members, Burk and Associate personnel, and other AAPA members) trained as Safety Allies at the meeting (they will be identified by wearing a large green Safety Ally button). Each ally is there to assist anyone needing to discuss or report an incident and/or requiring a safe space.
- 6) We have invited Sherry Marts from S*Marts Consulting, LLC, a leader in working with organizations to create and maintain inclusive and safe professional environments, to train all Safety Allies to recognize and respond to harassment.
- 7) Lastly, the Presidential Panel this year, held on Thursday April 16th from noon to 2pm in Diamond 4-5, will be a plenary session featuring Sherry Marts who will be talking about Building Community: Recognizing and Resisting Harassment. I hope everyone can attend.

Organizing and running our association and annual meeting takes a herculean effort by an extraordinary number of people. Great thanks go to our Vice President, Steve Leigh for completing the unenviable task of coordinating the scientific program, the Program Committee for evaluating over 1200 abstracts, the coordinators and judges of our student and professional awards, the many student volunteers who help at our meeting, Lori Strong, Heide Rohland, and all Burk and Associates folks for helping us maintain our membership and plan our meeting, the over 300 member volunteers who serve on committees throughout the year, and of course, Executive Committee members who work helps ensure that the AAPA remains a vibrant association.

Enjoy the Meeting!

Anne L. Grauer

President

American Association of Physical Anthropologists

MESSAGE FROM THE VP & PROGRAM CHAIR

Welcome!

It is my great pleasure to welcome you to the 2020 meeting of the American Association of Physical Anthropologists. This year's meeting is our 89th, and will be held in Los Angeles, CA. The main conference hotel, the Marriott LA Live, is attached to our main venue, the Los Angeles Convention Center. We are excited to be visiting Los Angeles for the first time in our history. We are grateful to our Local Arrangements Committee, Kristi Lewton (USC) and Stephanie Meredith (West Los Angeles College). We hope that you will enjoy the meeting.

Our program includes over 1,200 peer-reviewed scientific papers, which will be presented in either podium or poster sessions beginning Thursday morning. The 70 scientific sessions include 6 invited podium symposia, 18 invited poster symposia, along with contributed podium and poster sessions. In addition, there are 18 innovative and exciting workshop sessions that run in parallel to the scientific program. Once again, our program is truly international, with scientists from all over the world including Africa, Asia, Australia, Europe, Latin America, and the Middle East. We are pleased to be joined in Los Angeles by our partner organizations, the Paleopathology Association (PPA), the Human Biology Association (HBA), the American Association for Anthropological Genetics (AAAG), and the Dental Anthropology Association (DAA). The American Anthropological Association (AAA) is also joining us in sponsoring a session this year.

Programming officially begins on Wednesday, April 15, 2020, with the Committee on Diversity Undergraduate Research Symposium (open to everyone from 6:00-8:00 pm) and the Opening Reception (8:00-11:00 pm). This year's venue is truly an exceptional space and will promote a very productive set of meetings.

We've grown in size, complexity, and scope of our meetings. As in previous years, podium presentations need to be uploaded onto a central secure server in the Speaker Ready Room no later than a half day before the presentation. This server will then "push" presentations to the appropriate meeting room and will be available for the session.

Schedule and poster session timing

This year's daily sessions schedule will follow a similar timetable to previous years. This includes morning (8:00 am) and afternoon (either 2:30pm or 2:00 pm) podium sessions, with invited poster symposia starting at the same times. This year, the venue affords us adequate space for all-day poster sessions. Poster set-up will begin at 8:00 am, with sessions opening at 9:00 am. On Thursday, even-numbered poster presenters will stand by their posters from 2:00-3:00pm, with odd-numbered presenters attending from 5:30-6:30pm. On Friday and Saturday, odd-numbered posters will have presenters in attendance

MESSAGE FROM THE VP & PROGRAM CHAIR

at 1:00-2:00 pm, while presenters will be present at even-numbered posters from 5:00-6:00 pm. Posters should be removed from 6:00-6:30 pm. This schedule of our podium presentations and invited poster symposia allows dedicated time for viewing of posters as well as attendance at lunchtime events and workshops. Given the complexity of our meetings, we are fortunate to again have an AAPA Meetings App, developed by Ed Hagen, to help us track times and locations! The app is available for both Android and Apple.

Plenary and joint sessions

This year's plenary session, "**Building Community: Recognizing and Resisting Harassment,**" presented by Sherry Marts on Thursday (noon-2:00 pm). Our joint AAAG-AAPA session is "**Genomic Insights into Nonhuman Primate Behavior, Biology, and Evolution,**" organized by Timothy Webster (Thursday morning). This year's joint AAPA-HBA symposium will be held on Saturday morning. The session, also designated as this year's Wiley Symposium, is "**Human responses to climate change: What anthropologists want climate scientists and policymakers to know,**" organized by Anne Pisor and James Holland Jones. Finally, our joint AAPA-PPA is "**The skeletons in our closets: addressing ethical issues involved in the acquisition, curation, and analysis of human remains,**" organized by Molly Zuckerman and Kathryn Marklein, and scheduled for Saturday afternoon.

Workshops

This year we have planned 18 workshops that occur in conjunction with our scientific sessions. Because of space limitations, some of the workshops and events may require pre-registration (information is available on our meeting website; pre-registration closes March 31). These events include a full slate of workshops, with five scheduled for Wednesday, three on Thursday, five on Friday, and then five on Saturday. The workshops cover a range of important topics. Our workshops should afford special professional opportunities to a broad range of our membership, and we encourage you to choose, and if necessary, register for workshops that are of interest.

Special Events

On Thursday, we will be joined for an important **Plenary Session** by Sherry Marts of S*Marts Consulting, LLC, to discuss inclusion in the workplace with talk titled "**Building Community: Recognizing and Resisting Harassment.**" Later Thursday, we are excited to hold our annual **Auction**, which starts as a silent auction (10:00 am-7:00 pm) and ends with the always entertaining live auction (7:00- 8:30 pm). Once again, it will be emceed by auctioneer Jon Bethard. Each year, the auction raises thousands of dollars to support Pollitzer Student Travel Awards. Please participate through donations and by bidding on our array of tempting auction items (please contact co-organizers Madelynne Dudas [UT Austin] and Shara Bailey [NYU], Jon Bethard [USF], or Leslie Aiello [AAPA] if interested). As the meetings approach, we will update you on other special events. Students should

MESSAGE FROM THE VP & PROGRAM CHAIR

consider nominations for Amazing Advisers. We are also pleased to hold a special raffle for a Friday breakfast with our 2020 AAPA Award Honorees and our local arrangements committee (Kristi Lewton and Stephanie Meredith). On Friday, following the conclusion of the scientific sessions, we will hold the annual **Business Meeting and Awards Presentation** (6:30-8:30 pm). The important bylaws change concerning our association's name will be considered at the meeting, so we strongly encourage attendance by all voting members. In addition, the meeting will include acknowledgement of this year's IDEAS Scholars, Early Career Grants, and Pollitzer and COD Undergraduate Research travel awards, as well as presentations of the Charles R. Darwin Lifetime Achievement Award (awarded to Professor Fatimah Jackson) and the Gabriel W. Lasker Service Award (awarded to Professor Karen Rosenberg), and the inaugural Media and Outreach Award (awarded to Professor Augustin Fuentes). Please join us in celebrating this year's outstanding winners.

Saturday brings our meetings to a close, with the **Student Awards Ceremony and Closing Reception** from 6:00-9:30 pm. Please join us to learn who won the 2020 Student Presentation Awards!

Finally, as we approach the meetings, we will be publicizing additional information regarding special events. These will be listed in the final meetings program.

Acknowledgements and Appreciation

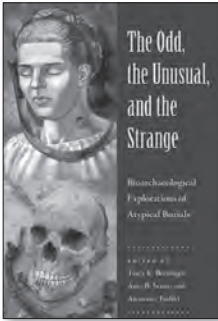
My sincere thanks to everyone who helped organize the 2020 meeting. Thanks are due to our extraordinary business partners, Lori Strong and her team (from Burk & Associates), as well as Ed Hagen (our webmaster, app developer). We are immensely grateful to the 49 remarkable and dedicated members of our Program Committee, who conducted and completed reviews thoughtfully, thoroughly, and expeditiously. We also thank the Los Angeles Advance Team. The team includes our colleagues and representatives from Burk who came together in Los Angeles in January to arrange the scientific program and to finalize hotel details. The program assistant, Kathleen McGuire, has been a tremendous help, as have the Officers and other members of the Executive Committee. Special thanks to Anne Grauer and Leslie Aiello for assisting on numerous occasions to help with meetings and program details and with evaluations of workshop proposals. Michelle Bezanson generously provide original artwork for many of this year's meetings materials. Finally, we extend our most sincere thanks to the Local Arrangements Committee, Drs. Kristi Lewton and Stephanie Meredith. These meetings would not have been possible without all these remarkable individuals, so please join me in thanking them when you see them in Los Angeles!

Steve Leigh

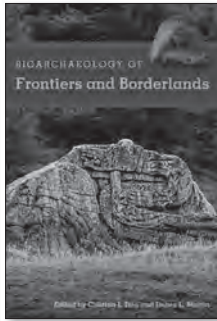
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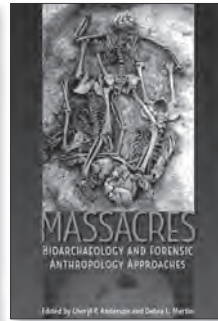
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GENERAL INFORMATION

Final Program

AAPA does not assume responsibility for any inconsistencies or errors in the abstracts for contributed paper and poster presentations. We regret any possible omissions, changes and/or additions not reflected in this final program.

Speaker Ready/Press Room

Due to the size and complexity of our meetings and following similar associations, we **require** that podium presentations be uploaded onto a central secure server no later than a half day before the presentation. This can be done from the **Speaker Ready/Press Room (Atrium III)**. The server will then “push” presentations to the appropriate meeting room and will be available for the session. Thank you in advance to all presenters for helping us make this change as painless as possible!

You may use your own computer, but you still must check in with the Speaker Ready/Press Room a half day before your presentation. Note that your speaking time slot does not include time for set up and testing. There will be volunteers available to assist you in the Speaker Ready/Press Room (Atrium III) at the following times:

- Wednesday, April 15, 12:00 PM – 5:00 PM
- Thursday, April 16, 7:30 AM – 5:00 PM
- Friday, April 17, 7:30 AM – 5:00 PM
- Saturday, April 18, 7:30 AM – 11:00 AM

Catering and Coffee Breaks

Coffee, snacks, and/or a cash bar will be available at the following times in Platinum Ballroom (the poster room and exhibition hall).

- Thursday, Friday, Saturday: 10:00 AM – 10:30 AM, Coffee and snacks
- Thursday, Friday: 5:30 PM – 6:30 PM; Saturday: 5:00 PM – 6:00 PM
Cash bar, iced tea, and snacks in poster room.

Registration

The AAPA Registration/Information area is located in the Platinum Ballroom Foyer. The Registration Desk will be open during the following hours:

- Wednesday, April 15, 2:00 PM – 6:00 PM
- Thursday, April 16, 7:00 AM – 5:00 PM
- Friday, April 17, 7:30 AM – 5:00 PM
- Saturday, April 18, 7:30 AM – 3:00 PM

American Journal of Physical Anthropology

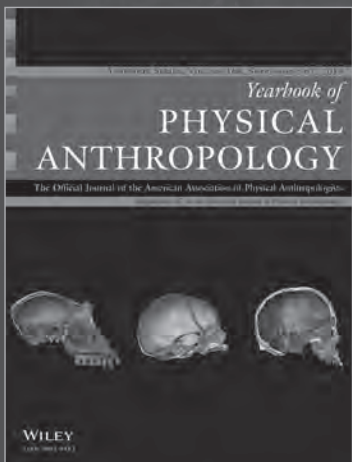


Editor-in-Chief
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GENERAL INFORMATION

AAPA App

Be sure to download the AAPA 2020 Meeting App! You can find it in the app store. If you need help check with the AAPA registration desk. All meeting updates and the most current information will be pushed through to the App.

Free Childcare

Camp AAPA - An Adventure for Kids (our childcare during the meetings) is available FREE this year, due to a substantial subsidy from the AAPA. Venue: Olympic II

- Wednesday, April 15, 5:00 PM – 10:00 PM
- Thursday, April 16, 7:30 AM – 7:00 PM
- Friday, April 17, 7:30 AM – 5:00 PM
- Saturday, April 18, 7:30 AM – 5:00 PM

Family and Nursing Mothers Respite Room

The Family and Nursing Mothers Respite Room will be available in Studio II.

- Wednesday, April 15, 5:00 PM – 10:00 PM
- Thursday, April 16, 7:00 AM – 9:00 PM
- Friday, April 17, 7:00 AM – 7:00 PM
- Saturday, April 18, 7:00 AM – 7:00 PM

Safety

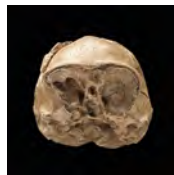
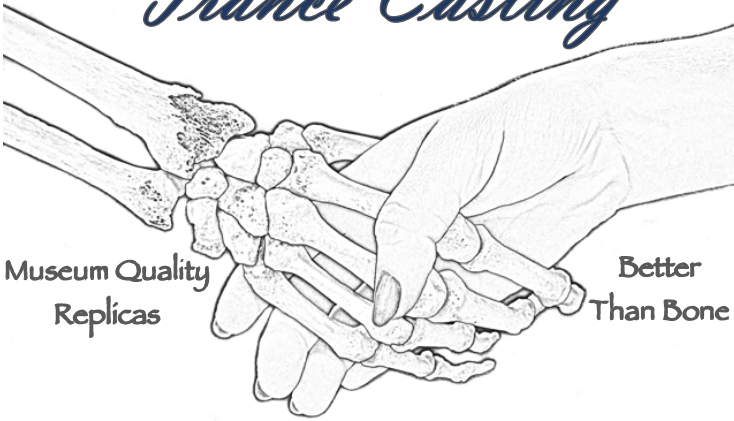
The American Association of Physical Anthropologists (AAPA) is committed to providing a safe space, free of threats, harassment, or assault, to all of our members regardless of age, ethnicity, race, gender identity or expression, sexual orientation, disabilities, religion, marital status, or any other reason unrelated to professional performance. If you find yourself in a dangerous situation, do not hesitate to call 911. For support in other instances please call or text 703-592-9946 at any time during the meeting. This number reaches staff from Burk & Associates (our meeting management company), who are attending the conference.

FUTURE MEETING DATES

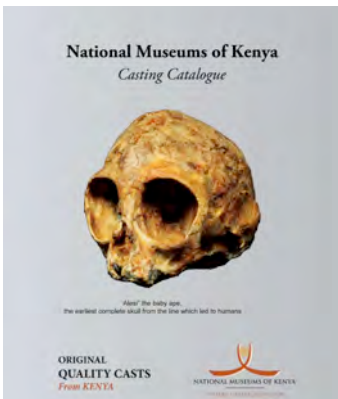
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SOCIAL EVENTS/ MEETING HIGHLIGHTS

All events take place at the JW Marriott Los Angeles LA Live unless otherwise noted.

Wednesday, April 15

AAPA COD Undergraduate Research Symposium and Reception,

5:30 PM – 8:00 PM, Platinum Ballroom

AAPA undergraduates have produced some excellent research. Come and meet them and learn about their research in a festive environment.

Opening Reception, 8:00 PM – 11:00 PM, Gold Ballroom

Enjoy live music, good food, and a cash bar.

Thursday, April 16

Plenary Session—Building Community: Recognizing and Resisting Harassment with Sherry Marts, 12:00 PM – 2:00 PM, Diamond 4-9

AAPA Live Auction, 7:00 PM – 8:30 PM, Diamond 8-9

Enjoy the excitement of the Live Auction, benefitting our student travel awards.

Friday, April 17

AAPA Business Meeting and Awards Presentation, 6:30 PM – 8:30 PM, Platinum Ballroom

Become involved in your association and celebrate the 2020 recipients of AAPA's most prestigious awards: Professor Matt Cartmill (Charles R. Darwin Lifetime Achievement Award), Professor Susan Antón (Gabriel W. Lasker Service Award).

Saturday, April 18

AAPA Student Awards and Closing Reception, 7:00 PM – 9:30 PM, Diamond 1-3

Celebrate the recipients of our student presentation and other awards, enjoy good food and a cash bar, and close the AAPA 88th Annual Meeting in grand style.

WORKSHOPS AND PANELS

Note: Some workshops require pre-registration. Space may prohibit attendance if you have not pre-registered. All events take place at the JW Marriott Los Angeles LA Live unless otherwise noted.

Wednesday, April 15

Geometric morphometrics for everyone: learning the basics in license-free software.

8:00 AM – 12:00 PM, Diamond 5. *Pre-registration required.*

Organizers: Nicole Torres-Tamayo, Paleobiology Department, Museo Nacional de Ciencias Naturales (Madrid, Spain), (nicole.torres@mncn.csic.es); Antonio Profico, PalaeoHub, Department of Archaeology, York (United Kingdom), (antonio.profico@york.ac.uk).

The purpose of this workshop is to teach the basics of geometric morphometrics in free-license software to make it available to everyone.

How Do We Go from Discussing Ethics to Taking Action? Collaborative Workshop on Ethical Practice.

8:00 AM – 12:00 PM, Plaza II. *Pre-registration required.*

Organizers: Alyson Caine, University of California, Merced, (acaine@ucmerced.edu); Nicole Burt, Cleveland Museum of Natural History, (nburt@cmnh.org), Cara Hirst, University College of London, (cara.hirst.13@ucl.ac.uk).

Through active participation this workshop presents current ethical issues facing physical anthropology and provides a means for addressing them in real life.

Using evidence-based practices to enhance your skills at engaging the public in informal learning environments.

12:00 PM – 2:00 PM, Diamond 5. *Pre-registration required.*

Organizers: Briana Pobiner, Smithsonian Institution, National Museum of Natural History, (pobinerb@si.edu).

This workshop will include several short activities designed to increase participants' abilities to effectively engage public audiences in informal learning environments.

Tree Time: Phylogenetic Comparative Methods in R.

1:00 PM – 5:00 PM, Diamond 8. *Pre-registration required.*

Organizers: Mark Grabowski, Liverpool John Moores University, (m.w.grabowski@ljmu.ac.uk); Thomas Cody Prang.

Learn how to, when to, and why you should use phylogenetic comparative methods in R.

Tutorial on the use of the morphomap R package: 2D-3D cortical thickness map, shape analysis and cross-sectional geometry.

1:00 PM – 5:00 PM, Diamond 7. *Pre-registration required.*

Organizers: Antonio Profico, PalaeoHub, Department of Archaeology, York (United Kingdom), (antonio.profico@york.ac.uk); Nicole Torres-Tamayo, Paleobiology Department, Museo Nacional de Ciencias Naturales (Madrid, Spain), (nicole.torres@mncn.csic.es).

The morphomap R package is designed to extract equally spaced cross sections along the diaphysis of long bones. morphomap is organized in three modules: morphometric maps, shape analysis and cross-sectional geometry.

WORKSHOPS AND PANELS

Thursday, April 16

“The system is broken and you can't fail at a broken system”: Tips for success on the job market. 8:00 AM – 10:00 AM, Diamond 1.

Organizers: Melanie M. Beasley, Purdue University, (melmbeas@purdue.edu); Kevin Hatala, Chatham University, (k.hatala@chatham.edu); Kim Congdon, Touro University Nevada, (congdon221@gmail.com).

The workshop will provide a framework for discussing the realities of the job market, with a panel of speakers to answer general questions, followed by small round-table discussions of specific topics.

Dialogues in Decolonization. 10:00 0AM - 12:00 PM, Diamond 1.

Sponsor: AAPA COD-I; AAPA COD-TASK. Organizer: Rebecca Ackermann, University of Cape Town, (becky.ackermann@uct.ac.za).

This workshop will explore the impact that colonial practices have had on biological anthropology, including on our curricula, our practice, and our narratives, in order to generate best practices/recommendations going forward.

Primate Interest Group Workshop: Decolonizing Primatology. 2:30 PM – 4:30 PM, Diamond 1.

Organizers: Michelle A. Rodrigues, University of Illinois, Urbana-Champaign, (michellespidermonkey@gmail.com); Andrew Halloran, Save the Chimps (andrew@savethechimps.org); Lydia Light, University of North Carolina-Charlotte (llight1@unc.edu).

Primate Interest Group (PIG) will be discussing steps to decolonize primatology, provide networking opportunities among primatologists, and plan for PIG's future directions.

Friday, April 17

Using High Impact Practices (HIPs) in Teaching Bioanthropology. 8:00 AM – 10:00 AM, Diamond 1.

Sponsors: COD-AACT (Anthropologists Outside of Anthropology Departments, Contingent and Teaching-Focused Faculty (AACT) Task Force). Organizers: Organizers: Melissa Schaefer Seaboch, Salt Lake Community College, (melissa.seaboch@slcc.edu); Liz Solari, (lisoluri@cabrillo.edu); Laurie Kauffman, Oklahoma City University, (laurie.kauffman@gmail.com); Lauren Butaric, Des Moines University, (lauren.butaric@dmu.edu); Jessica Westin, Kirkwood Community College, (jessica.westin@kirkwood.edu).

A workshop on incorporating High Impact Practices (HIPs) in teaching Bioanthropology.

WORKSHOPS AND PANELS

Student Evaluations of Teaching (SETs): Working with Required Feedback in an Era of Ambiguity. 10:00 PM – 12:00 PM, Diamond 1.

Organizers: Alice F. Gooding, Kennesaw State University, (alice.gooding@kennesaw.edu); Katherine M. Lane, University of Central Florida, (kat.lane@knights.ucf.edu).

Participants will learn about and discuss the use of institutionally required SETs in developing their teaching portfolios.

Data Sharing and Data Access in Biological Anthropology. 12:00 PM – 2:00 PM, Diamond 1. *Pre-registration required.*

Organizers: Trudy Turner, University of Wisconsin-Milwaukee, (trudy@uwm.edu); Connie Mulligan, University of Florida, (cmulligan@ad.ufl.edu). This workshop is sponsored by the AAPA Ad hoc committee on data access and data sharing.

The results of an AAPA sponsored workshop on data access and data sharing will be discussed.

Navigating the international job market in biological anthropology. 12:00 PM – 2:00 PM, Diamond 8-9. *Pre-registration required.*

Sponsors: AAPA Career Development Committee; AAPA COD-I (Committee on Diversity (International)). Organizers: Kevin G. Hatala, Chatham University, (kevin.g.hatala@gmail.com); Tina Lasisi, Penn State University, (tpl5158@psu.edu); Lauren Schroeder, University of Toronto (lauren.schroeder@utoronto.ca); Becky Ackermann, University of Cape Town (becky.ackermann@uct.ac.za); Nate Dominy, Dartmouth College (nathaniel.j.dominy@dartmouth.edu).

This workshop will include a panel-based discussion of the benefits and potential challenges associated with international employment opportunities in biological anthropology, and will include advice and networking opportunities for current job-seekers.

Student Perspectives and Involvement Regarding Diversity in the American Association of Physical Anthropologists. 2:30 PM – 4:30 PM, Diamond 1.

Sponsors: AAPA Student Committee. Organizer: Donovan Adams, University of Nevada, Reno, (donovana@nevada.unr.edu).

This discussion panels serves to provide the student membership an opportunity to engage in dialogue regarding concerns and suggestions for the advancement of diversity in the AAPA.

WORKSHOPS AND PANELS

Saturday, April 18

New Tools in Anthropological Energetics. 8:00 AM – 10:00 AM, Diamond 1.

Organizers: Herman Pontzer, Evolutionary Anthropology, Duke University, (herman.pontzer@duke.edu); Cara Ocobock, Department of Anthropology, University of Notre Dame; Samuel S. Urlacher, Department of Anthropology, Baylor University.

Learn new methods and resources for studying energy expenditure in humans and other primates.

Preparing students for the field: What makes for a successful experience? 10:00 AM – 12:00 PM, Diamond 1.

Organizers: Kelly Boyer Ontl, Ball State University, (kmontl@bsu.edu); Caitlyn Placek, Ball State University, (cplacek@bsu.edu).

In this discussion session, we ask participants to contribute to the question: how can mentors prepare students for successful field experiences?

Improving access to pre-graduate school field research experiences. 12:00 PM – 2:00 PM, Diamond 2.

Organizers: Rebecca Ferrell, National Science Foundation, (rferrell@nsf.gov); Roberto Delgado, (robdelga@nsf.gov); Siobhan Mattison, (smattiso@nsf.gov).

Panelists and audience members will reflect and expand on recent discussions about barriers to, and potential solutions for, obtaining pre-graduate school field research experience in biological anthropology and related disciplines.

Training for peer review in Biological Anthropology. 12:00 PM – 2:00 PM, Diamond 1.
Pre-registration required.

Organizers: Paul-Andre Genest, Wiley, (pagenest@wiley.com); Trudy Turner, University of Wisconsin-Milwaukee (trudy@uwm.edu); William Leonard, Northwestern University (w-leonard1@northwestern.edu).

This workshop aims providing a guide for early-career scientists through their first experiences in reviewing.

Applied Biological Anthropology: A Network of Non-academic Careers. 2:30 PM – 4:30 PM, Diamond 1.

Organizers: Andrew R. Halloran, Save The Chimps, (andrew@savethechimps.org); Tina Cloutier Barbour, Lion Country Safari, (tina.cloutierbarbour@lioncountrysafari.com).

A workshop intent on building a network of biological anthropologists outside of academia, while allowing students and early career anthropologists to explore these professions.

EVENTS

All events take place at the JW Marriott Los Angeles LA Live unless otherwise noted.

Monday, April 13

PPA

Paleopathology Association Registration

6:00 PM – 9:00 PM

Studio II

Tuesday, April 14

AAPA

Exhibits Set Up

8:00 AM – 5:00 PM

Platinum Ballroom

Day Care Set Up

6:00 PM – 9:00 PM

Olympic II

HBA

Human Biology Association Executive Committee Meeting

(closed session)

6:00 PM – 10:00 PM

Plaza II

PAS

Paleoanthropology Registration

7:30 AM – 5:00 PM

Diamond Foyer

Paleoanthropology Podium Presentations

9:00 AM – 5:00 PM

Diamond 6-7

Paleoanthropology Poster Sessions

12:00 PM – 6:00 PM

Platinum Ballroom

PPA

Paleopathology Association Registration

7:45 AM – 5:00 PM

Diamond Foyer

Paleopathology Association Workshop 1 *(requires PPA meeting registration)*

8:30 AM – 11:00 AM

Plaza I

EVENTS

- Paleopathology Association Workshop 2** (*requires PPA meeting registration*)
8:30 AM – 11:00 AM Plaza II
- Paleopathology Coffee Break**
3:30 PM – 3:50 PM Diamond Foyer
- Paleopathology Student Action Committee** (*requires PPA meeting registration*)
5:30 PM – 6:30 PM Diamond 1-2
- Paleopathology Association Banquet and Business Meeting** (*ticketed event*)
6:45 PM – 10:00 PM Diamond 3

Wednesday, April 15

AAPA

- Geometric morphometrics for everyone: learning the basics in license-free software**
8:00 AM – 12:00 PM Diamond 5
- How Do We Go from Discussing Ethics to Taking Action? Collaborative Workshop on Ethical Practice**
8:00 AM – 12:00 PM Plaza II
- AAPA Executive Committee** (*board members only*)
8:00 AM – 5:00 PM Georgia II
- AAPA Executive Committee and IDEAS Lunch**
12:00 PM – 1:30 PM Diamond 10
- AJPA Editorial Board Lunch**
12:00 PM – 1:30 PM Olympic II
- Using evidence-based practices to enhance your skills at engaging the public in informal learning environments**
12:00 PM – 2:00 PM Diamond 5
- Speaker Ready/Press Room**
12:00 PM – 5:00 PM Atrium III
- Tutorial on the use of the morphomap R package: 2D-3D cortical thickness map, shape analysis and cross-sectional geometry**
1:00 PM – 5:00 PM Diamond 7
- Tree Time: Phylogenetic Comparative Methods in R**
1:00 PM – 5:00 PM Diamond 8

EVENTS

AAPA Registration 2:00 PM – 6:00 PM	Platinum Ballroom Foyer
St. Catherine's Island Research Group 3:00 PM – 5:00 PM	Olympic II
Student Committee Meeting 4:00 PM – 5:00 PM	Atrium II
Student Volunteer Training 4:30 PM – 5:00 PM	Diamond 4
Student/Early Career Mixer 5:00 PM – 6:00 PM	Atrium II
Camp AAPA - An Adventure for Kids (<i>childcare</i>) 5:00 PM – 10:00 PM	Olympic II
Family and Nursing Mothers Respite Room 5:00 PM – 10:00 PM	Studio II
AAPA COD Undergraduate Research Symposium and Reception 5:30 PM – 8:00 PM	Platinum Ballroom
Opening Reception 8:00 PM – 11:00 PM	Gold Ballroom
AAAG	
AAAG Members Speed Networking Event 5:00 PM – 6:00 PM	Georgia I
DAA	
Dental Anthropology Association Workshop 12:00 PM – 5:00 PM	Plaza I
HBA	
AJHB Editorial Board Meeting 7:30 AM – 9:00 AM	Georgia I
Human Biology Association Registration 8:00 AM – 5:00 PM	Diamond 3 Foyer
Human Biology Association Posters 9:00 AM – 4:00 PM	Platinum Ballroom
Human Biology Association Breakout Session 1 (<i>requires HBA Meeting registration</i>) 11:30 AM – 12:30 PM	Atrium I

EVENTS

Human Biology Association Breakout Session 2 (*requires HBA Meeting registration*)
11:30 AM – 12:30 PM Atrium II

Human Biology Association Plenary Session and Pearl Memorial Lecture
(*requires HBA Meeting registration*)
1:00 PM – 6:00 PM Diamond 3

Human Biology Association Reception and Banquet (*ticketed event*)
6:30 PM – 9:30 PM Diamond 5

PAS

Paleoanthropology Registration
8:00 AM – 5:00 PM Diamond Foyer

Paleoanthropology Podium Presentations (*requires PAS Meeting registration*)
8:30 AM – 5:00 PM Diamond 6-7

PPA

Paleopathology Association Registration
8:00 AM – 5:00 PM Hope Foyer

Paleopathology Association Podium Presentations (*requires PPA Meeting registration*)
8:30 AM – 5:00 PM Diamond 1-2

Paleopathology Association Posters and Silent Auction (*prequires PPA Meeting registration*)
9:00 AM – 4:00 PM Platinum Ballroom

Thursday, April 16

AAPA

AAPA Past President's Breakfast
7:00 AM – 9:00 AM Georgia II

AAPA Registration
7:00 AM – 5:00 PM Platinum Ballroom Foyer

Family and Nursing Mothers Respite Room
7:00 AM – 9:00 PM Studio II

Speaker Ready/Press Room
7:30 AM – 5:00 PM Atrium III

Camp AAPA - An Adventure for Kids (*childcare*)
7:30 AM – 7:00 PM Olympic II

EVENTS

“The system is broken and you can’t fail at a broken system”: Tips for success on the job market

8:00 AM – 10:00 AM

Diamond 1

Exhibits

9:30 AM – 7:00 PM

Platinum Ballroom

Dialogues in Decolonization

10:00 AM – 12:00 PM

Diamond 1

AAPA Silent Auction

10:00 AM – 7:00 PM

Diamond Foyer

Plenary Session—Building Community: Recognizing and Resisting Harassment with Sherry Marts

12:00 PM – 2:00 PM

Diamond 4-5

Yearbook of Physical Anthropology Editorial Board Meeting (*board members*)

12:00 PM – 2:00 PM

Olympic III

Primate Interest Group Workshop: Decolonizing Primatology

2:30 PM – 4:30 PM

Diamond 1

AAPA COD International Mixer

5:00 PM – 7:00 PM

Georgia I

Journal of Human Evolution Editorial Board Meeting

6:30 PM – 10:00 PM

Olympic III

AAPA Live Auction

7:00 PM – 8:30 PM

Diamond 8-9

AAAG

American Association of Anthropological Genetics Business Meeting

7:30 PM – 8:30 PM

Diamond 1

American Association of Anthropological Genetics Cocktail Hour

8:30 PM – 9:30 PM

Georgia I

HBA

Human Biology Association Registration

7:30 AM – 8:30 AM

Diamond Foyer

Human Biology Association Podium Presentations (*requires HBA Meeting registration*)

8:30 AM – 11:45 AM

Gold I

Human Biology Association Awards Luncheon (*ticketed event*)

12:00 PM – 1:15 PM

Gold III

EVENTS

Human Biology Association Business Meeting

5:00 PM – 6:30 PM

Gold I

Human Biology Association Student Reception *(requires HBA Meeting registration)*

7:00 PM – 9:30 PM

Georgia II

Other

BAWMN Happy Hour

6:00 PM – 8:00 PM

Gold II

Leakey Foundation Retirement Party

8:00 PM – 11:00 PM

Diamond 1

Friday, April 17

AAPA

AAPA COD WIN Committee meeting

7:00 AM – 9:00 AM

Atrium II

Family and Nursing Mothers Respite Room

7:00 AM – 7:00 PM

Studio II

AAPA Registration

7:30 AM – 5:00 PM

Platinum Ballroom Foyer

Speaker Ready/Press Room

7:30 AM – 5:00 PM

Atrium III

Camp AAPA - An Adventure for Kids *(childcare)*

7:30 AM – 5:00 PM

Olympic II

Using High Impact Practices (HIPs) in Teaching Bioanthropology

8:00 AM – 10:00 AM

Diamond 1

Exhibits

9:30 AM – 6:30 PM

Platinum Ballroom

Student Evaluations of Teaching (SETs): Working with Required Feedback in an Era of Ambiguity

10:00 AM – 12:00 PM

Diamond 1

Data Sharing and Data Access in Biological Anthropology

12:00 PM – 2:00 PM

Diamond 1

AAPA COD LGBTQQIAA Meeting

12:00 PM – 1:00 PM

Diamond 3

EVENTS

Navigating the international job market in biological anthropology 12:00 PM – 2:00 PM	Diamond 8-9
AAPA COD IDEAS Alum Luncheon Meeting 12:00 PM – 2:00 PM	Georgia II
AAPA COD-AACT Steering Committee Meeting 12:00 PM – 1:00 PM	Studio I
AAPA Ethics Committee meeting 12:15 PM – 2:15 PM	Atrium II
AAPA Science Policy Committee Meeting 12:15 PM – 2:15 PM	Studio III
Student Perspectives and Involvement Regarding Diversity in the American Association of Physical Anthropologists 2:30 PM – 4:30 PM	Diamond 1
Education Committee Meeting 5:00 PM – 6:00 PM	Atrium II
AAPA Business Meeting and Awards Presentation (<i>open to all AAPA members</i>) 6:30 PM – 8:30 PM	Platinum Ballroom

DAA

Dental Anthropology Association Speed Networking 4:15 PM – 5:00 PM	Georgia I-II
Dental Anthropology Association Happy Hour 5:00 PM – 6:30 PM	Georgia I-II
Dental Anthropology Business Meeting (<i>DAA members</i>) 8:30 PM – 9:30 PM	Diamond 8-9

HBA

Human Biology Flash Talks 8:00 AM – 12:00 PM	Diamond 2
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Other

<i>Evolutionary Anthropology</i> Editorial Board Meeting (<i>board members</i>) 7:30 AM – 9:00 AM	Studio III
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EVENTS

Saturday, April 18

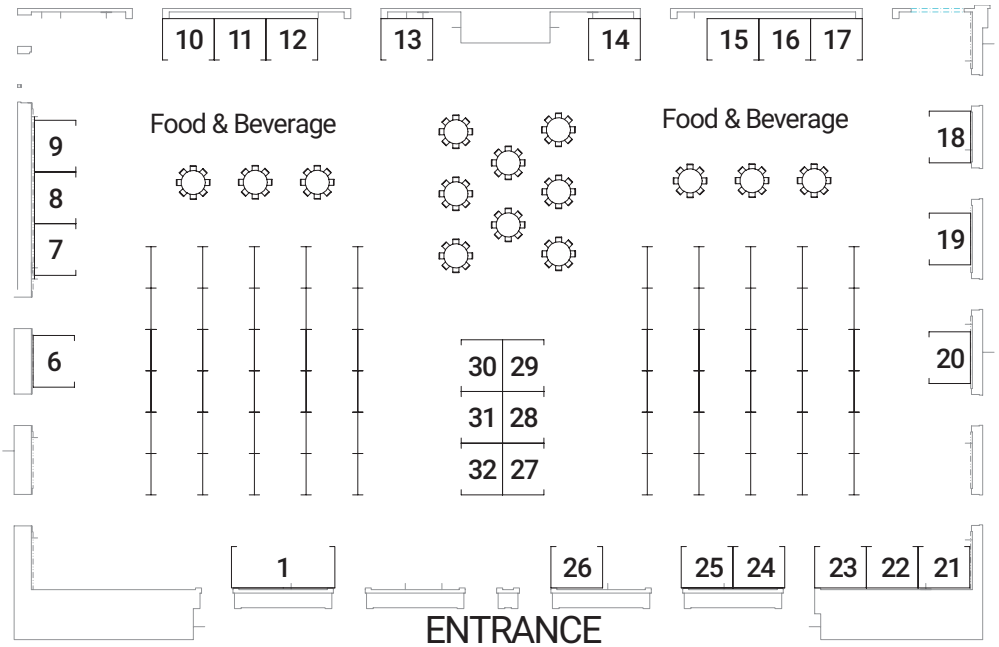
AAPA

Family and Nursing Mothers Respite Room 7:00 AM – 7:00 PM	Studio II
Speaker Ready/Press Room 7:30 AM – 11:00 AM	Atrium III
AAPA COD Steering Committee Breakfast (<i>members only</i>) 7:30 AM – 9:00 AM	Georgia II
AAPA Registration 7:30 AM – 3:00 PM	Platinum Ballroom Foyer
Camp AAPA - An Adventure for Kids (<i>childcare</i>) 7:30 AM – 5:00 PM	Olympic II
New Tools in Anthropological Energetics 8:00 AM – 10:00 AM	Diamond 1
AAPA COD International Scholars Committee meeting 9:00 AM – 10:00 AM	Georgia II
Exhibits 9:30 AM – 7:00 PM	Platinum Ballroom
Preparing students for the field: What makes for a successful experience? 10:00 AM – 12:00 PM	Diamond 1
Training for peer review in Biological Anthropology 12:00 PM – 2:00 PM	Diamond 1
Improving access to pre-graduate school field research experiences 12:00 PM – 2:00 PM	Diamond 2
Applied Biological Anthropology: A Network of Non-academic Careers 2:30 PM – 4:30 PM	Diamond 1
AAPA Student Awards Committee meeting 5:30 PM – 6:30 PM	Georgia II
AAPA Student Awards and Closing Reception 7:00 PM – 9:30 PM	Diamond 1-3

EXHIBITOR FLOOR PLAN

EXHIBIT HOURS: Platinum Ballroom

Thursday, April 16..... 9:30 AM – 7:00 PM
 Friday, April 17..... 9:30 AM – 6:30 PM
 Saturday, April 18..... 9:30 AM – 7:00 PM



EXHIBITOR LISTING

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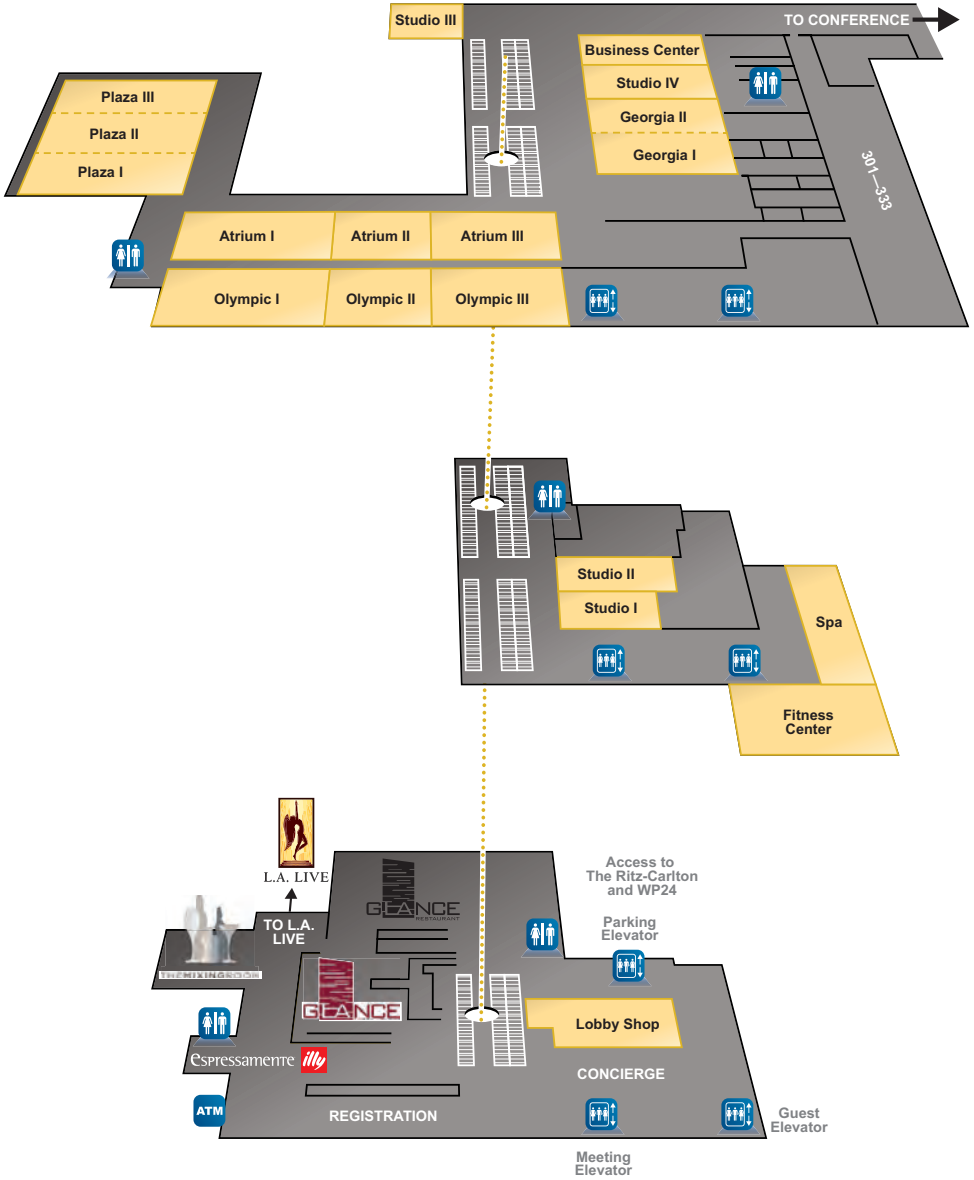
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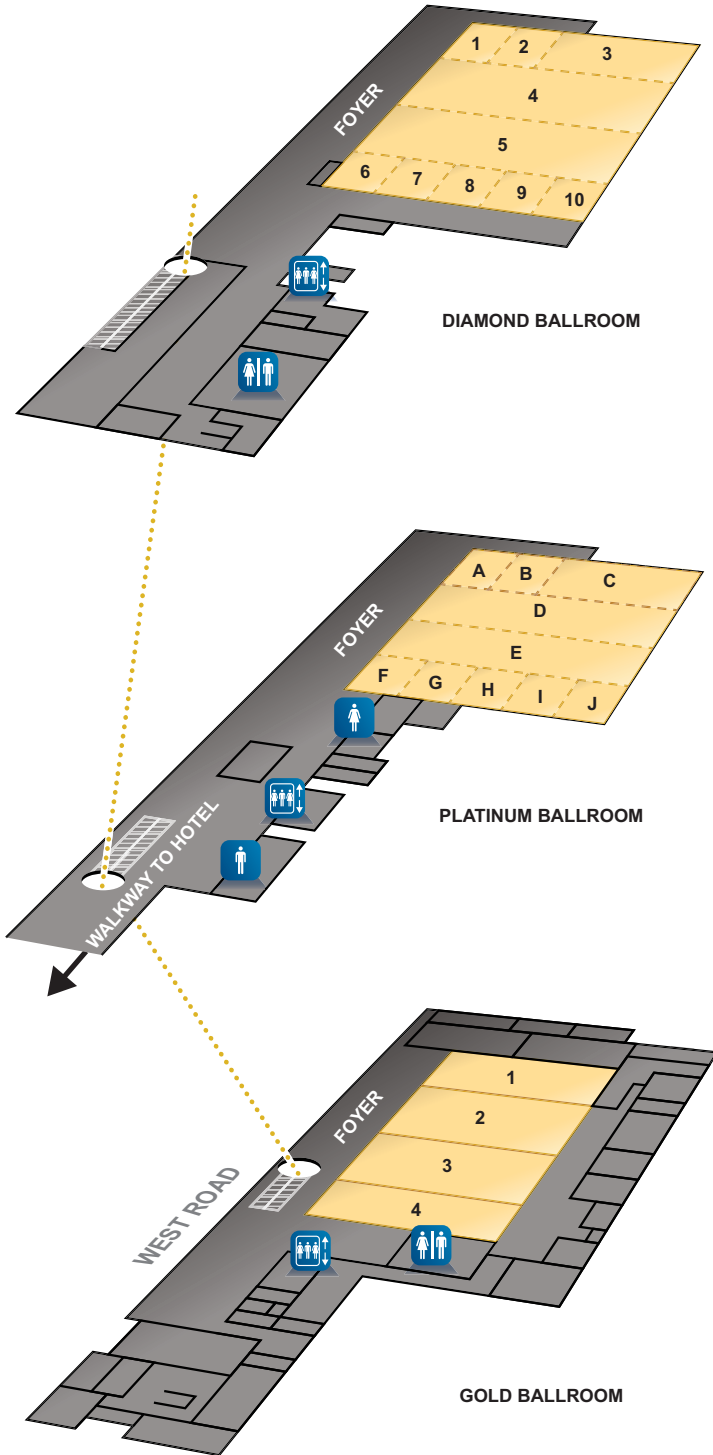
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JW MARRIOTT LOS ANGELES LA LIVE



FLOOR PLANS



SCIENTIFIC PROGRAM

All events take place at the JW Marriott Los Angeles LA Live unless otherwise noted.

Session Title	Room	Time	#	Type
Thursday, All Day				
American Association of Physical Anthropologists				
Forensic Anthropology	Platinum Ballroom	8:00 AM – 6:30 PM	1	Poster
Bioarchaeology: Techniques and Methods	Platinum Ballroom	8:00 AM – 6:30 PM	2	Poster
Bioarchaeology: Demography, Migration, and Identity	Platinum Ballroom	8:00 AM – 6:30 PM	3	Poster
Bioarchaeology: Diet, Trauma and Care	Platinum Ballroom	8:00 AM – 6:30 PM	4	Poster
Human Biology	Platinum Ballroom	8:00 AM – 6:30 PM	5	Poster
Primate Evolutionary Anatomy and Taxonomy	Platinum Ballroom	8:00 AM – 6:30 PM	6	Poster
Thursday, Morning				
American Association of Physical Anthropologists				
Genomic Insights into Nonhuman Primate Behavior, Biology, and Evolution (Joint AAAG-AAPA symposium)	Diamond 4	8:00 AM – 12:00 PM	7	Podium
Skeletal Biology	Diamond 2	8:00 AM – 12:00 PM	8	Podium
From Ancient to Contemporary Genomes: Health and Population History	Diamond 3	8:00 AM – 12:00 PM	9	Podium
Bioarchaeology: Health, Disease, and Trauma	Diamond 5	8:00 AM – 12:00 PM	10	Podium
Primate Behavior	Diamond 8-9	8:00 AM – 12:00 PM	11	Podium
Current challenges in morphometrics: Lost in high dimensions? An invited session in memory of Dennis E. Slice	Diamond 10	8:00 AM – 12:00 PM	12	Poster
Shaping the human skeleton: Integrating the various approaches to human skeletal variation and evolution	Diamond 6	8:00 AM – 12:00 PM	13	Poster
Making human evolution accessible through non-formal learning	Diamond 7	8:00 AM – 12:00 PM	14	Poster
Thursday, Afternoon				
American Association of Physical Anthropologists				
What Is a Population? Troubling Foundational Concepts and Categorization in Biological Anthropology	Diamond 4	2:30 PM – 5:30 PM	15	Podium
Human and Non-Human Primate Microbiomes	Diamond 2	2:30 PM – 5:30 PM	16	Podium

SCIENTIFIC PROGRAM

Human Biology: DOHaD and Epigenetics	Diamond 3	2:30 PM – 5:30 PM	17	Podium
Paleoanthropology: Fossils New and Reconsidered	Diamond 5	2:30 PM – 5:30 PM	18	Podium
Dental Anthropology: Variation, Disease, Diet	Diamond 8-9	2:30 PM – 5:30 PM	19	Podium
Holocene Modern Humans in Eastern Asia: Current Bioarchaeological Perspectives	Diamond 10	2:30 PM – 5:30 PM	20	Poster
Isoscapes, Isotopic Provenience, and Baseline Studies in Human Ecologies: Methodological and Interpretive Challenges	Diamond 6	2:30 PM – 6:30 PM	21	Poster
Expanding Boundaries: Embracing the Intersectionality of Forensic Anthropology to Account for the Changing Landscape of Identity in Current Casework	Diamond 7	2:30 PM – 5:30 PM	22	Poster
Friday, All Day				
American Association of Physical Anthropologists				
Human Skeletal Biology: Growth, Development, and Variation	Platinum Ballroom	8:00 AM – 6:00 PM	23	Poster
Dental Anthropology: Methods and Applications	Platinum Ballroom	8:00 AM – 6:00 PM	24	Poster
Paleopathology	Platinum Ballroom	8:00 AM – 6:00 PM	25	Poster
Genotype-Phenotype Studies	Platinum Ballroom	8:00 AM – 5:00 PM	26	Poster
Paleoanthropology: Working with Postcranial Evidence	Platinum Ballroom	8:00 AM – 6:00 PM	27	Poster
Paleoanthropology: Working with Dental Evidence	Platinum Ballroom	8:00 AM – 6:00 PM	28	Poster
Paleoanthropology: Working with Cranial Evidence	Platinum Ballroom	8:00 AM – 6:00 PM	29	Poster
Paleoanthropology: New Results from Field Work	Platinum Ballroom	8:00 AM – 6:00 PM	30	Poster
Friday, Morning				
American Association of Physical Anthropologists				
Thriving at Miles High – Studying High Altitude Adaptation Around the Globe	Diamond 4	8:00 AM – 12:00 PM	31	Podium
Primate Conservation	Diamond 3	8:00 AM – 12:00 PM	32	Podium
Bioarchaeology: Methods and Techniques	Diamond 5	8:00 AM – 12:00 PM	33	Podium
Postcranial Functional Morphology and Locomotion	Diamond 8-9	8:00 AM – 12:00 PM	34	Podium

SCIENTIFIC PROGRAM

Implications of bony pelvis variation in humans, hominins, and primates	Diamond 10	8:00 AM – 12:00 PM	35	Poster
Koobi Fora Research and Training: Highlights of the last 5 years of research and education initiatives	Diamond 6	8:00 AM – 12:00 PM	36	Poster
New Frontiers in Human Brain Evolution: Stem cells, Brains, and Endocasts	Diamond 7	8:00 AM – 12:00 PM	37	Poster
Friday, Afternoon				
American Association of Physical Anthropologists				
The Extended Evolutionary Synthesis and Human Origins: Paleoanthropological Perspectives	Diamond 4	2:00 PM – 5:00 PM	38	Podium
Human Biology: Energetics, Immunity, Small Scale Societies	Diamond 2	2:00 PM – 5:00 PM	39	Podium
Primate Genomics	Diamond 3	2:00 PM – 5:00 PM	40	Podium
Primate Life History	Diamond 5	2:00 PM – 5:00 PM	41	Podium
The Hidden Lives of Women: An Exploration of Women's Roles and Life Histories in Ancient Times	Diamond 10	2:00 PM – 5:00 PM	42	Poster
From Old Monkeys to New Morphometrics: A Symposium Honoring the Scientific Contributions of Eric Delson	Diamond 6	2:00 PM – 5:00 PM	43	Poster
A Two-Way Street Tale: Integrating Biocultural Data for Discussing Past Human Diversity in the Americas	Diamond 7	1:00 PM – 5:00 PM	44	Poster
Saturday, All Day				
American Association of Physical Anthropologists				
Primate Craniodental Anatomy and Functional Morphology	Platinum Ballroom	8:00 AM – 6:00 PM	45	Poster
Education and Public Outreach	Platinum Ballroom	8:00 AM – 5:00 PM	46	Poster
Primate Postcranial Morphology and Locomotion	Platinum Ballroom	8:00 AM – 6:00 PM	47	Poster
Primate Feeding Ecology	Platinum Ballroom	8:00 AM – 6:00 PM	48	Poster
Population History	Platinum Ballroom	8:00 AM – 6:00 PM	49	Poster
Novel Methods in "-omics"	Platinum Ballroom	8:00 AM – 6:00 PM	50	Poster
Primate and Human Skeletal Biology	Platinum Ballroom	8:00 AM – 6:00 PM	51	Poster
Primate Ecology and Conservation	Platinum Ballroom	8:00 AM – 6:00 PM	52	Poster
Primate Behavioral Ecology	Platinum Ballroom	8:00 AM – 6:00 PM	53	Poster

SCIENTIFIC PROGRAM

Saturday, Morning				
American Association of Physical Anthropologists				
Human responses to climate change: What anthropologists want climate scientists and policymakers to know (Joint HBA-AAPA-Wiley symposium)	Diamond 4	8:00 AM – 12:00 PM	54	Podium
Primate Health and Disease and Primate Evolution	Diamond 2	8:00 AM – 12:00 PM	55	Podium
Primate Reproductive Strategies	Diamond 3	8:00 AM – 12:00 PM	56	Podium
Paleoanthropology: Fossil Evidence	Diamond 5	8:00 AM – 12:00 PM	57	Podium
Bioarchaeology: Isotopic Studies of Diet and Identity	Diamond 8-9	8:00 AM – 12:00 PM	58	Podium
Benefits of long-term field studies of primates: 30 years of research on white-faced capuchins at Lomas Barbudal, Costa Rica	Diamond 10	8:00 AM – 12:00 PM	59	Poster
Human Evolution in Asia: Zooming In and Zooming Out	Diamond 6	8:00 AM – 12:00 PM	60	Poster
Hands and feet of nonhuman primates: integrating form and function	Diamond 7	8:00 AM – 12:00 PM	61	Poster
Saturday, Afternoon				
American Association of Physical Anthropologists				
The skeletons in our closets: addressing ethical issues involved in the acquisition, curation, and analysis of human remains (Joint PPA-AAPA symposium)	Diamond 4	2:00 PM – 5:00 PM	62	Podium
Craniodental Functional Morphology	Diamond 2	2:00 PM – 5:00 PM	63	Podium
Primate Diet and Foraging	Diamond 3	2:00 PM – 5:00 PM	64	Podium
Paleoanthropology: Environment, Diet, and Context	Diamond 5	2:00 PM – 5:00 PM	65	Podium
Forensic Anthropology: Methods and Approaches	Diamond 8-9	2:00 PM – 5:00 PM	66	Podium
Genotype-Phenotype Studies	Platinum Ballroom	2:00 PM – 5:00 PM	67	Podium
Life History and the Gut Microbiome	Diamond 10	2:00 PM – 5:00 PM	68	Poster
Bioarchaeology and the Developmental Origins of Health and Disease: the impact of methods and context on interpretation	Diamond 6	2:00 PM – 5:00 PM	69	Poster
The Bioarchaeology of the Southeastern United States: Current Research on Prehistoric and Historic Populations	Diamond 7	2:00 PM – 5:00 PM	70	Poster

THURSDAY, ALL DAY SESSIONS

Session 1

Forensic Anthropology

Contributed Poster Presentations

Chair: Melissa S. Murphy

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

2:00 Odd number presenters stand by their posters (1 hour).

5:30 Even number presenters stand by their posters (1 hour).

6:30 Poster removal.

- 1 Predicting human appearance from aDNA: first insights in an Imperial Rome sample. V. VELTRE, F. DE ANGELIS, O. RICKARDS.
- 2 DNA integrity in forensic samples. S. RAMEY, M.H. SNOW.
- 3 A child on display: Approaches in understanding a found mummified medical specimen. B.B. BORRESON, A.J. FOLEY.
- 4 Global Variation of Rocker Jaw. A. SBEI, S. BOLING, M. MCKINNEY, G. SCOTT.
- 5 Exploring the difference in variation in development and eruption of second and third molars in adolescence. A.A. ADAME, H.J. NESBITT, P. WHITE, L.E. CIRILLO.
- 6 Self-Reported Childhood Socioeconomic Status and Dental Health in the William M. Bass Donated Skeletal Collection. L. BLIZZARD, H.E. HORBALY.
- 7 Global variation in dental crowding. D.E. KENESSEY, T. VLEMINCQ-MENDIETA, G. SCOTT, M.A. PILLOUD.
- 8 Cranial variation in a historic Icelandic population and a modern 'U.S. White' population. S.M. MCCRANE.
- 9 Sniffing out decomposition: Investigating the reliability of human remains detection dogs. K.M. NAWN.
- 10 A catalog and methodology in the study of the fourth bone of the rib to estimate the age in the population of Durango, Mexico. C.C. SANDOVAL, V.M. LÓPEZ.
- 11 The application of GIS to three-dimensional scans of the auricular surface of the ilium to create a new age estimation method using the Hamann-Todd Osteological Collection. K.E. BENNETT.
- 12 An Examination of the Subpubic Region, Greater Sciatic Notch, and Obturator Foramen Variation in Thai Individuals Using Elliptical Fourier Analysis. R.E. CHANEY, S.D. TALLMAN, G. HARBAUGH.
- 13 Age-at-death estimation from features of the first rib. E. DOOLEY, S.D. TALLMAN.
- 14 A test of interobserver error in radiating fracture measurement techniques. E.A. EVANGELOU, T. SOMOGYI, A.B. FELBERBAUM, M.J. PETERS, A.K. THOMPSON, D. SANTAMARIA VARGAS, E.A. DIGANGI.

THURSDAY ALL DAY SESSIONS

- 15 **A pilot study examining gunshot radiating fracture pathways using virtual methods.**
T. SOMOGYI, E.A. EVANGELOU, E.A. DIGANGI.
- 16 **Faunal species identification from basic skeletal measurements: Differentiating 21 medium-to-large sized mammals.** H.M. GARVIN, R. DUNN, S.B. SHOLTS, M. LITTEN, A. CLENDANIEL, E. DOUGHER, N. SKANTZ.
- 17 **Learning From Those Who Served: Application of Regression-based Body Mass Estimation Methods to The USS Oklahoma Population.** M.S. ROONEY, E. HAMMERL.
- 18 **The Effects of Labor on the Biomechanical Properties of the Femora and the Humeri in the 19th and 20th Centuries.** S. GARZA, D. WESCOTT.
- 19 **The Morphology of Ballistic Trauma.** S.A. BAKER, J.R. KIELY.
- 20 **Improving juvenile stature estimation by incorporating maturational data.** M.B. LENOVER, M. ŠEŠELJ.
- 21 **Common Skeletal Fracture Patterns of Juvenile Remains.** A. FLANNERY, C.N. HULSE, K. STULL.
- 22 **A preliminary study on the relationship between age-at-death, BMI and age-at-death estimations using pelvic indicators.** N.S. LEVIN.
- 23 **Exploring age related changes in cortical bone in individuals over 50 using radiographs.** J.M. COOK M.A., N.P. HERRMANN PHD.
- 24 **Estimating human age at death using 3-D confocal profilometry to quantify pubic symphyseal breakdown.** C.D. FELLMANN, M.C. PANTE, A. DU, G. CROUCH.
- 25 **Sacral Traits as Age Indicators: A Validation Study.** T.L. TYNER.
- 26 **Establishing a biological profile using your smartphone.** E. FRAUENHOFER.
- 27 **Laser-Induced Breakdown Spectroscopy for Categorization of Human Skeletal Remains.** K. KUEHN, M. BAUDELET.
- 28 **Soft and hard tissue relationships of the mouth in a southern African population.** T.M. HOULTON, N. JOOSTE, J. HEMINGWAY, A. UYS, M. STEYN.
- 29 **Exploring Sexual Dimorphism of Ancestral Cranial Nonmetric Traits in Modern European Americans.** S.R. MILLS, S.D. TALLMAN.
- 30 **Quantifying the emergence of sexually dimorphic traits using Walker (2008) and evaluating method performance in subadult sex estimation.** S.J. COLE, K.E. STULL.
- 31 **Differences in sexual dimorphism between two Central European populations evaluated using external morphology of the frontal bone.** M. CECHOVA, J. DUPEJ, J. BRUZEK, S. BEJDOVA, R. BENUS, J. VELEMINSKA.
- 32 **Sacrococcygeal fusion and its implications with age estimation and sexual dimorphism.** P. DOMINGUEZ ACOSTA, H.N. TREVIÑO.
- 33 **A re-evaluation of the Atterton technique: A method for sex estimation using the clavicle.** S.R. FRIEND, C. URISTA.
- 34 **Examination of sex differences in condylar arthritis of the mandible using a documented osteological collection.** K.M. LANE, F.L. WILLIAMS.
- 35 **Postcranial sex estimation for unidentified migrants along the U.S. Southern Border.** S. MEDRANO, M. KAPLAN, K. SPRADLEY, G. FOWLER, C. HUGHES.

THURSDAY ALL DAY SESSIONS

- 36 Development of the cranial sexual dimorphism during aging. J. VELEMINSKA, N. FLEISCHMANNNOVA, B. MUSILOVA, J. DUPEJ, S. BEJDOVA, J. BRUZEK.
- 37 Sex estimation using the calcaneus in a modern American skeletal population. L. WHARTON.
- 38 Sexual dimorphism in the human calcaneus using 3D geometric morphometric methods. M.C. SERRANGELI, R. SORRENTINO, M.G. BELCASTRO, S. BENAZZI, R.N. FEENEY.
- 39 A three-dimensional morphometric comparison of cranium of females and males in Israel. T. KOSENKOV, E. BEEN, A. BARASH.
- 40 Human Cadaver Bacterial Succession Comparison in Two Depositions: Surface vs Shallow Burial. S.L. CUNNINGHAM, K. SANKARANARAYANAN.
- 41 Performance of adaptive boosting classifier based on incomplete dataset in biological sex prediction using postcranial bones. M.H. ATTIA.
- 42 Reconciling Skeletal Indicators of Stress with Lived Experiences: A Case Study From the U.S.-Mexico Border. L.G. KOUTLIAS, D. NEWBERRY, M.D. HAMILTON, K. SPRADLEY.
- 43 The effect of clothing on decomposition in the cooler months in Cape Town, South Africa. M.J. SPIES, D.A. FINAUGHTY, L.J. FRIEDLING, V.E. GIBBON.
- 44 Applicability of tooth measurements in estimating ancestry between modern Japanese and Florida Seminole samples. M.K. GREEN, M. HUBBE, S.D. TALLMAN.
- 45 How many tooth hops does it take to accurately measure saw blade teeth-per-inch in bone? A.R. GROSSO, A. BEGLEY, S.A. TOTH.
- 46 Ancestry catches up to modern times: A new technique evaluating morphological traits using 3D technology. E. CUERRIER-RICHER, T.L. ROGERS.
- 47 Correlation Between Saw Blade Width and Kerf Width. M.D. MENSCHERL, J.T. POKINES.

Session 2

Bioarchaeology: Techniques and Methods

Contributed Poster Presentations

Chair: Melissa S. Murphy

Platinum Ballroom

- 8:00 Poster setup.
- 9:00 Poster session opens.
- 2:00 Odd number presenters stand by their posters (1 hour).
- 5:30 Even number presenters stand by their posters (1 hour).
- 6:30 Poster removal.
- 1 A reassessment of E. A. Hooton's metric analyses of crania from Madisonville, an Ohio Fort Ancient site (1275-1640 C.E.). M. BURGESS, M.E. MORGAN.
 - 2 Intra-populational variation in non-metric cranial traits for ancestry determination. A case study with European populations. A. VECINO GAZABON.

THURSDAY ALL DAY SESSIONS

- 3 Accuracy of age estimation through Transition Analysis in the Hamann-Todd Collection. AM SIMON, M. HUBBE.
- 4 Fertility and growth rate estimation based on age-at-death composition of skeletal sample: Stochastic approach accounting for sample size. P. GALETA, A. PANKOWSKÁ.
- 5 Variation in Sexual Dimorphism Across Differing Köppen-Geiger Climate Classifications. M.E. FEILER, E.B. WAXENBAUM, S.A. SCHRADER, C.L. BURRELL, M. HOOGLAND.
- 6 MNI and sex estimation in two Umm an-Nar tombs from the UAE. J. ULLINGER, L. GREGORICKA, C. ARELLANO, Q. BURKE, V. CALVIN, C. DOWNEY, R. HEIL, A. MCGRATH, S. MIRABAL TORRES, J. SIMMONS.
- 7 Sex determination of human deciduous teeth from three millennia via amelogenic isoform identification. L. JANKER, A. HADOBAS, D. SCHUSTER, C. GERNER, K. REBAY-SALISBURY, F. KANZ.
- 8 Transverse Lines: An Exploration of Bilateral Symmetry in Subadult Remains and a Re-Assessment of Their Utility in Bioarchaeological Studies. M. SERRA.
- 9 Visualising mastoiditis with a portable X-ray system. S.L. PURCHASE, E. CRAIG-ATKINS, P. NYSTROM, J. RAY.
- 10 An examination of the frequency and etiology of cribra orbitalia and porotic hyperostosis using computed tomography (CT) scans of a contemporary sample from New Mexico. E.C. HILL, L. O'DONNELL, A.S. ANDERSON, H.J. EDGAR.
- 11 Examining Bone Collagen and Carbonate Stable Isotope Ratio Homogeneity via Different Homogenization Methods. C. BATCHELDER, S. HOLDER, T. MADDOX, L.J. REITSEMA, T. DUPRAS, R. JANKAUSKAS.
- 13 Testing the Relationship between Histological Integrity and Protein Content in Diagenesis Using Adult and Immature Bones. K.I. DOWNEY.
- 14 Synchrotron X-ray Fluorescence Imaging of Biogenic and Experimentally-Induced Diagenetic Lead Exposure in Modern and Archaeological Bone. R. SIMPSON, T.L. VARNEY, T. SWANSTON, I. COULTHARD, D.M. COOPER.
- 15 From the Bay to Belize: changes in genetic diversity over time. L.C. SPRINGS, J.F. GARBER, D.A. BOLNICK.
- 16 Species Identification Provides Information on Trade of Bear Paws in Chinese Diaspora Communities of the 19th Century. K.G. BEATY, B. BINGHAM, M. FLORES, C. MONROE, J. KENNEDY, B.M. KEMP.
- 17 Osteology and Paleogenomics: Comparing Applications Using Commingled and Fragmented Pelvis Material from Midnight Terror Cave, Belize to Examine the Sex Dynamics of Human Sacrifice. C. VERDUGO, N. BROOMAND, K. ZHU, L. FEHREN-SCHMITZ.
- 18 Preliminary Analysis of the Commingled Ossuary at Brădești (Fenyéd), Harghita County, Transylvania, Romania. S.I. RECK, J.L. MARRERO-ROSADO, R.E. MITCHELL, M.J. CHAMPNEY, J.E. YOUNG, M. BARREIRO SANCHEZ, A. GONCIAR, Z. NYÁRÁDI, F. WEST.
- 19 Death and Fire: Characterising the burning process and the cremation environment using archaeological burned human remains from Belgium. E. STAMATAKI, C. SNOECK, I. KONTOPOULOS, M. HLAD, K. SALESSE, B. VESELKA, A. SENDELØV, R. ANNAERT, M. BOUDIN, G. CAPUZZO, S. DALLE, G. DE MULDER, C. SABAUX, E. WARMENBOL, M. VERCAUTEREN, D. TYS.

THURSDAY ALL DAY SESSIONS

- 20 **boneMachine: An R Package for Rotation and Analysis of Computed Tomography Scans and Other Three-Dimensional Data.** A.D. BLACKWELL, A.S. ANDERSON.
- 21 **The Past is 3D: using spatial analysis in interpreting an enigmatic mass grave.** B.R. HASSETT, H. SAĞLAMTIMUR.
- 22 **An archaeoanthatological approach to commingled and fragmentary remains.** T.N. LOEWEN, K.C. NYSTROM.
- 23 **Reconstructing Moty-Navaia Shamanka: A new Kitoi cemetery on the middle Irkut River.** R.L. BOURGEOIS, A.R. LIEVERSE, H. MCKENZIE, V.I. BAZALIISKII.
- 24 **Excavations at the Crane Dune Site (41CR61): A Probable Burial Site and Prehistoric Habitation in West Texas.** B.S. MCCLAIN, R. LASSEN, T. GRIFFITH.
- 25 **Mortuary Contexts in Palenque, Mexico: Bone needles as indirect evidence for the presence of mortuary dress in poorly preserved Prehispanic Maya burials.** M. DE TOMASSI.
- 26 **Bio-anthropological practice in contemporary South Africa: engaged critical approaches to research on human remains.** R.A. HUMPHREYS, W. BLACK, J. BAM HUTCHISON, R.R. ACKERMANN.
- 27 **Molecular Archaeological Research on Horse Remains from Shatangbeiyuan Archaeological Site in Longde County, Ningxia Province.** C. LI, N. KANG.
- 28 **A Quantification of the Effect of Foraging Risk on the Prehistoric Foraging-Farming Transition in the Interior Eastern Woodlands of North America.** M.G. TORQUATO, E.R. OTÁROLA-CASTILLO.
- 29 **Using 3D Modelling to Tell Individual Stories from the American Civil War.** K.E. PEARLSTEIN, T. SIMMONS-EHRHARDT, B.K. MEANS, B.F. SPATOLA, AM CHRISTENSEN, R.M. THOMAS, M.R. MANI.

Session 3

Bioarchaeology: Demography, Migration, and Identity

Contributed Poster Presentations

Chair: Melissa S. Murphy

Platinum Ballroom

- 8:00 Poster setup.
- 9:00 Poster session opens.
- 2:00 Odd number presenters stand by their posters (1 hour).
- 5:30 Even number presenters stand by their posters (1 hour).
- 6:30 Poster removal.
- 1 **Flowers born to blush unseen: The biological and cultural context of fetal and perinatal mortality in 18th-19th century South Shields, England.** D. MITCHELL, E. CRAIG-ATKINS.
- 2 **Infant Mortality in Archaic Athens (ca. 700-480 BCE): An investigation into the Jar Burials of Phaleron Cemetery.** J.E. ROTHWELL, E. PREVEDOROU, J.E. BUIKSTRA.

THURSDAY ALL DAY SESSIONS

- 3 Population Dynamics at the Late Copper Age site of Budakalász (Hungary).
A.N. KARABOWICZ.
- 4 Tomb 2 at Las Huacas, Chinchá Valley: The demographic profile and mortuary practices of a Late Horizon commingled tomb. E.M. COBB, J.A. DALTON, J.G. MEJÍA.
- 5 Determination of Sex Ratios Using the Proximal Femur from Midnight Terror Cave, A Commingled Skeletal Deposit. E.L. MCMULLIN.
- 6 Sex Differentials in Mortality in the Bedlam Burial Ground. A. HAM, S.N. DEWITTE.
- 7 Paleodemographic representation indices of a large, single-site graveyard excavation. F. KANZ, B. RENDL, R. RISY, S. WINTER, K. GROSSSCHMIDT.
- 8 The intersectional effects of sex and socioeconomic status on risk of mortality in industrializing England. S.L. YAussy.
- 9 Demographics of 19th century Italian psychiatric patients: A review of the Siena Craniological Collection. J.M. BERGER.
- 10 Ill at Home vs Hospital: Survival and Physiological Stress Comparison of Medieval England. S.D. WHITE.
- 11 Vital records: The demography of an early twentieth century medical school anatomical cadaver collection. D.V. KOPP, M.E. BANTON.
- 12 Biological diversity and social organization at Early Bronze Age Karataş-Semayük. D.M. ADAMS, K.A. GOODHART, A. BÜYÜKKARAKAYA, M.A. PILLOUD.
- 13 Revisiting Helton: Navigating identity through selective Mississippianization on the fringes of Cahokia. A.N. ROSSILLO.
- 14 Mobility of people or cultural affinities? Strontium isotope research at Estark-Joshaqan, a multi-phase cemetery at the western border of Iranian Central Plateau. J. TRĘBICKA, J. HOSSEINZADEH, A. SOŁTYSIAK.
- 15 Life at the crossroads: Isotopic investigations of diet and mobility in late prehistoric Transylvania. J. BECK, H.I. CIUGUDEAN, C.P. QUINN, C. UHNÉR, C.F. PARE, G. BĂLAN, R. BURLACU-TIMOFTE, T.C. O'CONNELL.
- 16 Inferring geographic origins and migration among Middle Formative individuals from the Central Highlands of Mesoamerica using strontium isotopes. P.A. LYNCH, H.J. EDGAR, V.J. POLYAK, G. CANTO AGUILAR, A. ARGÜELLES, C.S. RAGSDALE, Y. ASMEROM, K.M. PRUFER.
- 17 Maize, migration, and mobility: Variation in long bone functional adaptation in the pre- and protohistoric American Southwest. J.J. ROGERS, D.H. TEMPLE, D. HUNT.
- 18 The Interchange of Cultures: Egyptian-Nubian Entanglements in Mortuary Practices in Ancient Nubia. K.A. GUILBAULT, M.R. BUZON.
- 19 Investigating Mortuary Patterns and Community Organization at the Late Iron Age site of Ban Pong Manao, Central Thailand. G. PALEFSKY, C. LIU, K. DEVANWAROPAKORN.
- 20 Bounding Middle Period cemetery use in San Pedro de Atacama, Chile. W.J. PESTLE, M. HUBBE, C. TORRES-ROUFF.
- 21 A Partial Cremation from the Later Stone Age of Northern Malawi. A. BERTACCHI, J. CERESO-ROMÁN, J.C. THOMPSON, J. STOCK, D. KENNETT, F. SCHILT, E. GOMANI-CHINDEBVU.

THURSDAY ALL DAY SESSIONS

- 22 **Bio-molecular characterization of Ancient Romans: a powerful tool for the biological dissection of the widest city of Ancient World.** F. DE ANGELIS, C. MARTÍNEZ-LABARGA, A. BATTISTINI, S. DI GIANNANTONIO, W. PANTANO, S. VARANO, V. VELTRE, F. ZAVARONI, P. CATALANO, T. DI CORCIA, M. ROMBONI, S. ZINGALE, O. RICKARDS.
- 23 **Re-evaluating Forced Migration in a Population of Enslaved Africans from a Revolutionary War Era cemetery in Charleston, SC with a new Revolutionary era strontium baseline.** C.A. JUAREZ.
- 24 **Forced Migration and the Skeletal Record at Fort Amsterdam Depot, St Eustatius, Dutch Caribbean.** F.J. FRICKE, J.E. LAFFOON.
- 25 **'The forgotten of antebellum Natchez: A bioarcheological case study of the nineteenth century Fort Rosalie burial ground'.** B.K. SHIELDS.
- 26 **Missionization and shifting mobility on the southeastern Maya Spanish frontier: Identifying immigration to the Maya site of Tipu, Belize through the use of strontium and oxygen isotopes.** W.R. TRASK.
- 27 **The role of stable hydrogen isotope analysis of bone collagen in refining dietary interpretations at prehistoric Paquimé (Casas Grandes), Mexico.** C. MCCONNAN BORSTAD, A. OFFENBECKER, S. TAYLOR, M. KATZENBERG.
- 28 **Residential mobility or Little Ice Age environments? Interpreting bone carbonate $\delta^{18}\text{O}$ values of early to mid 19th c. Philadelphia burials.** E.A. MCGUIRE, K. MORAN, M. ŠEŠELJ, R.L. QUINN.
- 29 **"Immortal, though he lies under the ground": Osteobiographies of three individuals from the first Battle of Himera (480 BCE).** K.L. REINBERGER, L.J. REITSEMA, B. KYLE, S. VASSALLO.
- 30 **A curious case of prehistoric patchwork: the manipulation of a Neolithic skeletal remains from Pommeroeul, Belgium.** B. VESELKA, D. REICH, G. CAPUZZO, R. BERNARDOS, L. CATTELLAIN, K. CALLAN, F. ZALZALA, C. SABAU, M. BOUDIN, H. ANNAERT, S. DALLE, M. HLAD, G. DE MULDER, I. KONTOPOULOS, K. SALESSE, A. SENGELØV, E. STAMATAKI, M. VERCAUTEREN, E. WARMENBOL, D. TYS, C. SNOECK.
- 31 **Life and death of a Croatian noblewoman: a (bio)archaeological approach.** M. NOVAK, I. JANKOVIC, T. PLESE, F. CAVALLI.
- 32 **Osteobiography of the decapitated Meyer Site (Spencer County, Indiana) Feature 42 Subadult.** J. HEILMANN, G. HOLMES, A.D. MARTINEZ, M. VERMILLION, V. LEAMAN, C. SCHMIDT.
- 33 **A New Discovery of Human Sacrifice in the Lambayeque Valley: Wari Imperialism and Ritual Violence at Huaca Santa Rosa, North Coast Peru.** F.A. REIMER, H.D. KLAUS, O. LYSA, K. SARGENT, E. BRACAMONTE, W. ALVA.
- 34 **Who and when? Dental modification in coastal Ecuador.** S.L. JUENGST, B. HUNDMAN.
- 35 **Our Daily Bread: Intersections of Dental Health, Social Status, and Religious Identity in Early Medieval Central Europe.** L. HOSEK.
- 36 **Early twentieth-century dissection methods: A case study from the early years of the University of Utah's School of Medicine.** M.E. BANTON, D.V. KOPP.
- 37 **Handprints on Bricks from Xiheidai Cemetery during the Jin and Yuan Period in Inner Mongolia, China.** P. LI, T. GAO, Y. FEI, Q. WANG, Q. ZHANG.

THURSDAY ALL DAY SESSIONS

- 38 Skeletal Demography in Neolithic and Bronze-Iron Age Northern China. J. LI, Q. ZHANG, Q. WANG.
- 39 The Skeletal Remains of Members of the Royal Orchestra of the Marquis Yi of Zeng During the Zhou Dynasty, China. X. LIAO, T. GAO, Y. FEI, L. AN, Q. ZHANG, Q. WANG.
- 40 Defining the meaning of "population" in archaeological contexts: A study on modern interpretations of ancient cranial variation. S.A. PONIROS.

Session 4

Bioarchaeology: Diet, Trauma and Care

Contributed Poster Presentations

Chair: Melissa S. Murphy

Platinum Ballroom

- 8:00 Poster setup.
 - 9:00 Poster session opens.
 - 2:00 Odd number presenters stand by their posters (1 hour).
 - 5:30 Even number presenters stand by their posters (1 hour).
 - 6:30 Poster removal.
- 1 Linear enamel hypoplasia frequencies with the rise of urbanism at Tel Megiddo. C. CHISDOCK, A. BROOKS, E. CLINE, D. HUNT, S. SHERIDAN.
 - 2 Metagenomic analysis of human dental calculus in the Mesolithic and Early Neolithic central Balkans. C. OTTONI, R. PINHASI, D. BORIČ, E. CRITIANI.
 - 3 Genomic and proteomic evidence for *Mycobacterium leprae* in human medieval dental calculus from Trondheim, Norway. A.J. VAGENE, A.K. FOTAKIS, S.D. DENHAM, M. ORBEGOZO, M. MACKIE, J.V. OLSEN, E. CAPPELLINI, A. CHRISTOPHERSEN, M. GILBERT.
 - 4 Oral Health in the Inka Heartland: A Tale of Two Sites. M.L. ORRAND, B.L. TURNER.
 - 5 Temporal Changes of Periodontal Disease in the Neolithic Jomon, Japan. A. SASO, K. HAMPSON, O. KONDO.
 - 6 Prehistoric health on the Southern coast of Brazil related to worldwide subsistence practices. S.M. BAKER, M. HUBBE.
 - 7 Stressed to Death: Stable isotope evidence of pathophysiological stress from young people with leprosy buried at a Medieval English leprosarium. K. FILIPEK, C. ROBERTS, J. MONTGOMERY, R. GOWLAND, J. BEAUMONT.
 - 8 Incremental Dental Collagen Isotope Analysis and Reconstructing Childhood Diet at an 18th-19th Century Land-Ownng Family in North Carolina. M.A. PERRY, C. TAYLOR, R.H. TYKOT.
 - 9 Something Fishy in Denmark? An Analysis of Freshwater and Marine Fish Consumption in Medieval Denmark. A.C. DAWSON, C.Y. URISTA.
 - 10 Health implications of diet at Tell el-Amarna. C.J. LEWIS.

THURSDAY ALL DAY SESSIONS

- 11 ELUCIDATING THE PERPETUATION OF SYSTEMIC VIOLENCE IN BIOARCHAEOLOGICAL PRACTICES: An examination of postmortem violence through the lens of historic Eastern Cemetery. C.M. HURT, C.N. GOODWYN.
- 12 Bioarchaeology of violence and medieval monasteries in Central Europe. A. PANKOWSKÁ, P. GALETA, P. UHLÍK SPĚVÁČKOVÁ, K. NOVÁČEK.
- 13 Hip trauma and convalescence: The case for care at Ghazali. R.J. STARK, J. CIESIELSKA, A. OBLUSKI.
- 14 Coming Apart at the Seams: A Bioarchaeology of Care analysis of 50-59 year old female with tuberculosis from the Middle Archaic Midwest (6000 – 3000 BC). A. SCHRENK.
- 15 First, Do No Harm: The Efficacy of a Late 19th and Early 20th Institution of Care. L.A. TREMBLAY.
- 16 An osteobiographical model of care: Case study of Carrier Mills, IL Individual 194. K.C. BEST, J.R. SPENCER, K.N. CABRERA, A. SCHRENK.
- 17 Multiple traumas: health care among an Early Medieval community in Italy (Selvicciola, 4th-8th centuries AD). I. MICARELLI, R. PAINE, M. TAFURI, G. MANZI.
- 18 The Paradoxical Embodiment of Violence and Injuries on a Colonial Sugar Plantation: Bioarchaeological Evidence from Newton Plantation, Barbados. K.A. SHULER.

Session 5

Human Biology

Contributed Poster Presentations

Chair: Melissa S. Murphy

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

2:00 Odd number presenters stand by their posters (1 hour).

5:30 Even number presenters stand by their posters (1 hour).

6:30 Poster removal.

- 1 Early 20th century polio mortality among non-Māori in New Zealand reflects flattened SES gradient. H.T. BATTLES.
- 2 Healthy aging in non-WEIRD societies. T.S. KRAFT, B. TRUMBLE, H. KAPLAN, A. GARCIA, J. STIEGLITZ, M. GURVEN.
- 3 Investment in innate immune defense in northern Kenya. T. TRAN, M. FUJITA.
- 4 Evaluating a “field-friendly” approach to cell culture: Can capillary blood replace venous? J.E. ARONOFF, T.W. MCDADE.

THURSDAY ALL DAY SESSIONS

- 5 Relationships between macroparasite infection and cardiovascular/metabolic health among indigenous Amazonians experiencing rapid economic development. T.J. CEPON-ROBINS, T.E. GILDNER, M.A. LIEBERT, S.S. URLACHER, F.C. MADIMENOS, G.N. EICK, L.S. SUGIYAMA, J.J. SNODGRASS.
- 6 Body Composition and Skeletal Acquisition in a Model of Chronic Stress. T.M. SPENCER, R. TUTINO, M.J. DEVLIN.
- 7 Climbing and Canopy access in Human Foragers is not limited by Grip Strength or Endurance. E.E. KOZMA, D.B. MORGAN, C.M. SANZ, H. PONTZER.
- 8 Toward an improved nutritional ecology of hunters: Macronutrient and mineral composition of wild animals consumed through the "bushmeat" trade in Nigeria. S. FRIANT, C.B. ALAWA, J.M. ROTHMAN.
- 9 An exploratory study of pica in Sierra Leone. J. CRAMER, P. SESAY, P. PEBSWORTH, J.D. MILLER, S.L. YOUNG.
- 10 Household food production shows little effect on body size and composition in two samples of young adult women. K.M. LEE, M.P. ROGERS, A. GALBARCZYK, G. JASIENSKA, K. CLANCY.
- 11 Undernourished Amazon Brazilian children: still a problem? L.A. FILGUEIRAS, H.P. SILVA, E.M. RAMOS, E.A. MOURA, A.K. SILVA.
- 12 Diet modification following the alteration of traditional adaptive strategies and community development in Maya maize agriculturalists from Yucatan, Mexico. F.D. GURRI.
- 13 Cold adaptations in the tropics? Evidence for undertaking a study on BAT activity in Polynesian samples. A. NICLOU, C. OCOBOCK.
- 14 Epigenetic modulation of leptin's signaling by Uncoupling Protein Polymorphisms (*UCP2 - UCP3*) and serum lipids. C. GERHOLD, M. MOSHER, M.H. CRAWFORD.
- 15 Trade-off between resting metabolic rate and growth quality in men but not women. D.P. LONGMAN, S. OYAMA, J. CRACKNELL, N. THOMPSON, D. GORDON, J.T. STOCK, J.C. WELLS.
- 16 Allometric correlates of infant mass growth rate variation. S.R. LEIGH, D.J. NAUMENKO, N. AFFARA, D.B. DUNGER, K.K. ONG, AM PRENTICE, S.E. MOORE, R.M. BERNSTEIN.
- 17 Changes in body composition during short-term acclimatization to highly challenging environments. M.S. SARMA, C.J. OCOBOCK, S. ROCHELLE, S. MARTIN, L.T. GETTLER.
- 18 Body proportion and somatotype of young male weightlifters from Merida, Mexico. S. DATTA BANIK.
- 19 WITHDRAWN – How extreme are Kodhini's twinning rates? A Geospatial and Temporal Look at Indian Twinning Rates. R. BLAIR, J. BONNER, A. SHENOY, S. EWING, G. SAVARIMUTHU, J. FRANCIS, L. MADRIGAL.
- 20 Development of a maternal stress measure associated with low birthweight. L. NEVELL, C.J. CLUKAY, C. HSIAO, E. QUINN, F.M. MAISHA, C.J. MULLIGAN.
- 21 The Pregnancy Pickle: Evolved immune compensation due to pregnancy underlies sex differences in human diseases. A.R. GARCIA, H. NATRI, K. BUETOW, B.C. TRUMBLE, M.A. WILSON.
- 22 Endocrine-epigenetic mechanisms of disease induced by pregnancy exposure to endocrine disrupting chemicals. M. SOBOLEWSKI.

THURSDAY ALL DAY SESSIONS

- 23 The role of dispersal and school attendance on reproductive dynamics in small populations. S.J. MACFARLAN, R. SCHACHT, E. SCHNITER, D. GUEVARA BELTRAN.
- 24 Factors associated with age at natural menopause among Nagas in Nagaland, India. P. RULU, M. DHALL, L.L. SIEVERT.
- 25 Mapping juvenile children's salivary aldosterone and cortisone responses during athletic and non-athletic competition. T.S. MCHALE, W. CHEE, C.R. HODGES-SIMEON, D.T. ZAVA, G. ALBERT, K. CHAN, P.B. GRAY.
- 26 Women's Intimate Apparel as Subtle Sexual Signaling in Heterosexual Relationships. L.K. CRAIG.
- 27 The circle game: is seasonal workload responsible for birth seasonality? I. NENKO, A. MICEK, G. JASIENSKA.
- 28 Physical anthropology, testosterone, and white nationalism: a call to action. M.W. REICHES.
- 29 Sexual Orientation Disparities in Adult Male Stature Are Not Due to Prenatal Androgen Exposure: Evidence from the Cebu Longitudinal Health and Nutrition Survey. J.K. GIBB, T.W. MCDADE, M.A. SCHILLACI.
- 30 Testing for paternal influences on offspring telomere length in a human cohort in the Philippines. D.T. EISENBERG, P.H. REJ, P. DUAZO, D. CARBA, M. HAYES, C.W. KUZAWA.
- 31 Infant mortality risk associated with decreased male commitment and shorter interbirth intervals among American births. K.G. ANDERSON.
- 32 Seasonal workload, reproductive effort, and testosterone levels among Qom men. L.C. ALVARADO, P.T. ELLISON, C. LEWARCH, C.R. VALEGGIA.
- 33 Day of menstrual cycle does not have a significant effect on urinary cortisol levels in a sample of Polish American women. M.A. WILSON, K.N. LEE, M.P. ROGERS, K.B. CLANCY.
- 34 Does the sex difference in upper body strength explain the sex difference in depression? C.B. SMITH, E.H. HAGEN.
- 35 Sexual selection, signaling and facial hair: US and India ratings of variable male facial hair. P.B. GRAY, L.K. CRAIG, J. PAIZ-SAY, L. P. S. KUMAR, M. RANGASWAMY.
- 36 Mental Health is Biological Health; why tackling 'diseases of the mind' is an imperative for biological anthropology in the 21st century. K.L. SYME, E.H. HAGEN.
- 37 Cultural Change, Stress, and Mental Health in Palau, Micronesia. R. SULLIVAN.
- 38 Heightened AMC is not correlated to self-reported maternal stress in a *WEIRD* sample in Tucson, AZ. B. SINGLETARY.
- 39 How positive and negative social experiences vary with cortisol concentration in women of color scientists. M.A. RODRIGUES, M. GALVAN, D. HERRERA, B. RIVERA, R. NEUBAUER, F. SOUMARE, I. ATUNNISE, R. MENDENHALL, E.A. STINE-MORROW, K.B. CLANCY.
- 40 Religious fasting: an adaptive response to resource scarcity or pathogen threat? C. PLACEK.

THURSDAY ALL DAY SESSIONS

- 41 Variation in Mindreading “On the Ground”: Comparing Patterns of Mental State Talk in Two Societies. AM SMITH, H. BARRETT, E.A. CARTMILL.
- 42 Suicidal Thoughts and Suicide Attempts in Depressed Older Adults Globally. T.R. JUDGE, AM DELOUIZE, P. KOWAL, N. NAIDOO, S. CHATTERJI, J. SNODGRASS.
- 43 Serum inflammation in Guamanian Amyotrophic Lateral Sclerosis and Parkinsonism Dementia: A nested case-control pilot study. R.N. CHOWDHURY, E. CULVER, U. WATTOO, F. MARGOLIN, T. NGUYEN, R.M. GARRUTO, K. WANDER, K. LUM.
- 44 Alzheimer’s disease symptoms: A comparison of the United States and Mexico. E.E. GRIFFITH.
- 45 Age-related and culturally specific causes of depression underdiagnosis among older adults: Results from the Study on global AGEing and adult health. J. HICKS, AM DELOUIZE, J. SNODGRASS.
- 46 Cross-cultural associations between gendered perceptions of happiness and leisure time parity among older adults. T.E. GILDNER.
- 47 Is depression an evolved costly signal of need? M. GAFFNEY, E.H. HAGEN.
- 48 Beyond Mickey Mouse: Perpetuating Cartoon Paedomorphosis. M.P. MASTERS.
- 49 It’s Lit: Campfire Relaxation as a Preadaptation for Television Viewing. A. SENTS, E. SMITH, C. LYNN.
- 50 Tool specialization in human cultures: modeling the effects of demography and environmental change on cultural repertoire size. S. STRASSBERG, O. KOLODNY, N. CREANZA.
- 51 The potential of semantic research data modeling in biological anthropology. F. ENGEL, S. SCHLAGER.
- 52 Does variation in female reproductive status explain variation in female smoking? Evidence from cross national and longitudinal studies in low- and middle-income countries. E.H. HAGEN, T. ALVAREZ, D.T. EISENBERG.
- 53 Variation in health-protective sexual behavior may be influenced by individual differences in self-perceived health, immunity, and disgust: A cross-cultural examination. J.K. HLAY, G. ALBERT, C. BATRES, S.A. AMOCKY, C.R. HODGES-SIMEON.
- 54 Ethnicity, fertility, and tobacco use: a biocultural test of the fetal protection model of female smoking. T.A. ALVAREZ, E.H. HAGEN.
- 55 Impact of environmental tobacco smoke on immune function in urban Missouri children with elevated blood lead levels. M.E. DUNCANSON, R.E. NEAL, L.A. WOOD, B. JOHNSON, B. MANION, T.J. WILSON, PM LUTZ.
- 56 Knee osteoarthritis susceptibility among non-industrial societies undergoing rapid lifestyle changes. I.J. WALLACE, D.T. FELSON, S. WORTHINGTON, J. DURYEA, M. CLANCY, P. ALIABADI, G.N. EICK, J. SNODGRASS, A.L. BAGGISH, D.E. LIEBERMAN.

THURSDAY ALL DAY SESSIONS

Session 6

Primate Evolutionary Anatomy and Taxonomy

Contributed Poster Presentations

Chair: *Melissa S. Murphy*

Platinum Ballroom

- 8:00 Poster setup.
- 9:00 Poster session opens.
- 2:00 Odd number presenters stand by their posters (1 hour).
- 5:30 Even number presenters stand by their posters (1 hour).
- 6:30 Poster removal.
- 1 Phylogenetic analysis of extant colobine monkeys using craniodental data. J.L. ARENSON.
 - 2 Phylogenetic Analysis of extant colobines using morphological data: a reassessment. A. FERNANDEZ, S.R. FROST.
 - 3 Male hue, visibility and the evolution of pelage sexual dichromatism in primates. A. VAN HORN, A.N. SPRIGGS, B.C. WILHELM, J.M. KAMILAR, L. ROCKWELL, B.J. BRADLEY.
 - 4 Orange is the Old Black: A Bayesian Phylogenetic Analysis of Primate Natal Coats. PM TAYLOR, C. OPIE.
 - 5 One rate to rule them all? The tempo of trophic evolution in small-bodied primates. J.E. SCOTT.
 - 6 Testing the Giles hypothesis using developmental simulation. E.A. SIMONS.
 - 7 Climatic predictors of primate hair length. J.M. KAMILAR, A.N. SPRIGGS, A. MAKSIMOSKI, B.J. BRADLEY.
 - 8 Metabolic iron and copper stable isotope fractionation in mature rhesus macaques (*Macaca mulatta*). R.D. BOUCHER, H.N. DE JONG, E.R. VOGEL, L.V. GODFREY, S.E. ALAVI.
 - 9 Distinct combinations of cortical and trabecular structure characterize loading history of the tibia: a pQCT study of athletes and controls. J.P. SAERS, L.J. DOERSHUK, N.B. STEPHENS, T. JASHASHVILI, K.J. CARLSON, A.D. GORDON, C.N. SHAW, T.M. RYAN, J.T. STOCK.
 - 10 A theoretical mechanobiological perspective on shear stress as an osteogenic stimulus. H.D. BHRAMDAT, D.J. DAEGLING.
 - 11 Does sexual dimorphism in the gorilla scapula vary with altitude? M. SZAFRANIEC, R.S. JABBOUR.
 - 12 Evaluating bilateral asymmetry in femoral neck shaft angle and femoral head diameter in *Homo sapiens*, *Pan troglodytes*, and *Papio* sp. L.E. DEMAY, C.M. ORR, A.G. WARRENER, M. SHIRLEY MITCHELL.
 - 13 Ontogenetic change in carotid foramen and transverse foramen size reflects change in brain metabolic rate and blood flow rate during growth in humans. A.R. HARRINGTON, C.W. KUZAWA, D.M. BOYER.

THURSDAY ALL DAY SESSIONS

- 14 **Relative encephalic artery size and re-estimating brain metabolism in the tarsier.**
L.L. NELSON, T.K. NALLEY, N. GRIDER-POTTER, J. ORGAN.
- 15 **Is human brain organization economical? Brain region metabolic rates in relation to size changes in evolution and life history.** A.A. DE SOUSA, O.S. TODOROV, M.J. PROULX.
- 16 **The paracingulate sulcus is present in the medial frontal cortex of great apes.**
E.N. MILLER, C.C. SHERWOOD, W.D. HOPKINS.
- 17 **Human mothers' breast tissues role in neonate body temperature management.**
T.M. KUVAJA.
- 18 **Lemurs Smell Better than Catarrhines.** R.M. DECAMP, S.A. POINDEXTER, C.A. SCHMITT, E.C. GARRETT.
- 19 **A functional comparison of primate blood microbiota and whole blood transcriptomes.**
N. VALIZADEGAN, E.K. MALLOTT, J.F. BRINKWORTH.
- 20 **Investigating age-related variation in the methylome of rhesus macaques.** E.A. GOLDMAN, K.L. CHIOU, M.J. MONTAGUE, A. MERCER, S. SAMS, M.I. MARTINEZ, J.E. HORVATH, L.J. BRENT, M.L. PLATT, K.N. STERNER, N. SNYDER-MACKLER.
- 21 **The transcriptome provides a window into SIV tolerance in a wild primate.** T.J. ANDERSON, N.D. SIMONS, N. TING, K.N. STERNER.

THURSDAY, MORNING SESSIONS

Session 7

Genomic Insights into Nonhuman Primate Behavior, Biology, and Evolution (Joint AAAG-AAPA symposium)

Invited Podium Symposium

Chair: Timothy H. Webster. Co-organizers: Timothy H Webster

Diamond 4

The incorporation of PCR and noninvasive genetic methods into nonhuman primate studies approximately 25 years ago revolutionized our understanding of primate evolutionary ecology. The past decade has seen a second enormous leap in genetic methods, as advances in next-generation sequencing technology and bioinformatic methods have paved the way for the generation and analysis of data from across the entire genome. These data have the potential to unlock answers to an entirely new body of questions in primatology. This AAAG-AAPA joint symposium highlights the range of novel insights into primate biology, behavior, and evolution that can be gained with large genomic datasets. Speakers will present work leveraging a variety of data types—nuclear genomes, exomes, transcripts, epigenomes, and microbiomes—to address topics central to primatology. These range from development and aging, stress, and health within individuals over the life course, to introgression, demography, and adaptation within and among populations and species over time. Talks emphasize both the active role of the genome in shaping biology and also how biology shapes the genome, leaving signals that can be used to reconstruct processes operating in the past. Further, all presenters are pre-tenure, early career researchers; a central goal of this symposium will be to highlight the world of possibility for these techniques and catalyze a new wave of primatological genomic research.

- 8:00 **Pedigree sequencing shows that life history plays a major role in mutation rate variation in primates.** G.W. THOMAS, R.J. WANG, R. HARRIS, M. RAVEENDRAN, J. ROGERS, M.W. HAHN.
- 8:15 **Understanding evolutionary changes in gene expression through the development of a comparative primate skeletal cell culture model.** G. HOUSMAN, Y. GILAD.
- 8:30 **Mosaic X Chromosome Inactivation in Rhesus Macaques (*Macaca mulatta*).** T.H. WEBSTER, T.N. PHUNG, M.J. MONTAGUE, O. GONZALEZ, S. BAUMAN, M. STOCK, C. VILLAMIL, M. MARTINEZ, J.P. HIGHAM, N. SNYDER-MACKLER, M.L. PLATT, M.A. WILSON.
- 8:45 **Signatures of Development in the Gastrointestinal Microbiome of Wild Savanna Monkeys.** AM RICH, S. MOKGOKONG, M.B. BLASZCZYK, D.L. DALTON, K.R. AMATO, C.A. SCHMITT.
- 9:00 **Parallel gene regulatory signatures of social stress and aging in rhesus macaques.** N.D. SIMONS, P.L. MAURIZIO, J. BATISTA, V. MICHPOULOS, L.B. BARREIRO, J. TUNG.
- 9:15 **The rhesus macaque brain cell census reveals heterogeneity in aging across cell types.** K.L. CHIOU, A.R. DECASIEN, M.J. MONTAGUE, S.E. BAUMAN, N.R. COMPO, O. GONZÁLEZ, H.A. PLINER, C.H. SPURRELL, L.M. STARITA, L.J. BRENT, J.P. HIGHAM, M.I. MARTINEZ, J. SHENDURE, M.L. PLATT, N. SNYDER-MACKLER.

THURSDAY MORNING SESSIONS

- 9:30 Recent selective sweeps in bonobos (*Pan paniscus*): A machine learning approach. C.M. BRAND, T.H. WEBSTER, F.J. WHITE, N. TING.
- 9:45 Pervasive genomic evidence for adaptation to a leaf-based diet in sifakas (*genus Propithecus*). E.E. GUEVARA, T.H. WEBSTER, R.R. LAWLER, B.J. BRADLEY, J. RANAIVONASY, J. RATSIRARSON, R. HARRIS, Y. LIU, S. MURALI, M. RAVEENDRAN, D.S. HUGHES, D.M. MUZNY, A.D. YODER, K.C. WORLEY, J. ROGERS.
- 10:00 Break.
- 10:30 Signatures of adaptive evolution in Neotropical primate genomes with a focus on capuchin monkeys. H. BYRNE, P. IZAR, J.W. LYNCH.
- 10:45 Genomics of adaptation, convergence, and evolutionary conservation in haplorrhine primates. C.M. BERGEY, A.E. TRUJILLO, T.R. DISOTELL, A.J. TOSI, A.S. BURRELL.
- 11:00 Mapping putative genetic barriers to gene flow in hybrid baboons. A.S. FOGEL, T.P. VILGALYS, S. KIM, J. ALTMANN, S.C. ALBERTS, J. TUNG.
- 11:15 The Effects of Host Taxon, Hybridization, and Environment on the Gut Microbiome of *Callithrix* Marmosets. J. MALUKIEWICZ, R.A. CARTWRIGHT, J.A. DERGAM, C.S. IGAYARA, S. KESSLER, S.B. MOREIRA, L.T. NASH, P.A. NICOLA, L.C. PEREIRA, A. PISSINATI, C.R. RUIZ-MIRANDA, A.T. OZGA, C. ROOS, D.L. SILVA, A.C. STONE, A.D. GRATIVOL.
- 11:30 Expressing the Thrifty Phenotype? Associations between Lifelong Growth Trajectories and Whole Genome Expression Variation in Captive Baboons (*Papio hamadryas*). C.A. SCHMITT, E.E. QUILLEN.
- 11:45 Discussants: Jenny Tung & Timothy Webster.

Session 8

Skeletal Biology

Contributed Podium Presentations

Chair: Maureen Devlin

Diamond 2

- 8:00 Quantifying regional variations of secondary osteons' size from white-tailed deer proximal humeri as a tool to predict compressive vs. tensile loading. M.M. BARAK, J. NGUYEN.
- 8:15 Exercise and postural effects on trabecular and subchondral bone properties in the medial femoral condyle. H. SONG, M.E. KERSH, J.D. POLK.
- 8:30 Correlations between structural properties of cortical and trabecular bone in the human limbs. B. MULDER, J.T. STOCK, J.P. SAERS, S.A. INSKIP, C. GESSFORD, J.E. ROBB.
- 8:45 Three-dimensional cortical pore networks are morphologically optimized for localized mechanical strain in the human femoral neck and rib. M.E. COLE, S.D. STOUT, AM AGNEW.
- 9:00 Structural changes with increasing age and athletic history in the human forearm. A.F. GOODING, L.H. CATES.

THURSDAY MORNING SESSIONS

- 9:15 **Exercise increases nonshivering thermogenesis but not bone mass during cold exposure in a mouse model of humans.** A. ROBBINS, C.A. TOM, M.N. COSMAN, R. TUTINO, T.M. SPENCER, C. MOURSI, R. HURWITZ, M.J. DEVLIN.
- 9:30 **Why the long face? A study of cranial shape change in mice artificially selected for longer limbs.** C.M. UNGER, J. DEVINE, C. ROLIAN.
- 9:45 **Developmental plasticity and soft-tissue reconstruction: Using the Cayo Santiago macaques to predict somatic dimensions from skeletal material.** C.M. TURCOTTE, A. CHOI, J.K. SPEAR, H.G. TABOADA, M.K. STOCK, C.I. VILLAMIL, S. BAUMANN SURRAT, J.P. HIGHAM, S.A. WILLIAMS, S.C. ANTÓN.
- 10:00 **Break.**
- 10:30 **The ontogeny of shape and integration in the hands and feet of catarrhine primates.** A.J. RAGNI.
- 10:45 **Rudimentary and non-rudimentary metapodials differ in developmental constraint in length.** R.G. TAGUE.
- 11:00 **Withdrawn.**

Session 9

From Ancient to Contemporary Genomes: Health and Population History

Contributed Podium Presentations

Chair: Jeffrey Rogers

Diamond 3

- 8:00 **New perspectives on Nubian ancestry: Paleogenomic investigation of the ancient Middle Nile Region.** AM BREIDENSTEIN, J. NEUKAMM, C. BARBIERI, G. FERRARI, A.T. GONDEK-WYROZEMSKA, M. ABDALLAH, M. BASHIR, M. BUSHARA, R.J. STARK, J. CIESIELSKA, A. OBLUSKI, B. STAR, H. HASSAN, F. RÜHLI, V. SCHUENEMANN, A.W. BIGHAM.
- 8:15 **Bronze Age *Y. pestis* genomes from the Lake Baikal region.** M.A. SPYROU, H. YU, R. RADZEVICIUTE, G.U. NEUMANN, S. PENSKE, J. ZECH, P. LEROUX, M. KARAPETIAN, P. ROBERTS, A. BUZHILOVA, C. POSTH, C. JEONG, J. KRAUSE.
- 8:30 **The Impact of Admixture on Neanderthal and Denisovan Ancestry in Modern Human Populations.** A. FUNK, K. WITT DILLON, L. LOPEZ, J. RICE, E. HUERTA-SANCHEZ.
- 8:45 **ABO blood type variation in archaic humans: haplotype structure in Neanderthals and Denisovans.** F.A. VILLANEVA, K. FOX, E. HUERTA-SÁNCHEZ.
- 9:00 **Neanderthal-Denisovan ancestors interbred with a distantly-related hominin.** A.R. ROGERS, N.S. HARRIS, A.A. ACHENBACH.
- 9:15 **Characterizing Archaic Hominin Variation in Human Populations.** K.E. WITT, E. HUERTA-SANCHEZ.
- 9:30 **Surprising direction of evolutionary changes associated with hunter-gatherer and agriculturalist immunological differences.** G. PERRY, G. HARRISON, J. SANZ, J. BOULAIS, M. MINA, J. GRENIER, Y. LENG, A. DUMAINE, V. YOTOVA, C. BERGEY, S. NSOBYA, S. ELLEDGE, E. SCHURR, L. QUINTANA-MURCI, L. BARREIRO.

THURSDAY MORNING SESSIONS

- 9:45 Interpreting ancient human migration in the Peruvian Andes with co-evolutionary insect genetics. K.C. JORGENSEN, C. FAN, J. ALCÁZAR, N. MUJICA, C.V. COBIÁN, J.J. LESNIK.
- 10:00 Break.
- 10:30 African mitogenome diversity in 18th century Charleston, South Carolina. R.E. FLESKES, A.A. OFUNNIYIN, J. GILMORE, G.S. CABANA, T.G. SCHURR.
- 10:45 Genetic Diversity in Contemporary Charleston African-Americans: Connecting Ancestral and Descendant Communities. T.G. SCHURR, R.E. FLESKES, A. ODUWOLE, A.A. OFUNNIYIN, J.K. GILMORE.
- 11:00 Using genomic data to track cultural evolution in South African populations over the past 200 years. A.W. REYNOLDS, M.N. GROTE, J.W. MYRICK, R.L. SIFORD, C.J. WERELY, E.G. HOAL, C.R. GIGNOUX, M. MÖLLER, B.M. HENN.
- 11:15 Genetic ancestry and demographic history of a rural Caribbean village. M.H. KEITH, H.J. DURBIN, T.N. ROWAN, G.E. BLOMQUIST, M.V. FLINN, J.F. TAYLOR, J.E. DECKER.
- 11:30 Genomic and anthropological perspectives on the Afro-Caribbean diaspora in the Lesser Antilles. M.A. NIEVES-COLÓN, D. OROZCO-PÉREZ, J. BENN TORRES, A. MORENO-ESTRADA, A.C. STONE.
- 11:45 Deliberation methods as community engagement. J. LUND.

Session 10

Bioarchaeology: Health, Disease, and Trauma

Contributed Podium Presentations

Chair: Lori Tremblay

Diamond 5

- 8:00 Taphonomy or targeting? Re-examining trauma patterns in skeletons from medieval European battlefields. R.T. HOGG.
- 8:15 Troubles in Tuva: demographic patterns of interpersonal violence in a Late Antique nomadic community from Southern Siberia (2nd-4th c. AD). M. MILELLA, G. CASPARI, Y. KAPINUS, J. BLOCHIN, T. SADYKOV, S. LÖSCH.
- 8:30 Reinterpreting Human Sacrifice in Ancient Egypt: New Conclusions from Old Data. R.A. CAMPBELL.
- 8:45 Subadult Human Sacrifice in Maya Caves: Reformulating the Emphasis of Maya Sacrificial Practices. M.G. PROUT.
- 9:00 Mortuary Practices, Body Modification and Identity in the Western Maya Borderlands: Evidence from Late-Terminal Classic (AD 600-1000) Cemeteries at Comalcalco, Tabasco, Mexico. S. SERAFIN, R. ARMIJO TORRES, M. GALLEGOS GÓMORA.
- 9:15 Withdrawn.
- 9:30 Activity patterns in an early medieval German community: the association of degenerative joint disease and traumatic injury. L.L. WILLIAMS, K.S. WEINRICH.
- 9:45 Local Practice Between Empires: Physical Activity and Osseous Response in Colonial Mexico. E. ALARCÓN TINAJERO, J.A. GÓMEZ-VALDÉS.

THURSDAY MORNING SESSIONS

- 10:00 Break.
- 10:30 Sexual division of labor in a Celtic population from Northern Italy: patterns of enthesal changes and long bone shape and robusticity from Seminario Vescovile (Verona, 3rd-1st c BC). Z. LAFFRANCHI, D. CHARISI, S. JIMÉNEZ BROBEIL, M. MILELLA.
- 10:45 The Aquatic Neolithic: isotope, aDNA, radiocarbon, and osteological data analysis reveal asynchronous behavior in early prehistoric human societies of Ukraine. C. BUDD, I. POTEKHINA, C. SNOECK, M. LILLIE.
- 11:00 Social stratification and its differential experience at Middle Kingdom (2050-1650 B.C.) sites in Egypt. A.C. CAINE.
- 11:15 Bioarchaeological analysis of Late Neolithic inhumations from a dolmen in Switzerland. S. LÖSCH, I. SIEBKE, A. FURTWÄNGLER, N. STEURI, A. HAFNER, M. RAMSTEIN, J. KRAUSE.
- 11:30 Human health and adaptation along Silk Roads- a bioarchaeological investigation of Medieval Uzbek cemeteries. R.L. KINASTON, L. DAMASEK, R. KRAMER, J. KYSELA, A. AUGUSTINOVÁ, M. SMOLKOVA, D. PILAR.
- 11:45 Life histories in the study of ancient rare diseases. A.A. CORMIER, J.E. BUIKSTRA, A. WISSLER.

Session 11

Primate Behavior

Contributed Podium Presentations

Chair: Caitlin O'Connell

Diamond 8-9

- 8:00 A potential trade-off in robbing and bartering behavior in long-tailed macaques in Uluwatu temple, Bali, Indonesia. N. AIEMPICHTIKIJKARN, B. MCCOWAN, I. WANDIA, J. LECA.
- 8:15 "I Would Not Feel So All Alone, Everybody Must Get Stone[s]": Social Stone Handling Facilitates Bonding Among Subadult Male Long-Tailed Macaques in Bali. J.V. PETERSON, A. FUENTES.
- 8:30 Impact of anthropogenic factors on affiliative behaviors among wild bonnet macaques. K. BALASUBRAMANIAM, P. MARTY, M. ARLET, B. BEISNER, S. KABURU, E. BLISS-MOREAU, U. KODANDARAMAJAH, B. MCCOWAN.
- 8:45 Social relationships in a group of wild spider monkeys (*Ateles belzebuth*) in the Ecuadorian Amazon. S. RAMIREZ AMAYA, K. LANGERGRABER, A. LINK, A. DI FIORE.
- 9:00 The reproductive and social context of whinny vocalizations in female Geoffroy's spider monkeys (*Ateles geoffroyi*). J.T. WALZ, M.A. RODRIGUES.
- 9:15 Individual Flexibility in the Construction of Social Niches by Wild Chimpanzees. J.A. FUNKHOUSER, D. MORGAN, S. MUSGRAVE, C. SANZ.
- 9:30 Collective decision-making, social organization, and group foraging in capuchin and spider monkeys. G.H. DAVIS, M.C. CROFOOT.

THURSDAY MORNING SESSIONS

- 9:45 Individual predictors of participation in intergroup encounters among urban-dwelling rhesus macaques (*Macaca mulatta*). B. CHAKRABORTY, S.S. KABURU, P. MARTY, K. BALASUBRAMANIAM, B. BEISNER, L. MOHAN, S.K. RATTAN, B. MCCOWAN.
- 10:00 Break.
- 10:30 Effects of between group competition on cooperation and oxytocin in capuchins. M.E. BENITEZ, S.F. BRÖSNAN.
- 10:45 Redefining what it means to win an intergroup conflict among red-tailed monkeys (*Cercopithecus ascanius*) in Kibale National Park, Uganda. M. BROWN, M.E. THOMPSON.
- 11:00 The rainforest vervet: Locomotor behavior, habitat preference, and pelage variation in *Cercopithecus dryas*. D. ALEMPIJEVIC, E.M. BOLIABO, T.B. HART, J.A. HART, K.M. DETWILER.
- 11:15 Playful teasing: evidence of joking in non-human primates? E.A. CARTMILL, J. ECKERT, S. WINKLER.
- 11:30 An investigation of social interactions among rhesus macaques (*Macaca mulatta*) as a predictor of human-monkey interactions at the Jakhoo temple in Shimla, Himachal Pradesh, India. T. GILL.

Session 12

Current challenges in morphometrics: Lost in high dimensions? An invited session in memory of Dennis E. Slice

Invited Poster Symposium

Chair: Katrin Schaefer. Co-organizers: Philipp Mitteroecker, Katrin Schaefer

Diamond 10

This symposium is a memorial to Dennis E. Slice, professor of scientific computing at Florida State University and honorary professor at the Department of Anthropology, University of Vienna (Austria), senior ambassador and enthusiastic teacher of geometric morphometrics (particularly in anthropology and forensics), and recipient of the fourth Rohlf Medal for Excellence in Morphometrics. Countless anthropological and forensic research projects have exploited his freely available Morpheus software, and without his tireless and selfless moderation of morphmet, the central online forum in morphometrics, the morphometric community would have evolved very differently. Our symposium will honor a specific thrust of Slice's recent work by examining current advances that combine geometric morphometrics with 3D imaging technology in order to quantify complex morphologies at high resolution using hundreds or thousands of shape variables. But this gain in spatial resolution has a price: Multivariate analyses of these many variables are difficult to interpret and can be computationally challenging; the standard tools of multivariate statistics were not invented for such a vast excess of measurements over cases. The problem is particularly pressing in physical anthropology, especially paleoanthropology, where studies typically exploit many measurements upon small samples. It is just as challenging to relate such morphometric data to other data from biomechanics, behavior, or genomics, especially when those other data are highly multivariate also. The symposium combines cutting-edge applications of high-resolution morphometrics in biological anthropology and its adjacent

THURSDAY MORNING SESSIONS

disciplines (track A) with novel approaches to the multivariate analysis and integration of high-resolution morphometrics with other complex bioscientific data structures (track B).

2:00 Welcome address: Katrin Schaefer.

2:10 Introduction and Finding clusters where there are none: F. James Rohlf.

2:30 Presentation of posters from track A (odd numbers).

3:30 BREAK.

4:00 Presentation of posters from track B (even numbers).

5:00 Discussant: Fred L. Bookstein.

5:15 Discussant: Philipp Mitteroecker.

5:30 General discussion.

6:00 Closing remarks.

- 1 The evolution of the human torso: 3D geometric morphometrics of thorax-pelvis integration and their applications to body shape reconstruction. M. BASTIR, N. TORRES-TAMAYO.
- 2 Biomechanical correlates of zygomaxillary surface shape in papionin monkeys. M. SINGLETON, D.E. EHRLICH, J.W. ADAMS.
- 3 Exploring intraspecific variation in Old World monkeys. S. ELTON.
- 4 Estimation of among-landmark covariances: not always, but sometimes. T.M. COLE III, S.R. LELE, L. HU, P. SOLYMOS, J.T. RICHTSMEIER.
- 5 More than twenty years of geometric morphometrics and the species conservation. A tribute to Dennis E. Slice. A. LOY, P. CIUCCI, P. COLANGELO, G. GUIDARELLI, C. MELORO.
- 7 Geometric Morphometric Analysis of the dental remains from the Early Upper Paleolithic of Manot Cave, Israel. R. SARIG, C. FORNAI, H. MAY, O. BARZILAI, G.W. WEBER.
- 8 A computational framework for estimating ancestry and adult age-at-death from shape measures of the pubic symphysis. B.F. ALGEE-HEWITT, J. KIM.
- 10 The ontogeny of endocranial shape asymmetry in humans and apes. S. NEUBAUER, P. GUNZ, N.A. SCOTT, J. HUBLIN, P. MITTEROECKER.
- 11 Applied Geometric Morphometrics in Surgery Planning. S. SCHLAGER, M. FÜSSINGER, M. GASS, M. METZGER.
- 12 Phenotyping the brain, the face, and their genetic interaction over development. N. MARTÍNEZ-ABADÍAS, R. GONZÁLEZ, A. ROBERT-MORENO, J. SWOGER, S.M. MOTCH PERRINE, K. KAWASAKI, J. RICHTSMEIER, J. SHARPE.
- 14 New Methods to Analyze Animal Vocalizations with Anthropological Applications. S.A. TOWNSEND, A. MEYER-BAESE, P. BEERLI, D.E. SLICE.
- 15 Extension and refinement of a landmark-free method for 3D shape analysis. B.J. POMIDOR.
- 16 Dynamic factor analysis as a dimension reduction technique for shape trajectory data. K. SODA.
- 17 Digitizing typologies: A morphometric archive of lithics projectile point collections from Florida. M.L. NAGALES, K.O. MIYAR, S.M. WILFORD.

THURSDAY MORNING SESSIONS

- 19 **Morphometrics and the analysis of fragmentary remains: the case of the Megalopolis isolated upper M3.** C. RÖDING, J. ZASTROW, H. SCHERF, C. DOUKAS, K. HARVATI.
- 20 **How aging smooths a surface: GMM of pelvic symphysis roughness.** G. BRAVO MORANTE, F.L. BOOKSTEIN, K. SCHAEFER, I. ALEMÁN AGUILERA, M. BOTELLA LÓPEZ.
- 21 **A comparative morphometric assessment of sexual dimorphism in the human sacrum.** V.A. KRENN, C. FORNAI, N.M. WEBB, M. HAEUSLER.

Session 13

Shaping the human skeleton: Integrating the various approaches to human skeletal variation and evolution

Invited Poster Symposium

Chair: Marianne F. Brasil. Co-organizers: Cat E. Taylor

Diamond 6

Human skeletal morphology results from a complex interplay of forces. Addressing *how* anatomy varies and evolves is a multifaceted problem, and benefits from the integration of diverse approaches. This symposium is aimed at stimulating discussion among and between specialists from different sub-disciplines within biological anthropology. Seven broad research areas are included. In order to explore the factors that produce and influence variation in the human skeleton, we include experts on population history, behavior, sex and gender, development, and evolvability. Several presentations dive into how the skeleton actually *did* evolve, presenting evidence preserved in the Pleistocene and Pliocene fossil records.

Discussant: Benjamin M. Auerbach.

Discussant: Libby W. Cowgill.

- 1 **Disentangling the effects of population history on modern human cranial variation.** N. VON CRAMON-TAUBADEL, M. HUBBE.
- 2 **Beyond Distance Alone: Testing the Efficacy of Skeletal Biological Methods in Capturing Population Gene Flow.** A.M. MALLARD, B.M. AUERBACH.
- 3 **Population history and the evolution of human variation.** K.R. SAVELL, C.C. ROSEMAN.
- 4 **Extending our understanding of human long bone mechanobiology through life history theory.** A.A. MURRAY, J.C. WELLS, J.T. STOCK.
- 5 **Variation in cortical and trabecular bone structure in relation to subsistence strategy in a diverse sample of modern humans.** T.M. RYAN, L.J. DEMARS, N.B. STEPHENS, K. PETERS, J.P. SAERS, M.R. DOWDESWELL, T. JASHASHVILI, K.J. CARLSON, J.T. STOCK, A.D. GORDON.
- 6 **Beyond sex and gender: Human pelvic morphology from an integrative context.** C.M. WALL-SCHEFFLER, H.K. KURKI.
- 7 **Beyond dimorphism: sexual polymorphism and human skeletal variation.** C.M. ASTORINO.
- 8 **Phenotypic covariance in modern human limbs.** C.E. TAYLOR, M.F. BRASIL.
- 9 **Dietary modification of insulin receptor abundance in the growth plate.** V.A. TOBOLSKY, J. HOLLANDER, T. CAPELLINI, L. ZENG, D.E. LIEBERMAN.

THURSDAY MORNING SESSIONS

- 10 The developmental basis for variation in the human shoulder. N.M. YOUNG, N.T. ROACH, T.D. CAPELLINI.
- 11 Using normal variation in mouse ossification to identify genes underlying growth plate formation. P.L. RENO, C. ROBERTS, E.K. SCHUETZ, K.M. KJOSNESS, D.B. MENKE.
- 12 Morphological integration and evolutionary potential of the shoulder girdle in humans and non-human primates. E.R. AGOSTO.
- 13 WITHDRAWN – Virtual reconstruction and description of the lower face and dentition of StW 498 – a Sterkfontein *Australopithecus*. S. REDDY, R.J. CLARKE, K.J. CARLSON, J. BRAGA, D.J. STRATFORD.
- 14 Which evolutionary processes produced cranial differences between Neandertals and Upper Paleolithic or more recent humans? T.D. WEAVER, P. GUNZ, S.E. FREIDLINE.
- 15 Teasing apart function and phylogeny in the human upper limb. O.M. PEARSON, E.C. HILL.
- 16 Early *Homo sapiens* postcranial fossils from Middle Awash, Ethiopia. M.F. BRASIL.

Session 14

Making human evolution accessible through non-formal learning

Invited Poster Symposium

Chair: Katrina E. Yezzi-Woodley. Co-organizers: Katrina Yezzi-Woodley, Frances Forrest.

Diamond 7

The AAPA Education Committee brings together scientists, educators, outreach coordinators, and the general public, to promote science literacy and create excitement for teaching and learning biological anthropology, particularly for the benefit of K-12 teachers and students. For the past several years, the committee has organized education workshops with local teachers and coordinated visits to classrooms and museums to exchange ideas and share resources. This year, we are putting together a poster symposium to highlight non-formal education practices that have been successful in generating public engagement with human evolution. Non-formal learning is a way of creating a structured learning environment that allows people of all ages the freedom and flexibility to explore their interests in a way that is fun and engaging, without the pressure of strict assessment. These practices include easy to follow hands-on-activities, strategies for disseminating information and raising public awareness, ideas for formal and informal education settings, techniques for bringing technology into the learning environment, best practices for K-12 education, and approaches for assessing prior knowledge about human evolution. Presenters include people at all career stages and from a variety of backgrounds and educational settings including research and teaching faculty, graduate students, museum educators, and professionals from non-academic science institutions.

THURSDAY MORNING SESSIONS

Discussant: Becca Peixotto.

- 1 **Beyond "Outreach": Effective Strategies for Engaging At-Risk High School Students in Biological Anthropology.** K. YEZZI-WOODLEY, J. ABDELLA, K. ERDMAN.
- 2 **The Powerhouse Project: Encouraging Community Stewardship in Anthropology Students.** N.C. NEFF, H.M. BROOKSHIER, D.M. MULHERN, L. SHUPE-DIGGS.
- 3 **Virtual Koobi Fora: Bringing the field into the classroom.** F. FORREST.
- 4 **Using 3D prints of primates to teach evolution through comparative anatomy: a multi-modal educational module.** H.M. BROOKSHIER, D.M. MULHERN, N.C. NEFF.
- 5 **Evolution Education is not a (W)Rap: Creative Methods for Engaging the Public in Evolution Education Aren't Always Effective.** C.M. KECK, C.D. LYNN, W. EVANS.
- 6 **An activity based five-day professional development workshop for pre-college educators: incorporating evolution and biological anthropology into middle- and high-school curricula.** L.J. DEMARS, A.M. GUERRA, J.M. WISOR, M. HERNANDEZ, T.S. WOOD, A. CESARE, K. HILL, T.M. RYAN.
- 7 **It's elementary: Extending the teaching of anthropology to elementary schools.** J.G. SPONHOLTZ, C.D. LYNN, A. MCNEECE.
- 8 **Impacts of the Smithsonian Human Origins Program's expert-led public events.** B. POBINER, R. POTTS, E. BEAUDOIN.
- 9 **Introducing Hominins and Building Bridges: The Origins Community Art Project.** K.L. ANDERSON, O. SANTOYO, A. MONTGOMERY, B. PEIXOTTO.
- 10 **Teaching Evolution in Creationist Country: Strategies for Effective Engagement.** K. CARTER.
- 11 **Bigger on the inside: Using agent-based models in the classroom to explore big questions in evolutionary anthropology.** M.L. WILSON, K.N. CROUSE, C.M. MILLER.
- 12 **Strategies for presenting human origins science for middle- and high-school students and teachers.** A.L. PETERSON, I.E. SMAIL, E. DALY, A. ORTIZ, H. EDMONDS.
- 13 **Does the naturalistic fallacy impede students' understanding of the evolution of human behavior?** L. GLEASON, S. MATHEW.
- 14 **Fossils in the Museum. Non-formal classes for school children and students about fossils and their stories.** S. MUSALIZI, C. SSEBUYUNGO, M. TATYABALA, V. NGABIRANO.
- 15 **The First Annual Human Evolution Summer Teacher Workshop: Evolution Education in the Southeastern United States.** M.C. SELBA, M.J. ZIEGLER, J.S. MEAD.

THURSDAY, AFTERNOON SESSIONS

Session 15

What Is a Population? Troubling Foundational Concepts and Categorization in Biological Anthropology

Invited Podium Symposium

Chair: Adam P. Van Arsdale. Co-organizers: Robin Nelson

Diamond 4

In 1951, Sherwood Washburn proposed a new physical anthropology. Central to Washburn's vision, and borrowed from the modern synthesis in evolutionary biology, was a re-centering of the focus of research on the population. The population was the unit through which evolutionary processes can and should be understood, avoiding the pitfalls of atheoretical taxonomization. Nearly 70 years removed, the population remains the focal unit of biological anthropology, and yet, in practice, it is not clear this category has either consistency or clarity. In 2003, Caspari pointed out that although the language of biological anthropology has changed substantially over the past century, from "types to populations," the underlying logic—populations as discrete branches of a tree-like structure—remains quite similar. At its root, this inertia in the discipline reflects an unfinished theoritization of populations as a unit of study, particularly given the diverse scales (temporal and geographic) and kinds of evidence (fossil, skeletal, archaeological, medical, anthropometric, biometric, genetic) employed in biological anthropology research. This panel aims to bring together researchers from across the spectrum of biological anthropology in a focused conversation on several related questions central to the discipline. What is a population? What connections can be drawn between the ways in which populations are constructed across the discipline? What are the implications for how anthropologists communicate about populations, both with each other and with diverse publics? These questions have taken on an even greater importance given advancing knowledge within the field (e.g. aDNA, primate hybridity), as well as an increasing awareness and availability of "population" data to the public (e.g. DTC genetics, ancestry). The challenges faced by anthropology around this topic also present an opportunity for biological anthropology to lead the way in developing new frameworks for constructing populations that are of relevance for the broader fields of evolutionary biology.

- 2:30 **Demes in Disarray: Reconciling Evidence, Observation, and Population Structure in the Pleistocene.** A.P. VAN ARSDALE, M.M. GLANTZ.
- 2:45 **Spatial Demography, Population Size, and Genetic Drift: A Model-Based Approach.** A.A. WHITE.
- 3:00 **The fuzzy nature of paleopopulations defies typology.** S.G. ATHREYA, R.R. ACKERMANN.
- 3:15 **Balancing the Scales of Bioarchaeology: Meaningful Studies of Health and Function in Past Populations, Communities and Individuals.** S.C. AGARWAL.
- 3:30 **Discussant: Rachel Caspari.**
- 3:45 **From Kin to Kind: Becoming Molecular in the Time of American Settler Colonialism.** R.W. SMITH.

THURSDAY AFTERNOON SESSIONS

- 4:00 Navigating identity politics in genomics research: a case study of Afro-descendants in Puerto Rico. J. BENN TORRES.
- 4:15 Population, Race, or Racism?: slippery usage of the population concept in studies of health inequities in minoritized communities. R.G. NELSON.
- 4:30 What a population is, and is not, matters: ancestry, evolution and racist science. D.A. BOLNICK, A. FUENTES.
- 4:45 The misuse of “hunter-gatherers” as a discreet unit in population studies. A.N. CRITTENDEN, T.R. POLLOM.
- 5:00 When populations are porous: admixture dynamics in a wild baboon hybrid zone. J. TUNG, T.P. VILGALYS, A.S. FOGEL, S.C. ALBERTS.
- 5:15 Primate populations/communities, the role of humans in shaping them, and why it matters. E.P. RILEY.
- 5:30 Variation in adolescent male chimpanzee reproductive tactics: implications for understanding what is a “population” of chimpanzees. R.B. REDDY.
- 5:45 Discussant: William Leonard.

Session 16

Human and Non-Human Primate Microbiomes

Contributed Podium Presentations

Chair: Meradeth Snow

Diamond 2

- 2:30 A relatively conserved oral microbiome in non-human primates. A.E. ASANGBA, L. MUGISHA, J. RUKUNDO, R.J. LEWIS, A. HALAJIAN, L. CORTÉS-ORTIZ, R.E. JUNGE, M.T. IRWIN, J. KARLSON, A. PERKIN, K.L. BALES, S.R. LEIGH, R.M. STUMPF.
- 2:45 Fission-fusion sociality shapes the gut microbiome in black-and-white ruffed lemurs (*Varecia variegata*). A.L. BADEN, T.H. WEBSTER.
- 3:00 The microbiomes of female lemurs vary structurally by species, body site, and ovarian hormone cycles. S.L. BORNBUSCH, N. GREBE, S. LUNN, C. SOUTHWORTH, K. DIMAC-STOHL, C.M. DREA.
- 3:15 What shapes the non-human primate gut microbiome? Insights from microbial eukaryotes. A.E. MANN, F. MAZEL, M.A. LEMAY, E. MORIEN, V. BILLY, M. KOWALEWSKI, A. DI FIORE, A. LINK, T.L. GOLDBERG, S. TECOT, A.L. BADEN, A. GOMEZ, M.L. SAUTHER, F.P. CUOZZO, G.A. RICE, N.J. DOMINY, R. STUMPF, R.J. LEWIS, L. SWEDELL, K. AMATO, L. WEGENER PARFREY.
- 3:30 Examining sampling strategies for archaeological dental calculus through the exploration of the regional variation of bacteria in the oral microbiome. S.D. PRICE, T.L. PROWSE, J.L. BOLDSSEN, M. KUCH, A.T. DUGGAN, K. EATON, J. KLUNK, H.N. POINAR.
- 3:45 Database bias hinders functional analysis of non-industrial populations' gut microbiomes. D.K. JACOBSON, T.S. KAGONE, N. MEDA, H. CARABIN, T. HONAP, K. SANKARANARAYANAN, C.M. LEWIS, JR.

THURSDAY AFTERNOON SESSIONS

- 4:00 **Investigating human-pathogen evolution using ancient genomics and proteomics.** C.L. SCHEIB, M. GUELLIL, R. HAGAN, M. KELLER, S.A. INSKIP, C. CESSFORD, R. HUI, E. D'ATANASIO, J. DITTMAR, A.A. ROSE, B. MULDER, P. MITCHELL, T.C. O'CONNELL, A. HERBIG, J. KRAUSE, T. WARINNER, T. KIVISILD, J.E. ROBB.
- 4:15 **Ancient biomolecules reveal ancestry, diet and microbiomes of Upper Palaeolithic hunter-gatherers from Sicily.** G. SCORRANO, S.H. NIELSEN, D. LO VETRO, M. MACKIE, P. FABBRI, M.E. ALLENTOFT, F. MARTINI, C. MARTÍNEZ-LABARGA, O. RICKARDS, J.V. OLSEN, E. WILLERSLEV, E. CAPPELLINI, M. SIKORA.
- 4:30 **Fats are differentially fattening: Host-microbial interactions in energy harvest from dietary lipids.** K.S. CHADAIDEH, R.N. CARMODY.
- 4:45 **Alternative energy: evidence for gut microbiome-mediated buffering of human energy balance.** R.N. CARMODY.
- 5:00 **Social and ecological influences on Tsimane infant microbial community assembly.** M.A. MARTIN, D.D. SPROCKETT, D.A. RELMAN, M.D. GURVEN.
- 5:15 **Childhood gut microbiome composition among the Amazonian Shuar: Testing links to changing diet, lifestyle, energy expenditure, and health.** S.S. URLACHER, A. SHARMA, J.A. GILBERT, H. PONTZER, J.J. SNODGRASS, T.E. GILDNER, F.C. MADIMENOS, M.A. LIEBERT, L.S. SUGIYAMA, L.R. DUGAS.

Session 17

Human Biology: DOHaD and Epigenetics

Contributed Podium Presentations

Chair: Meredith Reiches

Diamond 3

- 2:30 **DNA methylation patterns in children maternally exposed to extreme drought.** B. STRAIGHT, G. FISHER, B. NEEDHAM, J. HWANG, C.E. HILTON, C. OLUNGAH, A. NAUGLE, S.M. HAFT, C.S. KELEMPU, S. LESEELA, D. LESEELA, C. JESKA.
- 2:45 **Developmental exposure to high altitude enhances aerobic capacity in hypoxia.** T.S. HARMAN, A.W. BIGHAM, M. KIYAMU, G.E. REVOLLEDO, T.D. BRUTSAERT.
- 3:00 **Reproductive status predicts oxidative stress profiles in young women.** A. SANCILIO, W. FUNK, N. MONTGOMERY, C. KUZAWA.
- 3:15 **Follow my lead: energy expenditures in utero resemble maternal allometry in humans and chimpanzees.** R. RIMBACH, H. PONTZER.
- 3:30 **Sexual dimorphism in the chimpanzee pelvis: Implications for understanding human pelvic evolution.** N.D. GRUNSTRA, E. ZAFFARINI, B. FISCHER, P. MITTEROECKER.
- 3:45 **Are there any reliable biomarkers of early fetal development in humans?** G. JASIENSKA, M. KLIMEK, A. GALBARCZYK, I. NENKO.
- 4:00 **Double jeopardy: mental and physical health outcomes of exposure to genocidal rape versus genocide alone among Rwandan adults conceived during the 1994 genocide against Tutsi.** G. UWIZEYE, C. PARK, T.W. MCDADE, J.N. RUTHERFORD.

THURSDAY AFTERNOON SESSIONS

- 4:15 History of being breastfed predicts decreased maternal-origin microchimerism in young women. T.D. PAN, S.B. KANAAN, N.R. LEE, J.L. AVILA, J.L. NELSON, D.T. EISENBERG.
- 4:30 Accelerated epigenetic ageing and altered stability of DNA methylation detected in adult British-Bangladeshi women exposed to elevated infectious disease loads in childhood. R. STÖGER, G. LEEMAN, M. CHOI, R.D. EMES, K. BEGUM, P. MELAMED, G.R. BENTLEY.
- 4:45 Longitudinal epigenome-wide association study of immigrant-related stress and resilience in children of Latinx immigrants in the US. A.L. NON, E.S. CLAUSING, A.M. BINDER.
- 5:00 Objective and subjective measures of stress in Latinx immigrants before and after the 2016 presidential election: hair cortisol, epigenetics, and mental health. E.S. CLAUSING, K. DANNA-HERNANDEZ, A.L. NON.
- 5:15 Gut Function, Immune Function Tradeoffs, and Infant Growth among High Altitude Andeans. M.K. HOKE, K.M. MCCABE.

Session 18

Paleoanthropology: Fossils New and Reconsidered

Contributed Podium Presentations

Chair: Shara Bailey

Diamond 5

- 2:30 An fMRI investigation into the neurocognitive bases of stone tool manufacture. Z. ANWARZAI, S.S. PUTT, L. RUCK, P. SCHOENEMANN.
- 2:45 New 3-D geometric morphometric and dating analyses of the Apidima fossil crania support early dispersal of *Homo sapiens* out of Africa. K. HARVATI, C. RÖDING, A.M. BOSMAN, F.A. KARAKOSTIS, R. GRÜN, C. STRINGER, P. KARKANAS, N.C. THOMPSON, V. KOUTOULIDIS, L.A. MOULOPOULOS, V. GORGOLIS, M. KOULOUKOUSA.
- 3:00 New analyses of the 55,000-year-old modern human partial cranium from Manot Cave, Israel. G.W. WEBER, I. HERSHOKOVITZ, P. GUNZ, S. NEUBAUER, A. AYALON, B. LATIMER, M. BAR-MATTHEWS, G. YASUR, O. BARZILAI, H. MAY.
- 3:15 KNM-ER 2598: site context and new fossils. A.S. HAMMOND, S. KUO, D.R. BRAUN, D. PALCU, S.S. MAVUSO.
- 3:30 New Neandertal fossils from Trou Magrite, Belgium, and their contribution to our understanding of Neandertal diversity. H. ROUGIER, I. CREVECOEUR, C. POSTH, H. BOCHERENS, P. COLOMBET, D. FLAS, J. KRAUSE, P. SEMAL, C. WISSING.
- 3:45 What, if anything, is *Australopithecus afarensis*? M. CARTMILL, F.H. SMITH.
- 4:00 The first cranium of *Australopithecus anamensis*. S.M. MELILLO, A. VAZZANA, S. BENAZZI, T.M. RYAN, B.Z. SAYLOR, L. GIBERT, A. DEINO, M. ALENE, N.E. LEVIN, M.D. PEAPLE, S.J. FEAKINS, B. BOUREL, D. BARBONI, A. NOVELLO, F. SYLVESTRE, S.A. MERTZMAN, Y. HAILE-SELASSIE.
- 4:15 Elucidating *Paralouatta's* semi-terrestriality using the virtual morpho-functional toolbox. T.A. PÜSCHEL, J. MARCÉ-NOGUÉ, J. GLADMAN, B.A. PATEL, S. ALMÉCIJA, W.I. SELLERS.

THURSDAY AFTERNOON SESSIONS

- 4:30 A skeleton of *Homunculus patagonicus* Ameghino, 1891 from the Santa Cruz Formation (Early Miocene, Patagonia). R.F. KAY, J.M. PERRY, S.F. VIZCAINO, M. BARGO.
- 4:45 New discoveries from Rusinga Island's Kiahera Formation, with implications for catarrhine phylogeography. K.P. MCNULTY, T. LEHMANN, L.A. MICHEL, K.E. JENKINS, D.J. PEPPE.
- 5:00 Topernawi Gorge: A New Fossil Catarrhine Site from the Oligo-Miocene of the Turkana Basin, Kenya. P. PRINCEHOUSE, E. AORON.
- 5:15 Comprehensive phylogenetic analysis of early Miocene catarrhines reveals the assembly of the hominoid body plan. R.J. JANSMA, K.P. MCNULTY.

Session 19

Dental Anthropology: Variation, Disease, Diet

Contributed Podium Presentations

Chair: Katie Zejdlík

Diamond 8-9

- 2:30 Inter-population differences in enamel secretion rates: a comparison between modern and ancient populations. C. ARIS, P. MAHONEY, M.C. O'HARA, C. DETER.
- 2:45 Retzius lines: an inconstant biorhythm in human teeth. G. MCFARLANE, D. GUATELLI-STEINBERG, C. LOCH, S. WHITE, R. PITFIELD, P. BAYLE, B. FLOYD, P. MAHONEY.
- 3:00 Human enamel-dentine junction morphology evolves neutrally and tracks population history. T.A. MONSON.
- 3:15 Dental non-metric morphological affinities of SE Brazilian coastal and riverine shell-mound builders. D. FIDALGO, V. WESOŁOWSKI, M. HUBBE.
- 3:30 The Continuing Deciduous Dilemma – Investigating Early Infant Stress and Maternal Health in Neolithic Northern Vietnam. A.B. ADAMS, S.E. HALCROW, H. HOANG TRINH, N. THI MAI HUONG, T. THI MINH, M.F. OXENHAM.
- 3:45 Build-A-Calculus: Experimental dietary research on *in vitro* dental calculus. B. BARTHOLDY, F.H. REIDSMA, A.G. HENRY.
- 4:00 Something to chew on: Comparing dentine exposure in ancient Egyptians and dental age estimation standards. C.L. KIRKPATRICK.
- 4:15 A Dental Revolution? How dietary changes during the British Industrial Revolution transformed masticatory behaviours. C.M. SILVESTER, S. HILLSON, J. STEELE, O. KULLMER.
- 4:30 More than maize? New insights into dietary patterns at the early Fort Ancient site, Turpin (33Ha19), from microwear analysis. E.M. LAGAN, C.W. SCHMIDT, R.A. COOK.
- 4:45 Dental reduction, physiological stress, and changing subsistence: Alterations to dental characteristics associated with the transition to agriculture in prehistoric Ohio. E.C. BLANKENSHIP-SEFCZEK, J.P. HUNTER, M. HUBBE, R. COOK, D. GUATELLI-STEINBERG.
- 5:00 Diet of the South Tombs Cemetery individuals at Amarna, Egypt. K.L. KRUEGER, J.R. SCOTT.
- 5:15 They came, they saw, they masticated: Mandible morphology, mastication and diet in Roman Britain. C.S. HIRST.

THURSDAY AFTERNOON SESSIONS

Session 20

Holocene Modern Humans in Eastern Asia: Current Bioarchaeological Perspectives

Invited Poster Symposium

Chair: Katherine I. Harrington

Co-organizers: Katherine I. Harrington, Christopher J. Bae, Qian Wang

Diamond 10

Bioarchaeological studies of recent modern human skeletal remains help us to reconstruct the dynamics and lifestyles of ancient human societies. As an epicenter of recent human migration, adaptation, and evolution, eastern Asia has become an important theater for bioarchaeological research. Many important questions are being asked of the eastern Asia data. For instance, how complex were past human migration patterns in East Asia (e.g., movement between China, Korea, and Japan) and Southeast Asia (e.g., movement between southern China and Myanmar, Laos, Vietnam, and eventually to island Southeast Asia)? What, when, and where do various diseases appear in eastern Asia and how may we interpret any variation that may exist? What does the bioarchaeological record indicate about mortality and morbidity rates, how these rates varied through time, and what were their potential causes? What does the bioarchaeological record in cemeteries indicate about health, social structure, and kinship in eastern Asia? And how do the musculoskeletal markers reflect the subsistence practices and occupations of different groups? This symposium emphasizes recent findings on population history, health, pathologies, occupational markers, biodistances, migration/dispersal patterns, etc., by active researchers that have a wide diversity of recently collected primary data from eastern Asia. In particular, this symposium highlights emerging junior and underrepresented scientists in the field. Further, this symposium, building on the interdisciplinary framework of the Global History of Health Project – East Asia Module that was formally initiated at a conference in Changchun, China in 2018, showcases the vast potential contributions from the eastern-most end of the Old World toward broader theoretical debates in the field. The intent is to publish the session proceedings in a peer reviewed venue soon after the conference.

Discussion: Clark Larsen.

- 1 Extremely robust humeri from coastal Jomon foragers in prehistoric Japan.** T. MASUYAMA, Y. KAIFU.
- 2 Habitual activity induced musculoskeletal stress markers among prehistoric rice farmers: A case study from Japan.** A.M. ATKINS, C.J. BAE, R.W. MANN.
- 3 Dietary practices over the life-course: gender and food in two urban Eastern Zhou communities (ancient Zhenghan City, China).** M.J. MILLER, Y. DONG, K. PECHENKINA, W. FAN, S. HALCROW.
- 4 Geumgwang Gaya (A.D. 43-532) Social Structure as Revealed from Funeral Practices at the Yean-ri Tombs, Gimhae, Republic of Korea.** M. KIM, J. KIM, Y. PARK, K.I. HARRINGTON, C.J. BAE.

THURSDAY AFTERNOON SESSIONS

- 5 Fertility and survivorship in Jomon and Yayoi populations. Y. IGARASHI, K. SHIMIZU, S. MIZUTAKA.
- 6 A comparative perspective on childhood stress and survivorship among Inner Asian populations of the Iron Age. J.T. ENG, M. MACHICEK.
- 7 Investigating dental health of the owners and sacrificial victims in burials at the Imdang site, South Korea (A.D. 3rd -7th centuries). E. WOO, H. JUNG, Y. JEONG, D. KIM.
- 8 Living conditions of the Korean people did not improve during the Japanese colonization period (1910 – 1945): Based on the secular changes of stature and body mass. Y. JEONG, E. WOO, S. PERGANDE, O. ALY.
- 9 Exploring the impact of evolutionary forces on Japanese cranial and dental traits. C.E. SKIPPER, M.A. PILLOUD.
- 10 Multivariate Comparison of East and Southeast Asian Cranial Morphology. N. YUKYI, E.Y. CHU, M. SPRADLEY.
- 11 The Intertwined Recent Population Histories of Korea and Japan as Detected by Cranial Geometric Morphometrics. K.I. HARRINGTON, C.J. BAE, J.H. RELETFORD.
- 12 Health inequalities as seen through social status and regional trends during the Edo period in the Japanese archipelago. H. TOMITA, N. SEGUCHI.
- 13 Modelling the disease impacts of migration and trade in prehistoric East and Southeast Asia. M. VLOK, M.F. OXENHAM, K. DOMETT, E. MYAGMAR, H. MATSUMURA, N.T. MAI HUONG, T.T. MINH, D. TEMPLE, N.T. HUU, H.H. TRINH, H. ISHIJIMA, H.R. BUCKLEY.
- 14 History of health in the Chinese Bronze Age: Results from five seasons of the Mogou bioarchaeology project. E. BERGER, J. DITTMAR, I. YEH, R. MAO, H. WANG, G. CHEN.
- 15 Bone examples of several cases of human *Treponema* in ancient China. Y. ZHOU, G. GAO, X. ZHANG, B. GAO, S. XU.
- 16 Respiratory disease in ancient China: a bioarchaeological analysis of maxillary sinusitis and inflammatory rib lesions in people from Shaanxi (2800 BC to 220 AD). M. LI, C.A. ROBERTS, L. CHEN, Q. GENG, D. ZHAO, H. ZHAO.
- 17 New insights into Metabolic Syndrome among ancient populations in mainland Asia. N. LING, S. HALCROW, M. OXENHAM, K. DOMETT, S. WARD, C. HIGHAM, D. O'REILLY, L. SHEWAN, T. NGUYEN, T. THI MINH, T. NGHIA, H. HIEP, H. BUCKLEY.

Session 21

Isoscapes, Isotopic Provenience, and Baseline Studies in Human Ecologies: Methodological and Interpretive Challenges

Invited Poster Symposium

Chair: Beth K. Scaffidi. Co-organizers: Beth K. Scaffidi, Andrew M. Zipkin

Diamond 6

Stable and radiogenic isotope analyses have become fundamental tools for researchers in biological anthropology and related disciplines seeking to reconstruct the movement of humans and material culture across the landscape. Radiogenic strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) and

THURSDAY AFTERNOON SESSIONS

stable oxygen ($\delta^{18}\text{O}$) are among the most widely applied tracers of movement, although other isotopes have been used. Increasingly, researchers are critiquing the use of isotope measurements on archaeological/paleontological hard tissues for identifying non-local individuals without first establishing environmental isotopic baselines and understanding the nuances of the isotopic system within the study area. In response to these critiques and broader shifts in isotope studies, anthropologists have increasingly turned to isoscapes—spatially-explicit models of predicted values interpolated from baseline measurements at known locations—to constrain the geographic range of sample residence. The use of isoscapes derived from modern samples for provenience and dietary investigations of humans, primates, and artifacts can be limited by several factors. For example, isotope studies must consider how paleoclimate, seasonality, water storage, organismal metabolism, and breastfeeding can alter sample values from baseline expectations. Radiogenic strontium studies can be hindered by ambiguous definitions of bioavailable elemental content in baseline soil samples. More broadly, isotope studies must deal with challenges like non-systematic collection of baseline samples (or sampling inappropriate baseline proxies), our changing understanding of biological fractionation, evolving methods for detecting diagenesis, difficulty parsing dietary shifts from mobility shifts, and the inadequacy of established geostatistical methods for isoscape construction in some study environments. This session calls researchers to grapple with the unique challenges of isotopic provenience studies for human tissues and associated artifacts. By comparing techniques and interpretive frameworks, we seek to advance isotopic methods in Anthropology and clarify how they can address key questions about human mobility as an adaptation to environmental and cultural changes in the past, present, and future.

Discussant: Gabriel Bowen.

- 1 **Single and Dual Isoscape Models for Establishing Local Strontium and Oxygen Isotope Signatures of Human Skeletons in the Prehistoric Andes.** B.K. SCAFFIDI, K. KNUDSON, T. TUNG.
- 2 **Telling different stories: Oxygen and strontium isotope variation in human tissues and baseline data from the northern coast of Peru.** J. TOYNE, K.J. KNUDSON, C.D. WHITE, F.J. LONGSTAFFE.
- 3 **Strontium isotope variability ($^{87}\text{Sr}/^{86}\text{Sr}$) in the ancient Nile Valley (Egypt and Nubia): Establishing baseline data and tracking human mobility.** S. SCHRADER, M. BUZON, A. SIMONETTI.
- 4 **Sulfur isotopes in modern deer bones of Virginia – establishing a $\delta^{34}\text{S}$ isoscape for archaeological studies of East Coast North Americans.** C.A. FRANCE, J.J. SARANCHA.
- 5 **Strontium isotope variability in the Palauan archipelago: Preliminary results from the Chelechol ra Orrak site.** J.H. STONE, S.M. FITZPATRICK, G.D. KAMENOV, J. KRIGBAUM.
- 6 **The Development and Application of Caribbean Isoscapes for Investigating Geographic Origins.** J. LAFFOON.
- 7 **Predicting local bioavailable $^{87}\text{Sr}/^{86}\text{Sr}$ isotopes and similarity search in multi-dimensional isotope data sets.** A. GOEHRING, G. GRUPE, F. LENGFELDER.
- 8 **Ostrich eggshell diagenesis experiments and observations: Implications for isoscape analyses.** S.H. AMBROSE, A.M. ZIPKIN.

THURSDAY AFTERNOON SESSIONS

- 9 **Strontium isoscapes and hard tissue provenience in southern Africa to reconstruct hunter-gatherer social and exchange networks.** A.M. ZIPKIN, E.C. FISHER, H.C. CAWTHRA, G. GORDON, M. HIPONDOKA, P. LE ROUX, C.W. MAREAN, K.J. KNUDSON, P. WIESSNER.
- 10 **“You are what you eat,” but are humans too complicated for dietary mixing models?: A critique of human paleodiet reconstructions.** M.M. BEASLEY.
- 12 **Reconstructing life histories using strontium isotope ratios of cremated human remains.** C. SNOECK, M.M. BEASLEY, D.W. STEADMAN.

Session 22

Expanding Boundaries: Embracing the Intersectionality of Forensic Anthropology to Account for the Changing Landscape of Identity in Current Casework

Invited Poster Symposium

Chair: Briana T. New. Co-organizers: Briana New, Bridget Algee-Hewitt.

Diamond 7

As forensic anthropologists, who seek to meet the professional expectations of the medico-legal system and serve the wishes of the families and communities for whom our efforts are deeply personal, we are positioned at the junction of the methods and theories that inform Biological Anthropology and the unique identification demands of our casework. To better respond to needs of the field, we must develop a cross-disciplinary discourse that transgresses boundaries between many social and natural science subjects and their modes of analysis. By adopting an intersectional perspective, we believe that we are well-equipped with the knowledge and resources necessary to perform transformative scientific and social justice work. More specifically, we argue that forensic anthropologists must act as a conduit for the practical application of the academic theories underlying the estimation of the parameters of identity that define the biological profile. Building this profile typically involves the estimation of the intrinsic, biological aspects of identity, such as sex, ancestry, and age, which tend to rely upon extrinsically defined boundaries (e.g., the threshold separating child and adult) or discrete categories (e.g., sex or populations). In reality, these contributors to identity are not easily quantified, as they are shaped by the ever-shifting sociopolitical and environmental landscapes in which we live and die. This symposium focuses on the intersectional potential of forensic anthropology as it seeks to expand the boundaries of how identity is understood and defined by the incorporation of new data and/or approaches. Participants will use diverse (e.g., historical, demographic, skeletal, genomic) data and (experience, data-driven) methods to showcase groundbreaking research that tackles the complexities of identity by engaging critically with the biological profile parameters from many different perspectives but with shared concern for practical applications. Discussions will highlight the value of the ideas while interrogating their utility to current casework.

THURSDAY AFTERNOON SESSIONS

Introduction.

Discussant 1: Galloway, Alison.

Discussant 2: Byrd, John.

Audience Questions.

- 1 **Navigating identity: The intersection of social and biological identity from the World War II Battle of Tarawa.** R. TAYLOR, B. NEW.
- 2 **How is identity reflected in the human face?** K. AFRA, B.F. ALGEE-HEWITT, M.D. HAMILTON.
- 3 **Prior probabilities and the age threshold problem.** L.W. KONIGSBERG, S.R. FRANKENBERG, V. SGHEIZA, H.M. LIVERSIDGE.
- 4 **Fracture Healing in Unintentional and Abuse-Related Fractures in Children: Considerations of Identity in the Context of Physical Abuse.** D.L. MESSER, B. ADLER, F.W. BRINK, H. XIANG, A.M. AGNEW.
- 5 **Comparing genetic variation among Latin American migrants: implications for forensic casework in the Texas- and Arizona-México Borderlands.** B.T. NEW, B.F. ALGEE-HEWITT, K. SPRADLEY, L. FEHREN-SCHMITZ, C. HUGHES, B. ANDERSON, M.E. JASINSKI, J. ARCISZEWSKA, G. ZIELIŃSKA, M. SZARGUT, A. OSSOWSKI.
- 6 **Implications for Identifications: Exploring How Collaborative Efforts Mitigate Structural Vulnerabilities of Missing Migrants along the Arizona-Mexico Border.** C.E. HUGHES, R.C. REINEKE, B.F. ALGEE-HEWITT, B.E. ANDERSON.
- 7 **Identity from the Ashes: Multidisciplinary approaches to identification of wildfire victims.** A. GALLOWAY.
- 8 **1932 to 2019: Representation of (Bi)Racial Identity in Biological Anthropology.** C.M. CLEMMONS.
- 9 **What can you do when the standard biological profile can't help? A case of identical twins.** A.D. SCHAEFER, C.B. LEGARDE.
- 10 **Perceptions of race and ancestry in biological anthropology: Teaching, research, and public engagement.** M.A. PILLOUD, D.M. ADAMS.
- 11 **Understanding the Potential of Chemical Anthropology in Human Burned Remains.** C. MAKHOUL, L. BATISTA DE CARVALHO, D. GONÇALVES, E. CUNHA.
- 12 **Ancestry and Admixture Estimates for Filipino Crania Using Morphoscopic Traits Under a Multivariate Probit Regression Model.** M.C. GO, J.T. HEFNER.
- 13 **Caucasian, Negroid, Mongolian, Indian, or Malayan: Racial categorization of living and dead servicemembers in the Korean War.** A.F. CHRISTENSEN.
- 14 **Body mass estimation in modern juveniles using postmortem computed tomography.** L. SPAKE, J. MEYERS, H.F. CARDOSO.

FRIDAY, ALL DAY SESSIONS

Session 23

Human Skeletal Biology: Growth, Development, and Variation

Contributed Poster Presentations

Chair: Kieran McNulty

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

1:00 Odd number presenters stand by their posters.

5:00 Even number presenters stand by their posters.

6:00 Poster removal.

- 1 Early life growth disruption and effect on mortality in Arkhangai, Aimag, Mongolia (745-840 AD). N. RAMIREZ, C. LEE.
- 2 Enamel hypoplasia and stature in two historic London populations. S.M. HAWKS.
- 3 Stature estimation in ancient Greek Antiquity. M. KOUKLI, F. SIEGMUND, C. PAPAGEORGOPOULOU.
- 4 Cases of Precocious and Delayed Puberty in Romano-British Females. C. MCGOVERN.
- 5 Health & Well-being in Pre- & Post-Black Death London: An Assessment of Sexual Stature Dimorphism. E.J. BRENNAN, S.N. DEWITTE.
- 6 Do the regions of the spinal column record stress differently? An analysis of growth stunting in the vertebral neural canal. J.S. NELSON, E. HOLLAND, L. HARRINGTON, H.F. CARDOSO.
- 7 Growing during a catastrophe: ontogeny of body size and femoral bone strength in Late Medieval and Post-Medieval Europe. E. GAROFALO, C. ELEAZER, R. SCOPA KELSO, A. COX.
- 8 Population-level assessment of atlanto-occipital fusion and cranial modification across Peru (1300-1500 CE). L.N. POTT, R.M. AUSTIN, A.R. ELLER, S.B. SHOLTS.
- 9 Subadult Femoral Growth Velocity Across the Late Pre-Hispanic and Postcontact Transition in Northern Peru: Biological Stress, Canalisation, Resilience, and Adaptation. C.K. MEEK, H.D. KLAUS, D.H. TEMPLE.
- 10 The association of parturition scars with pelvic shape and obstructed labor. L. WALTENBERGER, D. PANY-KUCERA, K. REBAY-SALISBURY, P. MITTEROECKER.
- 11 Variation in the Juvenile Bony Pelvis. A.N. ROCCA.
- 12 The occurrence of 'pelvic patterns' in female skeletons with parity information. D. PANY-KUCERA, M. SPANNAGL-STEINER, K. REBAY-SALISBURY.
- 13 Predicting if menarche has occurred based on osteological and dental development. E. GOODERHAM, S. FISK, L. SPAKE, L. MARINHO, H.F. CARDOSO.
- 14 Cranial fluctuating asymmetry from high and low status ossuaries in Colonial Mexico City. C. WILLERMET, E. MOES, K. RUSK, H.J. EDGAR, C.S. RAGSDALE, P. LYNCH.

FRIDAY ALL DAY SESSIONS

- 15 A “trophy” head individual found at the Middle Horizon site of Huaca del Loro in the Las Trancas Valley of Nasca, Peru (A.D. 600-1000). C.M. KELLNER, C.A. CONLEE, A. NORIEGA.
- 16 The Effects of Taphonomic Distortion on Fluctuating Asymmetry Analysis in a Historic Hispanic Population. R.M. MELORO, J.T. HEFNER, V.B. DELEON.
- 17 Linear and cross-sectional asymmetry in the humerus during ontogeny. H. KURKI, L. HARRINGTON, B. OSIPOV, L. COWGILL, M. MACKINNON.
- 18 Sex-Based Differences in the Aging of the Spine (Vertebral Body) from Bronze Age Human Remains at the Dahekou Site in Yicheng County, Shanxi Province, China . T. HAN, T. GAO, Y. FEI, Q. ZHANG, Q. WANG.
- 19 A review of biomechanical studies examining the impact of mobility on long bone morphology. R. RAINVILLE.
- 20 Changing Femoral Robusticity Between Medieval and Early Modern Denmark. K. PARKER.
- 21 Bone strength and bone maintenance from femoral cross-sectional geometry in a Medieval Italian population (10th-12th centuries AD). K.M. KINKOPF, S.C. AGARWAL, V. GIUFFRA, G. RICCOMI.
- 22 Skeletal morphological adaptation of the modern human ankle and forefoot: a study of plasticity in response to cultural pressures. M.E. ALBEE.
- 23 Effect of gait and velocity on in-vivo tibial loading in humans. M. HORA, H. PONTZER, L.E. DEFRATE, H.C. CHARLES, V. SLADEK, A. MCGINNIS.
- 24 A novel method for comparing morphometric and biomechanical data of cancellous bone structure in human hand bones to analyse bone functional adaptation. J.A. AGGLETON, K. ROBSON BROWN.
- 25 An examination of the variation in enthesal changes in human skeletal remains discovered in a 15th century necropolis in Mistihalj, Montenegro. G.K. CARD, S.D. TALLMAN.
- 26 Enthesal Change within St. Gregory’s Priory: An Assessment Based on Age, Sex, and Social Status. J. BUINICKY, E. BOCAEGE.
- 27 Climate predicts changes in growth trajectories in modern humans: a mixed model approach. A. YIM, L. COWGILL, D.C. KATZ, C.C. ROSEMAN.
- 28 Proximal femoral shape: A new method for inferring past physical activity. S. FRANCIS, H.L. AVNI, H. MAY.
- 29 Holocene size reduction in Aboriginal Australians: the mandibular evidence from Roonka. A.C. DURBAND, E.C. HILL, K. WALSH.
- 30 Human bone health at Taumako, ca. 700 – 300 BP Southeast Solomon Islands. J.J. MISZKIEWICZ, H.R. BUCKLEY, N.R. DIAS GUIMARAES, M.M. WALKER, L. KIKO, R.L. KINASTON.
- 31 Vertebral neural canal dimensions as indicators of socio-economic status and population-level differences in contemporary subadult samples. C.A. WOLFE, L.K. CORRON, E.Y. CHU, K.E. STULL.
- 32 Using socio-ecological analyses to identify determinants of Mseleni Joint Disease. E.S. DINKELE, R. BALLO, V.E. GIBBON.
- 33 Variation in Cranial Variance: Patterns of variation in a diverse American population. I. DWYER, J.T. HEFNER, M. SPRADLEY.

FRIDAY ALL DAY SESSIONS

- 34 **Craniofacial Traits and Body Composition in Two Genetically Varied Populations: Heritability and Associations.** S. GHOSH, T. DOSAEV, G. LIVSHITS.
- 35 **Geographic distance from central slave trade ports as a measure of cranial morphological similarity between Barbados and the United States.** A.S. CUNNINGHAM.
- 36 **Ontogenetic integration of the midline basicranium and cranial vault.** J. FREDERICKS, J. HEMINGWAY.
- 37 **The confluence of functional matrices on the sphenoid bone and local effects of soft-tissue anatomy on intracranial space variation.** K.G. RYAN, B. AUERBACH, L. BUTARIC.
- 38 **Pelvic variation and sexual dimorphism in East Asian populations.** E.O. CHO, L.W. COWGILL.
- 39 **Human orbit size and latitude.** S. TRAYNOR, M. MASTERS.
- 40 **Convergent adaptation to climate extremes in bear and human nasal anatomy.** T.R. YOKLEY, A.P. KELLY, S.D. MADDUX.
- 41 **Head pitch during load carrying and running: Possible semicircular canal adaptation to non-agile behaviors.** J.T. WEBBER, D.A. RAICHLEN.
- 42 **The curious case of the fabella, an increasing common knee sesamoid bone.** M.A. BERTHAUME, E. DI FEDERICO, A.M. BULL.
- 43 **Changes in the index of sexual dimorphism over time and the relationship with female pelvic size.** H. DELPRETE.
- 44 **Assessment of the relationship between ecto-endocranial shape and cranial symmetry in 6-8.0 year old humans.** J.M. CRONIN, J. VANNAHEUANG, A. SHAUGHNESSY, C.M. CONNOR, L.E. CIRILLO, G.D. RICHARDS, R.S. JABBOUR.
- 45 **Short-term wasting, linear faltering, and Type X Collagen.** D.J. NAUMENKO, N. AFFARA, D.B. DUNGER, K.K. ONG, A.M. PRENTICE, S.E. MOORE, R.M. BERNSTEIN.
- 46 **Variation in nasal and paranasal structures in adults from Cambodia, France, and Russia.** Y. HEUZÉ, L. MARÉCHAL, T. SYUTKINA, A. RASSKAZOVA, N. BEREZINA, A. EVTEEV.
- 47 **Armswing dynamics in over-ground walking: The effect of velocity and footwear on armswing amplitude and asymmetry.** E.M. FEUERRIEGEL, P.A. KRAMER.
- 48 **A Proposed Method for Studying Allometric Relationships without Stature.** E.Y. CHU, K.E. STULL.
- 49 **Differences in how women walk while carrying infant-sized loads.** M.J. MYERS, L. PROKOP, M. ESS, T. GENTZ, L. MULLER.

FRIDAY ALL DAY SESSIONS

Session 24

Dental Anthropology: Methods and Applications

Contributed Poster Presentations

Chair: Kieran McNulty

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

1:00 Odd number presenters stand by their posters (1 hour).

5:00 Even number presenters stand by their posters (1 hour).

6:00 Poster removal.

- 1 Testing repeatability in dental morphology: Interobserver error in a worldwide collection. T. VLEMINCQ-MENDIETA, L.E. CIRILLO, D. DECHANT.
- 2 How good are ASUDAS traits for assessing population relatedness? An answer—from comparisons of African dental and genetic data. J.D. IRISH, A. MOREZ, L. GIRDLAND FLINK.
- 3 A 3D geometric morphometric assessment of the ASUDAS: Incisor shoveling. D.E. EHRLICH, S.M. WEINBERG, M.L. MARAZITA, S.F. MILLER.
- 4 Observer error and dental metrics. M. MCKINNEY, A. SBEI, M.A. PILLOUD.
- 5 Getting to the root of the problem: World frequencies of three-rooted lower first and second molars. L.L. DERN, S.B. JOSEPH, H.J. NESBITT, M.R. SULLIVAN, G. SCOTT.
- 6 Dental morphological affinities among Prehispanic human groups around the Caribbean region: from Yucatan to Venezuela. A. CUCINA, M. LUCCI, C. SIVOLI, A. COPPA.
- 7 Biological Distance Analysis of Medieval Hungarian Populations: The Influence of the Migration and Hungarian Conquest Periods on Dental Morphology. R.L. PERASH, S. ÉVINGER, T. HAJDU, T. SZENICZEY, G. SCOTT.
- 8 Stress Chronologies in a Mass Burial, Charterhouse Warren Farm Shaft, United Kingdom: Microstructural Reconstruction of Environmental Interactions at the Precipice of Violent Death. E.M. SMITH, D.H. TEMPLE, R. SCHULTING.
- 9 From cementum microstructure to population structure. Reflection on the value of cementochronology for construction of age-at-death profiles. B. BERTRAND, V. MESLI, A. BÉCART, S. VATTEONI, M. VERCAUTEREN, V. HÉDOUIN, D. GOSSET.
- 10 Dental Microwear Texture Analysis of late Upper Paleolithic Grotta Maritza and Grotta La Punta Adult Males. C.W. SCHMIDT, R. D'ANASTASIO.
- 11 What can we learn from the study of macroscopic and microscopic dental wear during childhood? M. BAS, F. KANZ, K. REBAY-SALISBURY.
- 12 A comparison of dental microwear texture across hunter-gatherer sites in South Australia. C.B. SMITH, S. KARSTENS, R.M. SCOTT, J. LITTLETON.
- 13 Grit or Groundstone? Dental microwear texture analysis of the Neolithic-Copper Age & Copper Age-Bronze Age transitions in prehistoric Croatia. J.L. DROKE, J.C. AHERN, I. JANKOVIĆ, M. NOVAK.

FRIDAY ALL DAY SESSIONS

- 14 Dental analysis of prehistoric populations in coastal Ecuador. C. BOYER.
- 15 Daily-resolved maternal diet and early feeding history from histologically-defined compositional profiles of human dental enamel by laser-based mass spectrometry (LA-ICPMS). A. NAVA, F. LUGLI, L. BONDIOLI, S. BENAZZI, A. COPPA, E. CRISTIANI, C. DEAN, D. EVANS, A. HELBLING, W. MÜLLER.
- 16 Exploring Mesolithic diet through dental calculus in the central Balkans (SE Europe). E. CRISTIANI, A. RADINI, A. ZUPANCICH, D. BORIC.
- 17 Analysis of the Effects of Maize Reliance on Populations Across Virginia During the Late Woodland Period. K.N. GURIAN.
- 18 Detecting Vitamin D deficiency in an adult bedouin population from Hisban, Jordan using dental radiographic and histological examination. C. OLAH, M. PERRY, A. PROPST, B. KAHLON.
- 19 Dietary diversification across the Tiwanaku Polity: Isotopic paleodietary reconstructions using sequential sampling of dentinal collagen and Bayesian methods. M.C. MARTINEZ, A.M. GREENWALD, D.E. BLOM, K.J. KNUDSON.
- 20 Atypical, asymmetrical dental wear on a medieval Transylvanian male. K. ZEJDLIK, J.D. BETHARD, Z. NYÁRÁDI, A. GONCIAR.
- 21 Deciduous enamel growth rates in modern and ancient children. P. MAHONEY, R. PITFIELD, G. MCFARLANE, C. LOCH, S. WHITE, N. SABEL, M. SKINNER, P. BAYLE, M. LE LUYER, B. FLOYD, C. ARIS, C. DETER, D. GUATELLI-STEINBERG.
- 22 Oral Pathological Conditions and Age Structure in Early Postcontact Guale, St. Catherines Island, Georgia. K.S. WEINRICH, F. CRESPO, K.E. MARKLEIN, C.S. LARSEN.
- 23 Early-Life Stressors in Pre-and Postcontact Peru: Evidence from Incremental Enamel Microstructures. G. BROWN, D. TEMPLE, H. KLAUS.
- 24 The mother infant dyad: Use of the neonatal line in dentine in the first permanent molar and primary teeth. M.B. BRICKLEY, B. KAHLON, L. D'ORTENZIO.
- 25 The 'Man-Wearing' Myth? A Colonial Period Human Tooth Belt from Brazil. A.L. WATERS-RIST, L. MATTHEWS CASCON, M. FRANÇOZO.
- 26 Risk of Lead Exposure on a Roman Imperial Estate at Vagnari, Italy (1st – 4th c. AD). T.L. PROWSE, M. CARROLL, J. EVANS, M. INSKIP.
- 27 The First Decorative Dental Inlay Identified in a Pre-Hispanic Peruvian. C.M. GAGNON, B.C. RIZZUTO, B.C. TURNER, S.E. BURNETT.
- 28 Observing Similarities of Pre and Post-Contact Cranial and Dental Modification in Two Sites from Western Mexico (1350-1580 AD). A. GARCIA, M. SANTOS, C. LEE.
- 29 Who were the people of the Fourth Cataract of the Nile? What their teeth tells us about human migration patterns through the Sahara. E.L. PHILLIPS, J.D. IRISH, D. ANTOINE.
- 30 Dental status of the population from the Roman site of Nad Klepečkom-Viminacium. B.A. OETTEL, I. MIKIĆ, E.E. HAMMERL.
- 31 From bad to worse. Diachronic changes in oral pathology in Iron Age Italy. M. LUCCI, E. CRISTIANI, A. CUCINA, V. D'ERCOLE, F. LAPASTINA, A. SPERDUTI, A. COPPA.
- 32 Investigating population affinity from the Iron Age to Early Medieval period: A pilot study from Wessex, England. K.E. FAILLACE, J. MULVILLE, R. MADGWICK, J.D. IRISH.

FRIDAY ALL DAY SESSIONS

- 33 **Ancestral Affiliation and the Production of Social Identity: Investigations of Mortuary Practices among Persistent Hunter-Gatherers in Archaic Indian Knoll, Kentucky.** R.L. RODAN, D.H. TEMPLE.
- 34 **Modern human molar morphology does not reveal geographical origin.** V. HALÁSZ, C. FORNAI, G.W. WEBER.
- 35 **A second dental morphology examination of biological affinities of northeastern Indian populations relative to other South Asians. The case of Chakhesang, Pochury and Rengma Nagas.** T. POJAR, B. LANGSTIEH, B.E. HEMPHILL.
- 36 **What does it mean to be urban? Assessing craniodental impacts of anthropogenic environments.** A.R. ELLER, R.M. AUSTIN, S. CANINGTON, C.A. HOFMAN, S.B. SHOLTS.
- 37 **Antimere asymmetry and monozygotic discordance in Carabelli trait: do they reflect common underlying epigenetic factors.** S. HAY, G. SCOTT.
- 38 **Correlation of genetic distance to morphological distance in dental metrics and non-metrics.** R.A. KUZMA.

Session 25

Paleopathology

Contributed Poster Presentations

Chair: Kieran McNulty

Platinum Ballroom

- 8:00 Poster setup.
 - 9:00 Poster session opens.
 - 1:00 Odd number presenters stand by their posters (1 hour).
 - 5:00 Even number presenters stand by their posters (1 hour).
 - 6:00 Poster removal.
- 1 **Osteological characteristics of Chinese foot-binding in archaeological remains.** W. ZENG, Y. ZHAO, L. GUO, Y. XIAO, D. HE.
 - 2 **Foot-binding women skeletons from the Qing Dynasty Xifengbu cemetery, Hongtong, Shanxi Province, China.** X. SUN, X. MAN, X. LIAO, T. GAO, Y. FEI, L. AN, Q. ZHANG, Q. WANG.
 - 3 **Violent Death: paleo-forensic study of a case of multiple sharp-force trauma from medieval Lombardy (Italy).** C. TESI, S. RICCI, J. CREZZINI, P. BADINO, R. FUSCO, C. ROSSETTI, O. LARENTIS, I. GORINI, M. LICATA.
 - 4 **Cranial evidences of violence in ancient societies from northwestern Argentina.** H.D. DRUBE, S.E. MARTÍNEZ, E.A. SILVERA, J. LOBO-GÓMEZ, A. TOGO.
 - 5 **What what in the... A case of interpersonal violence from the Early Neolithic grave from Smilčić, Croatia.** I. JANKOVIC, M. ČAVKA, B. MARIJANOVIĆ, M. CARIĆ, M. NOVAK.
 - 6 **Trepanation or Trauma? Differential diagnosis of cranial perforations of an early Iron Age site in Xinjiang, China.** X. ZHAN, A. MU, L. CHEN, Q. ZHANG, Y. WU, W. HU, H. YEH.

FRIDAY ALL DAY SESSIONS

- 7 A Palaeopathological Study of Dental Health from the Yinzhou Site (ca. 4000-3500 BP), Guangdong Province, China. Z. LI, T. JACOB, R. GOWLAND, K. HUANG.
- 8 Exploring Correlations In Dental Pathologies For Two Mortuary Sites In The Gulf Coastal Plains of Texas. D. AXUME, P. CARBALLO.
- 9 Body-society interactions during childhood in post-medieval Leeds, England: Metabolic disease, lead exposure and allostasis. P.A. MONGUI, J. MONTGOMERY, J. BEAUMONT, A.C. CAFFELL, R.L. GOWLAND, C.J. OTTLEY.
- 10 Pathological Conditions of Subadults from the Neo Punic site of Zita, Tunisia. S. EDINGTON, J.I. CEREZO-ROMÁN, G. MCGOWAN, B. KAUFMAN, H. BARNARD, A. DRINE.
- 11 Harris Lines as Indicators of Physiological Stress in the Middle Holocene Cis-Baikal. L.M. MICHELMAN, A.R. LIEVERSE.
- 12 Stressing over a childhood stress indicator: Assessing the etiology and scoring of cribra orbitalia through the age distribution of porosity activity and degree. X. WANG, M.C. VELASCO.
- 13 A modern methodological approach to the analysis of cribra orbitalia as an indicator of health status and mortality. K. GODDE, S.M. HENS.
- 14 Cribra Femora in Hellenistic to Early Christian burial samples from Ayioi Omoloyites in Lefkosia, Cyprus. K.A. CRUZ, N.P. HERRMANN, D. PILIDES, Y. VIOLARIS.
- 15 Investigating the Patterns of Periosteal Reactions at Tombos. J. MARSHALL.
- 16 Osteoporotic bone fractures and age-related bone loss in human populations inhabiting the Kujawy region in north-central Poland from the Neolithic to early modern Times. E. ZADZINSKA, W. LORKIEWICZ, J. MIETLINSKA, J. KARKUS, P. BOROWKA, M. STUSS, E. SEWERYNEK, D. PLAZUK.
- 17 Analyzing the Impact of DISH on Enteseal Changes in a Modern Documented Population. E.L. WIEDENMEYER, L.E. RATLIFF.
- 18 Osteoarthritis in South American Foragers: A Comparative Analysis. A. SHULTS, S. JUENGST, J. CAPRILES, S. CHÁVEZ.
- 19 Differential diagnosis of external auditory meatus atresia and scalp avulsion at the Fallen Tree site at St. Catherines Island, Georgia, USA. B.J. BETZ, R. MAYUS, K.E. MARKLEIN, C.S. LARSEN.
- 20 A Regional Comparative Analysis of External Auditory Exostosis in Pre-Hispanic Peru. M.K. AYER, R.M. AUSTIN, A.R. ELLER, S.B. SHOLTS.
- 21 A case of auditory exostosis during the Late Fort Ancient period: Evidence for a seasonal adaptation to a riverine ecosystem in the Ohio River Valley. K.J. WEINSTEIN.
- 22 Impaired, but cared for? Social implications of a case of Legg-Calvé-Perthes Disease and multiple trauma from the North Caucasian Bronze Age. K. FUCHS, B.C. ATABIEV, J. GRESKY.
- 23 A Possible Case of Chiari Malformation Type in a Soldier from the Tuchengzi fortress site (Qin Dynasty 221-206 BCE) along the Great Wall, China. D.S. ROSETTE, C. LEE.
- 24 Diachronic and Regional Analysis of Congenital Defects in the Ancient Peru: 3,000 Years of Skeletal Developmental Anomalies in the Lambayeque Valley Complex. O. LYSA, H.D. KLAUS.

FRIDAY ALL DAY SESSIONS

- 25 Markets and mycobacteria – a bioarchaeological analysis of the influence of urbanization on leprosy and tuberculosis in Denmark (AD 1200-1536). S. KELMELIS, V.R. KRISTENSEN, M. ALEXANDERSEN, D. DANGVARD PEDERSEN.
- 26 Neoplastic Disease in Urban and Rural Contexts, in Medieval Poland: A Paleoepidemiological Investigation. T. SIEK.
- 27 Possible Evidence of Termite Osteophagy of Skeletonized Human Remains in Ecuador. N.A. JASTREMSKI, A. SÁNCHEZ-POLO.
- 28 Health and Disease in Pre-Columbian Amazon Societies: Everyday Life in the Teeth and Bones of Volta Grande of the Xingu River, Brazil. L.M. MÜLLER, H.P. SILVA, R. KIPNIS.
- 29 Impacts of lifestyle on diffuse idiopathic skeletal hyperostosis (DISH) within the Texas State Donated Skeletal Collection. L.E. RATLIFF, M.D. HAMILTON, N.P. HERRMANN, D.J. WESCOTT.

Session 26

Genotype-Phenotype Studies

Contributed Poster Presentations

Chair: Kieran McNulty

Platinum Ballroom

- 8:00 Poster setup.
- 9:00 Poster session opens.
- 1:00 Odd number presenters stand by their posters (1 hour).
- 5:00 Even number presenters stand by their posters (1 hour).
- 6:00 Poster removal.
- 1 Pleiotropic effects on the recent evolution of human hip circumference and infant body size. A.M. ARNER, H. REYES-CENTENO, G. PERRY, M. GRABOWSKI.
- 2 Human-specific gene duplications underlying heterochronic change in human neural development. E.A. WERREN, S.L. BIELAS.
- 3 How HbAS and HbAC heterozygotes manifest their differences from HbAA individuals at the hemogram level. F. FELKER, S. GUIMARÃES-PAIVA, M. KLAUTAU-GUIMARÃES, S. DE OLIVEIRA, L. MADRIGAL.
- 4 Selection of human immune response genes as a product of ancestral *Yersinia pestis* exposure. C. SLANK.
- 5 The Genetics of Malaria Resistance in Ancient Rome. H. MOOTS, D. PICKEL, A. SPERDUTI, M.L. ANTONIO, Z. GAO, A. NAVA, P. GELABERT, M. LUCCI, F. CANDILIO, S. SAWYER, V. OBERREITER, M. RUBINI, L. BONDIOLI, A. COPPA, R. PINHASI, J. PRITCHARD.
- 6 Genome-wide analysis on adult cephalic morphology in Okinawa and Ishikawa, Japan. K. YAMAGUCHI, K. KOGANEBUCHI, T. SATO, T. KANNON, H. TSUJIGUCHI, K. HOSOMICHI, A. TAJIMA, K. YAMAMOTO, H. ISHIDA, H. NAKAMURA, R. KIMURA.

FRIDAY ALL DAY SESSIONS

- 7 Sickle cell trait is a young-adult and teenage cause of death. A.K. SILVA, H. SILVA, L. FIGUEIRAS, L. MADRIGAL.
- 8 The association among the C677T mutation in the MTHFR gene, skin color measures and UV radiation suggests local adaptation rather than sweeping clines. L. REYES, C. MACCLEAN, D. GODFRE, F. GONZALEZ-HERNÁNDEZ, L. MADRIGAL.

Session 27

Paleoanthropology: Working with Postcranial Evidence

Contributed Poster Presentations

Chair: Kieran McNulty

Platinum Ballroom

- 8:00 Poster setup.
- 9:00 Poster session opens.
- 1:00 Odd number presenters stand by their posters (1 hour).
- 5:00 Even number presenters stand by their posters (1 hour).
- 6:00 Poster removal.
- 1 Patterns of morphological integration in the primate midfoot and implications for the evolution of bipedalism. K. KOMZA, B. VIOLA, T. NETTEN, L. SCHROEDER.
 - 2 The evolution of the hominin foot in a phylogenetic context. Y. SEKHAVATI, D.S. STRAIT.
 - 3 Calcaneal external shape of *Australopithecus sediba*. C.M. HARPER, C.B. RUFF, A.D. SYLVESTER.
 - 4 A geometric morphometric approach to quantify the longitudinal curvature of primate proximal phalanges from 3D surface data. S.E. WENNEMANN, K.L. LEWTON, C.M. ORR, S. ALMÉCIJA, B.A. PATEL.
 - 5 Did *Pierolapithecus* have an ape-like thorax? 3D shape analysis of the *Pierolapithecus catalaunicus* lower rib IPS21350.58 and its implications for understating its bauplan. D. GARCÍ-A-MARTÍ-NEZ, N. TORRES-TAMAYO, S. NALLA, D. ALBA, S. MOYÀ-SOLÀ, S. ALMÉCIJA, M. BASTIR.
 - 6 Pelvic evidence for taxonomic heterogeneity within *Australopithecus* at Sterkfontein Member 4 (South Africa). C. FORNAI, V.A. KRENN, N.M. WEBB, M. HAEUSLER.
 - 7 Functional anatomy of the caudalmost sacrum in *Australopithecus afarensis*, *Australopithecus sediba* and *Homo erectus*. S. JAYE, V. CORTEZ, M.R. MEYER, S.A. WILLIAMS.
 - 8 The effects of admixture in the pelvis. L.T. BUCK, D.C. KATZ, R. ROGERS ACKERMANN, L.J. HLUSKO, S. KANTHASWAMY, T.D. WEAVER.

FRIDAY ALL DAY SESSIONS

- 9 Reconstructing the A.L. 288-1 distal femur using virtual geometric methods. D.M. GOLDSTEIN, A.D. SYLVESTER.
- 10 Estimation of hominine femoral head diameter from incomplete femoral head remains via sphere-fitting methodology. I.J. THOMPSON, B.W. COOK, Z.D. COFRAN, M. REYES, C.S. WALKER.
- 11 Forelimb Anatomy of the Microsopidae: implications for primate origins. D. GEBO, C. BEARD.
- 12 Proximal radial morphology of *Paranthropus* and early *Homo*. M.R. LAGUE.
- 13 Association between distal humerus measurements and body mass in modern humans: applications for fossil hominin MK3. A.L. RODRIGUEZ, D.L. CUNNINGHAM, D.J. WESCOTT, R.C. MCCARTHY.
- 14 Reconstructing the postcranial morphology of the last common ancestor of humans and chimpanzees. C. ROLIAN, J. CLAVEL, K.D. PUGH, P. LEMELIN.
- 15 Trabecular bone morphology in early Pleistocene hominins from Koobi Fora, northern Kenya. H. CHIRCHIR, C. WARD, J. KIBII.
- 16 morphomap: an R package for analysis of diaphyseal cortical thickness, shape and cross-sectional geometry. A. PROFICO, L. BONDIOLI, P. O'HIGGINS, D. MARCHI.
- 17 Confirmation of dynamic adaptive evolutionary changes in normal human body size over time on the island of Flores, Indonesia. R.B. ECKHARDT, M. HENNEBERG.
- 18 Males, females, canines and body size: inferring the pattern of change in hominin dimorphism. J. PLAVCAN.
- 19 How to make a bipedal primate: 1 part phylogeny, 2 parts selection and a pinch of body size. N.M. WEBB, W.E. HARCOURT-SMITH, H. PONTZER, M. HAEUSLER, M. GRABOWSKI.
- 21 Postcranial size dimorphism in *Australopithecus afarensis* and *A. africanus*. A.D. GORDON.
- 22 Testing the role of body size in the transition from semi-digitigrady to plantigrady in primates: a case study using the calcanei of *Theropithecus oswaldi*. E.J. MCNUTT.
- 23 Machine Learning in Anthropology: A Regularized Deep Network for Osteological Micro-CT Image Segmentation. N.B. STEPHENS, A. YAZDANI, V. CHERUKURI, L.J. DEMARS, V. MONGA, T.M. RYAN.
- 24 Testing Claims for Neanderthal Cannibalism at Krapina: A quantitative analysis of bone surface modifications on associated faunal remains. E.R. ORLIKOFF, M.M. GLANTZ, D. RADOVČIĆ, M.C. PANTE.

FRIDAY ALL DAY SESSIONS

Session 28

Paleoanthropology: Working with Dental Evidence

Contributed Poster Presentations

Chair: Kieran McNulty

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

1:00 Odd number presenters stand by their posters (1 hour).

5:00 Even number presenters stand by their posters (1 hour).

6:00 Poster removal.

- 1 Inferring the diet of Kůlna 1 and Svědův stůl 1 from the Moravian karst of the Czech Republic using dental microwear texture analysis. F.L. WILLIAMS, C.W. SCHMIDT, J.L. DROKE, J.C. WILLMAN, P. NERUDA, G. BECAM, M. DE LUMLEY.
- 2 Reconstructing Diet from Tooth Wear: a New Quantitative Mesowear Approach. J.J. PORTER, F.L. FORREST.
- 3 Late Miocene *Oreopithecus bambolii* Maxillary Molar Morphology Scores Compared to Extant African Apes. A. KIM, F.L. WILLIAMS.
- 4 Biomechanical implications of variation in Hunter-Schreger Bands in early hominins. R.S. SENDER, A.S. HILKO, G.T. SCHWARTZ, D.S. STRAIT.
- 5 A comparative analysis of CT and surface scan 3D models of fossil primate dentition using dental topographic metrics. W. KHALID, A.C. HOLMES, D.R. BEGUN.
- 6 Enamel Thickness in Lower Third Premolars of the Early and Middle Pleistocene Hominins from Atapuerca, Spain. M. KAMATH, M. MARTINÓN-TORRES, C. SOLIGO, L. MARTÍN-FRANCÉS, C. ZANOLLI, J. LUIS ARSUAGA, J. BERMÚDEZ DE CASTRO.
- 7 Biomechanical Correlates of Mandibular Premolar Root Variation in Robust and Gracile Australopiths. S.E. BAUMGARTEN, S. TAYAL, D.S. STRAIT.
- 8 Is dental morphology in *Paranthropus* the result of drift or selection? N. HLAZO, L.D. SCHROEDER, R.D. ACKERMANN.
- 9 A morphometric analysis of Pliopithecoid maxillary molar cusp peripheralization. A.C. HOLMES, J. GARNETT, D.R. BEGUN.
- 10 Identification and Implications of Carious Lesions in a Large Sample of Early Eocene Stem Primates from the Bighorn Basin of Wyoming. K.R. SELIG, M.T. SILCOX.
- 11 New enamel $\delta^{13}\text{C}$ data from wild Ugandan chimpanzees (*Pan troglodytes schweinfurthii*) permits the establishment of a hominoid-specific diet-to-enamel $\delta^{13}\text{C}$ offset value: Implications for fossil hominin dietary reconstructions. M. MALONE, J. KINGSTON.
- 12 Comparing the Accuracy of Close-Range Photogrammetry to microCT Scanning via Surface Deviation Analysis of 3D Digital Models of Hominin Molars. M.J. FURTNER, J.K. BROPHY.

FRIDAY ALL DAY SESSIONS

- 13 Trophic levels and taxonomic implications for Pleistocene hominids from Sangiran (Indonesia) revealed by histologically-controlled laser-based mass spectrometry (LA-ICPMS). J. KUBAT, L. BONDIOLI, C. DEAN, D. EVANS, A. GERDES, A. HELBLING, O. KULLMER, A. NAVA, B. PERIPOLI, R.A. ROPER, F. SCHRENK, W. MÜLLER.
- 14 Dietary reconstruction of *Australopithecus africanus* using dental microwear features. C.R. JOSEPH, F.L. WILLIAMS.
- 15 Hominin dietary implications of plant nutritional properties from the southern African Lowveld. E.J. DEVEREUX, O.C. PAINE, C. RYDER, C. WIGLEY-COETSEE, J. CODRON, D. CODRON, M. SPONHEIMER, A.G. HENRY.
- 16 Stable Carbon Isotopes of Mammalian Tooth Enamel and Paleoenvironments of the Early Miocene Locality Buluk, Kenya. I.D. ARNEY, E.R. MILLER, I.O. NENGO, E.M. LOCKE, W.J. SANDERS.
- 17 Little evidence of C₄ plant consumption in mound building *Macrotermes* termites from six savanna woodland chimpanzee sites across Africa. S. PHILLIPS, R. SCHEFFRAHN, A.K. PIEL, F. STEWART, A. AGBAR, A. TICKLE, V. SOMMER, H. KÜHL, C. BOESCH, V.M. OELZE.
- 18 Analysing the occlusal wear of the hominins of Sima de los Huesos. J.A. DOLDING-SMITH, A.F. CLEMENT, P. MAHONEY, S.W. HILLSON, J. ARSUAGA, J. BERMÚDEZ DE CASTRO, M. MARTINÓN-TORRES.
- 19 The influence of diet, phylogeny and dental properties on tooth wear and fracture patterns. I. TOWLE, C. LOCH, J.D. IRISH.

Session 29

Paleoanthropology: Working with Cranial Evidence

Contributed Poster Presentations

Chair: Kieran McNulty

Platinum Ballroom

- 8:00 Poster setup.
- 9:00 Poster session opens.
- 1:00 Odd number presenters stand by their posters (1 hour).
- 5:00 Even number presenters stand by their posters (1 hour).
- 6:00 Poster removal.
- 1 Sensitivity of ancestral state reconstruction to the phylogenetic positions of fossils: A test case using anthropoid primate facial skeletons. A.D. PRUCHA.
 - 2 Analyzing levels of character conflict in hominin phylogenetic reconstruction. J.R. GAUTNEY.
 - 3 An expanded character set for evaluating the phylogenetic position of *Homo floresiensis*. T. WOOD.
 - 4 Re-evaluation of the phylogenetic relationships of *Australopithecus sediba*. C.S. MONGLE, D.S. STRAIT, F.E. GRINE.

FRIDAY ALL DAY SESSIONS

- 5 Anthropological study of the Bañolas mandible (Girona, Spain). B.A. KEELING, R. QUAM.
- 6 Covariance among the zygomatic bone, the frontal bone, and the zygomaticotemporal space. A. PETTIT.
- 7 A Comparative Study of the Primate External Ear using Three-dimensional Geometric Morphometrics. A. AHONEN, R. QUAM.
- 8 Petrosal morphology of Paleocene *Zanycteris paleocenus* and the relationship of picrodontids to plesiadapiforms. J.W. CROWELL, J.R. WIBLE, S.G. CHESTER.
- 9 Coronal suture shape at bregma differentiates some primate clades. T.C. RAE, S. CRUDGINGTON, K. PUGH.
- 10 Impacts of endocranial shape on middle meningeal arteriovenous pattern in 6-8.0 year old humans. P.S. SIMONE, R.S. JABBOUR, G.D. RICHARDS.
- 12 Comparison Maba 1 (Guangdong, China) to eastern sample of European Neandertals – Krapina 3. D. RADOVČIĆ.
- 13 The shape of the shape response of the human cranium to temperature. D.C. KATZ, M.N. GROTE, T.D. WEAVER.
- 14 Using facial variation to discriminate among ape subspecies. Implications for hominin classification. A. GOMEZ-ROBLES, A. GLEESON.
- 15 Geometric morphometrics in silver fox skulls: Implications for the domestication syndrome. T.M. KISTNER, D.E. LIEBERMAN.
- 16 The effect of Procrustes superimposition on the quantification of hominin cranial morphology. C. ZHANG.
- 17 Dental Occlusal Form and Function in *Equus capensis*: Evaluating a Controvertible Taxonomic Status. D.D. STYNDER, M.M. MALHERBE, R.R. ACKERMANN.
- 18 Morphological signatures of hybridization in North American canids: a new model for detecting hybrids in the human fossil record. N. ZDJELAR, C. KENDALL, L. NAGENDRAN, R.R. ACKERMANN, L. SCHROEDER.
- 19 Dental topographic evolution of African rodents from the Eocene into the Miocene - a parallel for African primate diversification? D. DE VRIES, J.B. SMAERS, E.R. SEIFFERT.
- 20 Virtual estimates of brain size in the Krapina hominins. Z. COFRAN, M. BOONE, M. PETTICORD.
- 21 Morphological differences in the mandibular dental arch and symphysis of great ape subspecies and their significance for the hominin fossil record. J. LAWRENCE, C. ROBINSON.

FRIDAY ALL DAY SESSIONS

Session 30

Paleoanthropology: New Results from Field Work

Contributed Poster Presentations

Chair: Kieran McNulty

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

1:00 Odd number presenters stand by their posters (1 hour).

5:00 Even number presenters stand by their posters (1 hour).

6:00 Poster removal.

- 1 **Paleoenvironments of Gona, Ethiopia, between 3-1 Mya: Evidence from faunal analysis.** A.C. LEISS, M.J. ROGERS, S. SEMAW.
- 2 **Middle Pleistocene environments from Markaytoli (lower Awash Valley, Ethiopia) inferred from dental stable isotopes.** J.R. ROBINSON, C.J. CAMPISANO, K.E. REED.
- 3 **Phytolith residue on lithics: an unreliable method in determining hominin behavior.** D.V. MAYBEE, G. OPPENHEIM, O. BEN BRAHIM, C. CRAIG, J. KIM, T. CAPPS, R. KINYANJUI, D.R. BRAUN, S. HLUBIK.
- 4 **Referential data sets of cut marks from the Theodore Roosevelt Expedition to East Africa (1909-1910).** M. ARMOUR-CHELU.
- 5 **The early Miocene mammals from Mfangano Island: Implications for early hominoid evolution and faunal turnover.** A.S. HALL, K.P. MCNULTY.
- 6 **New speleothem records from southwestern Madagascar and their implications for the role of climate and humans in megafaunal extinction.** P. FAINA, S.J. BURNS, N. SCROXTON, D. MCGEE, L.R. GODFREY, L. RANIVO HARIMANANA.
- 7 **Kinetics of stone tool production in novice and expert toolmakers.** E. WILLIAMS-HATALA, K.G. HATALA, A. KEY, C.J. DUNMORE, T. KIVELL.
- 8 **Could woodworking have driven lithic tool selection?** R.E. BIERMANN GÜRBÜZ, S.J. LYCETT.
- 9 **New human remains from Ksar Akil and their relevance to circum-Mediterranean dispersals of early *Homo sapiens*.** S.E. BAILEY, C.A. TRYON.
- 10 **Craniodental fossils from a new locality in the Rising Star Cave System.** J.K. BROPHY, M.C. ELLIOTT, T. MAKHUBELA, D.J. DE RUITER, J. HAWKS, L.R. BERGER.
- 11 **Skeletal element distribution of immature *Homo naledi* remains in the Dinaledi Chamber, South Africa.** D.R. BOLTER, M.C. ELLIOTT.
- 12 **Test of high-frequency GPR for identifying hominin skeletal deposits in the Rising Star Cave.** M.C. ELLIOTT, B. PEIXOTTO, C. JASKOLSKI, K. BROAD, D. VAN ROOYEN, M. RAMALEPA, M. TSIKOANE, K. WARREN, J. HAWKS, L.R. BERGER.
- 13 **A Closer Look at the Spatial Distribution of Hominin Fossils at Pin 8, Hill Antechamber, Rising Star Cave.** B. PEIXOTTO, M.C. ELLIOTT, J. HAWKS, L.R. BERGER.

FRIDAY ALL DAY SESSIONS

- 14 **Perestroika in paleoanthropology: The Eyasi Plateau Paleontological Expedition (EPPE), Laetoli (Tanzania) fossil specimen database and the importance of promoting open-access and reproducibility in paleoanthropology.** D. REED, T. HARRISON, A. KWEKASON.
- 15 **A lorisoid-like distal humerus from the middle Miocene at Napudet, Kenya.** L.C. MYERS, G.A. RUSSO, I.O. NENGO.
- 16 **Using remote sensing and machine learning to reconstruct paleoenvironmental features in the Koobi Fora Formation.** E.R. DORANS, J. D'OLIVEIRA COELHO, R.L. ANEMONE, R. BOBE, S. CARVALHO, F. FORREST, D.R. BRAUN.
- 17 **50 years of fossil catarrhines from Rudabánya: sympatry and social organization.** D.R. BEGUN.
- 18 **Preliminary description of the fossil cercopithecids from Galili, Ethiopia.** H.G. REDA, S.R. FROST, J. QUADE, H. SAID, S.W. SIMPSON.
- 19 **A thousand new cercopithecoid fossils to fill the Late Pleistocene void.** R. YOHLER, M. BRASIL, T. MONSON, C. TAYLOR, L.J. HLUSKO.
- 20 **New data on the Plio-Pleistocene colobine fauna from the Shungura Formation (Omo Group deposits, Lower Omo Valley, Ethiopia): insights from the postcranial anatomy.** L.T. PALLAS, G. DAVER, G. MERCERON, L.J. HLUSKO, J. BOISSERIE.
- 21 **Subspecies in human evolution.** L.A. VAN HOLSTEIN, R.A. FOLEY.
- 22 **Discovery of early Paleocene *Purgatorius* from a new fossil locality in the Fort Union Formation of southeastern Montana, USA.** S.G. CHESTER, G.P. WILSON, T.R. LYSON, E.J. SARGIS.
- 23 **Natural and human impacts on vertebrate megafauna in southwest Madagascar.** L.R. GODFREY, K.M. MULDOON, S.J. BURNS, B.E. CROWLEY, Z.S. KLUKKERT, N. SCROXTON, L. RANIVOHARIMANANA.
- 24 **Morphological rates of evolution in the *Phenacolemur praecox* - *Phenacolemur fortior* and *Phenacolemur praecox* - *Phenacolemur citatus* lineages in the Bighorn Basin, Wyoming.** N. SCHOTTENSTEIN, M. HUBBE, J. HUNTER.

FRIDAY, MORNING SESSIONS

Session 31

Thriving at Miles High – Studying High Altitude Adaptation Around the Globe

Invited Podium Symposium

Chair: Chair: Xinjun Zhang. Co-organizers: Xinjun Zhang, C. Eduardo Guerra Amorim
Diamond 4

Modern humans have settled in some of the most extreme harsh environments, and high altitude is one example of such. Three human populations – on the Tibetan Plateau in Asia, on the Ethiopian highlands in Africa, and in the Andes Mountains in South America – have remarkably adapted to the hypoxic environments at least 3,000 meters above the sea level. Additionally, a few groups of nonhuman primates have also managed to thrive at high altitude environment. While the specific adaptive mechanisms in these populations vary greatly from one another, adaptation involves complex changes at the genetic, physiological, and behavioral levels. Moreover, studies of modern humans from Tibetan populations have shown that archaic admixture with an extinct human species, the Denisovans, evidently affected the adaptive spectrum at least in Tibetan populations, making the adaptation history of our species more intriguing and complicated. In the last two decades, many research efforts have been dedicated to identify both biological changes and cultural consequences of high altitude environments. However, there has not been a major meeting in this field where the scholars from multiple disciplines unite and discuss collectively. This symposium will be the first interdisciplinary summit in the field of high altitude adaptation research. We will bring together experts representing all anthropological disciplines that study this classic example of convergent adaptation, including archaeology, behavioral ecology, genetics, and primatology. The talk series will cover topics on distinct population histories, phenotypic variations, natural selection, the genetic architecture of high altitude adaptation, and complex human behaviors. This symposium aims at promoting interdisciplinary discussion and collaboration for researchers at all career levels. We will also encourage the participation from a broad audience beyond the conference, via live-streaming and social media broadcasting during the symposium session.

- 8:00 **The Pleistocene Peopling of the Tibetan Plateau: Environmental Background, Mechanisms and Processes.** X. GAO, M. YI, J.W. OLSEN.
- 8:15 **The genetic history and adaptive evolution of Tibetan highlanders.** S. XU.
- 8:30 **Infancy at Altitude: Milk composition, infant growth, and high altitude adapted infant phenotypes.** E.A. QUINN.
- 8:45 **Models for Population History of the Tibetan Plateau: Toward an Integration of Archaeology and Genetics.** P. ZHANG, X. ZHANG, X. ZHANG, X. GAO, E. HUERTA-SANCHEZ, N. ZWYNS.
- 9:00 **Higher ventilatory response to hypoxia associates with higher oxygen saturation and lower hemoglobin concentration among ethnically Tibetan women residing above 3500m in Nepal.** E.A. MOYA, J.J. YU, S.R. CRAIG, C.A. BUCHANAN, F.L. POWELL, T.S. SIMONSON, C.M. BEALL.

FRIDAY MORNING SESSIONS

- 9:15 DNA methylation changes are associated with an incremental ascent to high altitude. A. CHILDEBAYEVA, T. HARMAN, J. WEINSTEIN, J.M. GOODRICH, D.C. DOLINOY, T.A. DAY, A.W. BIGHAM, T. BRUTSAERT.
- 9:30 Population-genetic and functional investigation of high altitude adaptation in the Himalayan populations. E. ARCIERO, M. HABER, T. KRAAIJENBRINK, M. SZPAK, P. HALLAST, N. PANOUSIS, Y. CHEN, S. MCCARTHY, I. GALLEGO ROMERO, H. YANG, M. JOBLING, G. VAN DRIEM, P. DE KNIJFF, Q. AYUB, Y. XUE, C. TYLER-SMITH.
- 10:00 Break.
- 10:30 Methods to infer the timing of admixture and selection in high altitude populations. E. HUERTA-SANCHEZ, X. ZHANG, K. WITT, A. KO, R. NIELSEN, S. XU, A. ASAN, X. JIN.
- 10:45 Insights into Native American adaptations to high altitude from modern and ancient genomes. T. HÜNEMEIER, C.M. COUTO-SILVA, R.B. LEMES, C. POSTH.
- 11:00 Genomic adaptation to high altitude in the Andes. A.W. BIGHAM, A. CHILDEBAYEVA, J. WEINSTEIN, M. KIYAMU, G. ELÍAS, M. RIVERA-CHIRA, F. LEON-VALERDE, F.S. LEE, T.D. BRUTSAERT.
- 11:15 Behavioral adaptations to life in the interior high Andes, 9–7ka. R. HAAS, T. BUONASERA, J. CHEN, J. EERKENS, S. NOE, G. PARKER, K. SMITH, C. VIVIANO, J. WATSON.
- 11:30 High altitude adaptations in gelada monkeys (*Theropithecus gelada*). N. SNYDER-MACKLER, K.L. CHIOU, M.C. JANIAC, A.D. MELIN, J.C. BEEHNER, T.J. BERGMAN, A. LU.
- 11:45 Integrative studies of altitude adaptation: Cross-population genomic and physiological analyses from Tibet and Peru. E.C. HEINRICH, J.E. ORR, D. GILBERTSON, C. ANZA-RAMIREZ, P.N. DEYOUNG, J. YU, E.A. MOYA, M.A. DJOKIC, N. CORANTE, G. VIZCARDOGALINDO, J.L. MACARLUPU, E. GAIO, F.L. POWELL, A. MALHOTRA, F.C. VILLAFUERTE, T.S. SIMONSON.
- 12:00 Discussant: Mark Aldenderfer.

Session 32

Primate Conservation

Contributed Podium Presentations

Chair: Nicole Thompson

Diamond 3

- 8:00 Genetic structure of chimpanzees (*Pan troglodytes ellioti*) in Southern Taraba, Nigeria. L.A. KNAPP, V. SOMMER, K. AUCLAND.
- 8:15 SAFE and sound: How the AZA's SAFE program is working to save chimpanzees (*Pan troglodytes ssp.*). C. CLOUTIER BARBOUR, A.R. HALLORAN, K. LANGERGRABER, J. MITANI, D. MORGAN.
- 8:30 On the margins of the western chimpanzee (*Pan troglodytes verus*) range in Senegal. S. LINDSHIELD, P. NDIAYE, J.D. PRUETZ, G. TAPPAN, E. WESSLING, A. GOUDIABY, K. BOYER ONTL.

FRIDAY MORNING SESSIONS

- 8:45 The persistence of silvery gibbons (*Hylobates moloch*) within Ujung Kulon National Park, Banten Province, Java, Indonesia. N. MALONE, J. ISKANDAR, R. PARTASASMITA, E.N. ROHMATULLAYALY, S. PERMANA, B.S. ISKANDAR.
- 9:00 Using camera traps to study the impacts of disturbance on the abundance of two lemur species in southeast Madagascar. P.R. NARVÁEZ-TORRES, D. CHEN, O. TIAFINJAKA, E.E. LOUIS JR., S.E. JOHNSON.
- 9:15 Lemurs on the menu: new insights into the extent of and driving factors behind wildlife hunting in Western Madagascar. K.E. THOMPSON.
- 9:30 Strontium isotopes support low mobility for Lemuriformes. B.E. CROWLEY, L.R. GODFREY.
- 9:45 Group composition is influenced by climate in Verreaux's sifaka (*Propithecus verreauxi*). R.J. LEWIS, A.C. AXEL, C. WILLIAMS.
- 10:00 Break.
- 10:30 High density of white-faced capuchins (*Cebus capucinus*) and habitat quality in the Taboga Forest of Costa Rica. E. TINSLEY JOHNSON, M.E. BENÍTEZ, A. FUENTES, C.R. MCLEAN, A.B. NORFORD, J. ORDOÑEZ, J.C. BEEHNER, T.J. BERGMAN.
- 10:45 Effects of Energetic Need on Human-Macaque Interactions and Access to Anthropogenic Food in the Urban Environment. J. HUBBARD, N. RUPPERT, K. BALASUBRAMANIAM, B. BEISNER, P. MARTY, S. KABURU, B. MCCOWAN.
- 11:00 Life after degradation: *Microcebus jollyae* inhabit degraded forest and non-forest habitats in Kianjavato, Madagascar. N.K. GUTHRIE, N.N. RAOELINJANAKOLONA, V. RAMANANJATO, E.E. LOUIS JR, S.E. JOHNSON.
- 11:15 The Eclectic Omnivore's Dilemma: Conflict and Coexistence in an Agricultural Landscape. A.L. ELLWANGER, J.E. LAMBERT.
- 11:30 The Red Colobus Conservation Action Plan: Coordinating and Mobilizing Conservation Efforts to Protect Africa's Most Endangered Group of Primates. J.M. LINDER, D.T. CRONIN, N. TING, S. MCGRAW.
- 11:45 "Risky" behaviors and zoonotic emerging infectious disease in Central Africa: Examining the distribution of behavioral risks of exposure to potentially zoonotic pathogens across a diverse population in Central African Republic. E.S. HALL, M.J. REMIS.

Session 33

Bioarchaeology: Methods and Techniques

Contributed Podium Presentations

Chair: Mario Novak

Diamond 5

- 8:00 New insights into health, diet and disease in the Tyrolean Iceman. A.R. ZINK, F. MAIXNER.
- 8:15 2,000-year-old pathogen genomes reconstructed from mummies provide insights into the state of health of ancient Egyptians. V.J. SCHUENEMANN, J. NEUKAMM, S. PFRENGLE, M. MOLAK, A. SEITZ, M. FRANCKEN, P. EPPENBERGER, C. AVANZI, E. REITER, C. URBAN, B. WELTE, B. TESSMANN, A. HERBIG, K. HARVATI, K. NIESELT, J. KRAUSE.

FRIDAY MORNING SESSIONS

- 8:30 Associations between genetic differentiation and craniometric interpopulation distances across North Eurasia. A. EVTEEV, P. SANTOS, S. GHIROTTI, H. REYES-CENTENO.
- 8:45 Genome-wide ancient DNA investigation of Eneolithic individuals from southwestern Russia reveals a genetic contact point between the forest-steppe and steppe populations. K. MAJANDER, K. NORDQVIST, A. KOROLEV, A. KHOKHLOV, R. SMOLYANINOV, H. PIEZONKA, P. ONKAMO, J. KRAUSE, W. HAAK.
- 9:00 Population dynamics at Chavín de Huántar and contemporary Canchas Uckro: A molecular examination of human skeletal remains dating from 1100-500 cal BCE. E. WASHBURN, J. NESBITT, V.M. OELZE, R. BURGER, L. FEHREN-SCHMITZ.
- 9:15 Applications of spatial analyses in Holocene Later Stone Age southern African bioarchaeology. M.E. CAMERON.
- 9:30 A little more conversation, a little more action, please: The potential of bone-muscle cross-talk for mapping skeletal markers of neurodegenerative disorders. N. SPEITH.
- 9:45 A new approach to the paleopathological study of anemia(s): Comparative elemental profile by x-ray fluorescence (pXRF) in the Coimbra Identified Osteological Collections. R.A. GOMES, L. CATARINO, A. SANTOS.
- 10:00 Break.
- 10:30 Spina bifida occulta in a Basketmaker II sample from southeastern Utah: A case for nutritional deficiency in its etiology. G.A. KWADER, P.M. LAMBERT.
- 10:45 The Silent Thief: Identifying Osteoporosis in Medieval Cambridge. J.M. DITTMAR, B. MULDER, S.A. INSKIP, P.D. MITCHELL, C. CESSFORD, J.T. STOCK, J.E. ROBB.
- 11:00 Developmental Plasticity and Life Course Among Unidentified Migrants and Modern Americans: Implications of Childhood Stress on Predispositions to Vertebral Pathology. C.L. ZNACHKO, M.D. HAMILTON, J.T. WATSON.
- 11:15 Human exposure to heavy metals 5000 years ago: Human health in the context of metalwork, pigments and cosmetics. K.O. LORENTZ, M. HARFOUCHE, I. HAFEZ, Y. MIYAUCHI, G. IOANNOU, M.R. ZARURI, F. FORUZANFAR, M.S. SAJJADI.
- 11:30 Mortality and resilience: questioning the immutability of non-specific stress indicators in paleopathology. A. WISSLER.
- 11:45 Measuring frailty in a Mississippi asylum sample. S. DANESHVARI BERRY, A. O'DONNELL, A.W. FARNBACH PEARSON.

FRIDAY MORNING SESSIONS

Session 34

Postcranial Functional Morphology and Locomotion

Contributed Podium Presentations

Chair: John D. Polk

Diamond 8-9

- 8:00 Morphological and functional adaptations in the hand of arboreal hylobatids and terrestrial macaques. M.J. VANHOOF, T. VAN LEEUWEN, M. VANNESTE, E.E. VEREECKE.
- 8:15 *Pan paniscus* or *Pan troglodytes*? The case for a divergent *Pan troglodytes*. A. ZIHLMAN.
- 8:30 Mechanics of leaping between vertical supports in a small arboreal quadruped (*Cheirogaleus medius*). A.D. KEMP, G.S. YAPUNCICH, A. ZEININGER.
- 8:45 *In vivo* kinematics of the transverse tarsal joint complex in *Macaca mulatta* using XROMM. S. KUO, N.J. GIDMARK, M.C. GRANATOSKY, M.F. LAIRD, C.F. ROSS, C.V. WARD.
- 9:00 Heel strike and the metabolic cost of human walking. C.C. COUSINS, M.C. O'NEILL, W. CALLISON, N.B. HOLOWKA.
- 9:15 Shorter heels result in more spring-like behavior of the Achilles tendon in running gaits. A.D. FOSTER, J.W. YOUNG, B. BLOCK, F. CAPOBIANCO III, J.T. PEABODY, N.A. PULEO, A. VEGAS.
- 9:30 Modular Control of Walking in Humans and Bipedal Chimpanzees. M.C. O'NEILL, R.T. JOHNSON, J.T. STERN, JR., S.G. LARSON, B.R. UMBERGER.
- 9:45 New insights into ape and human evolution from a (mediocre) suspensory platyrrhine: The muscle-tendon architecture of *Lagothrix lagotricha* and the origins of anthropoid suspension. A.S. DEANE, J. ORGAN, E. VEREECKE, M.N. MUCHLINSKI, T. BUTTERFIELD.
- 10:00 Break.
- 10:30 Functional description of the primate nuchal musculature with a focus on positional behaviors. F. MCGECHIE, N. GRIDER-POTTER, T.K. NALLEY, C.V. WARD.
- 10:45 Integration of the hominoid spine, part I: Shoulder function and integration of the cervical and thoracic vertebrae. C.I. VILLAMIL, E.R. MIDDLETON.
- 11:00 Integration of the hominoid spine, part II: The effects of lordosis on integration of the cervical and lumbar vertebrae. E.R. MIDDLETON, C.I. VILLAMIL.
- 11:15 Variance in the primate axial skeleton and selection regimes: assessing models of trait evolution using a phylogenetic comparative approach. B.M. AUERBACH, E.R. AGOSTO.

FRIDAY MORNING SESSIONS

Session 35

Implications of bony pelvis variation in humans, hominins, and primates

Invited Poster Symposium

Chair: Natalie M. Laudicina. Co-organizers: Caroline VanSickle

Diamond 10

The importance of the bony pelvis to biological anthropology is undeniable. In modern humans, fossil hominins, and non-human primates, pelvic morphology has been the basis for discussing adaptations for locomotion and obstetrics. However, it can be easy to forget that pelvic variation is more complex than what can be explained by sex differences and locomotor adaptations. In humans, the bony pelvis changes throughout an individual's lifetime. It continues to develop based on genetic and hormonal signaling, and responds to changes in weight, activity level, and pathologies. These changes create a wide array of variation that likely also exists in our contemporary hominoid relatives and in our hominin ancestors. Causes of variation in the bony pelvis have implications for predicting risk factors in clinical settings, identifying the deceased in forensics settings, estimating sex and age distributions in bioarcheological settings, understanding pelvic evolution in paleoanthropological settings, and interpreting the significance of non-human primate pelvic anatomy. Here we bring together researchers from different sub-disciplines who explore factors that affect human pelvis morphology, including hand preference, thermoregulation, gut size, growth and development. We further include researchers who use other extant species as models, be they monkey or mice, to better understand human variation. Finally, we have researchers who focus on pelvic morphology in fossil hominins, seeking to understand how variation affects our ability to reconstruct pelvis shape and the evolution of potential obstetric constraints. This session will investigate the impact pelvic variation, broadly defined, has on long-held interpretations of pelvic morphology and discuss how to better encompass the range of variation seen in nature in our theoretical models as we move forward with pelvic research.

Discussant: Helen Kurki.

- 1 The effect of hand preference on human pelvic shape asymmetry.** A. ERIKSEN, N. VON CRAMON-TAUBADEL.
- 2 Exploring the effect of body mass on pelvic features that vary by sex.** C. VANSICKLE, L. JEPSEN, K. JOHNSON.
- 3 The correlation between bi-iliac breadth and birth canal size in humans: implications for the obstetric dilemma.** J. EYRE.
- 4 The pelvis relates to gut size differently in male and female humans.** J.Q. UY, J. HAWKS, C. VANSICKLE.
- 5 Sacral slope and greater sciatic notch shape variation in the developing human pelvis.** S.M. ZALESKI.
- 6 An examination of pelvic and overall body growth velocity in growing girls from the United Kingdom.** S. DECRAUSAZ, J.E. WILLIAMS, M.S. FEWTRELL, J.T. STOCK, J.C. WELLS.

FRIDAY MORNING SESSIONS

- 7 The ontogeny of pelvic sexual dimorphism in *Macaca mulatta*. E.A. MOFFETT.
- 8 Variation in the anthropoid primate pelvis does not reflect differences in diet. E.K. BOYLE, S. ALMÉCIJA.
- 9 Genetic and Epigenetic Insights into Human Girdle Evolution Using the Mouse Model. M. YOUNG, L. BIRKENSTOCK, T.D. CAPELLINI.
- 10 A re-evaluation of fossil hominin obstetric constraints. N.M. LAUDICINA, M. CARTMILL.
- 11 Geometric morphometric analysis of the adult modern human pubic symphysis and implications for fossil reconstruction. M.T. ADEGBOYEGA, T.D. WEAVER.
- 12 Comparative anatomy and 3D geometric morphometrics of the SD-1663 hipbone from the El Sidrón Neandertal site (Asturias, Spain). N. TORRES-TAMAYO, M. BASTIR, D. GARCÍA-MARTÍNEZ, C. VANSICKLE, A. GARCÍA-TABERNERO, A. ROSAS.

Session 36

Koobi Fora Research and Training: Highlights of the last 5 years of research and education initiatives

Invited Poster Symposium

Chair: Sarah K. Hlubik. Co-organizers: Maryse Beirnat, David R. Braun

Diamond 6

The Koobi Fora Field School has been running in the Turkana Basin, in northern Kenya, for over 30 years. A core focus of the present program is a more generalized study of the natural and cultural history of the Turkana basin, with emphasis on student-focused research. Research projects span diverse disciplines including the biology of modern people through ancient hominins, as well as the study of behavior from the Pliocene through to the present and the geological context of these materials. The expansion of the research focus has led to a diverse team of researchers from institutions in the US, Europe, and eastern and southern Africa, from all career levels including undergraduates, graduate students, post-doctoral and early career researchers, and senior level researchers. This involves an inclusive environment and a distinct tiered-mentoring structure that provides training, open discourse, and collaborative opportunities for all participants. Educational initiatives immerse undergraduate students in individual research projects. This includes student involvement in the collection, analysis, presentation and writing up of primary, field based data. We have expanded our efforts to increase the participation of underrepresented groups by enhancing support for student participation in fieldwork and yearly professional development workshops. Here we highlight the diversity of voices in science by showcasing the diverse participation of scholars from multiple continents (with specific emphasis on African scholars). In this session we highlight the research being done by members of the Koobi Fora Research and Training program, discuss the current environment for undergraduate research opportunities, and discuss best practices for enhancing diversity in science through the efforts of a specific research project.

FRIDAY MORNING SESSIONS

Discussant: Amy Rector.

- 1 **Paleoecological context of early *Homo erectus* from the Omo-Turkana Basin: Insights from stable isotopes.** S. MELAKU, A.S. HAMMOND, K.T. UNO, D.B. PATTERSON, M. BIERNAT.
- 2 **Developing a Tool for Investigating Diachronic Change in Pastoralist Settlement and Land-use in East Turkana Kenya through the use of Historic Aerial Imagery.** C. MCFAYDEN, C. WILLNERD, P. KYULE, M. LUBIA, M. DOUGLASS, Y. QI, E. NDIEMA, D. BRAUN.
- 3 **Investigating Vegetation Structure within Abandoned Dassanach Bomas.** H. JACOBSON, V. MUNYAKA, H. MASHAKA, E. BEAUDOIN, C. SSEBUYUNGO, R. KINYANJUI, E. NDIEMA, M. DOUGLASS.
- 4 **Sub-regional Variability in East Turkana Mammalian Communities.** M.G. KELLY, M.D. BIERNAT, A. MCGROSKY, D.R. BRAUN, N.T. ROACH, D.R. PILBEAM.
- 5 **Hominin Behavioural Ecology through the use of Organic Tools: Primate modelling and percussive tool use.** L.V. LUNCZ, D.R. BRAUN, J. MARREIROS, M. BAMFORD, S. CARVALHO.
- 6 **Plio-Pleistocene hominin tool use and its context in the Koobi Fora Formation.** D.R. BRAUN, S. CARVALHO, R. BOBE, K. UNO, D. PALCU, N. BARAKI, A. HAMMOND, E. ADVOKAAT, M. SIER, C. WARD, J.W. HARRIS, J. WYNN, A. BEHRENSMEYER, A. VILLASEÑOR, M. BAMFORD, D. PATTERSON.
- 7 **Archaeological evidence for the Cooking Hypothesis in the Okote Member at site FxJj20 AB.** G. OPPENHEIM, C. DANIEL-HOLDEN, O. BEN BRAHIM, R. CUTTS, D. PALCU, K. UNO, C. CRAIG, J. KIM, D. MAYBEE, T. THUKU, T. CAPPS, A. STRICKLAN, D.R. BRAUN, S. HLUBIK.
- 8 **GaJj17: A Middle Stone Age site at Koobi Fora, East Turkana (Kenya).** C. SSEBUYUNGO, S. MAVUSO, D. COLAROSI, T. DOGANDZIC, K. O'BRIEN, E. NDIEMA, D. BRAUN, J. HARRIS, K. RANHORN.
- 9 **Reconstructing Vegetation Changes in Response to Holocene Climatic Variability in East Turkana, Kenya.** R.N. KINYANJUI, E.K. NDIEMA, P.W. KIURA, D. BRAUN, J.W. HARRIS, M.K. BAMFORD.
- 10 **Testing East Turkana bovid mortality profiles using site-specific data.** R.M. SHERWOOD, A.S. HAMMOND, F. FORREST.
- 11 **Distinct early growth trajectory among Daasanach pastoralists of Northern Kenya.** Z.S. SWANSON, H. BETHANCOURT, J. SAUNDERS, R. NZUNZA, A.Y. ROSINGER, H. PONTZER.
- 12 **Dam health effects: Drinking water salinity is a key risk factor for hypertension and dilute urine among Daasanach pastoralists in Northern Kenya.** A.Y. ROSINGER, H. BETHANCOURT, Z.S. SWANSON, J. SAUNDERS, S. DHANASEKAR, W. KENNEY, S.L. YOUNG, R. NZUNZA, H. PONTZER.
- 13 **A holistic approach to student engagement in field settings.** S.K. HLUBIK, M. BEIRNAT, K.L. RANHORN, E.K. NDIEMA, P. KIURA, D.R. BRAUN.
- 14 **Faunal abundances in Area 13 from the Upper Burgi Member of East Turkana.** L.K. MYERHOLTZ, A.S. HAMMOND, C. SMITH, S. KUO.
- 15 **Experimental investigation of phytoliths and combustion features and their relevance for the 'Cooking Hypothesis' from East Turkana, Kenya.** T. CAPPS, G. OPPENHEIM, J. KIM, D. MAYBEE, M. HOWELLS, D.R. BRAUN, S. HLUBIK.

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- 16 **Human biology among daasanach pastoralists in northern Kenya: Water insecurity, water borrowing, and psychosocial stress.** L.B. FORD, H. BETHANCOURT, Z. SWANSON, S. YOUNG, R. NZUNZE, H. PONTZER, A.Y. ROSINGER.
- 17 **The Chronostratigraphic and Depositional History of the FxJj20 Site Complex, Northern Kenya.** C. CRAIG, S. MAVUSO, S. HLUBIK, S. WARREN, W. KHUMALO, D. BRAUN, E. NDIEMA.
- 18 **Palaeoenvironmental Reconstruction of the Okote, KBS and Upper Burgi Members in East Turkana Using Ecomorphology of Bovid Distal Metapodials.** M. MALHERBE, F.L. FORREST.
- 19 **Human Biology and the Koobi Fora Field School: New Work with the Daasanach, a Small-Scale Pastoralist Population.** J. SAUNDERS, Z.S. SWANSON, H. BETHANCOURT, S. DHANASEKAR, R. NZUNZA, A.Y. ROSINGER, H. PONTZER.
- 20 **Relative Faunal Abundance at the KNM-ER 5431 Site in Area 203 of the Koobi Fora Formation.** B. HEISLER, M. BIERNAT, A. MCGROSKY.
- 21 **Reconstructing environmental variance in the Turkana Basin, Kenya, for the Upper Burgi Member.** S. MAVUSO, W.H. KHUMALO, S. WARREN, C. CRAIG, Z. JINNAH, D. BRAUN, E. NDIEMA.
- 23 **Preliminary zooarchaeological report on the Late Pleistocene faunal remains of a newly discovered fossil assemblage at Koobi Fora, Kenya.** M. RIBORDY, F.L. FORREST.

Session 37

New Frontiers in Human Brain Evolution: Stem cells, Brains, and Endocasts

Invited Poster Symposium

Chair: Katerina Semendeferi. Co-organizers: Katerina Semendeferi

Diamond 7

Advances in brain evolution have taken place at a fast pace through developments in molecular neurobiology, genomics, systems neuroscience, and neuroimaging. These fields use postmortem brain tissue for microstructural analysis at the cellular and molecular level; living human and other animal brains for noninvasive imaging; and fossil specimens for the reconstruction of endocasts. These comparative, phenotypic studies of human and other extant and extinct primates provide important insights into development and evolution. The symposium will present new research findings from these well-established fields. Most recently, the emergence of the new field of induced pluripotent stem (iPS) cells presents unique opportunities for the study of human brain evolution and has the potential to revolutionize our understanding of the process and the mechanism behind phenotypical differences. The field is based on the discovery by Shinya Yamanaka (2012 Nobel prize) that somatic tissue from any individual can be reprogrammed to its pluripotent, embryonic-like, state. These stem cells can then be guided to become live neurons in the dish and be studied for their developmental trajectories, activity patterns, morphology, energy consumption, etc. The symposium will introduce cutting edge advances in iPS cell technology as applied on research on human, ape and other primate neurons and brain organoids. Overall the symposium aims to foster interactions between leading experts in a variety of fields in brain evolution within and outside the AAPA community, to bridge the phenotype to the

FRIDAY MORNING SESSIONS

genotype, to inform and complement efforts and create opportunities for future generations of scientists interested in human brain evolution.

Discussants: Carol Marchetto, Dean Falk, Katerina Semendeferi.

- 1 **Species-specific maturation profiles and transcriptional signatures of human, chimpanzee and bonobo neural cells.** M. MARCHETTO.
- 2 **Great Ape Cerebral Organoids Recapitulate Evolved Differences in Gene Expression Observed in Primary Brain Samples.** A. BHADURI, M.A. MOSTAJO RADJI, M. SCHMITZ, M. ANDREWS, T.J. NOWAKOWSKI, O. MEYERSON, S. MAMDE, E. DI LULLO, B. ALVARADO, M. BEDOLLI, T.D. FAIR, I.T. FIDDES, Z. KRONENBERG, M. BERSHTEYN, E.E. EICHLER, A. KRIEGSTEIN, B.J. PAVOLVIC, A.A. POLLEN.
- 3 **Humanization of SRGAP2C expression increases cortico-cortical connectivity and alters neuronal response properties in the mouse brain.** E. SCHMIDT, H. ZHAO, E. HILLMAN, F. POLLEUX.
- 4 **Using great ape cerebral cortex organoids to study brain evolution and disease.** S.R. SALAMA, G.L. MANTALAS, A.R. FIELD, I.T. FIDDES, C.M. BOSWORTH, G. GEMEDA, T. REAL, N. HEYER, B. PATEN, D. HAUSSLER.
- 5 **Modeling human evolution with brain organoids carrying ancestral genetic variations.** A.R. MUOTRI.
- 6 **Cortical neuromorphology in large mammals.** B. JACOBS.
- 7 **Human brain evolution and language development: gene expression variation between human brain language structures and their homologues in chimpanzees.** N.L. BARGER, J. WEBBER, A.K. BEHEL, W.D. HOPKINS, B.J. BRADLEY, C.C. SHERWOOD.
- 8 **Subcortical systems in human evolution.** K.L. HANSON, M. RAGHANTI.
- 9 **Genetic Contributions to Individual Variation in Cortical Organization and Cognition in Chimpanzees.** W. HOPKINS.
- 10 **Early hominin brain evolution: what can fossil endocasts tell us?** A. BEAUDET.
- 11 **Sex differences in the brains of capuchin monkeys (*Sapajus [Cebus] apella*), and implications for human brains.** E.E. HECHT, O.T. REILLY, M. BENITEZ, S. BROSANAN.
- 12 **Brain Morphology of the Taung Endocast Inferred from Comparative Great Ape and Human Evidence.** M.S. PONCE DE LEÓN, S. ENGEL, C.P. ZOLLIKOFER.

FRIDAY, AFTERNOON SESSIONS

Session 38

The Extended Evolutionary Synthesis and Human Origins: Paleoanthropological Perspectives

Invited Podium Symposium

Chair: Robert A. Benitez. Co-organizers: Robert Acio Benitez, John K. Murray

Diamond 4

The theoretical framework in which researchers examine and interpret data influences the primacy of questions posed, hypotheses tested, and, ultimately, knowledge produced. For paleoanthropologists, the Modern Synthesis (MS) has historically guided inquiry and interpretation of the hominin fossil record. Recently, scholars in several disciplines have found MS to be lacking in its explanatory power, particularly with relevance to the emergence and evolution of the human lineage. Proponents of a theoretical revision, coined the extended evolutionary synthesis (EES), argue for a broader framework of contemporary theory that places emphasis on the role of diverse and reciprocally interacting evolutionary forces (e.g., developmental plasticity, niche construction) and inheritance systems (e.g., genetic, ecological, cultural). This symposium will address what an alternative perspective means for framing paleoanthropological inquiry. In particular, we aim to discuss the possibilities and limitations of exploring human origins under a larger suite of theories encapsulated within EES.

- 2:00 **Extending the reach of paleoanthropology with the Extended Evolutionary Synthesis.** M. KISSEL.
- 2:15 **Large-scale cooperation in small-scale societies.** R. BOYD, P.J. RICHERSON.
- 2:30 **Paleolithic mobility shifts as hominin niche construction.** J. RIEL-SALVATORE, F. NEGRINO, G. POTHIER BOUCHARD.
- 2:45 **Cultural Inheritance Through Bead Manufacture: An Argument from Grassridge Rockshelter, South Africa.** A. NOWELL, B. COLLINS, C.J. AMES.
- 3:00 **Reassessing the accumulated copying error model with an eye toward detecting high-fidelity cultural transmission during the Paleolithic.** L.S. PREMO.
- 3:15 **Hominin community structure: ecological patterns and niche construction.** A.L. RECTOR, K.E. REED.
- 3:30 **The human stress response, deep homology, and paleoanthropology: opportunities to study context, plasticity, and constraint in the ancient past.** D.H. TEMPLE.
- 3:45 **Phenotypic plasticity and adaptability in the genus *Homo*: implications from studies of modern human diversity.** J.T. STOCK, M. WILL, J.C. WELLS.
- 4:00 **Monkeys in the Middle: Modeling ecological flexibility and niche construction in African cercopithecoid primates.** I.E. SMAIL.
- 4:15 **Hominin species as anthropological units.** J. MARKS.

FRIDAY AFTERNOON SESSIONS

Session 39

Human Biology: Energetics, Immunity, Small Scale Societies

Contributed Podium Presentations

Chair: Asher Rosinger

Diamond 2

- 2:00 **Masticating in Maastricht: Quantifying the energetic cost of chewing in humans and its evolutionary significance.** A. VAN CASTEREN, G. PLASQUI, J.R. CODD, W.I. SELLERS, K. KUPCZIK, A.G. HENRY.
- 2:15 **Variation in human eccrine sweat gland density and its relationship to heat dissipation.** A.W. BEST, D.E. LIEBERMAN, J.M. KAMILAR.
- 2:30 **Evidence for brown adipose tissue activation among male and female reindeer herders from sub-arctic Finland.** C. OCOBOCK, P. SOPPELA, M. TURUNEN, V. STENBÄCK, K. HERZIG.
- 2:45 **Shifting sleep ecologies among foragers: An intra-community comparison of village and forest sleep of BaYaka foragers from the Congo.** E. KILIUS, D. SAMSON, S. LEW-LEVY, M. SARMA, L.T. GETTLER, A. BOYETTE, V. MIEGAKANDA, Y.R. OUAMBA.
- 3:00 **Male sleep is shorter and more fragmented than female sleep in a semi-electric, non-industrial, rural population of Kaqchikel Maya.** L. MCKINNON, D.R. SAMSON, C.L. NUNN, P.A. NEPOMNASCHY.
- 3:15 **An evolutionary-neuroscience approach to behavioral interventions linking exercise and brain health.** D.A. RAICHLIN, P.K. BHARADWAJ, L.A. NGUYEN, M. FRANCHETTI, E.K. ZIGMAN, A.R. SOLORIO, G.E. ALEXANDER.
- 3:30 **The cost of gathering: Food choices and energy expenditure among the Baka, a forager-horticultural society from southeastern Cameroon.** S. GALLOIS, A.G. HENRY.
- 3:45 **Matriliney predicts lower inflammation for women in the Mosuo of Southwest China.** A.Z. REYNOLDS, S.M. MATTISON, M. EMERY THOMPSON, P.L. HOOPER, K.E. STARKWEATHER, C. SUM, S. MINGJIE, L. HUI, T. BLUMENFIELD, M.K. SHENK, K. WANDER.
- 4:00 **Life-history tradeoffs and fertility transitions in a historic population (1896-1939).** A.V. JAEGGI, J.S. MARTIN, J. FLORIS, N. BENDER, M. HÄUSLER, K. STAUB.
- 4:15 **Do we still evolve? The “shifting trade-off model” of biological evolution in response to medical and technological transitions.** P. MITTEROECKER.
- 4:30 **Testosterone, cortisol, and secretory IgA in cis- and transgender men: Evidence for the dual hormone hypothesis.** C.R. HODGES-SIMEON, G. GRAIL, G. ALBERT, N. LANDRY, T.L. ORTIZ, J.M. CARRE, T.S. MCHALE, S.A. ARNOCKY.
- 4:45 **Reactive vs. proactive strategies for milk immunity.** K. WANDER, M. GAUCK, M. DURIS, T. HOPT, I. KIWELU, F. MOWO, B. MMBAGA.

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Session 40

Primate Genomics

Contributed Podium Presentations

Chair: Nathan Lents

Diamond 3

- 2:00 Examination of the aye-aye (*Daubentonia madagascariensis*) genome reveals lineage-specific *Alu* element subfamilies. A.T. MCLAIN.
- 2:15 Evolutionary and phylogenetic insights from a nuclear genome of the extinct giant koala lemur *Megaladapis edwardsi*. S. MARCINIAK, M.R. MUGHAL, L.R. GODFREY, C.M. BERGEY, R.J. BANKOFF, H. RANDRIANATOANDRO, B.E. CROWLEY, K.M. MULDOON, W. MILLER, S.C. SCHUSTER, R.S. MAHLI, A.D. YODER, E.E. LOUIS JR., L. KISTLER, G. PERRY.
- 2:30 Investigating cell-type specific shifts in metabolic gene expression between human and chimpanzees. C.C. BABBITT, T.M. ZINTEL, J. PIZZOLLO.
- 2:45 A mixed-methods approach to identify factors influencing non-human primate genomic sequence data generation. M. HERNANDEZ, G. PERRY.
- 3:00 Evidence of Selection in the *UCP1* Gene Region Suggests Local Adaptation to Irradiance Rather than Cold Temperatures in Savanna Monkeys (*Chlorocebus* spp.). C.M. GAGNON, H. SVARDAL, A.J. JASINSKA, N.B. FREIMER, P.J. GROBLER, T.R. TURNER, C.A. SCHMITT.
- 3:15 Age assessments based on DNA methylation signatures in vervet monkeys. A.J. JASINSKA, J. ZOLLER, M. THOMPSON, K. KAVANAGH, M.J. JORGENSEN, K. WOJTA, O. CHOI, J. DEYOUNG, X. LI, M. FACIO, G. COPPOLA, N. FREIMER, R.P. WOODS, S. HORVATH.
- 3:30 Human provisioning is associated with increased telomere length in long tailed-macaque (*Macaca fascicularis*) populations with a longer history of access to human-derived foods. P.H. REJ, A.R. KLEGARTH, C.M. RILEY KOENIG, M.D. GUMERT, L. JONES-ENGEL, D.T. EISENBERG.
- 3:45 Sex-biased gene expression in the rhesus macaque brain. A.R. DECASIEN, K.L. CHIOU, M.J. MONTAGUE, C.C. SHERWOOD, M.L. PLATT, M.I. MARTINEZ, S.E. BAUMAN, O. GONZÁLEZ, N. SNYDER-MACKLER, J.P. HIGHAM.
- 4:00 Genomic sequence assembly for the malaria-like parasite *Hepatocystis* using primate whole genome sequencing datasets. A.E. TRUJILLO, M.E. CHANEY, C.M. BERGEY.
- 4:15 Heritability and preliminary genetic association with social behavior and competence among juvenile rhesus macaques. R. HARRIS, Z. KOVACS BALINT, M. RAVEENDRAN, V. MICHOPoulos, J. BACHEVALIER, J. RAPER, M. SANCHEZ, C. GUNTER, J. ROGERS.

FRIDAY AFTERNOON SESSIONS

Session 41

Primate Life History

Contributed Podium Presentations

Chair: Krishna Balasabramaniam

Diamond 5

- 2:00 Correlative Relationships between Dental Metrics and Primate Life History. C.D. KELLY.
- 2:15 Developmental and elemental records in orangutan teeth reveal a complex interplay between primate behavior, physiology, and seasonal climate variation in the tropics. T.M. SMITH, C. AUSTIN, M. ARORA, D.R. GREEN, I.S. WILLIAMS.
- 2:30 The influence of fruit availability and infant age on maternal behavior in wild Bornean orangutans (*Pongo pygmaeus wurmbii*). T.D. BRANSFORD, M.A. VAN NOORDWIJK, S. UTAMI ATMOKO, E.R. VOGEL.
- 2:45 Effects of early life adversity and novel foraging circumstances on maternal behavior. S.K. PATTERSON, S.C. STRUM, J.B. SILK.
- 3:00 Testing the First Assumption of Trivers-Willard Hypothesis: Maternal condition (social status) is associated with offspring sex-ratio and male offspring postnatal growth in *Macaca mulatta*. J.P. ARROYO, L. MADRIGAL.
- 3:15 Aging of the hypothalamic-pituitary-adrenal axis in wild chimpanzees. M. EMERY THOMPSON, S. FOX, A. BERGHAENEL, K. SABBI, S. PHILLIPS-GARCIA, D.K. ENIGK, E. OTALI, Z.P. MACHANDA, M.N. MULLER, R.W. WRANGHAM.
- 3:30 Predictors of chest redness in dominant male geladas. P.M. DELACEY, T.J. BERGMAN, J.C. BEEHNER.
- 3:45 Maturational responses to male takeovers in immature female geladas. J.A. FEDER, J.C. BEEHNER, A. LU.
- 4:00 Fathers and father figures: Kin and age effects on chimpanzee (*Pan troglodytes*) social relationships. A.A. SANDEL.
- 4:15 Variation in male reproductive success on Cayo Santiago: evidence for reproductive senescence in rhesus macaques. K.M. MILICH, A. RUIZ-LAMBIDES, E. MALDONADO, D. MAESTRIPIERI.
- 4:45 A comparison of great ape life histories in captivity. F.S. HARWELL, C.D. KNOTT.

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Session 42

The Hidden Lives of Women: An Exploration of Women's Roles and Life Histories in Ancient Times

Invited Poster Symposium

Chair: Christine Lee

Diamond 10

Women's identities in past societies were often interpreted through their roles as wives or mothers. Historically, information about their lives were edited or left out, such as their occupations, educational background, and even their own names. This has created a shallow, homogeneous and incomplete narrative of women in antiquity. Women's lived experiences, however, were much broader, varied, and complex than many of these perspectives reveal. The main goal of this symposium is to recover some of this missing information. The research presented covers diverse theoretical frameworks and new methodological approaches aimed at examining the embodied identities, multidimensional lived experiences, and life histories of women in various past societies. By building on clues from historical accounts, the bioarchaeological record, and the archaeological record, we will uncover women's roles as religious, ceremonial, governmental, and familial leaders, participants in trade, economy, tributes, and warfare, conduits of knowledge (especially in childbirth and midwifery), and long distance travelers/migrants. In addition, contextual biases will be addressed regarding the assumptions given to the gender associated with burial artifacts, elite burial contexts, what is socially accepted as women's work, and that women's work is not equal to traditionally defined men's work. Human skeletal remains provide a rich cache of sociocultural and biological information, with the potential to uncover a more complete and balanced narrative. Hopefully this symposium will encourage scholars to take a closer look at the contribution of women to their respective sociocultural regions. This preliminary attempt at reclaiming women's places in history has value in itself and in how we approach contemporary women's issues.

- 1 **Women of Zhenghan: documenting gender inequality based on skeletal assemblages from Eastern Zhou China.** A. ROMERA BARBERA, K. PECHENKINA, M. MILLER, S. HALCROW, W. FAN.
- 2 **Sex, gender, and gendered roles among the Purisimeño Chumash: An integrative approach.** M.M. BLEUZE.
- 3 **Set apart from within: Articulated women in commingled tombs from Early Bronze Age Arabia.** L.A. GREGORICKA, J.M. ULLINGER, A. SCHRENK.
- 4 **Surviving Raids in Small Scale Societies: Finding Hidden Females Fighters in the Ancient Southwest.** M. CALLEJA, D.L. MARTIN.
- 5 **Women Warriors among Central California Hunter-Gatherers.** K.A. BROEHL, M.A. PILLOUD, A.W. SCHWITALLA, T.L. JONES.
- 6 **Where are the women warriors? Evidence for Gender Equality on the Mongolian Steppe (209 BC-840 AD).** C. LEE, Y. GONZALEZ.

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- 7 **Disputing Patriarchy: A Bioarchaeological Analysis of the Power of Ancient Maya Women.** K.A. MILLER WOLF.
- 8 **Female Fortitude: Exploring the Pivotal Role of Women at the 18th century Fortress of Louisbourg, Canada.** A.B. SCOTT, S. MACINNES.
- 9 **A bioarchaeological investigation of an obstetric death in Ancient China: Exploring the death and burial of an adult female with an infant at Huigou site.** A. ZHANG, Y. ZHOU, Q. WU, W. GU, Q. WEI.
- 10 **Fertility Magic and Childbirth During a Malaria Epidemic: An examination of sixty burials from a Roman infant cemetery.** J.A. WILSON, S.W. MALIS, D.G. PICKEL.
- 11 **Female mobility networks in Central Europe during the Middle Ages: implications on the spread of cultural relationships through migration.** C.S. RAGSDALE, J. JUSTICE, P. VELEMÍNSKÝ.
- 12 **A biochemical approach to women's identities and migration in the Moquegua Valley, Peru during the later LIP (ca. 1250-1476 CE).** D.E. CARMODY, B.J. SCHAEFER, B.L. TURNER, N.O. SHARRATT.
- 13 **Social Identities of Tributes during the Late Horizon (1470-1532 CE) in the Lambayeque Valley, Peru.** B.J. SCHAEFER, B.L. TURNER.
- 14 **She Knows Her Stuff: Modern and Ancient Expert Craftswomen in the Andes.** S.K. BECKER.

Session 43

From Old Monkeys to New Morphometrics: A Symposium Honoring the Scientific Contributions of Eric Delson

Invited Poster Symposium

Chair: Karen L. Baab. Co-organizers: Stephen Frost, Katerina Harvati, Kieran P. McNulty
Diamond 6

Eric Delson's prestigious career began in the early 1970's and continues unabated with >250 publications. Eric is a quintessential New Yorker who spent nearly his entire career as a faculty member at Lehman College and the Graduate Center of the City University New York, and as a research associate at the American Museum of Natural History. Eric is a fellow of the American Association for the Advancement of Science, former editor of the *Journal of Human Evolution*, and has served as the Secretary of the Paleoanthropology Society since 1999. Eric's interests are primarily in primate paleontology - particularly cercopithecids - and paleoanthropology. His original fossil descriptions and morphological analyses shaped the basic evolutionary framework used to study Old World monkey evolution. His seminal text, *Evolutionary History of the Primates*, co-authored with Fred Szalay, had an unrivaled impact on our conceptualization of the primate fossil record, their evolutionary relationships and paleobiology. Eric helped introduce cladistic approaches to paleoanthropology in 1977; the subsequent impact of cladistics in our field has been far reaching. Yet, Eric's own approach to systematics blends cladistic concepts with a more nuanced understanding of the adaptive significance of trait variation. Eric's push, in collaboration with Leslie Marcus in the 1990's, to bring high dimensional shape analysis and 3D imaging to biological

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anthropology questions further revolutionized our field, beginning with his (collaborative) description of the Sambungmacan 3 calvaria and leading to the development of the NYCEP Morphometrics Group and widely used Landmark Editor software. Eric was instrumental in the formation of the New York Consortium in Evolutionary Primatology, which boasts >100 alumni. Eric has always been generous with his time and expertise, mentoring more than 15 former and current PhD students and several post-docs, and developing numerous productive collaborations, including co-directing fieldwork at the Pliocene site of Senèze, France.

Discussants: Leslie Aiello, Alison Brooks and Cliff Jolly.

- 1 **The Contributions of Eric Delson before NYCEP.** M. STRASSER.
- 2 **Contributions of high dimensional shape analysis to paleoanthropology.** K.L. BAAB, S.E. FREIDLINE, K. HARVATI.
- 3 **Another look at the funny bone: Humerus shape in extant Apes and fossil hominins.** M. FRIESS, M. SBANCHI.
- 4 **Primate paleoenvironments of the Homa Peninsula, southwestern Kenya.** T.W. PLUMMER, P.W. DITCHFIELD, E. WHITFIELD, S. BLUMENTHAL, E.G. EARLY, F. HERTEL, R. LAMELA LOPEZ, J.S. OLIVER, R. POTTS, T. VINCENT, S. FROST, L.C. BISHOP.
- 5 **Rodent stable isotopes provide new data on Miocene ape environments in the Siwaliks and the Vallès-Penedès Basin.** I. CASANOVAS-VILAR, Y. KIMURA, L.J. FLYNN, D. PILBEAM, S. MOYÀ-SOLÀ, D.M. ALBA.
- 6 **Re-evaluation of the affinities of the *?Dryopithecus wuduensis* mandible.** K.D. PUGH, M. PITIRRI, J.L. ARENSON, B.M. SHEARER, C.C. GILBERT, E. DELSON.
- 7 **Dosimetry and ESR Analyses at Senèze, France: Dating Villafranchian Monkeys and Associated Fauna.** B.A. BLACKWELL, E. DELSON, K.P. MCNULTY, T.D. CAPELLINI, J.I. BLICKSTEIN, A.R. SKINNER, S.R. FROST, E. DEBARD, M. FAURE.
- 8 **African Land Mammal Ages: Definition and inclusion of primate range data.** J. VAN COUVERING, E. DELSON.
- 9 **New skeletons of *Cercopithecus dryas* and their implications for locomotor evolution and taxonomy within the guenon radiation.** C.C. GILBERT, J.L. ARENSON, J.A. HART, T.B. HART, K.M. DETWILER, E.J. SARGIS.
- 10 **The postcranial morphology and inferred locomotor behavior of the early Pleistocene Eurasian cercopithecine *Paradolichopithecus arevenensis*.** W.E. HARCOURT-SMITH, M. ANDERSON, A. FERNANDEZ, N. TING, S. FROST, E. DELSON.
- 11 **Zygomaxillary shape variation in Southern African papionin monkeys.** J.W. ADAMS, D.E. EHRLICH, M. SINGLETON.
- 12 **From hamadryas to humans: evolution and variation in catarrhine craniodental morphology.** N. O'SHEA, D. GETAHUN, E. MAZELIS, C. ASTORINO.
- 13 **Craniodental correlates of feeding within *Papio* and the interpretation of hominin behavior.** L. SWEDDELL, S. CHOWDHURY, L.D. FANNIN, D.J. DAEGLING, W.S. MCGRAW.
- 14 **A molecular phylogenetic analysis of papionins using Maximum Parsimony, Maximum Likelihood and Bayesian methods.** D. GETAHUN, R. RAAUM.
- 15 **How Dr. Eric Delson Shaped Cladistic Analysis: Lessons from the Platyrrhines.** A.L. ROSENBERGER.

FRIDAY AFTERNOON SESSIONS

- 16 Quantifying intraspecific variation in a Caribbean fossil primate. L.B. HALENAR-PRICE, S.B. COOKE, Z.S. KLUKKERT, Z. SIMS, J. ALMONTE, P. LEHMAN, M. TALLMAN.
- 17 *Eulemur* Nasal Cavity Variation across Latitude and Forest Type. C.A. VEGA.
- 18 Old World monkeys, apes, and others. J.G. FLEAGLE, B. BENEFIT, E. MILLER.

Session 44

A Two-Way Street Tale: Integrating Biocultural Data for Discussing Past Human Diversity in the Americas

Invited Poster Symposium

Chair: Lumila P. Menendez. Co-organizers: Mark Hubbe

Diamond 7

The study of the origin and evolution of the past human biological variation in the Americas has been approached from different points of views, through the analysis of molecular (Y-chromosome, mitochondrial-DNA, autosomal markers), morphological (cranial, dental, postcranial), and cultural (linguistic, lithic technology, physical activity) data. Over the past two decades, hundreds of articles, analyzing both extant and prehistoric individuals, have been published with the goal of elucidating the complex set of processes by which Native American populations diversified and evolved across space and time. However, despite this immense scientific effort, these studies have not been able to agree on the processes that gave rise to human diversity in the continent and have supported widely different models for the human evolution and dispersion in the Americas. For example, while most cranio-metrical studies report high morphological diversity among late Holocene populations of the Americas, the majority of molecular studies depict the lowest global values of genetic intra-population variation in the continent. These discrepancies resulted in different models, ranging between one and four waves of dispersion, defended for the settlement of the continent. Unfortunately, there are only a few research programs that currently aim to take on the challenge of integrating multiple sources of evidence, given the degree of academic specialization required to handle each data type. The crucial step to solve this limitation will be overcome only when an integrated framework for both genetic and non-genetic data is adopted to study biological diversity in the past. This symposium aims to bring together researchers working in the Americas that express similar concerns. We expect to create a stimulating environment for discussing the challenges and limitations with data integration with experts on the field that will promote enhanced and more accurate explanations for the origin and diversification of human populations in the Americas.

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Discussant: Dennis H. O'Rourke.

- 1 **Reconstructing 10,000 years of human population history in western North and South America: Continuities and discontinuities with genomic and morphological data.** S. KUZMINSKY, L. FEHREN-SCHMITZ.
- 2 **Adaptation and human adaptability and its implications for the peopling of the Americas: a Big Data approach.** D.V. BERNARDO, T.F. DE ALMEIDA.
- 3 **Reconstructing manual physical activity in an early high-altitude Paleoindian settlement of the Peruvian Andes.** F. KARAKOSTIS, H. REYES-CENTENO, M. FRANCKEN, K. RADEMAKER, K. HARVATI.
- 4 **Comparative analysis on the differential role of population history and selection during human morphological diversification in South America.** L.P. MENÉNDEZ.
- 5 **Geographic patterns of dental morphological variation in the New World: A view from ancient Mexico and Central and South America.** A. ORTIZ, S.E. BAILEY.
- 6 **Incorporating insights from dental quantitative genetics into studies of past biological variation in the Americas.** K.S. PAUL, C.M. STOJANOWSKI, G. SCOTT.
- 7 **Insights from Tooth Morphology on the Peopling of the Americas, with Special Emphasis on South America.** G. SCOTT, T. VLEMINCQ-MENDIETA, K. STULL.
- 8 **Grammatical traits track the peopling of the Americas.** J. NICHOLS.
- 9 **Genetic relationships and linguistic diversity in present-day populations of South America.** C. BARBIERI, R. BARQUERA, L. ARIAS, J.R. SANDOVAL, O. ACOSTA, C. ZURITA, A. AGUILAR-CAMPOS, A.M. TITO-ÁLVAREZ, R. SERRANO-OSUNA, R.D. GRAY, F. MAFESSONI, P. HEGGARTY, K.K. SHIMIZU, R. FUJITA, M. STONEKING, I. PUGACH, L. FEHREN-SCHMITZ.
- 10 **Characterizing the human genomic diversity of the Incan Capacocha ceremony in Chile and Argentina.** C. DE LA FUENTE, M. RAGHAVAN, M. CASTRO DOMINGUEZ, R. VERDUGO, M. MORAGA.
- 11 **Issues of representativity: Simulating the effects of kinship patterns on genetic diversity in archaeological samples.** G. FIGUEIRO.
- 12 **The peopling of South America: insights from genetic markers.** C.B. DEJEAN, C.M. CRESPO, V. ARENCIBIA, D. CARDOZO, M.B. POSTILLONE, S.A. AVENA.
- 13 **Genomic insights into the human population history of Northwestern Amazonia.** L. ARIAS, G. BARRETO, B. PAKENDORF, M. STONEKING.
- 14 **The genetic differentiation of early Americans.** C. POSTH.
- 15 **Genomic perspectives of the Tupí Expansion.** M.A. CASTRO-SILVA, A. PEREIRA, M.C. BORTOLINI, F.M. SALZANO, D. COMAS, T. HÜNEMEIER.

SATURDAY, ALL DAY SESSIONS

Session 45

Primate Craniodental Anatomy and Functional Morphology

Contributed Poster Presentations

Chair: Christopher Schmitt

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

1:00 Odd number presenters stand by their posters (1 hour).

5:00 Even number presenters stand by their posters (1 hour).

6:00 Poster removal.

- 1 Variation in masticatory muscle attachment areas: exploring potential relationships to dental wear and allometry in *Otolemur* and *Saimiri*. E.M. ST CLAIR, J.M. PERRY.
- 2 Gape drives temporalis muscle architecture dynamics in the tufted capuchin feeding system. M.F. LAIRD, M.C. GRANATOSKY, A.B. TAYLOR, C.F. ROSS.
- 3 Strain Energy Variation Relates to Food Effects while Strain Orientation Relates to Individual Effects in Robust and Gracile *Cebus* Morphotypes. C.D. BYRON, C.F. ROSS.
- 4 Morphological integration of the masticatory apparatus in New World monkeys. R.P. KNIGGE.
- 5 Bites and chews in two sympatric lemur species in southwestern Madagascar. M. DUTRA FOGAÇA, N.C. FLOWERS, N. YAMASHITA.
- 6 Does Molar Shape Distinguish Robust Capuchin Hybrids (*Sapajus nigritus x libidinosus*) From Non-Hybrids? A 2D Geometric Morphometric Approach. E.A. KOZITZKY.
- 7 Dietary correlates of mandibular premolar form in haplorrhine primates. E. DALY, G.T. SCHWARTZ.
- 8 Testing associations between diet and premolar size in four African colobine monkeys. L.D. FANNIN, J. ARFT-GUAPELLI, D. GUAPELLI-STEINBERG, N.T. DUNHAM, A. DONALDSON, P. CUNNEYWORTH, W.S. MCGRAW.
- 9 Relative enamel thickness, cuspal enamel thickness, and lateral wall enamel thickness in maxillary premolars and molars of apes and hominins. M.C. O'HARA, P. MAHONEY, G.T. SCHWARTZ, M.M. SKINNER, D. GUAPELLI-STEINBERG.
- 10 Differences in development of the deciduous dentition between *Gorilla gorilla* and *Gorilla berengei*. R.R. DICKERSON, E.E. HAMMERL.
- 11 Intraspecific Analysis of Chimpanzee Dental Crown and Root Proportions. E. SHIPLEY, J.D. PAMPUSH.
- 12 Motif and occlusal fingerprint analyses reveal sex-specific molar wear patterns in western chimpanzees. J. STUHLTRAEGER, E. SCHULZ-KORNAS, O. KULLMER, M. JANOCHA, R.M. WITTIG, K. KUPCZIK.

SATURDAY ALL DAY SESSIONS

- 13 Graph theory applied to dental topography helps isolating and comparing the sharpest tools of primate molars. G. THIERY, F. GUY, V. LAZZARI, S.O. SOSA.
- 14 Changes in molar topography and 3D shear crest lengths with tooth wear in two cercopithecoid primates from Malaysia. E.M. LOCKE.
- 15 Investigating the relationship between mental foramen number and cross-sectional area. C.B. YOAKUM, C.E. TERHUNE.
- 16 Ontogenetic differences in the midline cranial synchondroses of primates. T.D. SMITH, B. WOOD, L. OLADIPUPO, N. MANO, J. TAYLOR, H. CORBIN, A. UFELLE, E. DURHAM, C.J. VINYARD, J.J. CRAY, V.B. DELEON.
- 17 Trabecular bone variation in the mandibular condyle and its association with diet in different Macaque species. E.J. BROWN, J.T. STOCK.
- 18 Tough nut to crack: Durophagy and the tympanic plate in Cercopithecines. E.E. FRICANO, K.G. ZELAZNY.
- 19 Variation in craniodental pathologies among cercopithecoid primates. C.A. KIRCHHOFF, S.B. COOKE, D. MITCHELL, C.E. TERHUNE.
- 20 Analysis of landmark variation in the study of cranial fluctuating asymmetry. A.N. ROMERO, D.R. MITCHELL, C.E. TERHUNE.
- 21 Bony Labyrinth Fluctuating Asymmetry does not Reflect Gestational Malnutrition in Rats. D.L. WARD, E. POMEROY, L. SCHROEDER, J.E. ROY, L.T. BUCK, J.T. STOCK, M.T. SILCOX, T. VIOLA.
- 22 A link between orbital convergence and locomotor behavior in leporids and its implications for the evolution of the primate visual system. B. KRAATZ, L. FRANKENBERG, E. SHERRATT, L. SCHMITZ.
- 23 In Search of Linear Enamel Hypoplasia in a Stressed Population of *Propithecus diadema*. M.S. SEABOCH, K.E. SAMONDS, J. RAHARISON, M.T. IRWIN.
- 24 Developmental defects of deciduous teeth can be linear too: an analysis of enamel hypoplasia in juvenile great apes. K. MCGRATH, C. WITZEL, E. ORELLANA-GONZÁLEZ, U. KIERDORF, H. KIERDORF, E. BOCAEGE.
- 25 Differences in enamel extension rates in modern southern Africans and Europeans correspond with differences in their crown formation times. D. GUATELLI-STEINBERG, G. MCFARLANE, C. LOCH, S. WHITE, R. PITFIELD, P. BAYLE, B. FLOYD, P. MAHONEY.
- 26 Inter-cuspal fluctuating asymmetry of deciduous second molars is not different than their permanent homologues in contemporary New Mexicans. E. MOES, H.J. EDGAR.
- 27 The Impact of Facial Reduction on Canine Paranasal Sinuses. C. ROSENBERG, M. SELBA, V. DELEON.
- 28 Canine size is genetically correlated with body size in the Cayo Santiago rhesus macaques. A.M. HARDIN.
- 29 Strong dental trait correspondence between the outer enamel surface (OES) and the enamel-dentine junction (EDJ) in the Great Ape Dental Scoring System. V. PILBROW, T. MCGAIN.

SATURDAY ALL DAY SESSIONS

Session 46

Education and Public Outreach

Contributed Poster Presentations

Chair: Christopher Schmitt

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

1:00 Odd number presenters stand by their posters (1 hour).

5:00 Even number presenters stand by their posters (1 hour).

6:00 Poster removal.

- 1 **Endangered Anthropologists: Attrition Rates Among Ethnic Minorities in Graduate Anthropology Programs in the United States.** E.D. TURNER-BYFIELD.
- 2 **Ancient DNA, Twitter, and other disasters. A contribution on scientific innovation and ethical communication in bioarchaeology.** E. PETITI, J. GRESKY.
- 3 **My So-Called Lab: Using Social Media to Highlight Diverse Experiences of Women in STEM.** H. DINGWALL, M. YOUNG, E. JAGODA, K.L. BRYANT, J. PARGETER, A.C. KRUGER, L. LEMING, E.E. HECHT.
- 4 **The Arch and Anth Podcast: education, outreach and representation.** M.B. RIVERA.
- 5 **Developing Effective Strategies for Primate Conservation Education for Local and International Museums, Zoos, and Wildlife Centers.** A.L. NORWOOD.
- 6 **Rhodes has fallen, but academia's ivory tower still stands: The impact of Rhodes Must Fall in archaeology and anthropology.** L.A. DROR, M.B. RIVERA.
- 7 **Biological Anthropology in Peru: A Contemporary Analysis of Its Education and Job Market.** B.I. QUISPE VILCAHUAMAN.
- 8 **Changing student misconceptions about evolution in an introductory biological anthropology course using an inquiry-based approach.** S.L. JOHNSTON, M. KNABB, J. AULD, L. RIESER-DANNER.
- 9 **An anthropologist's experiment self-aligning with the OEI course design rubric: What does it take to get an online biological anthropology course taught state-wide?** R.L. MESSINGER, S. VALCARCEL.
- 10 **The Impact of Forensic Anthropology in Undergraduate Anthropology Programs.** N.V. PASSALACQUA, S. MULLHOLLAND, M.A. PILLOUD, A. KLALES.
- 11 **The Yale Peabody Museum Sifaka Database: A resource for teaching and research.** R.R. LAWLER, D.K. BROCKMAN, J. RANAIVONASY, J. RATSIRARSON, E.J. SARGIS, R.D. WHITE, A.F. RICHARD.
- 12 **Increasing diversity in biological anthropology: Lessons from a laboratory-based undergraduate mentorship program.** T.V. WILSON.

SATURDAY ALL DAY SESSIONS

Session 47

Primate Postcranial Morphology and Locomotion

Contributed Poster Presentations

Chair: Christopher Schmitt

Platinum Ballroom

- 1 **Morphometric analysis of Eocene primate astragali from India.** C.J. LLERA, K.D. ROSE, A.D. SYLVESTER.
- 2 **Predicting descent locomotion in early primates based on morphology and behavioral observations of extant taxa.** B.A. PERCHALSKI, M. BRADLEY, D.M. BOYER.
- 3 **Relationships among three-dimensional os coxae shape, locomotor behavior, phylogeny, and size in haplorhine and strepsirrhine primates.** K.L. LEWTON.
- 4 **Convergence of innominate morphology in suspensory primates: a 3D geometric morphometrics approach.** M.V. AVILEZ, J. EYRE, S.A. WILLIAMS.
- 5 **The taxonomic efficacy of the macaque innominate.** B. KENYON-FLATT, N. VON CRAMON-TAUBADEL.
- 6 **Is relative enthesal length indicative of locomotor repertoire?** A.R. OTERO, A.D. GORDON.
- 7 **Prezygapophyseal articular facet shape of the first post-transitional (lumbar) vertebra in anthropoids.** H. JUNG, N. VON CRAMON-TAUBADEL.
- 8 **Flexor digitorum profundus tendon forces in climbing grips.** H. ZAEHRINGER, E.M. FEUERRIEGEL, P.A. KRAMER.
- 9 **Intraspecific variation within the forearms of non-human primates.** N. WORDEN, S.R. SWINDELL, M.L. BOETTCHER, E. DICKINSON, A. HARTSTONE-ROSE.
- 10 **Testing Diffeomorphic Surface Matching versus 3D Geometric Morphometrics in Hominid First Metacarpals.** L.A. BOWLAND, L.H. EASON.
- 11 **Support size and thumb position preferences in humans during suspension and vertical climbing: Implications for hominin hand evolution.** V.A. LOCKWOOD, S. LU, S. WINTER, T.L. KIVELL.
- 12 **Absence of suspensory foraging postures in *Pygathrix nemaeus*: using Ladan's kinesphere as a proxy for below branch locomotion.** K.E. BAILEY.
- 13 **Temporal heterogeneity in quadrupedal locomotor rates in sympatric cercopithecids.** J.N. TRAFF, T.H. CANNON, D.J. DAEGLING, W.S. MCGRAW.
- 14 **Qualitative and quantitative variation within the antebrachial musculature of Callitrichidae and Lemuridae.** M.R. SMITH, I. HERTZIG, M.L. BOETTCHER, E. DICKINSON, A. HARTSTONE-ROSE.
- 15 ***Lagothrix* variation in skeletal and linear variables.** J. RUNESTAD CONNOUR, S.L. CANINGTON, K. NIDA.
- 16 **Geometric morphometric analysis of postcranial sexual dimorphism in Cercopithecoids.** E.F. PINKSTON, K.M. ALLEN, N. VON CRAMON-TAUBADEL.

SATURDAY ALL DAY SESSIONS

- 17 Anthropogenic effects on growth and development of captive and free-ranging *Macaca mulatta*. G.N. FRANCIS, A.R. ELLER.
- 18 A geometric morphometric comparison of shape and integration indices in captive and wild *Macaca fascicularis* postcrania. M.A. CONAWAY, B. KENYON-FLATT, N. VON CRAMON-TAUBADEL.
- 19 A comparison of axial rotation of the trunk during bipedal walking between human, white-handed gibbon and Japanese macaque. Y. KINOSHITA, R. GOTO, Y. NAKANO, E. HIRASAKI.
- 20 An inverse kinematics solution to the problem of collecting 3-D motion data outside of the lab. Z.R. RADWANSKI, C. BRIMMER, N.E. THOMPSON, M.C. O'NEILL.
- 21 Assessing Hominid Femoral Variation Using Diffeomorphic Surface Matching. L.H. EASON, L.A. BOWLAND.
- 22 Using thin plate splines to statistically compare force curves produced by western lowland gorillas (*Gorilla gorilla gorilla*). G.S. YAPUNCICH, D. SCHMITT, R.E. WUNDERLICH, A. ZEININGER.
- 23 It's all downhill: Stride length differences during slope walking. M. OCHOA, H. ZAEHRINGER, P.A. KRAMER.
- 24 Foot angles during bipedal gradient walking with burdens. C. GILDEE, M. OCHOA, H. ZAEHRINGER, P.A. KRAMER.
- 25 Effects of compliant substrates on gait kinematics in squirrel monkeys (*Saimiri boliviensis*). N.M. SCHAPKER, B.A. CHADWELL, J.W. YOUNG.
- 26 The spring in the arch of the human foot, revisited. N.B. HOLOWKA, A. RICHARDS, B.E. SIBSON, D.E. LIEBERMAN.
- 27 The influence of foot orientation on side foot forces during walking in a straight line. S.G. LAUTZENHEISER, A.D. SYLVESTER, P.A. KRAMER.
- 28 The effects of anteroposterior limb bone curvature on muscle and joint moments in humans: An applied musculoskeletal modelling approach. M. MACKINNON, J. GILES, H. SHIRZADI, A. MURRAY.
- 29 Estimating hip muscle forces during walking using musculoskeletal modeling. A.D. SYLVESTER, S.G. LAUTZENHEISER, P.A. KRAMER.
- 30 Automated and Semi-Automated Rapid Morphological Phenotyping using Geometry Processing. O.O. THOMAS, P.J. DEPRET-GUILLAUME, R.L. RAAUM, W.E. HARCOURT-SMITH, M.A. HASEGAWA-JOHNSON, J.D. POLK.
- 31 Comparative morphological study on the shape variance of the scapula in extant Cercopithecidae. M. VERGAMINI, L.M. DAY, C. MCGRATH, E. GAGARIN, A.L. RECTOR.

SATURDAY ALL DAY SESSIONS

Session 48

Primate Feeding Ecology

Contributed Poster Presentations

Chair: Christopher Schmitt

Platinum Ballroom

- 1 The crash-weaning diet: two case studies on the consequences of unusually early and fast weaning among East African chimpanzees (*Pan troglodytes schweinfurthii*). K.H. SABBI, M. EMERY THOMPSON.
- 2 Competing siblings and invested first time mothers: Weaning patterns in wild bonobos (*Pan paniscus*) revealed by stable isotope analysis. V.M. OELZE, G. HOHMANN, I. O'NEAL, S. LEE, B. FRUTH.
- 3 Patterns of Free-Standing Water Drinking Among Wild Chimpanzees (*Pan troglodytes*) at Gombe National Park, Tanzania. R.S. NELSON, E.V. LONSDORF, K.R. WELLENS, K.A. TERIO, C.M. MURRAY.
- 4 Preliminary analysis of the nutritional composition of black-and-white ruffed lemur (*Varecia variegata*) diet in Ranomafana National Park, southeastern Madagascar. N. BEEBY, J.M. ROTHMAN, A.L. BADEN.
- 5 Prevalence of Condensed Tannins in the diet of Diademed sifakas (*Propithecus Diadema*) in Tsinjoarivo, Madagascar and its impacts on protein intake. E. THURAU, M. IRWIN.
- 6 Condensed Tannins and Nutritional Quality of Bornean Orangutan (*Pongo pygmaeus wurmbii*) Foods in Gunung Palung National Park, West Kalimantan, Indonesia. I. CHOWDHURY, M.M. EORI, E. KANE, N. CONKLIN-BRITTAIN, T.W. SUSANTO, C. KNOTT.
- 7 Wood and meat as complementary sources of sodium for Kanyawara chimpanzees (*Pan troglodytes*). E.M. VENABLE, Z. MACHANDA, L. HAGBERG, J. LUCORE, E. OTALI, J.M. ROTHMAN, M. UWIMBABAZ, R. WRANGHAM.
- 8 Variation in intake rates between two sympatric folivores in Kibale National Park, Uganda. R. LUTHER, J.M. ROTHMAN.
- 9 How well do feeding observations match fecal stable isotope values? An evaluation among Verreaux's sifaka (*Propithecus verreauxi*) and ring-tailed lemurs (*Lemur catta*). N.W. SAWYER, J.E. LOUDON, R. SCHACHT, M.L. SAUTHER, M. SPONHEIMER.
- 10 Food choice and nutritional analysis of frugivorous and insectivorous diets in captive Northern greater galagos (*Otolemur garnettii*). M.A. KRÓWKA, B. SMITH, S. BIANCHI, J.E. LOUDON, M.E. HOWELLS, A.M. GOMEZ, O.C. PAINE, M. SPONHEIMER.
- 11 Seasonal variation in diet and ranging patterns in Kinda baboons (*Papio kindae*). A.H. WEYHER, A.J. FUCHS, J.M. KAMILAR.
- 12 A staple food resource, *Leucomphalos callicarpus*, may temper fluctuating fruit availability for Bornean orangutans at Tuanan, Indonesia. W.D. AGUADO, T.D. BRANSFORD, A. ZULFA, E.R. VOGEL.
- 13 Gut microbiota and fecal stable isotopic values for bonobos (*Pan paniscus*) of the Lomako Forest, Democratic Republic of Congo. A.J. HICKMOTT, J.E. LOUDON, D.M. CHRISTIE, C.M. BRAND, M.L. WAKEFIELD, M.T. WALLER, F.J. WHITE, N. TING.

SATURDAY ALL DAY SESSIONS

Session 49

Population History

Contributed Poster Presentations

Chair: Christopher Schmitt

Platinum Ballroom

- 1 Identification of disease at Verteba Cave, Ukraine. T. BLOHM, J. KARSTEN, M. SNOW.
- 2 Investigating population genomic continuity between the fifth and sixth century. D.N. VYAS, A. MODI, S. VAI, I. KONCZ, W. POHL, L.P. BARICCO, E. BEDINI, C. GIOSTRA, T. VIDA, B.G. MENDE, D. CARAMELLI, J. KRAUSE, P.J. GEARY, K.R. VEERAMAH.
- 3 Molecular archaeological methods to explore the traces of Akhal-Teke in China. S. ZHU.
- 4 Genetic affinities of pre-Columbian Mayas from Xcaret, Mexico. V. VILLA-ISLAS, M. BRAVO-LÓPEZ, A. GONZÁLEZ-OLIVER, E. GARFIAS-MORALES, M. ÁVILA-ARCOS.
- 5 Ancient DNA reveals two paternal Hg C2 lineages in the old nomadic people distributed on the Mongolian Plateau. J. LI, D. CAI, Y. ZHANG, H. ZHU, H. ZHOU.
- 6 Characterizing migration waves into Chilean Patagonia and Tierra del Fuego using ancient DNA. C.M. BALENTINE, M. VILAR, F. MORELLO, M. SAN ROMÁN, L.C. SPRINGS, S.M. ARCHER, J. MATA-MÍGUEZ, R.W. SMITH, N. WING, M. ALFONSO-DURRUTY, D.A. BOLNICK.
- 7 Ancient Human DNA Recovered From Promontory Caves Cordage. N.Z. BROOMANDKHOSHBAHT, H.J. MILNE, J.W. IVES, L. FEHREN-SCHMITZ, B. SHAPIRO.
- 8 Mitogenome analysis of the elite individuals interred in the House of the Dead complex at Paquimé (Casas Grandes), Mexico. R. SUMMERS-WILSON MA, D. SNOW, D. SEARCY.
- 9 Using aDNA and Archaeological Data to Explain Migration in the Casas Grandes Region of Northern Mexico. M. SNOW.
- 10 Ancient Genetic Analysis of a North Alaskan Birnirk Inuit Population. S.L. UNKEL, L.E. NORMAN, J. TACKNEY, A. JENSEN, C. ALIX, O. MASON, D.H. O'ROURKE.
- 11 Assessing matrilineal genetic diversity in Mexico through the analysis of ancient mitogenomes spanning 2,300 – 500 YBP. A. IZARRARAS-GOMEZ, V. VILLA-ISLAS, M. BRAVO-LÓPEZ, M. SANDOVAL-VELASCO, E.M. PÉREZ-CAMPOS, A. HERRERA-MUÑOZ, E. VILLANUEVA-MEDINA, R. AGUAYO-HARO, C. VALDIOSERA, M.C. ÁVILA-ARCOS.
- 12 Paleogenomic Reconstruction of Diet and Oral Health in Pre and Post-contact individuals from Mexico. M.J. BRAVO-LOPEZ, C. ROCHA-ARRIAGA, J. PEREZ-PEREZ, J. HERNÁNDEZ-OLVERA, K. ALCANTARA-RUSSEL, V. VILLA-ISLAS, A. SOLÍS-GUZMÁN, M.C. ÁVILA-ARCOS.
- 13 Ethno-geographic origins and genomic diversity of Afro-descendants in colonial Mexico City. J.K. WESP, M. SANDOVAL-VELASCO, M. ÁVILA-ARCOS.
- 14 Indigenous American and African Interaction in Puerto Rico, A Comparative Analysis. E.M. MUELLER, L. CHEN, J. BENN TORRES.
- 15 Genetic analysis of the South American Macushi population. K.L. DEROSA, C.A. KOCH, D. MERRIWETHER.

SATURDAY ALL DAY SESSIONS

- 16 Whole mitochondrial sequences reveal substantial heterogeneity within African descendants in the Caribbean. T. WINFUL, MA, L. CHEN, MA, J. BENN TORRES, PHD.
- 17 Genetic portrait of North-West Indian population based on Autosomal and X-chromosomal *Alu* insertion markers. G. SINGH, H.S. SANDHU, I. TALWAR, A. BHANWER.
- 18 Genetic diversity among indigenous South American populations reflects demographic history and environmental adaptations. C.I. FERNÁNDEZ, C. DE LA FUENTE.

Session 50

Novel Methods in “-omics” **Contributed Poster Presentations**

Chair: Christopher Schmitt
Platinum Ballroom

- 8:00 Poster setup.
 - 9:00 Poster session opens.
 - 1:00 Odd number presenters stand by their posters (1 hour).
 - 5:00 Even number presenters stand by their posters (1 hour).
 - 6:00 Poster removal.
- 1 DNA methylation measurements using dried blood spots on the Illumina EPIC array yield high quality data comparable to whole blood measured using the 450k array. C.P. RYAN, D.S. LIN, M.S. KOBOR, T.W. MCDADE, C.W. KUZAWA.
 - 2 PalaeoChip: An eDNA targeted enrichment approach for reconstructing human palaeoecosystems. T.J. MURCHIE, M. KUCH, A. DUGGAN, M. LEDGER, K. ROCHE, J. KLUNK, E. KARPINSKI, D. HACKENBERGER, T. SADOWAY, R. MACPHEE, D. FROESE, H. POINAR.
 - 3 Diet-Breadth Analysis in the Southwest: Comparison of Metabarcoding and Shotgun Sequencing Methods with Coprolites. P.N. PLATTNER, M. SNOW, A. KOSTI, M. WIBOWO.
 - 4 Ancient DNA Mimicry? Bleach-Based Decontamination Treatment and Cytosine Deamination in Modern DNA Contaminants. A.M. RILEY, M. STATON, G.S. CABANA.
 - 5 Bisulphite sequencing of ancient genomes. B. LLAMAS.
 - 6 Molecular Findings of Combined Application of Forensic Toxicology and Ancient DNA techniques on Egyptian canopic jar contents. E. RAYO, A. BOUWMAN, L. BROCKBALS, T. KRAEMER, M. HABICHT, P. EPPENBERGER, V. SCHUENEMANN, F. RUEHLI.
 - 7 A New Approach Toward Discovering and Characterizing Orphan Genes in the Human and Neanderthal Genomes. N.H. LENTS, H.R. JOHNSON, B. MERCADO, J. GALVÁN, S. VEE, W. HIGGINS.
 - 8 Impact of Sample Collection Preparation on Metabolomic and Microbiome Profiles. J.J. HAFFNER, D. JACOBSON, T.P. HONAP, E. HOSSAIN, K. SANKARANARAYANAN, L. MCCALL, C.M. LEWIS, JR.

SATURDAY ALL DAY SESSIONS

Session 51

Primate and Human Skeletal Biology

Contributed Poster Presentations

Chair: Christopher Schmitt

Platinum Ballroom

8:00 Poster setup.

9:00 Poster session opens.

1:00 Odd number presenters stand by their posters (1 hour).

5:00 Even number presenters stand by their posters (1 hour).

6:00 Poster removal.

- 1 Characterization of histomorphometric developmental patterns in ribs from a medieval Polish population using Geographic Information Systems software. R.C. MAYUS, V. DOMINGUEZ, A. AGNEW.
- 2 A comparison of knee replacement hardware dimensions to natural femoral anatomy. H.E. HORBALY, B.M. AUERBACH.
- 3 Getting under their skins: New insights into primate baculum/baubellum preservation. R.T. MCRAE, J. BOLDRICK, A.R. ELLER.
- 4 Archery's Lasting Mark: A Biomechanical Analysis of Archery. T. DORSHORST, J. HAMILL, G. WEIR, B. HOLT.
- 5 Musculoskeletal modeling: Human ACL rupture recognized as multifactorial using dog CCL rupture cases. S.A. TOTH, A.R. GROSSO, M.I. SIEGEL.
- 6 Hand anthropometry may be an indicator of skin thickness at various hand locations and postures. M. COYNE, S.E. CAMERON, P.A. D'ANGELO, M. AUERBACH, J.W. RAMSAY.
- 7 Sex differences in bilateral asymmetry of the clavicle and humerus in medieval Giecz, Poland. E.T. BRZEZINSKI, A.M. AGNEW.
- 8 Patterns in and determinants of cortical thickness and rigidity in the humeral diaphysis of Holocene *Homo sapiens*. K.J. CARLSON, M.R. DOWDESWELL, E. CHENG, K.A. TOMMY, E. ZHU, N.B. STEPHENS, L.J. DEMARS, J.P. SAERS, J.R. JOHNSON, T. KENNEDY, J.T. STOCK, T.M. RYAN, A.D. GORDON, T. JASHASHVILI.
- 9 Load paths in a skeletal element with heterogeneous elasticity. A.J. RAPOFF, D.A. HODGSON, W.S. MCGRAW, D.J. DAEGLING.
- 10 Trabecular bone in the ankle of a rapid-growing avian bipedal model in response to locomotor inactivity. A.M. GUERRA, N.B. STEPHENS, S.M. COX, M.Q. SALZANO, S.J. PIAZZA, J. RUBENSON, T.M. RYAN.
- 11 Trabecular mapping: Effects of intra- and interobserver error on sliding semilandmark placement. C. RUSSELL, D.S. GLEIBER, D.J. WESCOTT, D.L. CUNNINGHAM, A.D. SYLVESTER.
- 12 Sex- and age-related differences in bone density in African ape lumbar vertebrae. N. KORPINEN, J. JUNNO.

SATURDAY ALL DAY SESSIONS

- 13 Effect of Thermal and Chemical Treatments on Elastic Modulus and Anisotropy of Bone.
T.A. POLVADORE, G.V. CALHOUN, D.J. DAEGLING.

Session 52

Primate Ecology and Conservation

Contributed Poster Presentations

Chair: Christopher Schmitt

Platinum Ballroom

- 8:00 Poster setup.
- 9:00 Poster session opens.
- 1:00 Odd number presenters stand by their posters (1 hour).
- 5:00 Even number presenters stand by their posters (1 hour).
- 6:00 Poster removal.
- 1 Using the species-area equation to understand species diversity within the primate order.
C.B. YOUNG.
 - 2 Arboreal primate ranging from a new perspective: UAS technology at the landscape scale.
C.D. MARSH, R. HILL, M. NOWAK, A. KORSTJENS.
 - 3 How Do Non-Primate Competitors Affect the Potential Distribution of Frugivorous Primates? R.B. BELL, K.E. REED, J. ROWAN, L. BEAUDROT, J.M. KAMILAR.
 - 4 Preliminary evidence for distance and land cover influences on genetic differentiation among endangered lemur populations. C. CHEN-KRAUS, E.E. GUEVARA, N.A. RAHARINORO, M. RICHMOND, R.R. LAWLER, B.J. BRADLEY.
 - 5 Dry Season Behavioral Ecology of Von der Decken's Sifaka (*P. deckenii*) Inhabiting Limestone Karst Forest at Beanka Reserve, Madagascar. A.J. ZAMORA, C. RASOLONDRAVOAVY, S. NELSON-MANEY.
 - 6 Population survey and habitat preference of night monkeys (*Aotus azarae*) in Tambopata, Peru. M.R. PRYOR, S. GURSKY.
 - 7 Home range estimations and site fidelity of western lowland gorillas (*Gorilla gorilla gorilla*) in the Ndoki Forest. K. JUDSON, D. MORGAN, J. MASSAMBA, F. EBOMBI, P. TEBERD, G. ABEA, E. MAGEMA, G. MBEBOUTE, J. ORTEGA, I. KIENAST, C. SANZ.
 - 8 Home range overlap between two groups of wild western gorillas (*Gorilla gorilla*). R. SALMI, K. MORROW, J. LODWICK, C. SCARRY, D.M. DORAN-SHEEHY.
 - 9 Movement ecology of Kinda baboons (*Papio kindae*) in Kasanka National Park, Zambia: A preliminary study. A.J. FUCHS, J.M. KAMILAR.
 - 10 A Longitudinal Study of Habitat Use among Primate and Non-Primate Mammals at the La Selva Biological Station, Costa Rica. S.M. HOWELL, M. SCHAEFER SEABOCH, O. VARGAS RAMIREZ.

SATURDAY ALL DAY SESSIONS

- 11 Modelling the realized distribution patterns of the Critically Endangered mongoose lemur (*Eulemur mongoz*) in Ankarafantsika National Park: Signals of a specialized biogeographic pattern? F.M. MERCADO MALABET, T.S. STEFFENS, M.L. AYLWARD, J. RAZAFIMAMPIANDRA, F.T. RANDIMBIARISON, S.M. LEHMAN.
- 12 The impact of riparian and anthropogenic edge effects on mantled howler monkeys (*Alouatta palliata*) in a fragmented rainforest in Costa Rica. A.J. CARTER.
- 13 Ethnoprimateology: Preliminary Results of An Applied Approach to Highway Construction in Costa Rica. T.A. CAPEL, M.J. REMIS, S. LINDSHIELD.
- 14 Assessing Wild Bornean Orangutan (*Pongo pygmaeus wurmbii*) Populations with Drone Imagery. M.M. EORI, E. BARROW, V. GEHRKE, T. BREEDEN, E.E. KANE, T. SUSANTO, C.D. KNOTT.
- 15 Human induced threats to a nonhuman primate of "Least Concern" (*Otolemur crassicaudatus*, *Primates: Galagidae*) in northern South Africa. F. CUOZZO, A. HALAJIAN, M.L. SAUTHER, B. LINDEN, J. LINDEN, J. MILLETTE III, D. ROMANELLO.
- 16 Artisanal gold mining and primate conservation: A threat hiding in plain sight. K. BOYER ONTL, K. LOVING.
- 17 Malagasy perspectives on pet lemurs outside of Madagascar. M. LAFLEUR, K.E. REUTER, S. CORDUANT-ANDRIANTSARALAZA.
- 18 For Sale: A Study of the Primate Pet Trade in the United States. S.N. CAHOON, M.S. SEABOCH.
- 19 Variation in primate hunting over a five-year period among Waiwai subsistence hunters in Guyana, South America. C.A. SHAFFER, P. SUSE, C. YUKUMA, E. MARAWANARU, S. SUSE, R. SHONI, M.S. MILSTEIN.
- 20 The impact of stochastic events on ring-tailed lemur (*Lemur catta*) demography at the Bezà Mahafaly Special Reserve. K.M. MCGUIRE, M.L. SAUTHER, F.P. CUOZZO.
- 21 Parasites in free-ranging *M. fascicularis*. E.M. COGGESHALL.
- 22 Evaluating Pressures on Lemur Demographic Histories in Ranomafana National Park, Madagascar. A. CHANDRASHEKAR, C. PACIONI, A.N. MANCINI, T.L. MORELLI, E.E. LOUIS JR., A.L. BADEN.
- 23 Behavioral adaptation to seasonal day length variation by chacma baboons (*Papio hamadryas ursinus*) at the southern-most edge of their range. N.W. ELLWANGER, T.Q. BARTLETT.
- 24 Investigating the relationship between skin color and vitamin D deficiency in baboons (*Papio*). S. SADHIR, A.R. ELLER, S.L. CANINGTON, S.B. SHOLTS.
- 25 Opening a can of worms: Elucidating parasite transmission patterns among non-territorial social groups of Grauer's gorillas in the Democratic Republic of Congo. N.S. IYER, C.A. PAGAN, A. MUNDOLA, U. NGOBOBO-AS-IBUNGU, S.A. NADLER, D. CAILLAUD.
- 26 A comparison of specific gravity and creatinine for determining urine concentrations in captive orangutans for monitoring health status and physiology. B.B. MALBOUF, E.E. KANE, L.S. DURGAVICH, C.D. KNOTT.

SATURDAY ALL DAY SESSIONS

- 27 Social and spatial correlates of disease prevalence in sympatric western lowland gorillas and central chimpanzees. P. MCELMURRAY, D. MORGAN, D. NGOTENI, J. MAGEMA, J. WAWA, S. NDASSOBA, D. KONI, C. SANZ.
- 28 Identifying facial mites on captive prosimians. M.D. NALLEY, D.C. DENTON, S.E. COTHERN, C.M. CROMER, Q.D. WATTS, L.M. PACIULLI.
- 29 The socioecology of parasite infection in wild Bornean orangutans (*Pongo pygmaeus wurmbii*) in Gunung Palung National Park, West Kalimantan, Indonesia. C.A. O'CONNELL, N. ROBINSON, I. KARIMAH, T. SUSANTO, I. FOITOVA, C.D. KNOTT.
- 30 Investigating health effects of urbanization on macaque crania. S.T. SAIYED, A.R. ELLER, R.M. AUSTIN, S. CANINGTON, S.B. SHOLTS, A. FUENTES.

Session 53

Primate Behavioral Ecology Contributed Poster Presentations

Chair: Christopher Schmitt

Platinum Ballroom

- 1 Multimodal communication in captive bonobos (*Pan paniscus*). K.E. BEACHEM.
- 2 Gelada (*Theropithecus gelada*) contact calls vary by caller identity and behavioral state. M.C. PAINTER, M.L. GUSTISON, E. TINSLEY JOHNSON, A. LE ROUX, T.J. BERGMAN.
- 3 Anticipatory behavior in captive male western lowland gorillas (*Gorilla gorilla gorilla*). S.J. CLEVELAND, P. BARNES, J. TOBEY, M. OWEN.
- 4 Unmasking the primate face: DiceCT analysis of the mimetic muscles of *Eulemur flavifrons*. S. KOLLI, A. MEZA, A. BURROWS, E. DICKINSON, A. HARTSTONE-ROSE.
- 5 Do chimpanzees of Gombe National Park, Tanzania have community-specific dialects? N.P. DESAI, M.L. WILSON.
- 6 Functional morphology and physiology of phonation in gibbons. T. NISHIMURA, I. TOKUDA, R. GOTO, C.T. HERBST, Y. NAKANO.
- 7 The effect of habitat type on vocalizations of white-handed gibbons (*Hylobates lar*) living in a mosaic landscape in western Thailand. L.E. LIGHT, S. DAMERON.
- 8 Preliminary analysis of wild ruffed lemur (*Varecia variegata*) vocalizations in Ranomafana National Park, Madagascar. C.H. BATIST, M.N. RAZAFINDRABE, F. RANDRIAMANANTENA, A.L. BADEN.
- 9 Howling for food and females: A cross-site comparison of mantled howler monkey (*Alouatta palliata*) howling behavior in Costa Rica. A.L. SCHREIER, L.M. BOLT.
- 10 The Temporal and Atmospheric Contexts of Howling Behavior Among Mantled Howler Monkeys (*Alouatta palliata*) at La Suerte Biological Field Station. E.L. KOSNIK, L.M. BOLT.
- 11 Voices in the sky: Mantled howler monkey (*Alouatta palliata*) howl responses to changes in weather in a fragmented tropical rainforest in Costa Rica. M.E. CASH.

SATURDAY ALL DAY SESSIONS

- 12 Age Class and Species Differences in Agonistic and Affiliative Behaviors between *Alouatta palliata* and *Cebus capucinus*. C. LAM, L. BOLT, L. LIGHT.
- 13 Genetic relatedness and association patterns among individuals in four groups of wild woolly monkeys in Amazonian Ecuador. K.M. ELLIS, L. ABONDANO, A. DI FIORE.
- 15 Quantitative Genetics of Body Mass and Color in Mandrills (*Mandrillus sphinx*). J.K. SCHAFFER, A.D. GORDON, B. NGOUBANGOYE, S.E. KESSLER, M. CHARPENTIER, J.M. SETCHELL.
- 16 Female fertility rates between subspecies of captive rhesus macaques. E.N. HART, H. KUBISCH, K.P. FALKENSTEIN, R.S. MEINDL.
- 17 Snake-species discrimination by wild Rylands' bald-faced saki monkeys (*Pithecia rylandsi*). D.B. ADAMS, M.C. PAINTER, T. WILSON.
- 18 Anti-predatory strategies produce distinct landscapes of fear mediated by social and environmental factors in red-tailed monkeys (*Cercopithecus ascanius*). L.J. FORNOF, F.A. STEWART, A.K. PIEL.
- 19 Investigating visual preferences for symmetry, faces, and behinds in brown spider monkeys (*Ateles hybridus*). M.J. PROULX, E. HOWARD, A.A. DE SOUSA.
- 20 Orangutan Canine Linear Enamel Hypoplasia Defects Assessed in Association with Flanging Status. A.E. KRALICK, K. MCGRATH.
- 21 Step cycles in three sympatric cercopithecids. T.H. CANNON, J. TRAFF, D.J. DAEGLING, W. MCGRAW.
- 22 Why are they hanging around? The role of suspension during feeding in chimpanzees. L. SARRINGHAUS, S. NAMAGANDA, L. MACLATCHY.
- 23 Comparing activity budgets in female white-faced capuchin monkeys (*Cebus capucinus*) with and without infants in the edge and interior of a fragmented forest in Costa Rica. J.L. OWENS, L.M. BOLT, A.L. SCHREIER.
- 24 Napping in the wild: How slow lorises balance their intrinsic circadian rhythms and sleep homeostasis against environmental factors. K.D. REINHARDT, R. HERNANDEZ-AGUILAR, M.A. IMRON, V.V. VYAZOVSKIY, K.I. NEKARIS.
- 25 B3GET: an agent-based model for growing virtual socioecologies. K.N. CROUSE.
- 26 Seasonal variation in day length and its implications for interpretation of activity budgets of chacma baboons in the Cape Peninsula, South Africa. S. CHOWDHURY, L. SWEDELL.
- 27 Determining the rate of co-occurrence in three species of neotropical primates and its indicative effects on group behavior. A.J. MENCIA.
- 28 Sociosexual responses to the simulated presence of solitary individuals in pair bonded owl monkeys (*Aotus Azarae*). A. DE LA CHICA GARCIA, D. WOOD, E. FERNANDEZ-DUQUE.
- 29 Patterns of extra-group paternity in gelada monkeys (*Theropithecus gelada*) at Guassa, Ethiopia: A comparison with other polygynous nonhuman primates. C.M. MILLER, N. SNYDER-MACKLER, N. NGUYEN, P.J. FASHING, J. TUNG, E.E. WROBLEWSKI, M.L. GUSTISON, M.L. WILSON.

SATURDAY ALL DAY SESSIONS

- 30 Post-conceptive mating in wild woolly monkeys, a Neotropical primate with no evidence of infanticide. L. ABONDANO, T.E. ZIEGLER, A. DI FIORE.
- 31 Alloparental carrying and wound care in wild chimpanzees at Ngogo, Kibale National Park, Uganda. I.R. CLARK, R.B. REDDY, A.A. SANDEL, K.E. LANGERGRABER.
- 32 Hormonal correlates of biparental care in owl monkeys (*Aotus azarae*). M.K. CORLEY, J. PEREA-RODRIGUEZ, C. VALEGGIA, E. FERNANDEZ-DUQUE.
- 33 Habituation, Avoidance Strategies, and Social Learning in Wild Bornean Orangutans in Gunung Palung National Park, Indonesia. L.A. BRUBAKER-WITTMAN, E.E. KANE, T. SUSANTO, C.D. KNOTT.
- 34 Who cares? The "learning to mother" hypothesis and allomaternal care in *Colobus guereza*. D.L. RABOIN, A.L. BADEN, J.M. ROTHMAN.
- 35 Single mothers: no evidence for paternal care in wild, eastern chimpanzees. N.E. NEWTON-FISHER, A.E. LOWE.
- 36 Relationships between sex-biased dispersal and allomaternal care behaviors in 143 mammal species. S. SHREYER, A.L. BADEN, S.R. TECOT, J.M. KAMILAR.
- 37 Male dispersal of the introduced green monkey (*Chlorocebus sabaesus*) population in Dania Beach, Florida. D. WILLIAMS, K.M. DETWILER.
- 38 Travel costs of intergroup aggression among Argentine tufted capuchin monkeys. C.J. SCARRY.
- 39 Red-tailed monkeys (*Cercopithecus ascanius*) employ both behavioral and physiological strategies to overcome seasonal hardship. R. STEINITZ, M. EMERY THOMPSON, M. BROWN.
- 40 Dopamine receptor methylation is correlated with aspects of chimpanzee personality. C.M. WHITE, N. STAES, E.E. GUEVARA, S.J. SCHAPIRO, W.D. HOPKINS, C.C. SHERWOOD, B.J. BRADLEY.
- 41 Personality variation in wild male chimpanzees is maintained by its changing association with rank. J.T. FELDBLUM, A. WEISS, D.M. ALTSCHUL, A. COLLINS, S. KAMENYA, D. MJUNGU, S. FOERSTER, I.C. GILBY, M.L. WILSON, A.E. PUSEY.
- 42 Demographic Factors Influencing Glucocorticoid Variation in Wild Hamadryas Baboons. A.L. AMANN, S. CHOWDHURY, J. BEEHNER, L. SWEDELL.
- 43 Rough-and-Tumble Play in Immature Monkeys at Kibale National Park, Uganda. S.G. LUCCI, J.M. ROTHMAN.
- 44 The ontogeny of nest building behavior in captive aye-ayes (*Daubentonia madagascariensis*). S.E. COTHERN, K.A. TIFFANY, D.Q. WATTS, L.M. PACIULLI.
- 45 Did infant-laden leaping lead to lullaby, melody, and prosody? D. SCHRUTH.
- 46 Demographic factors influence the relative costs and benefits of chimpanzee intragroup killing. A.P. MASSARO, E.E. WROBLEWSKI, D.C. MJUNGU, S. FOERSTER, K. WALKER, N. DESAI, S. KAMENYA, N.M. SIMMONS, R.S. RUDICELL, B.H. HAHN, A.E. PUSEY, M.L. WILSON.

SATURDAY, MORNING SESSIONS

Session 54

Human responses to climate change: What anthropologists want climate scientists and policymakers to know (Joint HBA-AAPA-Wiley symposium)

Invited Podium Symposium

Chair: Anne C. Pisor. Co-organizers: James Holland Jones

Diamond 4

Climate change is having large, and often surprising, effects on a wide range of biological and social systems, and the livelihoods of subsistence populations are no exception. Indeed, relative to other human populations, subsistence populations are particularly vulnerable to the effects of climate change. The strategies individuals, communities, and organizations use to cope with climate change are called “adaptations” by the climate-science community; with our methodological tools for understanding of how living and past peoples have changed their behavior in response to environmental change, biological anthropologists are particularly well-positioned to contribute to conversations about adaptation in subsistence populations. However, despite some calls at the Austin meetings for public outreach about climate change, biological anthropologists have remained largely absent from *all* conversations about contemporary climate change, including those taking place in the climate-science and policy communities. In this symposium, presenters have three goals: first, to outline what biological anthropologists have learned thus far about individual- and population-level responses to climate in *Homo sapiens*, using the diverse methods we have at our disposal; second, to identify how we can marshal what we have learned through our collaborations with vulnerable communities to further support them, including to inform policy that will support them; and finally, to discuss future directions in the study of climate-change adaptation in biological anthropology, including how we can better engage with larger conversations about adaptation in the academic and policy worlds.

- 8:00 **High energy apes on a hot planet: the challenge of fueling an increasingly energy hungry hominin.** H. PONTZER.
- 8:15 **Time Preferences, Risk Preferences, and Climate Change Adaptation.** J. JONES.
- 8:30 **Living with Environmental Uncertainty. Climate Change & Economic Decision Making among Maya Farmers.** K.L. KRAMER, J. HACKMAN.
- 8:45 **Decomposing climate variability to predict risk-management strategies.** A.C. PISOR.
- 9:00 **Climate change and conflict: patterns, processes, prospects.** M. COLLARD, C. CARLETON.
- 9:15 **The behavioral ecology of climate-induced human migration.** M.C. TOWNER, A. TEMPLON.
- 9:30 **Lessons from the past: 13,000-years of climate change effects on diet, foraging risk, and demography of Great Plains foragers and farmers.** E.R. OTÁROLA-CASTILLO, M.G. TORQUATO, J.B. RAPES, B. SCHIERY, M.E. HILL.
- 9:45 **Allee effects in nomadic foragers.** R. BIRD.
- 10:00 **Break.**

SATURDAY MORNING SESSIONS

- 10:30 Women's responses to climate change in rural Namibia: Subsistence, social ties, and reproductive health. A. HAZEL.
- 10:45 The effects of climate change on the ecology and health of indigenous Arctic populations. J. SNODGRASS.
- 11:00 Climate colonialism and "adaptive capacity" in the Arctic. E. READY.
- 11:15 An Eco-Evolutionary Approach to Human Adaptability, Resilience, and Climate Change in the Arctic. D. GERKEY.
- 11:30 A multi-level cultural evolutionary framework for sustainability. M.A. KLINE.
- 11:45 Discussants: Anne Pisor and James Holland Jones.

Session 55

Primate Health and Disease and Primate Evolution

Contributed Podium Presentations

Chair: Vicky Oelze

Diamond 2

- 8:00 Healthy blood lipid profiles in wild-born chimpanzees (*Pan troglodytes*) are associated with low adiposity and inflammation. M.F. COLE, M. EMERY THOMPSON, J. RUKUNDO, S. FERNANDEZ-NAVARRO, R. ATENCIA, T.L. GOLDBERG, A.G. ROSATI.
- 8:15 Socioecological Predictors of Health Profiles in Western Lowland Gorillas. K.E. COOKSEY, C. SANZ, J. MASSAMBA, T. EBOMBI, P. TEBERD, E. MAGEMA, G. ABEA, G. MBEBOUTI, J. PERALEJO, I. KIENAST, C. STEPHENS, D. MORGAN.
- 8:30 Cumulative stressful events predict disease and mortality risk in gorillas. A.N. EDES.
- 8:45 Group sleep reduces pathogen exposure: experimental support for the encounter dilution effect in wild chimpanzees (*Pan troglodytes schweinfurthii*). D.R. SAMSON, L.A. LOUDEN, K. GERSTNER, S. WILEY, B. LAKE, B.J. WHITE, C.L. NUNN, K.D. HUNT.
- 9:00 Longitudinal biometric analyses of a temperate, high altitude, large nocturnal primate, *Otolemur crassicaudatus*: Sex and environmental effects. M.L. SAUTHER, F.P. CUOZZO, J. MILLETTE III, A.S. TORDIFFE, B. LINDEN, J. LINDEN.
- 9:15 Urinary markers of oxidative stress respond to infection and aging in wild chimpanzees. N.A. THOMPSON, E. OTALI, Z. MACHANDA, M. MULLER, R. WRANGHAM, M. EMERY THOMPSON.
- 9:30 The fig and the bean: How primates' two most consumed plant families interact with their endocrine system. M.D. WASSERMAN, S. KRIEF, J.M. ROTHMAN, C.A. CHAPMAN, J. VEEN, W. KISSLING, E. CHESTER.
- 9:45 Nonapeptide receptor neuroanatomy in monogamous and promiscuous *Eulemur*. N. GREBE, A. SHARMA, S. FREEMAN, K. BALES, C. DREA.
- 10:00 Break.
- 10:30 Morphometric analyses support a separate evolutionary lineage for *Tarsius pumilus*. N.B. GROW.

SATURDAY MORNING SESSIONS

- 10:45 **A new extinct large predator in Madagascar: predation pressure on large-bodied Malagasy lemurs through time.** M.E. LEWIS, L.R. GODFREY, J. RAKOTONDRAMAVO, Z.S. KLUKKERT, N. SCROXTON, S.J. BURNS, B.E. CROWLEY, D. MCGEE, K.M. MULDOON, L.R. MEADOR, P. LEHMAN, N.J. RAHANTAHARIVAO, L. RANIVOHARIMANANA.
- 11:00 **Reconstructing the Ancestral Social Organization of Lorisiformes and Lemuriformes.** S.A. POINDEXTER, S.T. MADDOCK, A. RICH, V. NIJMAN, K. NEKARIS, E.C. GARRETT.
- 11:15 **Pair-living as a stepping stone towards more complex societies in primate social evolution.** L. POZZI, P.M. KAPPELER.
- 11:30 **Primate hippocampal size and organisation are predicted by sociality but not diet.** O.S. TODOROV, V. WEISBECKER, E. GILLISSEN, K. ZILLES, A.A. DE SOUSA.

Session 56

Primate Reproductive Strategies

Contributed Podium Presentations

Chair: Clara Scarry

Diamond 3

- 8:00 **The “Hoo-Haa effect”: An unfortunate name for a dramatic effect in female reproduction.** J.C. BEEHNER, A. BANIEL, J.A. FEDER, T.J. BERGMAN, A. LU.
- 8:15 **Aggression from resident females delays first birth in dispersing female chimpanzees.** K.K. WALKER, C. WRAMPPELMEIER, A.E. PUSEY.
- 8:30 **Immature female social preferences in wild populations of bonobos and chimpanzees.** S.M. LEE, G. HOHMANN, B. FRUTH, E.V. LONSDORF, K.R. WELLENS, M.A. STANTON, C.M. MURRAY.
- 8:45 **Mother-offspring proximity maintenance in wild Bornean orangutans (*Pongo pygmaeus wurmbii*) in Gunung Palung National Park.** A.M. SCOTT, T. SUSANTO, C.D. KNOTT.
- 9:00 **Seasonal variation in energy balance in wild male geladas.** R.F. PERLMAN, J.C. BEEHNER, A. KOENIG, A. LU.
- 9:15 **Coercive takeovers and fitness in hamadryas baboons.** K.D. EVANS, S. CHOWDHURY, L. SWEDELL.
- 9:30 **Demographic change and male reproductive competition drive permanent fission of a chimpanzee (*Pan troglodytes*) community at Ngogo.** D.P. WATTS, J.C. MITANI, K.E. LANGERGRABER.
- 9:45 **Compete, then care: Male baboons’ reproductive tactics change with age.** J.B. SILK, V. STADELE, L. VIGILANT, S.C. STRUM.
- 10:00 **Break.**
- 10:30 **Potential for extended paternal investment in a polygynandrous primate (*Papio anubis*).** V. STÄDELE, E.K. ROBERTS, L. VIGILANT, S.C. STRUM, J.B. SILK.
- 10:45 **Functional relationships between estradiol and paternal care in wild red-bellied lemurs.** S.R. TECOT, M. BIRR, A.L. BADEN.

SATURDAY MORNING SESSIONS

- 11:00 Fitness benefits of male chimpanzee social bonds at Gombe National Park, Tanzania. J. BRAY, I.C. GILBY.
- 11:15 A genetic analysis of male reproductive skew among ring-tailed lemurs (*Lemur catta*) from Bezà Mahafaly, Madagascar. J.A. PARGA, M.L. SAUTHER, F.P. CUOZZO, R.R. LAWLER, L. GOULD, J. PASTORINI.
- 11:30 Scent marking and reproductive competition in male woolly monkeys (*Lagothrix lagotricha poeppigii*). E. PAIN, A. KOENIG, A. LU, A. DI FIORE.
- 11:45 Placental synchronicity: Placental phenotypes of demand have developmental roots in maternal early life characteristics. J.N. RUTHERFORD, V.A. DEMARTELLY, C.N. ROSS, T.E. ZIEGLER, S.D. TARDIF.

Session 57

Paleoanthropology: Fossil Evidence

Contributed Podium Presentations

Chairs: Habiba Chirchir, Lauren Schroeder

Diamond 5

- 8:00 Evolutionary changes in neurocranial structure do not correlate with cortical reorganization in humans. J. ALATORRE WARREN, M. PONCE DE LEÓN, W.D. HOPKINS, C.P. ZOLLIKOFER.
- 8:15 Putting Neanderthal endocranial form into modern context: Comparing Neanderthal vs. modern human differences with respect to differences *among* modern human populations. P. SCHOENEMANN, R.L. HOLLOWAY.
- 8:30 *Australopithecus afarensis* endocasts suggest ape-like brain organization. P. GUNZ, S. NEUBAUER, D. FALK, P. TAFFOREAU, A. LE CABEC, T.M. SMITH, W.H. KIMBEL, F. SPOOR, Z. ALEMSEGED.
- 8:45 New adult brain size estimates for juvenile hominins. R.C. MCCARTHY, S. QADRI, S. BHULLAR, E. ZIMEL, M. PETRIKAS, D.L. CUNNINGHAM, D.J. WESCOTT.
- 9:00 Evidence for multiple human lineages in China during the Middle Pleistocene: a premolar endostructural perspective. L. PAN, J. DUMONCEL, A. MAZURIER, C. ZANOLLI.
- 9:15 How did mandibular morphology evolve in *H. sapiens*? A geometric morphometrics approach to the role of allometry during the emergence of our species. I. BERGMANN, J. HUBLIN, P. GUNZ, S.E. FREIDLINE.
- 9:30 Is the chin a spandrel? Insights from evolutionary quantitative genetics. L. SCHROEDER, J.E. SCOTT, C.A. ROBINSON, N. VON CRAMON-TAUBADEL.
- 9:45 Anatomy of the nasal cavity and interorbital region of *Shoshonius cooperi* (Primates, Omomyoidea). E.C. KIRK, I.K. LUNDEEN.
- 10:00 Break.
- 10:30 KSD-VP-1/1 from Woranso Mille, Ethiopia, does not conform to known *Australopithecus afarensis* pelvic morphology. M. HAEUSLER, C. FORNAI, V.A. KRENN, N.M. WEBB.

SATURDAY MORNING SESSIONS

- 10:45 Evolution of pelvic list, hip adduction, and step width in hominins. M. KIKEL, R. GECELTAR, R. KELSHIKAR, N.E. THOMPSON.
- 11:00 Anatomic extremes of the postcranial axial skeleton of *Australopithecus* and *Paranthropus robustus*. M.R. MEYER, S.A. WILLIAMS, M. FONG.
- 11:15 New insights on the Neanderthal knee-joint loading environment from the endostructural configuration of the patellae from Krapina, Croatia. M. CAZENAVE, D. RADOVČIĆ.
- 11:30 An analysis of the postcranial skeleton of the large-bodied colobine specimen L895-1 from Shungura, Omo Valley, Ethiopia. M. ANDERSON.
- 11:45 *Ardipithecus ramidus* hand provides support for an African ape-like ancestor of humans and chimpanzees. T.C. PRANG, K.R. RAMIREZ, M. GRABOWSKI, S.A. WILLIAMS.

Session 58

Bioarchaeology: Isotopic Studies of Diet and Identity

Contributed Podium Presentations

Chair: Andrea Waters-Rist

Diamond 8-9

- 8:00 Saving Bones: a direct comparison of FTIR-ATR, whole bone percent nitrogen, and NIR. C.M. RYDER, M. SPONHEIMER, H. SHOKRY, I.A. LAZAGABASTER, N. MAROM, G.F. MONNIER, M.J. COLLINS, T. DEVIÈSE, T. HIGHAM.
- 8:15 New insight into the corpse handling during cremation. Contribution of experimental archaeology and biogeochemical analyses on burnt bones. K. SALESSE, C. SNOECK, I. KONTOPOULOS, E. STAMATAKI, G. CAPUZZO, A. SENDELØV, M. BOUDIN, M. HLAD, R. ANNAERT, S. DALLE, G. DE MULDER, C. SABAUUX, D. TYS, B. VESELKA, E. WARMENBOL, M. VERCAUTEREN.
- 8:30 Strontium analyses ($^{87}\text{Sr}/^{86}\text{Sr}$, [Sr]) reveals non-local origin of humans with intentionally modified crania in Mtskheta, Georgia in the 4th- 7th centuries AD. N. LANGOWSKI, R. MAAS, V. PILBROW.
- 8:45 A modern take on ancient goat herding: comparing the sustainable grazing practices of today to the biochemical results of Greek husbandry in antiquity. K.G. BISHOP, S. GARVIE-LOK, M. HAAGSMA, S. KARAPANOU.
- 9:00 Childhood and Change: An Evaluation of the Consequences of Climate and Culture Change on Diet and Health. N.A. FOURNIER, S. TUSHINGHAM, E. THORNTON, C. MONROE, A. LEVENTHAL, N. SANCHEZ.
- 9:15 The Diet and the Menu: Temporal and Regional Variation in Human Paleodiet in the Prehistoric San Francisco Bay Area. E.J. BARTELINK, M.M. BEASLEY.
- 9:30 Stable isotope analysis of dental calculus and dietary change in the North Carolina Piedmont, AD 800 – 1710. S.C. DENT, D.L. HUTCHINSON, M.A. FORT, K.M. HEDMAN, S.H. AMBROSE.
- 9:45 Innovation or continuation? Development of wet-rice agriculture in Prehistoric Northeast Thailand. J. SCHALBURG-CLAYTON, C. KING, H. BUCKLEY, S. HALCROW, C. HIGHAM, L. SHEWAN, C. STANTIS, D. O'REILLY, K. DOMETT, J. ZECH, P. ROBERTS.

SATURDAY MORNING SESSIONS

10:00 Break.

10:30 Bioarchaeological insight into subsistence of Alborz highlanders, northern Iran, during the Parthian period (c. 200 BCE – 226 CE). A. SOŁTYSIAK.

10:45 Life Course Perspective of the Elite Burials of Early Bronze Age Umm el-Marra, Syria. C. STANTIS, G.M. SCHWARTZ, G. NOWELL, E.K. BATEY, N. MAARANEN, H. SCHUTKOWSKI.

11:00 Marching on their Stomachs: Reconstructing Dietary Life Histories of Napoleonic Soldiers through Stable Isotope Analysis. S. HOLDER, L.J. REITSEMA, T.L. DUPRAS, R. JANKAUSKAS, K. MARI.

11:15 Leprosy in Medieval Denmark: a multi-tissue and multi-isotopic approach to investigate life histories. A. BROZOU, B.T. FULLER, V. GRIMES, G. VAN BIESEN, N. LYNNERUP, J.L. BOLDSSEN, M. JØRKOV, D. DANGVARD PEDERSEN, J. OLSEN, M.A. MANNINO.

11:30 Living in Dust and Smog: Identity, Inequality, and Pollutant Exposure during England's Industrial Revolution. S.A. MCGUIRE, A. POURMAND, W.J. PESTLE.

11:45 Strontium Isotope Testing of Deciduous Molars from Maya Sacrificial Victims. A. CHAN.

Session 59

Benefits of long-term field studies of primates: 30 years of research on white-faced capuchins at Lomas Barbudal, Costa Rica

Invited Poster Symposium

Chair: Susan E. Perry

Diamond 10

Long-term field studies of primates provide essential comparative data to biological anthropologists interested in life histories, the evolution of social strategies, phenotypic plasticity, development, and cultural evolution. Field studies are essential for understanding how species respond to the range of ecological circumstances in which they evolved. Long-term studies highlight how rare events impact lifetime reproductive success. These data are critical for understanding human evolution, and capuchins provide a particularly important comparative data point due to their convergent evolution with humans regarding long life spans, slow development, large brain size, omnivory, coalitionary aggression, alloparenting, and frequent employment of social learning. The Lomas Barbudal Monkey Project, now in its 30th year of operation, has amassed over 108,000 hours of data collection on 704 individual monkeys residing in 12 social groups, accumulating data on behavior, demography, genetic relatedness, personality, and behavioral endocrinology. This collection of talks highlights some of the ways that the Lomas Barbudal Monkey Project data set has contributed to our understanding of cultural evolution, life history evolution, the development of social cognition, and the evolution of behavioral strategies. Another important function of long-term studies such as this one is the opportunities provided for environmental education in primate habitat countries, the training of young scientists, and collaboration with local policy makers regarding conservation efforts.

SATURDAY MORNING SESSIONS

- 1 Life histories of white-faced capuchin monkeys (*Cebus capucinus*) at Lomas Barbudal Biological Reserve, Costa Rica: Aspects relevant to the evolution of learning strategies. S.E. PERRY, I. GODOY.
- 2 The value of long-term research for assessing social and genetic influences on sociality. I. GODOY, P. KORSTEN, S.E. PERRY.
- 3 Sociality and Longevity in wild white-faced capuchin monkeys. K. KAJOKAITE, A. WHALEN, S. PERRY.
- 4 Innovations, social learning and traditions in white-faced capuchins: experimental and observational approaches. B.J. BARRETT, S.E. PERRY.
- 5 “Gargle and Twargle” Vocalizations in *Cebus capucinus* to Assess Infanticide Risk. A. DUCHESNEAU, D.G. EDELBERG, S.E. PERRY.
- 6 What age-related changes in response to vocalizations can tell us about the development of social cognition in *C. capucinus* at Lomas Barbudal. J. GROS-LOUIS, S. PERRY.
- 7 Development of sex differences in play in wild white-faced capuchins. S.L. WINKLER, S.E. PERRY.
- 8 In quest of a non-invasive measure of acute stress response: Time-matched fecal glucocorticoids in wild female white-faced capuchin monkeys (*Cebus capucinus*). J. DAMM, C.M. GAULT.
- 9 The role of long-term studies in education and conservation: The Lomas Barbudal Monkey Project as a case study. T. FUENTES-ANAYA, S. PERRY.

Session 60

Human Evolution in Asia: Zooming In and Zooming Out

Invited Poster Symposium

Chair: Sang-Hee Lee

Diamond 6

In the beginning of paleoanthropology history, Asia was looked upon as the Cradle of (Hu) Mankind, the site now easily identified with Africa. The fervor to search for human origins shifted its geography from Asia in the first half of the 20th century to Africa in the second half, with Europe always at the forefront of modern human origins debate. Asian paleoanthropology resurfaced in the 21st century. New discoveries made in the last 20 years led to dramatic reconfigurations of what used to be considered tenets of hominin evolution in Asia. Now we understand that hominins in Asia have the time depth that matches the tenure of genus *Homo* in Africa, that admixture and introgression took place among archaic hominins. With new data and new research, we can zoom in to explore timeless questions with higher resolution; we can zoom out and reveal new connections. We ask about the hominins who first entered various regions in Asia, with or without previous occupants, and various adaptation strategies for local environments.

SATURDAY MORNING SESSIONS

Discussant: Sang-Hee Lee.

- 1 Conundrum: *Homo erectus* in Middle and Late Pleistocene maritime Southeast Asia and Australia. M.H. WOLPOFF, V.M. BATTISTA.
- 2 Pre-Natufian Epipaleolithic evidence for dental ablation in southwest Asia? Revisiting Ohalo II H2. J.C. WILLMAN, S.A. LACY.
- 3 Patterns of Changes in Cranial Capacity in Asia. A. HUDOCK, S. LEE.
- 4 Spatial patterning in the evolution and diversity of early modern humans in East Asia. L.A. SCHEPARTZ, X. WU, W. LIU.
- 5 Early modern humans in China: A view from Guangxi. C.J. BAE, W. WANG, W. LIAO.
- 6 The first voyagers in East Asia: Peopling of the Japanese islands in the Late Pleistocene. Y. KAIFU.
- 7 Hominin introgression in Island Southeast Asia and Sahul. J.C. TEIXEIRA.
- 8 The Crucial role of Asia in the Evolutionary History of Native American Populations. A. KITCHEN.
- 9 150 years of research on the origins of the Japanese: Colonialism and neo-colonialism. N. SEGUCHI.
- 10 Virtual Reconstruction of Hungsu Child No. 1: The Case of Paleolithic Child Burial in Korea? S. LEE, G. RICHARDS, M. MORA.
- 11 Sweet tooth: Southwest Asian humans, their diet, and caries in the Middle and Upper Paleolithic. S.A. LACY.

Session 61

Hands and feet of nonhuman primates: integrating form and function

Invited Poster Symposium

Chair: Evie E. Vereecke. Co-organizers: Evie E. Vereecke, Roshna Wunderlich

Diamond 7

The cheiridia (hands and feet) of nonhuman primates directly interact with the locomotor substrates and are therefore assumed to reflect specific adaptations to locomotor behavior and grasping performance. Hands and feet have become increasingly critical to the reconstruction of behavior and ecology in fossil primates as the fossil record has become more extensive and techniques for the analysis of extant hand and foot morphology and function have become more sophisticated. To reconstruct the evolutionary history of primate cheiridia, researchers have investigated hand and foot morphology and function using a diversity of approaches, including morphological studies, experimental work and field work. This symposium brings together researchers using different approaches and studying different primate taxa yet addressing similar research questions regarding functional adaptation of hands and feet, ontogeny, grasping performance, joint biomechanics and mobility. The aim is to examine common and new research themes, acquaint methodological advances and explore what is needed to further increase our understanding of functional adaptations in the primate hand and foot.

SATURDAY MORNING SESSIONS

Discussant: Pierre Lemelin.

- 1 **Comparison of wrist mechanics between pronograde monkeys and orthograde apes.** C.M. ORR.
- 2 **Ontogenesis of the manual and pedal motor systems in a comparative approach in the arboreal *Microcebus murinus* and mainly terrestrial *Papio anubis*.** G. BOULINGUEZ-AMBROISE, A. HERREL, G. BERILLON, E. POUYDEBAT.
- 3 **Myological specializations within the hyper-derived forelimb of *Perodicticus potto*.** E. DICKINSON, M.L. BOETTCHER, K.C. LEONARD, A. HERREL, A. HARTSTONE-ROSE.
- 4 **Myological estimates of grip strength and dexterity within primates.** A. HARTSTONE-ROSE, M.L. BOETTCHER, E. DICKINSON.
- 5 **Speed-related changes in cheiridial posture and pressure distribution.** R.E. WUNDERLICH.
- 6 **Hand and foot postures and loading patterns in monkeys and apes: implications for cheiridial design.** D. SCHMITT, A. ZEININGER, J.B. HANNA, R.E. WUNDERLICH.
- 7 **Estimating ground reaction force position in the knuckle-walking chimpanzee hand.** N.E. THOMPSON, S. ALMÉCIJA.
- 8 **An integrated (micro) finite element approach to analyze force distributions in the primate thumb during functional grasps.** T. VAN LEEUWEN, M.T. SCHNEIDER, H.G. VAN LENTHE, E.E. VEREECKE.
- 9 **Morphological and experimental evidence for the functional differentiation between the hands and feet in primates: predicted and unexpected findings.** B.A. PATEL.
- 10 **The role of the manual and pedal fat pads in moderating ground reaction forces and pressure patterns in knuckle-walking African apes.** A. ZEININGER, G.S. YAPUNCICH, D. SCHMITT, R.E. WUNDERLICH.
- 11 **Variation in the arrangement of the foot interosseous muscles in great apes.** E. HIRASAKI, M. OISHI.
- 12 **Merging biplanar X-ray, 3-D animation, particle simulation, and virtual reality to understand 3-D foot dynamics on deformable substrates.** K.G. HATALA, P.L. FALKINGHAM, S. MEGHERHI, D.A. PERRY, S. CHELEDEN, J. NOVOTNY, D.H. LAIDLAW, S.M. GATESY.

SATURDAY, AFTERNOON SESSIONS

Session 62

The skeletons in our closets: addressing ethical issues involved in the acquisition, curation, and analysis of human remains (Joint PPA-AAPA symposium)

Invited Podium Symposium

Chair: Kathryn E. Marklein. Co-organizers: Kathryn E. Marklein, Molly K. Zuckerman

Diamond 4

The state of curated human remains has moved recently from the background of bioarchaeological concerns to being nearly coequal as an analytical and interrogative focus with skeletal collections' more established research uses. In particular, topical symposia on the ethical treatment of human remains at recent (e.g., AAA 2017, SAA 2018, PPA 2019) conferences have resurrected discussions about research responsibility and cultural stewardship. This introspective narrative expands upon dialogues in North American archaeological ethics initiated in the late 20th century with the culmination of NAGPRA legislation, and calls us to recognize and further ameliorate ethical shortcomings in our acquisition, treatment, and analysis of human remains. Here, researchers from academic and applied backgrounds address issues that arise from pre-excavation and acquisition to post-publication of human remains. In the case of Indigenous remains, the ethical regulations and legality of research govern and direct the objectives and outputs of any bioarchaeological project, but such formal and legal accountability does not exist for many non-affiliated and non-indigenous human remains, such as from African American cemeteries. As a result, the curation and study of reference and teaching collections exhibit differential regulation and oversight across institutions on regional, national, and international levels. As researchers, practitioners, and educators, presenters herein take differing approaches to answering questions of how we mitigate current and (anticipated) future issues in ethics and how we resolve inherited issues. Through an emphasis on case studies, they discuss how biological anthropologists negotiate their obligations as scientists to the perpetuation of knowledge with their responsibilities to the populations (and descendant communities) they study.

- 2:00 **From the classroom to the field: A critical review of ethics in human osteological pedagogy and literature.** K.E. MARKLEIN, S. DRAKE.
- 2:15 **Curating, researching and exhibiting human remains from around the world, a British Museum perspective.** D. ANTOINE.
- 2:30 **Standing ground against entropy: The history of the osteological collections from San Pedro de Atacama, Chile.** M. HUBBE, C. TORRES-ROUFF.
- 2:45 **Let's go digital! First steps towards setting up a digital bioarchaeological reference collection for the Eastern Mediterranean.** E. NIKITA.
- 3:00 **Reclaiming lost identities: Ethical engagement with the unclaimed dead in anatomical collections.** C.M. DE LA COVA.
- 3:15 **Ethical Considerations and Stewardship of Contemporary Donated Human Remains.** D.W. STEADMAN, M.C. DAVIS, J.B. DEVLIN, H. MAIJANEN, L.M. JANTZ, G.M. VIDOLI.

SATURDAY AFTERNOON SESSIONS

- 3:30 Curating Biomolecules: Molecular Legacies and Untold Stories from the Smithsonian's Biological Anthropology Collections. R.M. AUSTIN, C.A. HOFMAN, S.B. SHOLTS.
- 3:45 Whose Bodies? Whose Data? Whose Responsibility? Ethical Concerns and Outcomes Regarding the Study of Indigenous Ancestral Remains. G. NICHOLAS, L. SPAKE.
- 4:00 Incorporating community feedback and ethical concepts of personhood into bioarchaeological practice: Informing excavation, curation, and analysis at the cemetery of the Mississippi State Asylum with contextualized feedback from the community of practice. M.K. ZUCKERMAN, A.J. OSTERHOLTZ, L. MCCLELLAN.
- 4:15 Issues and Ethical Considerations in Molecular Paleopathology. E.A. NELSON, A.C. BADER, D.A. BOLNICK, J.E. BUIKSTRA, K. FOX, C. HOFMAN.
- 4:30 Discussants: Michael Blakey, Deborah Bolnick.

Session 63

Craniodental Functional Morphology

Contributed Podium Presentations

Chair: *Alejandra Ortiz*

Diamond 2

- 2:00 Shape of the prespheno-septal synchondrosis predicts facial reduction. V.B. DELEON, T.D. SMITH.
- 2:15 A 3D Study on Form and Function in Tooth Enamel Microstructure. F.R. FOSTER.
- 2:30 The influence of speed on craniovertebral kinematics in *Sapajus apella*. N. GRIDER-POTTER, M.F. LAIRD, C.F. ROSS, M.D. HERMAN, M.C. GRANATOSKY.
- 2:45 Fiber phenotype of the temporalis muscle in *Papio anubis*. M.A. HOLMES, A.B. TAYLOR.
- 3:00 Putting it on display: The musculoskeletal consequences of large gapes in male Old World monkeys. A.B. TAYLOR, C.E. TERHUNE, M.F. TEAFORD, C.F. ROSS, C.J. VINYARD.
- 3:15 Chewing through trauma: Normal and pathologic shape variation in cercopithecoid skulls. D.R. MITCHELL, C.A. KIRCHHOFF, S.B. COOKE, C.E. TERHUNE.
- 3:30 Interspecific variation in hominid mandibular biomechanics. A.L. SMITH, C. ROBINSON, A.B. TAYLOR, C.V. WARD, W.H. KIMBEL, Z. ALEMSEGED, C.F. ROSS.
- 3:45 Dental sexual dimorphism in two closely related monkey species is achieved through two distinct patterns of growth. C. KUFELDT.
- 4:00 Spatial-Packing & Ontogeny of the Hypermuscular Mouse Skull. N. JEFFERY, D. SARVER, C. MENDIAS.
- 4:15 Being Nose-y: Dissecting out the influences of climate and energetics on human nasal anatomy. A.P. KELLY, C. OCOBOCK, S.D. MADDUX.
- 4:30 Locomotor vs. non-locomotor signals in bony labyrinth: insights from fossil and modern anthropoid primates. N. MORIMOTO, Y. KUNIMATSU, M. NAKATSUKASA, M.S. PONCE DE LEÓN, C.P. ZOLLIKOFER, H. ISHIDA, T. SASAKI, G. SUWA.

SATURDAY AFTERNOON SESSIONS

- 4:45 Functional morphology of the auditory periphery of humans, common chimpanzees and bonobos and evolution of human auditory capacities. A. STOESEL, S. OSSMANN, M. BORNITZ, N. LASURASHVILI, M. NEUDERT.

Session 64

Primate Diet and Foraging

Contributed Podium Presentations

Chair: Andrew Zamora

Diamond 3

- 2:00 Validation of a method for quantifying urinary C-peptide in platyrrhines. A.J. SACCO, M.C. GRANATOSKY, L. ABONDANO, M.F. LAIRD, K.M. MILICH.
- 2:15 The Influence of Fruit Availability on Energy Allocation in Infant and Juvenile Bornean Orangutans. E.E. KANE, T. SUSANTO, C.D. KNOTT.
- 2:30 Wild Bornean Orangutans (*Pongo pygmaeus wurmbii*) Navigate to Non-Fruit Foods. A.L. DIGIORGIO, T. SUSANTO, C.D. KNOTT.
- 2:45 Nitrogen Isotopes of Serially Sampled Nails From Chimpanzees and Baboons at Gombe National Park, Tanzania. R.S. NOCKERTS, M.L. WILSON, D.L. FOX, R.C. O'MALLEY, D. COLLINS, I.C. GILBY, A.E. PUSEY.
- 3:00 Dietary isotopic ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$) values of muscle tissue from Cayo Santiago macaques sampled before and after Hurricane Maria. E.M. MANN, A. DECASIEN, M.L. PLATT, M.G. MONTAGUE, S. ANTÓN, R.L. QUINN, J. HIGHAM.
- 3:15 Folivore rules and frugivore rules: Variation in diet and food chemistry in sympatric frugivorous and folivorous lemurs. M.T. IRWIN, V. RAHALINARIVO, J. RAHARISON, B. RAMORASATA, J. RANAIVOARISOA, J. RANDRIANASY, J.M. ROTHMAN.
- 3:30 Arthropod consumption in lemurs: an exploratory analysis using DNA metabarcoding. A.K. ROWE, M.E. DONOHUE, E.L. CLARE, R. DRINKWATER, A. KOENIG, Z.M. RIDGWAY, L.D. MARTIN, E.S. NOMENJANAHARY, F. ZAKAMANANA, L.J. RANDRIAMANANDAZA, T.E. RAKOTONIRINA, P.C. WRIGHT.
- 3:45 The relationship between tree-fall canopy gaps, tree phenology, diet, and lemur behavior in Masoala National Park, Madagascar. M. MOGILEWSKY, N. VASEY, A. ANDRIAMAHAHAVANA, Z. RAKOTOMALALA.
- 4:00 Dietary intake and digestibility of frugivorous and insectivorous diets in captive *Otolemur garnettii*. B. SMITH, S. BIANCHI, M. KROWKA, J.E. LOUDON, A.M. GOMEZ, O.C. PAINE, M. SPONHEIMER.
- 4:15 Fecal nutritional values of captive *Otolemur garnettii* reflect dietary shifts from frugivorous to insectivorous diets. J.E. LOUDON, B. SMITH, S. BIANCHI, M.A. KROWKA, A.M. GOMEZ, O.C. PAINE, M. SPONHEIMER.
- 4:30 Extrinsic and intrinsic effects on nutritional strategy in redtail monkeys (*Cercopithecus ascanius*). M.A. BRYER, J.M. ROTHMAN.
- 4:45 Dietary ethanol in the main food (*Ficus mucosa*) of chimpanzees (*Pan troglodytes*) in a tropical rain forest. A.E. MARO, A.A. SANDEL, J.C. MITANI, R. DUDLEY.

SATURDAY AFTERNOON SESSIONS

Session 65

Paleoanthropology: Environment, Diet, and Context

Contributed Podium Presentations

Chair: Tanya Smith

Diamond 5

- 2:00 **Rediscovery of original site A bipedal footprints at Laetoli, Tanzania.** J.M. DESILVA, C. MILLER, A.S. DEANE, K. FABIAN, L. FANNIN, J. GURTU, E. GUSTAFSON, K.G. HATALA, A.C. HILL, S. KALLINDO, B. MALEY, E.J. MCNUTT, A. PRABHAT, S. RUBIN, R. THORNBURG, C. MUSIBA.
- 2:15 **Balancing Research, Education, Conservation and Sustainable Use of the 3.6 Million Years Old Hominin Footprint Site G and S at Laetoli in northern Tanzania.** C.M. MUSIBA, M.M. MWAMBUNGU, J. MWANKUNDA, A.N. ZAITSEV, A.I. SAVCHENOK, A.Z. MABULLA, C.C. MAGORI, K. BERGSTROM, A. PELISSERO, S. ASSEFA.
- 2:30 **The efficacy of human evolution education in South Africa.** K.A. WARREN, R.A. HUMPHREYS, R.R. ACKERMANN.
- 2:45 **Body mass estimation from footprint size in early hominins.** C.B. RUFF, R.E. WUNDERLICH, K.G. HATALA, R.H. TUTTLE, C.E. HILTON, D.M. WEBB, B. HALLGRIMSSON, C. MUSIBA, M.G. BAKSH.
- 3:00 **Adaptation, evolutionary factors and the “obstetrical dilemma”.** A.G. WARRENER.
- 3:15 **Seasonal-scale variability in diets of hominins from Turkana, Kenya.** S.A. BLUMENTHAL, T.E. CERLING, K.L. CHRITZ, J.A. LEE-THORP, F. MANTHI, S. STRUM.
- 3:30 **Measuring nitrogen isotopes in tooth enamel: A novel method for characterizing trophic position in fossil ecosystems.** J.N. LEICHLITER, T. LÜDECKE, N. DUPREY, D. WINKLER, T. TÜTKEN, M. CLAUSS, A. MARTÍNEZ-GARCÍA.
- 3:45 **Experimental Approaches to Paleodiet – Investigating Effects of Wood Smoking on $\delta^{15}\text{N}$.** K.K. FOCKE, A.S. BROOKS, C.A. FRANCE.
- 4:00 **Faunal turnover at Mille-Logya (Plio-Pleistocene, Ethiopia) reflects in situ environmental change: implications for the origins of *Homo*.** W. BARR, D. GERAADS, D. REED, R. BOBE, J. WYNN, Z. ALEMSEGED.
- 4:15 **New Pliocene hominin specimens from East Turkana are associated with extensive C_4 resources.** A. VILLASEÑOR, D.R. BRAUN, K. UNO, E. ADVOKAAT, M. BAMFORD, A.K. BEHRENSMEYER, B. RENÉ, C. SUSANA, H.S. ASHLEY, K. RAHAB, D.V. PALCU, M. SIER, C.V. WARD.
- 4:30 **Seasonal Isotope Ecology in the East African Miocene Ape *Afropithecus*.** D.R. GREEN, S. COTE, W. DIRKS, D.J. REID, I.S. WILLIAMS, T.M. SMITH.
- 4:45 **Intra-tooth $\delta^{18}\text{O}$ range of fossil suids indicate an increase in rainfall seasonality/aridity in the Koobi Fora Formation, early Pleistocene.** D. YANG, K.T. UNO.

SATURDAY AFTERNOON SESSIONS

Session 66

Forensic Anthropology: Methods and Approaches

Contributed Podium Presentations

Chair: TBA

Diamond 8-9

- 2:00 DNA methylation-based forensic age estimation in human bone. S. GOPALAN, J. GAIGE, B.M. HENN.
- 2:15 Reference sample mean age at transition is strongly influenced by sample size. V. SGHEIZA, H.M. LIVERSIDGE.
- 2:30 Characterizing DNA Degradation in Severely Burned Human Skeletal Remains using STR Genotyping and NGS Targeted Capture Techniques. M.V. EMERY, K.L. BOLHOFNER, S. WININGEAR, R. OLDT, S. KANTHASWAMY, J.E. BUIKSTRA, L. FULGINITI, A.C. STONE.
- 2:45 Detection of early postmortem changes in burnt bones through histotaphonomical analysis. E.I. VEGH, A. CZERMAK, N. MARQUEZ-GRANT, R.J. SCHULTING.
- 3:00 The Application of 3D Geometric Morphometrics to Subadult Dentition: Exploring Tooth Development and Eruption Through Alternative Methods. L.E. CIRILLO, K.E. STULL.
- 3:15 The Relationship Between Soft Tissue Anatomy and Skeletal Sexual Dimorphism in the Cranium and Clavicle. J.S. DE LA PAZ, S. WOODLEY, N. TECHATAWEEWAN, H. BUCKLEY, S. HALCROW.
- 3:30 Allometry used for the osteometric sorting of multiple long bones simultaneously. A.B. LEE, L.W. KONIGSBERG.
- 3:45 Dietary isotopic analysis as an investigative tool for identifying unknown human remains in New York City. H.S. ALESBURY, R. QUINN, L. CEJA, A. SOLER, A. TRIFONOV, L. GODFREY.
- 4:00 Identification of skeletal remains using vertebral body osteophytes. M. CERVANTES.
- 4:15 Reliability of facial identification methods in optimal photographs and suboptimal CCTV footage. N. BACCI, M. STEYN, N. BRIERS.
- 4:30 The bioanthropological role in investigations of genocide. L.M. ELGERUD.
- 4:45 An Investigation of the Inter and Intra Post Mortem Microstructural Change Seen in an Experimental Series of Pigs Exposed to a Marine Environment. H.P. GOREN, L.S. BELL.

SATURDAY AFTERNOON SESSIONS

Session 67

Genotype-Phenotype Studies

Contributed Podium Presentations

Chair: Leslea Hlusko

Platinum Ballroom

- 2:00 Direct Identification of Neanderthal Introgressed Genetic Variation Affecting Gene Expression in Modern Human Immune Cell Lines. E. JAGODA, J. XUE, S. REILLY, M. DANNEMANN, F. RACIMO, E. HUERTA-SANCHEZ, S. SANKARARAMAN, J. KELSO, L. PAGANI, P. SABETI, T.D. CAPELLINI.
- 2:15 The Human *NF1* Locus: A Unique Hominin Genotype with Potential Evolutionary Significance. A.J. ALVESHARE, V.M. RICCARDI.
- 2:30 Sex-Specific Phenotypic Effects and Evolutionary History of an Ancient Deletion Polymorphism of the Human Growth Hormone Receptor. O. GOKCUMEN, S. RESENDEZ, M. SAITOU, X. MU.
- 2:45 Confirming an old-husband's tale: The frequency of same-sex twinning increases across the generations, following a Fragile X-syndrome-like pattern. L. KOERNER, K. KELLY, H. HUANG, S. BHASKAR, L. MADRIGAL.
- 3:00 Cataloging the Regulatory Landscape of Human Skeletal Development via Functional Genomics: Insights into Human Pelvic Evolution. T.D. CAPELLINI, M. YOUNG, P. MUTHUIRULAN, V. KHARKAR, D. RICHARD.
- 3:15 Accelerated mutation rate of genes controlling for cognitive brain functions in humans. F. MACCIARDI, G. GUFFANTI, G.V. GLINSKY, G. SCORRANO.
- 3:30 The population genetics of within-host *Mycobacterium tuberculosis*. A.Y. MORALES-ARCE, R.B. HARRIS, A.C. STONE, J.D. JENSEN.
- 3:45 Dengue Susceptibility and Resistance in a Guatemalan Cohort: Incorporating an Evolutionary Perspective Using Signatures of Natural Selection. O.A. GARCIA, L. CASTILLO-SIGNOR, S. CAPETILLO, E.M. SANTOS, N. NUÑEZ, V. VILLATORO, A.W. BIGHAM.
- 4:00 Discerning independent natural selection. N.S. HARRIS, A.R. ROGERS.
- 4:15 Ancient DNA reveals that few disease-associated loci have been strongly selected during recent human history. J. LACHANCE.
- 4:30 Unique Beringian architectures found in extant Native Americans structure genomic differences in melanoma etiology. S.D. NIEDBALSKI, J.C. LONG, M. BERWICK, A.S. DOBROFF.

SATURDAY AFTERNOON SESSIONS

Session 68

Life History and the Gut Microbiome

Invited Poster Symposium

Chair: Amy Lu. Co-organizers: Katherine R. Amato

Diamond 10

Life history processes such as development, reproduction, and somatic maintenance contribute to an organism's health and reproductive success. Although researchers across a number of fields have long recognized the importance of genetic, ecological, and physiological factors (e.g., hormones) that influence these processes, recent work indicates that the gut microbiome is a missing piece of the puzzle. The gut microbiome is established during infancy and can affect the development and function of host metabolism, the immune system, and the nervous system. Therefore, the microbes an individual is exposed to during this period can alter trajectories of energy allocation with direct implications for life history. Shifts in the gut microbiome may also facilitate specialized forms of energy extraction during energetically costly life history stages such as infancy, gestation, and lactation, and established effects of the gut microbiome on immune function may play a role in somatic maintenance and the pace of aging. Finally, the gut microbiome is an ecological community characterized by competitive interactions in which enrichment for certain microbial taxa and functions (e.g., energy extraction) may result in a loss of other taxa and functions. The physiological consequences of these dynamics may contribute to tradeoffs often referenced in life history theory. This symposium will highlight cutting edge research in areas of microbiome research relevant to life history, with the goal of integrating data from both humans and nonhuman primates, as well as from clinical and evolutionary perspectives. By encouraging dialogue among a diverse group of scientists, we hope to further advance this emerging field and contribute more broadly to our understanding of life history theory.

Discussant: Steven Leigh.

- 1 **The gut microbiome and reproductive state in two Old World primates.** A. LU, K.R. AMATO, A.M. BANIÉL, J.C. BEEHNER, T.J. BERGMAN, C. BORRIES, A. KOENIG, E.K. MALLOTT, N. SNYDER-MACKLER.
- 2 **Strain-level variation in bacteria across reproduction in wild white-faced capuchin monkeys (*Cebus capucinus*).** E.K. MALLOTT.
- 3 **Do behavioral and gut microbiome shifts associate with changing reproductive states in wild primates?** S.E. WEBB, J.D. ORKIN, R.E. WILLIAMSON, A.D. MELIN.
- 4 **Maturation and stabilization of the infant gut microbiome in wild geladas.** A. BANIÉL, J.C. BEEHNER, T.J. BERGMAN, A. MERCER, L. PETRULLO, L. REITSEMA, S. SAMS, N. SNYDER-MACKLER, A. LU.
- 5 **Postnatal vertical transmission is associated with maternal parity and offspring growth in captive vervet monkeys (*Chlorocebus aethiops sabaues*).** L. PETRULLO, M. JORGENSEN, N. SNYDER-MACKLER, A. LU.
- 6 **Microbial communities as mediators of disease, malnutrition, and growth in Highland Peru.** C. SUPER, M.K. HOKE, S. KUTHYAR, K. AMATO.

SATURDAY AFTERNOON SESSIONS

- 7 **Early life environments predict gut microbiome composition of adult women in Cebu, Philippines.** K.R. AMATO, S. KUTHYAR, P. PRADHAN, D. CARBA, J. BORJA, T.W. MCDADE, C.W. KUZAWA.
- 8 **Age-associated changes in the microbiome of rhesus macaques on Cayo Santiago.** M.C. JANIAC, M.J. MONTAGUE, C. VILLAMIL, M.K. STOCK, A.E. TRUJILLO, A. DEPASQUALE, J.D. ORKIN, S.E. BAUMAN SURRAT, O. GONZALEZ, M.L. PLATT, M. MARTINEZ, S.C. ANTÓN, G. DOMINGUEZ-BELLO, A.D. MELIN, J.P. HIGHAM.
- 9 **Genomic and phenotypic diversity of antibiotic resistant *Escherichia coli* isolated from the gut microbiome of non-industrial populations.** S. KHANAM, N.B. PATEL, L. O'NEIL, A. OBREGON-TITO, R. TITO, E. GUIJA, L. TRONCOSO, L. MARTIN, C. WARINNER, C.M. LEWIS, K. SANKARANARAYANAN.

Session 69

Bioarchaeology and the Developmental Origins of Health and Disease: the impact of methods and context on interpretation

Invited Poster Symposium

Chair: April K. Smith. Co-organizers: Carey J. Garland, April K. Smith

Diamond 6

The Developmental Origins of Health and Disease (DOHaD) hypothesis posits that early life physiological stress has durable impacts on health and mortality risk across the life course. The implications of early life environment for long-term health trajectories remain a persistent challenge today that requires methodological approaches and theory building that reach into the past. Bioarchaeologists have recently begun to engage with the DOHaD hypothesis using various methodological approaches that focus on reconstructing early childhood stress, including linear enamel hypoplasia, vertebral neural canal size, stature estimation, and accentuated striae of Retzius. Bioarchaeological research has contributed to the broader framework of the DOHaD by exploring the impact of early childhood stress within various cultural contexts through deep time. However, bioarchaeological studies into the DOHaD hypothesis have encountered mixed results; some research demonstrates that early life stress is adaptive, making individuals more resilient and physiological competent in dealing with future stress, while other research shows that early life stress is linked with poor health and increased mortality risk in subsequent life history periods. Discrepancies in the link between early life stress and early death may be attributed to several factors, such as differences in methodological approaches, cultural factors, hidden heterogeneity in risk, and the type and severity of stress. This proposed symposium will explore the various factors that influence the interpretation of bioarchaeological research using the DOHaD hypothesis. This symposium will highlight the importance of cultural context and methodology, as well as novel theoretical approaches, in exploring the links between early life stress, future health, and mortality risk.

SATURDAY AFTERNOON SESSIONS

Discussant: Daniel Temple.

- 1 A multifactorial approach to the developmental origins of infectious disease: comparing results from dental histology, paleopathology, and stable isotope analysis. A.K. SMITH, L.J. REITSEMA, A. FORNACIARI, L. SINEO.
- 2 Elemental Signatures and Growth Defects in Teeth Show Differential Morbidity and Mortality tied to Variable Weaning and Dietary Practices among Missionized Guale on the Georgia Coast (ca 17th century). C.J. GARLAND, L.J. REITSEMA.
- 3 Correlations between growth disruptions and adult mortality risk: comparisons between documented and archaeological samples using consistent methods. C.M. CHEVERKO.
- 4 Multiple developmental stress events and mortality outcomes in the context of medieval English famines. S.N. DEWITTE.
- 5 How small is small? Careful considerations for childhood stress using Vertebral Neural Canal (VNC) dimensions. T.M. TROMBLEY, P.D. BEAUCHESNE, S.C. AGARWAL.
- 6 Crypt fenestration enamel defects have no association with childhood morbidity or mortality at Tlatelolco, a Mesoamerican urban center (1350-1521 CE). K.E. BLEVINS, J. MANSILLA LORY.
- 7 A Tale of Two Towns: Exploring the Impact of the Osteological Paradox on Interpretations of Bioarchaeological Data within the DOHaD Framework. S.L. NEWMAN.
- 8 Vertebral neural canal growth and developmental stress: a case study from the American Southwest. S.M. LOPRESTO, D.H. TEMPLE, D.R. HUNT.
- 9 Developmental Origins of Tuberculosis in a Documented Skeletal Collection. J. WHITE, F. CRESPO.

Session 70

The Bioarchaeology of the Southeastern United States: Current Research on Prehistoric and Historic Populations

Invited Poster Symposium

Chair: Steve Byers

Diamond 7

The symposium on southeastern bioarchaeology at the AAPA meetings in 2010 presented new information on lifeways of prehistoric, protohistoric, and historic populations in the southeastern United States. Now, 10 years later, is an ideal time to revisit this area and present the newest research on the lifeways of these populations as gleaned from their skeletal remains. This symposium will present new information on sites in Louisiana, Mississippi, Georgia, Tennessee, North Carolina and Arkansas from those time periods that yield the most skeletal material: the Archaic, Woodland, Mississippian and Historic periods. Topics as diverse as trends in bioarchaeological parameters (including paleodemographics), subsistence and tooth loss, cranial deformation and more will be presented, with a discussion of the importance of these findings in the bigger context of the bioarchaeology of this key part of the country.

SATURDAY AFTERNOON SESSIONS

Discussant: Steven Beyers.

- 1 Temporal Comparisons of Survivorship and Frailty in Late Prehistoric East Tennessee. T.K. BETSINGER, M.O. SMITH, S.N. DEWITTE.
- 2 Bioarchaeological (Un)Change in Woodland Period Louisiana. S.N. BYERS.
- 3 Annular Binding in a Cranium from Mississippi County, Arkansas: What Does this Practice Tell Us about Identity? D.C. COOK.
- 5 Middle Archaic Human Bone Trophies: Embodiment of Giving. S. HODGE.
- 6 Antemortem tooth loss in Late Prehistoric west-central Tennessee: are there subsistence corollaries? M.O. SMITH, T.K. BETSINGER.
- 7 From Households to Bathing Rituals: Biocultural Aspects of Life in Late Prehistoric North Georgia. M.A. WILLIAMSON, M.C. GRIFFIN.
- 8 Evaluating the Symptomatic Expression of a Prehistoric Case of North American Blastomycosis from North Carolina. D.L. HUTCHINSON, S.C. DENT, A.S. GANCZ, M. KRAUSE, C. LAMACK, A.M. WHITE.

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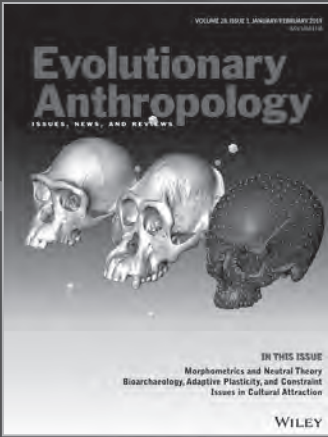
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