



88th Annual Meeting  
of the American Association  
of Physical Anthropologists

---

**March 27-30, 2019**  
Cleveland, Ohio

**CONFERENCE PROGRAM**





**BONE CLONES**®  
OSTEOLOGICAL REPRODUCTIONS  
[www.boneclones.com](http://www.boneclones.com)

PROGRAM OF THE  
**88TH ANNUAL MEETING  
OF THE AMERICAN  
ASSOCIATION OF PHYSICAL  
ANTHROPOLOGISTS**  
MARCH 27-30, 2019

---

To be held at the

**Huntington Convention Center of Cleveland**

300 Lakeside Avenue • Cleveland, OH 44113

**Hilton Cleveland Downtown**

100 Lakeside Ave East • Cleveland, OH 44114

**AAPA Scientific Program Committee**

Steven R. Leigh, Chair

Amanda Agnew	Donna Harrison	Alejandra Ortiz
Kari Allen	Geoff Hayes	Nicholas Passalacqua
Ben Auerbach	Amber Heard-Booth	Christine Pink
Jonathan Bethard	Brian Hemphill	Stephanie Poindexter
Nicole Burt	Nathan Holton	Emma Pomeroy
James Calcagno	Rob Hoppa	Sean Prall
Zachary Cofran	Jennifer Hotzman	Melissa Schaefer
Paul Constantino	Rebecca Jabbour	Elizabeth St Clair
Lynn Copes	Jessica Joganic	Claire Terhune
Jennifer Cramer	Kent Johnson	Sam Urlacher
Andrew Deane	Erin Kane	Qian Wang
Maureen Devlin	Claire Kirchhoff	Timothy Webster
Christina Fojas	Myra Laird	Katherine Weisensee
Rebecca Gilmour	Kristi Lewton	Julie Wieczkowski
C. Eduardo Guerra Amorim	Christina Nicholas	Frank Williams
Lauren Halenar-Price	Heather Norton	John Willman
Ashley Hammond	Robert O'Malley	

*Cover Photo: Reconstruction by John Gurche, courtesy of the Cleveland Museum of Natural History*

Printed on 30% recycled content paper with soy based inks

AAPA Conference Program

### **AAPA Meetings Director**

Lori Strong, Burk & Associates, Inc.

### **Cleveland Advance Team**

Leslie C. Aiello

Anne L. Grauer

M. Geoffrey Hayes

Edward H. Hagen

Christopher Kuzawa

Steven R. Leigh

W. Scott McGraw

Denise Su

### **Program Assistant**

Kathleen McGuire

### **Local Arrangements Committee**

Denise Su

Yohannes Haile-Selassie

### **2018-2019 AAPA Executive Committee**

**Leslie C. Aiello**

President

**Anne L. Grauer**

President-elect

**Steven R. Leigh**

Vice President and Program Chair

**Rachel Caspari**

Treasurer

**Gabriela Cabana**

Secretary

**Peter T. Ellison**

Editor, *American Journal of  
Physical Anthropology*

**Lyle W. Konigsberg**

Editor, *Yearbook of Physical Anthropology*

**Nathaniel Dominy**

Career Development

**Christina Torres-Rouff**

Student Affairs

**Lisa Sattenspiel**

Membership

**Robin Nelson**

History and Honors

# TABLE OF CONTENTS

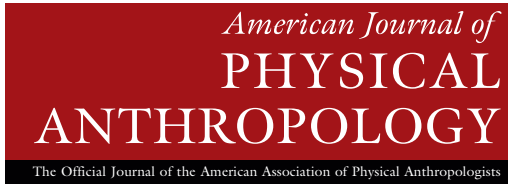
Message from the AAPA President.....	5
Message from the VP & Program Chair.....	7
General Information.....	11
Social Events/Meeting Highlights.....	15
Workshops and Panels.....	17
Events.....	22
Exhibitor Listing.....	32
Hilton and Huntington Convention Center Floor Plans.....	37
Conference Schedule Day-By-Day.....	40
AAPA Presentation Schedule.....	44
Thursday All Day.....	44
Thursday Morning.....	56
Thursday Afternoon.....	65
Friday All Day.....	75
Friday Morning.....	88
Friday Afternoon.....	97
Saturday All Day.....	105
Saturday Morning.....	119
Saturday Afternoon.....	125
Author/Session Index.....	131

# KEY TO ACRONYMS

- 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

# THANK YOU TO OUR SPONSORS

## PLATINUM



## SILVER



## BRONZE



# MESSAGE FROM THE AAPA PRESIDENT

Welcome to Cleveland, Ohio and the 88th annual meeting of the American Association of Physical Anthropologists. We have an exciting program planned this year that is described by Steve Leigh, our VP and Program Chair, in the following pages. In addition to the full academic program and regularly established Committee on Diversity (COD) initiatives, we have 15 interesting workshops, with topics ranging from mentoring, to adult skeletal age estimation, to the reconstruction of ancient ancestors and much more.

New this year is a photo booth in the Exhibition Hall on Friday, March 29. Come and have a free head shot taken by a professional photographer from the Cleveland Museum of Natural History! You don't know how handy these are as you move through your academic career! This is free and offered as a Career Development initiative. We are also pleased to be able to continue to offer free childcare during the meeting to facilitate full participation in the meeting by members with young families.

One of the most important initiatives this year is the potential name change of the association. Come to the Business Meeting on Friday evening, March 29, from 6:30 PM – 8:30 PM. We will present the results of our non-binding poll of the membership as well as announce the results of the formal poll of voting members held electronically in early March. Pending the results of the formal poll, we will initiate the two-stage process to change the name of the association to the **American Association of Biological Anthropologists**. All voting members of the association should be in attendance to vote on this important change. In accordance with our bylaws, a majority vote at the Business Meeting will initiate the name change. The final vote on the name change will be held in 2020 at the 89th annual meeting of the association, which will be held April 15-18 at the LA Live (Marriott) Downtown Los Angeles.

Cleveland is known for its breweries, and I am pleased to announce a special brew – **Lucy Lager** – prepared specially for us by Butcher and the Brewer, Cleveland. Be sure to come to our opening reception and sample this special anthropological brew!

There are a large number of people who work hard to make our meetings a success. Almost 300 members volunteer each year to work on committees, as reviewers, as judges, with our journals, or in many other ways. I would like to particularly thank our Executive Committee members, who provide guidance for the association and do a lot of the heavy lifting, the Program Committee who ensure our meetings are academically excellent, and all of the student volunteers who make the meetings run smoothly. Particular thanks go to our Conference Manager, Lori Strong, and her colleagues from Burk & Associates, Inc., who are the force behind the organization logistics of the meeting. Stop by the registration desk and give them your personal thanks – they deserve it!

## MESSAGE FROM THE AAPA PRESIDENT

You can also do your part by volunteering to serve and by continuing your membership. We are a volunteer association and our future depends on our members' involvement.

I hope you enjoy the 2019 Annual Meeting of AAPA! — and don't forget the **Business Meeting and the Award Ceremony** (Friday, 6.30 PM). Congratulations to **Matt Cartmill**, our Darwin awardee and **Susan Antón**, our Lasker awardee!

Leslie C. Aiello

President, American Association of Physical Anthropologists



# MESSAGE FROM THE VP & PROGRAM CHAIR

## Welcome!

It is my great pleasure to welcome you to the 2019 meeting of the American Association of Physical Anthropologists. This year's meeting is our 88th, and will be held in Cleveland, Ohio. The main conference hotel, the Hilton Downtown Cleveland, is attached to our main venue, the Huntington Convention Center. We are excited to be visiting Cleveland for the first time since 1946, and particularly delighted to be partnering closely with the renowned **Cleveland Museum of Natural History (CMNH)**, given the tremendous role and impacts the museum has had for our discipline. We are grateful to our colleagues from CMNH and local arrangements committee, Denise Su and Yohannes Haile-Selassie.

## Scientific Program

Our program includes almost 1100 peer-reviewed scientific papers, which will be presented in either podium or poster sessions beginning Thursday morning. The 62 scientific sessions include 7 invited podium symposia, 14 invited poster symposia, 18 contributed podium sessions, and 23 contributed poster sessions. In addition, there are 15 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 Cleveland 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, March 27, 2019, with six exciting workshops, the **Committee on Diversity Undergraduate Research Symposium** (open to everyone from 6:00 PM – 8:00 PM) and the **Opening Reception** (8:00 PM – 11:00 PM). The Convention Center 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. Like last year, 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 (2:30 PM) podium sessions, with invited poster symposia starting at the same times. This year, the Convention Center affords us adequate space for all-day poster sessions. Poster set-up will begin at 8:00 AM, and end at 9:00 AM, with sessions opening at 10:00 AM. Even-numbered posters will have presenters in attendance at 1:30 PM – 2:30 PM,

# MESSAGE FROM THE VP & PROGRAM CHAIR

while presenters will be present at odd-numbered posters from 6:00 PM – 7:00 PM on Thursday and Saturday (5:30 PM – 6:30 PM on Friday to allow attendance at the Business Meeting). Posters should be removed from 7:00 PM – 7:30 PM on Thursday and Saturday (6:30 PM – 7:00 PM on Friday). The start (2:30 PM) of podium presentations and invited poster symposia allows dedicated time for viewing of posters as well as an assortment of 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.

**Joint sessions.** Our joint AAPA-PPA session, **The Evolution of Syphilis: A New Approach**, organized by Brenda Baker, will be held on Friday afternoon. The joint AAPA-AAAG-HBA and American Anthropological Association (AAA) session this year is also our Wiley Symposium, and will be held on Saturday morning. The session is **Interpreting and Communicating Genetic Variation in 2019: A Conversation on Race**, organized by Jennifer Raff. The **Presidential Panel** will be held immediately following this symposium, and will offer a chance to extend the discussion of topics raised in the symposium.

## Workshops

This year we have planned a number of workshops that occur in conjunction with our annual meeting. 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 15). These events include a full slate of workshops, with six scheduled for Wednesday, three on Thursday, four on Friday, and then two on Saturday. The workshops cover a range of important topics. The CMNH is also sponsoring a Wednesday workshop at the museum engaging with the Hamann-Todd Collection. 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 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 PM – 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 (contact co-organizers Shara Bailey [NYU], Madelynne Dudas (U Texas), or Jon Bethard [USF], if interested) and by bidding on an array of tantalizing auction items. Students should also consider nominations for **Amazing Advisers**. We are also pleased to hold a special raffle for Saturday lunch with 2019 AAPA Honorees Susan Antón and Matt Cartmill. As the meetings approach we will update you on other special events.

Friday, following the conclusion of the scientific sessions, we will hold the annual **Business Meeting and Awards Presentation** (6:30 PM – 8:30 PM). The critically

# MESSAGE FROM THE VP & PROGRAM CHAIR

important vote concerning our name change will be conducted 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 Matt Cartmill) and the Gabriel W. Lasker Service Award (awarded to Professor Susan Antón). Please join us in celebrating this year's outstanding winners.

This year's **Presidential Panel** (Saturday, 1:00 PM – 2:30 PM) focuses on scientific and public discourse involving genetics and race: a topical issue that biological anthropologists are uniquely positioned to evaluate, discuss, and contribute. It follows the AAPA-AAAG-AAA-HBA-Wiley sponsored symposium, **Interpreting and Communicating Genetic Variation in 2019: A Conversation on Race**. The Presidential Panel is an open session that will offer guided discussion and the opportunity to exchange ideas on the important issues raised in the symposium. Everyone is encouraged to attend and participate.

Saturday brings our meetings to a close, with the **Student Awards Ceremony and Closing Reception** from 6:00 PM – 9:00 PM. Please join us to learn who won the 2019 Student Presentation Awards!

Finally, as we approach the meetings, we will be publicizing additional information regarding special events.

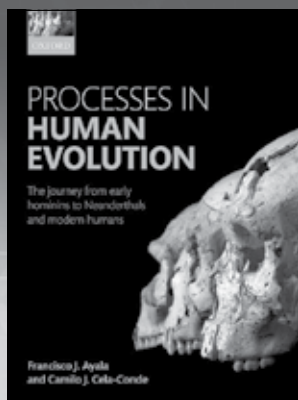
## **Acknowledgements and Appreciation**

My sincere thanks to everyone who helped assemble the 2019 program. 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, and member of the Cleveland Advance Team). We are immensely grateful to the 50 remarkable and dedicated members of our Program Committee, who conducted and completed reviews thoughtfully, thoroughly, and expeditiously. We also thank the Cleveland Advance Team. The team includes our colleagues and representatives from Burk who came together in Cleveland in January to arrange the scientific program and to finalize hotel details. Program Assistant, Kathleen McGuire, has been a tremendous help, as have the Officers and other members of the Executive Committee. Special thanks to Leslie Aiello for stepping in on numerous occasions to help with details and evaluate workshop proposals. Finally, we extend our most sincere thanks to the Local Arrangements Committee, Dr. Denise Su and Yohannes Haile-Selassie. These meetings would not have been possible without all these exemplary individuals, so please join me in thanking them when you see them in Cleveland!

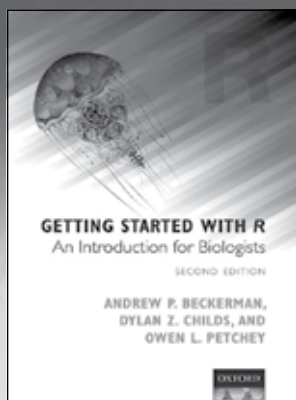
Steve Leigh  
AAPA Vice President and Program Chair

# EXPLORE TITLES

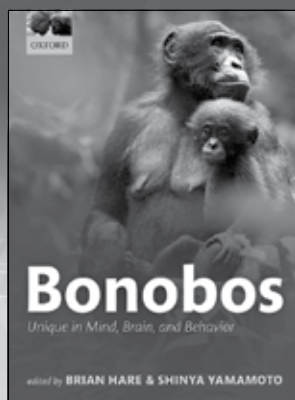
from OXFORD UNIVERSITY PRESS



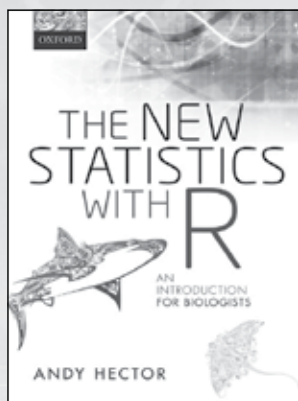
9780198739913  
~~\$65.00~~ / \$45.50



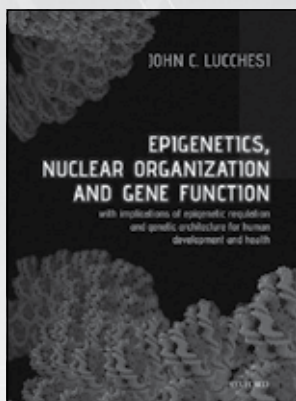
9780198787846  
~~\$34.95~~ / \$24.46



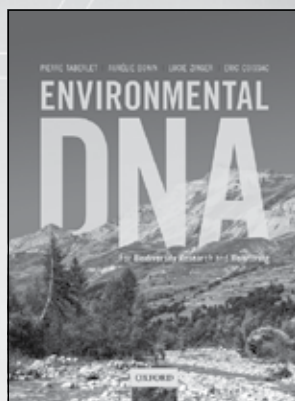
9780198728528  
~~\$61.00~~ / \$42.70



9780198729068  
~~\$49.95~~ / \$34.96



9780198831211  
~~\$49.95~~ / \$34.96



9780198767282  
~~\$43.95~~ / \$30.76

## VISIT US AT BOOTH 11

Order online at [www.oup.com](http://www.oup.com)  
AND ENTER THE CODE EXAPPA19 FOR A 30% DISCOUNT

Code valid through May 2019

**OXFORD**  
UNIVERSITY PRESS

# 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 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 Room (CC Room 19)**. 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 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 Room (CC Room 19) at the following times:

- Wednesday, March 27, 12:00 PM – 5:00 PM
- Thursday, March 28, 7:30 AM – 5:00 PM
- Friday, March 29, 7:30 AM – 5:00 PM
- Saturday, March 30, 7:30 AM – 11:30 AM

## Catering and Coffee Breaks

Coffee, snacks, and/or a cash bar will be available at the following times in CC Ballroom BC (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 CC Ballroom Foyer. The Registration Desk will be open during the following hours:

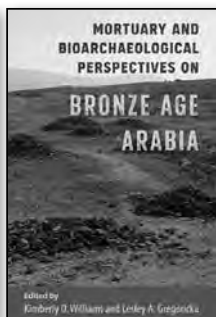
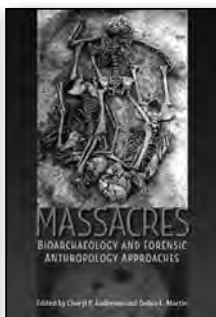
- Wednesday, March 27, 2:00 PM – 7:00 PM
- Thursday, March 28, 7:00 AM – 5:00 PM
- Friday, March 29, 7:30 AM – 5:00 PM
- Saturday, March 30, 7:30 AM – 3:00 PM



**Bioarchaeology of Pre-Columbian Mesoamerica**  
*An Interdisciplinary Approach*  
 CATHY WILLERMET AND ANDREA CUCINA, EDS.  
 Hardcover \$90.00 **\$45.00**

**Massacres**  
*Bioarchaeology and Forensic Anthropology Approaches*  
 CHERYL P. ANDERSON AND DEBRA L. MARTIN, EDS.  
 Hardcover \$95.00 **\$50.00**

**Mortuary and Bioarchaeological Perspectives on Bronze Age Arabia**  
 KIMBERLY D. WILLIAMS AND LESLEY A. GREGORICKA, EDS.  
 Hardcover \$100.00 **\$60.00**  
*Available in May*



**Reading the Bones**  
*Activity, Biology, and Culture*  
 ELIZABETH WEISS  
 Hardcover \$89.95 **\$45.00**

**Life and Death on the Nile**  
*A Bioethnography of Three Ancient Nubian Communities*  
 GEORGE J. ARMELAGOS AND DENNIS P. VAN GERVEN  
 Hardcover \$95.00 **\$50.00**

**Children and Childhood in Bioarchaeology**  
 PATRICK BEAUCHESNE AND SABRINA C. AGARWAL, EDS.  
 Hardcover \$110.00 **\$65.00**

**A World View of Bioculturally Modified Teeth**  
 SCOTT E. BURNETT AND JOEL D. IRISH, EDS.  
 Hardcover \$110.00 **\$65.00**

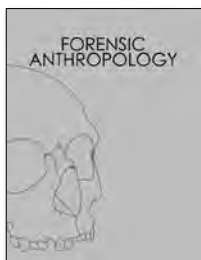
**NOW AVAILABLE in PAPERBACK**

**Disease and Discrimination**  
*Poverty and Pestilence in Colonial Atlantic America*  
 DALE L. HUTCHINSON  
 Paper \$24.95 **\$18.00**  
*Paper available in April*

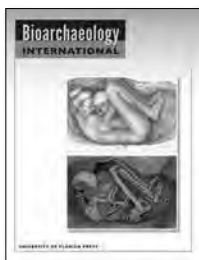
**Edible Insects and Human Evolution**  
 JULIE J. LESNIK  
 Paper \$24.95 **\$18.00**

**Victims of Ireland's Great Famine**  
*The Bioarchaeology of Mass Burials at Kilkenny Union Workhouse*  
 JONNY GEBER  
 Paper \$24.95 **\$18.00**

## JOURNALS from UF PRESS






**Forensic Anthropology**  
 NICHOLAS V. PASSALACQUA,  
 EDITOR-IN-CHIEF  
 ANGI M. CHRISTENSEN  
 AND JOSEPH T. HEFNER,  
 ASSOCIATE EDITORS  
[journals.upress.ufl.edu/fa](http://journals.upress.ufl.edu/fa)



**Bioarchaeology International**  
 SABRINA C. AGARWAL  
 AND BRENDA J. BAKER,  
 EDITORS-IN-CHIEF  
[bioarchaeologyinternational.com](http://bioarchaeologyinternational.com)

**SEE US ABOUT OUR EXCITING BOOK SERIES!**

Visit booth 27 for discounts up to 60%  
 Order at [upress.ufl.edu/AAPA19](http://upress.ufl.edu/AAPA19) and use code **AAPA19**  
 800.226.3822 | [upress.ufl.edu](http://upress.ufl.edu) | @floridapress    

# GENERAL INFORMATION

## **AAPA App**

Be sure to download the AAPA 2019 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: Hilton Veterans A

- Wednesday, March 27, 5:00 PM – 10:00 PM
- Thursday, March 28, 7:30 AM – 7:00 PM
- Friday, March 29, 7:30 AM – 5:00 PM
- Saturday, March 30, 7:30 AM – 5:00 PM

## **Family Respite Room**

The family Respite Room will be available Thursday-Saturday, 7:00 AM – 7:00 PM in CC Room 15.

## **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**

### **2020**

Los Angeles, April 15 - 18  
LA Live (Marriott)  
Downtown Los Angeles

### **2021**

Baltimore, April 7 - 10  
Baltimore Marriott Waterfront

### **2022**

Denver, March 23 - 26  
Sheraton Denver Downtown

### **2023**

Reno, April 19-22  
Peppermill Resort Hotel

# American Journal of Physical Anthropology

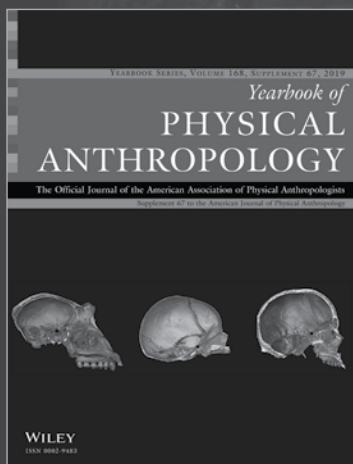


Editor-in-Chief  
**Peter T. Ellison**

## American Journal of Physical Anthropology

The Official Journal of the American  
Association of Physical Anthropologists

Go online for more information:  
[bit.ly/AJPAJournal](http://bit.ly/AJPAJournal)



Yearbook Editor  
**Lyle Konigsberg**

## Yearbook of Physical Anthropology

A Publication of the American Association  
of Physical Anthropologists

Read the latest Yearbook of Physical  
Anthropology online:  
[bit.ly/AJPAYearbook2019](http://bit.ly/AJPAYearbook2019)

**WILEY**



# SOCIAL EVENTS/ MEETING HIGHLIGHTS

All events take place at the Huntington Convention Center or the Hilton Hotel unless otherwise noted.

## Wednesday, March 27

### **AAPA COD Undergraduate Research Symposium and Reception,**

5:30 PM – 8:00 PM, CC Ballroom BC

*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, Hilton Hope Ballroom**

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

## Thursday, March 28

### **AAPA Live Auction, 7:00 PM – 8:30 PM, CC Ballroom A**

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

## Friday, March 29

### **AAPA Business Meeting and Awards Presentation,**

6:30 PM – 8:30 PM, CC Ballroom A

*Become involved in your association and celebrate the 2019 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, March 30

### **Presidential Panel: Genetics and Race, 1:00 PM – 2:30 PM, CC Ballroom A**

*The Panel will focus on scientific and public discourse involving genetics and race: a topical issue that biological anthropologists are uniquely positioned to evaluate, discuss, and contribute. It follows the AAAG-AAPA-AAA-HBA sponsored symposium: Interpreting and communicating genetic variation in 2019: a conversation on race that will be held Saturday morning (8:00 AM – 12:00 PM). The Presidential Panel is an open session that will offer guided discussion and the opportunity to exchange ideas on the important issues raised in the symposium. Everyone is encouraged to attend and participate.*

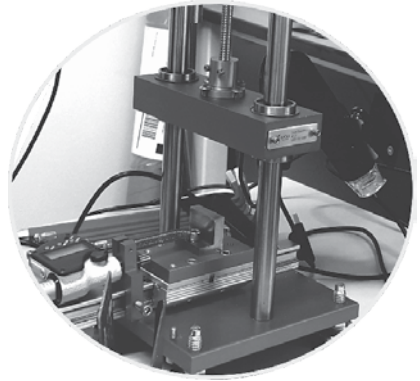
### **AAPA Student Awards and Closing Reception,**

7:00 PM – 9:00 PM, Hilton Hope DE

*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.*



Portable mechanical testers  
for the lab and field



**Come and see the new  
motorized FLS-II tester  
at Booth #16!**



- \*USB motor-drive (mains or battery)
- \*Load-displacement synced to micro-imaging
- \*Robust worm-gearing virtually eliminates backlash
- \*Range of load cells & displacement devices standard

[www.lucasscientific.com](http://www.lucasscientific.com)  
[peterwlucas@lucasscientific.com](mailto:peterwlucas@lucasscientific.com)

# 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 Huntington Convention Center unless otherwise noted.

Wednesday, March 27

**The Analysis of Anthropological Networks in R.** 8:00 AM – 12:00 PM, Hilton Superior B. Organizers: James Holland Jones, Stanford U (jhj1@stanford.edu), Ashley Hazel, Stanford U (mahazel@stanford.edu). *Pre-registration required.*

Learn to gather relational data and do social network analysis in R.

**Mentoring the Mentor: A Mentor-Training Workshop.** 8:00 AM – 2:00 PM, Texas. Organizers: Robin M. Bernstein, U of Colorado – Bolder (robin.bernstein@colorado.edu), Andrea B. Taylor, Touro University (Andrea.Taylor3@tu.edu), Nathaniel J. Dominy, Dartmouth University. *Pre-registration required.*

There is ample evidence that mentoring plays an important role in achieving a satisfying and successful career in academia. While most in academia find themselves in the role of mentor at some point in their career, few have had formal training in best practices for mentoring, particularly in the context of mentoring women and underrepresented minorities.

**An Integrated Approach to Adult Skeletal Age Estimation and Paleodemographic Reconstruction: Going From Bones to Individual Ages and Mortality Patterns.**

9:00 AM – 4:00 PM, Hill Country D. Organizers: George R. Milner, Penn State U (ost@psu.edu), Jesper L. Boldsen, University of Southern Denmark (jboldsen@health.sdu.dk), Stephen D. Ousley, Mercyhurst University (sousley@mercyhurst.edu), Sara M. Getz, Idaho State University (getzsara@isu.edu), Svenja Weise, University of Southern Denmark (sweise@health.sdu.dk), Jutta Gampe, Max Planck Institute for Demographic Research (gampe@demogr.mpg.de). *Pre-registration required.*

A new skeletal age-estimation method, based on many skeletal traits and over 1,700 known-age skeletons, is introduced that yields accurate and unbiased estimates throughout adulthood for paleodemographic research and forensic investigations.

**Repatriation in the Digital Age: What can we learn about the ethics of collecting, curating, and using digital representations of the human body?** 1:00 PM – 5:00 PM, Big Bend B/C. Organizers: Cara Hirst, UCL (cara.hirst.13@ucl.ac.uk); Alyssa Bader, University of Illinois (acbader2@illinois.edu). *Pre-registration required.*

A workshop that will approach the ethics of digital data through the lens of repatriation, and discuss the ethical considerations related to collecting and working with digital representations of human bodies.



# FINDING LUCY

## OUR FIRST STEPS IN DISCOVERY

45 years ago, the Cleveland Museum of Natural History made a discovery that marked a giant step forward in the understanding of our origins.

Learn about how 'Lucy' changed what we know about our evolution as a species, and how the Museum's discovery put it on the map as a global leader in the study of human origins. What clues does she still provide, and what new discoveries have we made since the landmark find in 1974?

Discover answers to these questions and more and get close to the specimen that started it all!

**Opens Saturday, March 23**  
**Free with Museum Admission**

Cleveland Museum of  
NATURAL HISTORY



# WORKSHOPS AND PANELS

**Amira-Avizo Software for Physical Anthropology.** 1:00 PM – 5:00 PM, Big Bend B/C. Organizers: Alex Hall, Thermo Fisher Scientific (alex.hall@thermofisher.com), Germain Siraudin, Thermo Fisher Scientific (germain.siraudin@thermofisher.com). *Pre-registration required.*

Extract meaning from your image data in a half-day hands-on workshop for Thermo Scientific's Amira-Avizo Software.

**Integrating Epigenetic Data with Anthropological Research.** 1:00 PM – 5:00 PM, Big Bend B/C. Organizers: Genevieve Housman, U of Chicago (ghousman@uchicago.edu); Chris Barrett, University of Kansas (christopherbarrett@ku.edu), Ainash Childebayeva, University of Michigan (ainash@umich.edu), Mary Rogers, University of Illinois, Urbana-Champaign (rogers10@illinois.edu).

This workshop aims to provide resources to anthropologists interested in pursuing and engaging with anthropological epigenetics research.

**Carrying on: Eighty years of Scientific Progress and Innovation using the Hamann-Todd Collection.** 2:00 PM – 5:00 PM, Cleveland Museum of Natural History. Organizers: Genevieve Housman, U of Chicago (ghousman@uchicago.edu); Chris Barrett, University of Kansas (christopherbarrett@ku.edu), Ainash Childebayeva, University of Michigan (ainash@umich.edu), Mary Rogers, University of Illinois, Urbana-Champaign (rogers10@illinois.edu). *Pre-registration required.*

This workshop symposium is organized independently from the AAPA by the Cleveland Museum of Natural History and will introduce the Hamann-Todd collection and some of the latest investigative and research techniques and devices to a wide array of scientists who will attend the meetings.

## Thursday, March 28

**Non-academic Careers in Physical Anthropology.** 10:00 AM – 12:00 PM, CC Room 20. Organizers: Andrew R. Halloran (Andrew@savethechimps.org); Christina Cloutier Barbour, Lion Country Safari, (tina.cloutierbarbour@lioncountrysafari.com).

A workshop geared towards exploring professions in physical anthropology that are outside of academia with the goal of greater visibility for early career anthropologists, as well as build a community for seasoned non-academic physical anthropologists.

## WORKSHOPS AND PANELS

**Creating An Ad Hoc Early Career Committee.** 12:15 PM – 2:15 PM, CC Room 20. Sponsor: AAPA Career Development Committee. Organizers: Kimberly Congdon (congdon221@gmail.com); Melanie Beasley, University of Tennessee-Knoxville, (melmbeasley@gmail.com).

This session will address the utility and structure of an ad hoc Early Career Committee to represent the needs of early career bioanthropologists.

**Navigating the Intercultural Landscape of Gender-Based Harassment and Assault in Fieldwork.** 2:30 PM – 4:30 PM, CC Room 20. Organizers: Erin Elizabeth Kane (erinkane@bu.edu); Jennifer Danzy Cramer American Public University System (jdanzycramer@gmail.com).

Fieldworkers will discuss establishing and managing collaborative relationships in an intercultural field context, with an emphasis on preventing, managing, and handling gender-based harassment, and developing guidelines and best practices

### Friday, March 29

**Choosing, Evaluating, and Using Online Resources in Your Classes.** 8:00 AM – 10:00 AM, CC Room 20. Organizers: Marilyn London, University of Maryland (mlondon@hers.com), Susan Kirkpatrick Smith, Kennesaw State University (ssmith1@kennesaw.edu), Gwyn Madden, Grand Valley State University (mumiyas@hotmail.com). *Pre-registration required.* Participants will discuss mining the Internet for valid and useful classroom resources.

**Citing Marginalized Scholars in Biological Anthropology.** 10:00 PM – 12:00 PM, CC Room 20. Sponsor: Committee on Diversity-Transforming Anthropological and Scientific Knowledge (COD-TASK). Organizers: Deborah Bolnick, U of Connecticut (deborah.bolnick@uconn.edu), Rick Smith, Dartmouth (rick.w.a.smith@dartmouth.edu). *Pre-registration required.*

This workshop will cover strategies for shifting citational practices in biological anthropology, providing participants with tools for producing more inclusive syllabi and publications that recognize the work of historically marginalized scientists.

**Career Development Panel: How to Write a Grant Proposal.** 12:15 PM – 2:15 PM, CC Room 20. Organizers: Nate Dominy (Chair AAPA Career Development Panel).

Representatives from the major funding organizations will explain how to write successful grant proposals for their programs.

## WORKSHOPS AND PANELS

**Understanding the NSF Broader Impacts Criterion and Developing the Societal Impact of Your Science.** 2:30 PM – 4:30 PM, CC Room 20. Organizers: Rebecca Ferrell (rferrell@nsf.gov); Holly Dunsworth (holly\_dunsworth@uri.edu).

This two-hour session will discuss the NSF Broader Impact criterion and, more generally, the potential for your science to have societal impact, with shared insights from NSF, grantees, and the biological anthropology community.

### Saturday, March 30

**The Evolution of the Human Form, with notes on the reconstruction of ancient ancestors.** 10:00 AM – 12:00 PM, CC Room 20. Organizers: John Gurche (jag246@cornell.edu).

We explore possibilities of soft-tissue reconstruction in human evolution, including possible ties to art.

**Mentoring for teaching-focused careers.** 2:30 PM – 4:30 PM, CC Room 20.

Sponsor: Committee on Diversity-Transforming Anthropological and Scientific Knowledge (COD-TASK). Organizers: Laurie Kauffman, Oklahoma City University (lkauffman@okcu.edu), Miranda Karban, Illinois College, (Miranda.karban@ic.edu). *Pre-registration required.*

Assistance for job-seeking AAPA members interested in strengthening their applications for teaching-focused jobs.

# EVENTS

All events take place at the Huntington Convention Center or the Hilton Hotel unless otherwise noted.

## Monday, March 25

### PPA

---

**Paleopathology Association Pre-Meeting Excursion**

10:00 AM – 6:00 PM

Hilton Lobby

**Paleopathology Association Registration**

6:00 PM – 9:00 PM

Hilton Lobby

## Tuesday, March 26

### AAPA

---

**IDEAS Faculty Reception** (*invitation required*)

8:00 PM – 10:00 PM

Hilton Presidential Suite

### HBA

---

**Human Biology Association Executive Committee**

(*closed session*)

6:00 PM – 10:00 PM

Hilton Center Street A

### PPA

---

**Paleopathology Association Registration**

7:45 AM – 5:00 PM

Hilton Hope Foyer

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

8:30 AM – 11:00 AM

Cleveland Museum of Natural History

**Paleopathology Association Workshop 2** (*requires PPA meeting registration*)

8:30 AM – 11:00 AM

Hilton Center Street A

**Paleopathology Association Podium Presentations** (*requires PPA meeting registration*)

1:30 PM – 5:00 PM

Hilton Hope BC

**Paleopathology Association Student Action Committee** (*requires PPA meeting registration*)

5:30 PM – 6:30 PM

Hilton Hope BC

**Paleopathology Association Banquet and Business Meeting** (*ticketed event*)

6:45 PM – 10:00 PM

Hilton Hope E



# EVENTS

Wednesday, March 27

## AAPA

- 
- AAPA Executive Committee** (*board members only*)  
8:00 AM – 5:00 PM Hilton Center Street A
- COD IDEAS Workshop** (*pre-registration required*)  
8:00 AM – 5:00 PM Hilton Center Street B
- The Analysis of Anthropological Networks in R** (*pre-registration required*)  
8:00 AM – 12:00 PM CC Room 25A
- Mentoring the Mentor: A Mentor-Training Workshop** (*pre-registration required*)  
8:00 AM – 2:00 PM Hilton Superior B
- An Integrated Approach to Adult Skeletal Age Estimation and Paleodemographic Reconstruction: Going From Bones to Individual Ages and Mortality Patterns**  
(*pre-registration required*)  
9:00 AM – 4:00 PM CC Room 24
- AJPA Editorial Board Lunch** (*board members only*)  
12:00 PM – 1:30 PM Hilton Center Street C
- AAPA Executive Committee and IDEAS Lunch** (*invitation required*)  
12:00 PM – 1:30 PM Hilton Veterans D
- Speaker Ready/Press Room**  
12:00 PM – 5:00 PM CC Room 19
- Repatriation in the Digital Age: What can we learn about the ethics of collecting, curating, and using digital representations of the human body?** (*pre-registration required*)  
1:00 PM – 5:00 PM CC Room 25A
- Amira-Avizo Software for Physical Anthropology** (*pre-registration required*)  
1:00 PM – 5:00 PM CC Room 25B
- Integrating Epigenetic Data with Anthropological Research**  
1:00 PM – 5:00 PM CC Room 25C
- AAPA Registration**  
2:00 PM – 7:00 PM CC Ballroom Foyer
- Student Committee Meeting**  
4:00 PM – 5:00 PM Hilton Veterans D
- Student Volunteer Training**  
4:30 PM – 5:00 PM CC Room 24

# EVENTS

**Student/Early Career Mixer**

5:00 PM – 6:00 PM

Hilton Veterans D

**Camp AAPA - An Adventure for Kids**

5:00 PM – 10:00 PM

Hilton Veterans A

**AAPA COD Undergrad Research Symposium and Reception**

5:30 PM – 8:00 PM

CC Ballroom BC

**Opening Reception**

8:00 PM – 11:00 PM

Hilton Hope Ballroom

---

**AAAG**

**AAAG Members Speed Networking Event**

5:00 PM – 6:00 PM

Hilton Superior B

---

**DAA**

**Dental Anthropology Association Workshop**

12:00 PM – 5:00 PM

Hilton Center Street D

---

**HBA**

**AJHB Editorial Board Meeting**

7:30 AM – 9:00 AM

Hilton Center Street C

**Human Biology Association Registration**

8:00 AM – 5:00 PM

Hilton Veterans Foyer

**Human Biology Association Posters** (*requires HBA Meeting registration*)

9:00 AM – 4:00 PM

CC Ballroom BC

**Human Biology Association Breakout Session 1** (*requires HBA Meeting registration*)

11:30 AM – 12:30 PM

Hilton Veterans B

**Human Biology Association Breakout Session 2** (*requires HBA Meeting registration*)

11:30 AM – 12:30 PM

Hilton Veterans C

**Human Biology Association Plenary Session and Pearl Memorial Lecture**

(*requires HBA Meeting registration*)

1:00 PM – 6:00 PM

Hilton Veterans C

**Human Biology Association Reception and Banquet** (*ticketed event*)

6:30 PM – 9:30 PM

Hilton Superior C

# EVENTS

## PPA

---

### Paleopathology Association Registration

8:00 AM – 5:00 PM

Hilton Hope Foyer

### Paleopathology Association Podium Presentations *(requires PPA Meeting registration)*

8:30 AM – 5:00 PM

Hilton Hope BC

### Paleopathology Association Posters and Silent Auction *(requires PPA Meeting registration)*

9:00 AM – 4:00 PM

CC Ballroom BC

## Thursday, March 28

## AAPA

---

### AAPA Past President's Breakfast

7:00 AM – 9:00 AM

Hilton Center Street B

### AAPA Registration

7:00 AM – 5:00 PM

CC Ballroom Foyer

### Family Respite Room

7:00 AM – 7:00 PM

CC Room 15

### Speaker Ready/Press Room

7:30 AM – 5:00 PM

CC Room 19

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

7:30 AM – 7:00 PM

Hilton Veterans A

### Exhibits

9:30 AM – 7:00 PM

CC Ballroom BC

### Non-academic Careers in Physical Anthropology

10:00 AM – 12:00 PM

CC Room 20

### AAPA Silent Auction

10:00 AM – 7:00 PM

CC Ballroom Foyer

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

12:00 PM – 2:00 PM

Hilton Hope C

### AAPA COD LGBTQQIAA Meeting

12:00 PM – 2:00 PM

CC Room 16

### AAPA COD - AACT Meeting

12:15 PM – 2:15 PM

CC Room 13

# EVENTS

## Creating an Ad Hoc Early Career Committee

12:15 PM – 2:15 PM

CC Room 20

## Navigating the Intercultural Landscape of Gender-Based Harassment and Assault in Fieldwork

2:30 PM – 4:30 PM

CC Room 20

## AAPA COD International Mixer

5:00 PM – 7:00 PM

Hilton Center Street B

## AAPA Live Auction

7:00 PM – 8:30 PM

CC Ballroom A

## Journal of Human Evolution Editorial Board Meeting

6:30 PM – 10:00 PM

Hilton Hope C

---

### AAAG

---

## American Association of Anthropological Genetics Business Meeting

7:30 PM – 8:30 PM

Hilton Center Street D

## American Association of Anthropological Genetics Cocktail Hour

8:30 PM – 9:30 PM

Hilton Center Street C

---

### HBA

---

## Human Biology Association Registration

7:30 AM – 8:30 AM

Hilton Hope Foyer

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

8:30 AM – 11:45 AM

Hilton Superior A

## Human Biology Association Awards Luncheon *(ticketed event)*

12:00 PM – 1:15 PM

Hilton Hope AB

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

1:30 PM – 4:30 PM

Hilton Superior A

## Human Biology Association Business Meeting

5:00 PM – 6:30 PM

Hilton Superior A

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

7:00 PM – 9:00 PM

Hilton Center Street C

---

### Other

---

## BAWMN Mentoring Happy Hour

6:00 PM – 8:00 PM

Hilton Center Street A

# EVENTS

Friday, March 29

## AAPA

---

**AAPA COD WIN Committee meeting**

7:00 AM – 9:00 AM

CC Room 13

**Family Respite Room**

7:00 AM – 7:00 PM

CC Room 15

**AAPA Registration**

7:30 AM – 5:00 PM

CC Ballroom Foyer

**Speaker Ready/Press Room**

7:30 AM – 5:00 PM

CC Room 19

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

7:30 AM – 5:00 PM

Hilton Veterans A

**Choosing, Evaluating, and Using Online Resources in Your Classes**

(*pre-registration required*)

8:00 AM – 10:00 AM

CC Room 20

**Exhibits**

9:30 AM – 6:30 PM

CC Ballroom BC

**Citing Marginalized Scholars in Biological Anthropology** (*pre-registration required*)

10:00 AM – 12:00 PM

CC Room 20

**AAPA COD Ideas Luncheon Meeting**

12:00 PM – 1:00 PM

Hilton Center Street B

**AAPA Ethics Committee meeting**

12:15 PM – 2:15 PM

Hilton Center Street A

**Career Development Panel: How to Write a Grant Proposal**

12:15 PM – 2:15 PM

CC Room 20

**AAPA Science Policy Committee Meeting**

12:15 PM – 2:15 PM

Cleveland Now Boardroom

**Understanding the NSF Broader Impacts Criterion and Developing the Societal Impact of Your Science**

2:30 PM – 4:30 PM

CC Room 20

# EVENTS

## **Education Committee Meeting**

5:00 PM – 6:00 PM

Hilton Center Street A

## **AAPA Business Meeting and Awards Presentation** (*open to all AAPA members*)

6:30 PM – 8:30 PM

CC Ballroom A

---

### **DAA**

---

## **Dental Anthropology Association Speed Networking**

4:15 PM – 5:00 PM

Barley House Cleveland (1261 W 6th St)

## **Dental Anthropology Association Happy Hour**

5:00 PM – 6:30 PM

Barley House Cleveland (1261 W 6th St)

## **Dental Anthropology Business Meeting** (*DAA members*)

8:30 PM – 9:30 PM

Hilton Center Street C

---

### **Other**

---

## ***Evolutionary Anthropology* Editorial Board Meeting** (*board members*)

7:30 AM – 9:00 AM

Hilton Center Street B

# EVENTS

Saturday, March 30

## AAPA

---

**Family Respite Room**

7:00 AM – 7:00 PM

CC Room 15

**Speaker Ready/Press Room**

7:30 AM – 11:00 AM

CC Room 19

**AAPA COD Steering Committee Breakfast** (*members only*)

7:30 AM – 9:00 AM

Hilton Center Street A

**AAPA Registration**

7:30 AM – 3:00 PM

CC Ballroom Foyer

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

7:30 AM – 5:00 PM

Hilton Veterans A

**The Evolution of the Human Form, with notes on the reconstruction of ancient ancestors**

10:00 AM – 12:00 PM

CC Room 20

**AAPA COD International Scholars Committee meeting**

9:00 AM – 10:00 AM

Hilton Center Street A

**Exhibits**

9:30 AM – 7:00 PM

CC Ballroom BC

**AAPA Presidential Panel Discussion: Genetics and Race**

1:00 PM – 2:30 PM

CC Ballroom A

**Mentoring for teaching-focused careers** (*pre-registration required*)

2:30 PM – 4:30 PM

CC Room 20

**AAPA Student Awards Committee meeting**

5:00 PM – 6:00 PM

Hilton Center Street A

**AAPA Student Awards and Closing Reception**

7:00 PM – 9:30 PM

Hilton Hope DE

New this year!

**FREE  
Headshots**

Exhibition Hall  
Friday, March 29



**AAPA**

**Courtesy of**

Cleveland Museum of  
NATURAL HISTORY 

Come and have a free head shot taken by a professional photographer from the Cleveland Museum of Natural History! These come in handy these are as you move through your academic career! This is free and offered as a Career Development initiative.



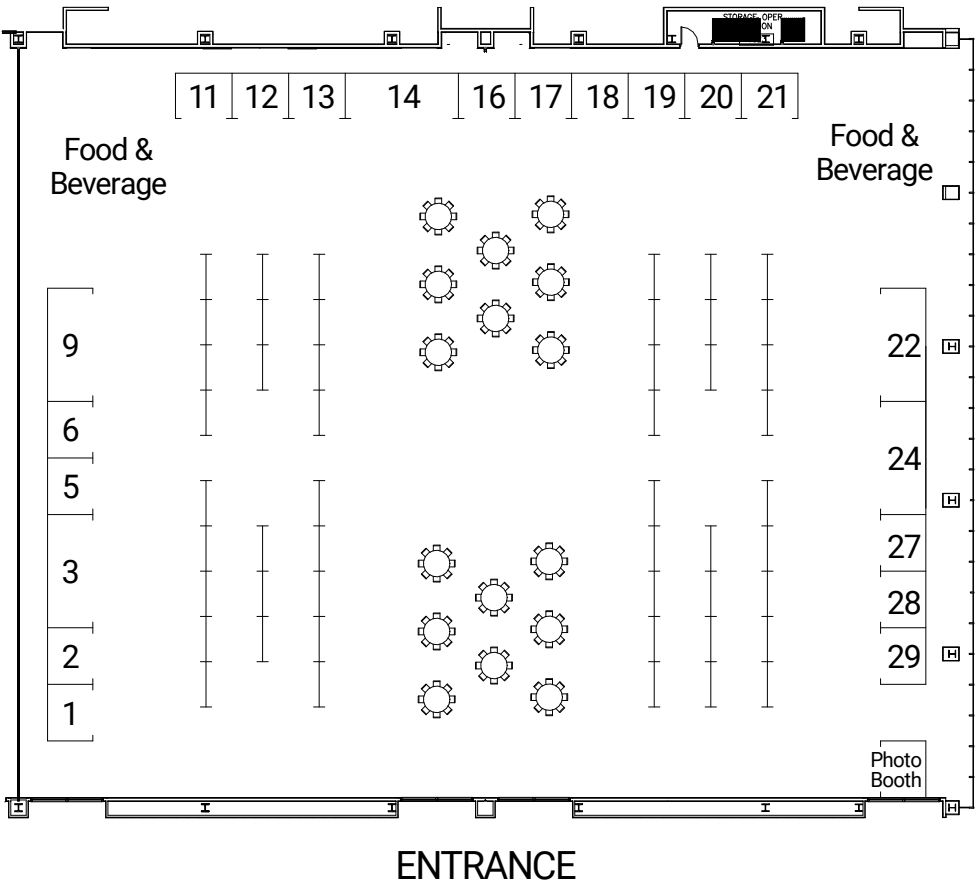
# EXHIBITOR FLOOR PLAN

**EXHIBIT HOURS: CC Ballroom BC**

Thursday, March 28 ..... 9:30 AM – 7:00 PM

Friday, March 29 ..... 9:30 AM – 6:30 PM

Saturday, March 30 ..... 9:30 AM – 7:00 PM



# EXHIBITOR LISTING

---

## **Bone Clones, Inc.**

9200 Eton Avenue  
Chatsworth, CA 91311  
800-914-0091  
[www.boneclones.com](http://www.boneclones.com)

**Booth: 14**

**Silver Sponsor**

Bone Clones, Inc. manufactures detailed, high-quality osteological reproductions of skeletal elements. In addition to producing specimens exhibiting trauma and pathology, we have an extensive range of skulls and skeletons providing age, sex, and ancestry differences. Our durable replicas obviate the need for a dedicated teaching collection of real human remains.

---

## **Cambridge University Press**

1 Liberty Plaza  
New York, NY 10006  
212-337-5000  
[www.cambridge.org/academic](http://www.cambridge.org/academic)

**Booth: 3**

Cambridge University Press dates from 1534 and is part of the University of Cambridge. Our mission is to unlock people's potential with the best learning and research solutions by combining state-of-the-art content with the highest standards of scholarship, writing and production. Visit our stand for 20% off all titles on display.

---

## **Center for Applied Isotope Studies**

120 Riverbend Road  
Athens, GA 30602-4702  
706-542-1395  
[www.cais.uga.edu](http://www.cais.uga.edu)

**Booth: 19**

The Center for Applied Isotope Studies is dedicated to experiential STEM education, research excellence, and superior service in the applied physical, biological and environmental sciences.

---

## **Cleveland Museum of Natural History**

1 Wade Oval, University Circle  
Cleveland, OH 44106  
216-231-4600  
[www.cmnh.org](http://www.cmnh.org)

**Booth: 24**

The Physical Anthropology Laboratory at the Cleveland Museum of Natural History produces research quality replicas of specimens from its' renowned Hamann-Todd osteological collection of over 3,000 humans and over 1,000 other modern primates. Casts of complete human skeletons and a wide variety of other primate skulls and post-cranial elements are available for sale.

# EXHIBITOR LISTING

---

## DirectAMS

**Booth: 18**

11822 North Creek Pkwy N, Suite 107  
Bothell, WA 98011  
425-481-8122  
[www.directams.com](http://www.directams.com)

**Silver Sponsor**

DirectAMS provides high precision radiocarbon dating services for applications in anthropology, geology, archaeology, and climate science. We process samples in a dedicated tracer-free facility, obtain dates using our own accelerator mass spectrometer (AMS), and are proud to offer the most affordable radiocarbon dating services in the industry.

---

## Durham University, Department of Archaeology

**Booth: 20**

South Road  
Durham, DH1 3LE United Kingdom  
44(0) 191 334 1100  
[www.dur.ac.uk/archaeology](http://www.dur.ac.uk/archaeology)

Archaeology has been taught and studied at Durham University since 1931 and we are the leading centre for Bioarchaeological research with an unparalleled range of specialists. We offer access to internationally renowned scientific research laboratories in palaeopathology, DNA, conservation, isotopes, environmental archaeology, luminescence dating, and soil and bone chemistry.

---

## France Casting & National Museum of Kenya

**Booth: 17**

1713 Willox Court, Suite A  
Fort Collins, CO 80525  
970-221-4044  
[www.francecasts.com](http://www.francecasts.com)

France Casting specializes in only the finest quality skeletal replicas including age and sex determination standards, growth and development, pathology, and even fragments. We also distribute genuine fossil casts from the National Museums of Kenya. Excellent quality and customer satisfaction are guaranteed. Visit our booth for fun souvenirs!

---

## Institute for Field Research

**Booth: 2**

2999 Overland Ave., Suite 103  
Los Angeles, CA 90064  
858-412-9948  
[www.ifrglobal.org](http://www.ifrglobal.org)

The Institute for Field Research (IFR) manages over 43 field schools across the world. Each IFR field school is peer-reviewed annually by our Academic Board, consisted of 15 of some of the most important archaeologists, bioarchaeologist and geoarchaeologists from universities throughout the world. IFR offers numerous scholarships for students.

# EXHIBITOR LISTING

---

## Leakey Foundation, The

**Booth: 22**

1003 B O'Reilly Ave.  
San Francisco, CA 94129  
415-561-4646  
[www.leakeyfoundation.org](http://www.leakeyfoundation.org)

The Leakey Foundation is a nonprofit organization that funds human origins research and shares discoveries. We were formed in 1968 with a mission to increase scientific research, education, and public understanding of human origins, evolution, behavior, and survival.

---

## Lucas Scientific

**Booth: 16**

75 Clinton Street Apt 9E  
Brooklyn, NY 11201  
507-695-2607  
[www.lucasscientific.com](http://www.lucasscientific.com)

**Silver Sponsor**

We sell portable mechanical testing machines for obtaining the properties of biological tissues. They are USB-powered and contain unique features such as real time imaging linked to force-displacement records.

---

## Micro Photonics

**Booth: 13**

1550 Pond Road, Suite 110  
Allentown, PA 18104  
6 10-366-7103  
[www.microphotonics.com](http://www.microphotonics.com)

Nondestructive X-ray Micro-CT 3D Imaging: virtual fossil reconstruction; analyze microstructure of cells and tissues; study bone, tooth and biomaterial samples; imaging of mummies & research on early human health; and skeletal and dental micro-anatomical research. To see if micro-Ct can work for you research, visit our booth - FREE EVALUATION SCAN offered.

---

## National Science Foundation

**Booth: 29**

4201 Wilson Blvd.  
Arlington, VA 22230  
703-292-7850  
[www.nsf.gov](http://www.nsf.gov)

NSF is an independent U.S. government agency responsible for promoting science and engineering through research programs and education projects. NSF is the funding source for approximately 24 percent of all federally supported basic research conducted by America's colleges and universities.

# EXHIBITOR LISTING

---

## **Oxford University Press**

**Booth: 11**

Great Clarendon Street  
Oxford, OX2 6DP United Kingdom  
[www.oup.com](http://www.oup.com)

Oxford University Press is the largest university press in the world, publishing in 70 languages and 190 countries. We make the highest-quality academic and professional content available around the globe, and everything we publish directly reflects our mission: to support Oxford University's objective of excellence in research, scholarship, and education.

---

## **Primate Conservation Inc.**

**Booth: 21**

1411 Shannock Rd  
Charlestown, RI 2813  
401-364-7140  
[www.primate.org](http://www.primate.org)

Primate Conservation Inc. is a 501(c)3 not for profit private foundation that gives grants to graduate students to study and protect the least known and most endangered primates in their natural habitat. To date we have supported over 500 projects in 28 different habitat countries. In exchange for a donation the PCI table has plush toy monkeys, handmade, and hand embroidered items from Madagascar and neckties with monkeys embroidered on them. Please stop by and pick up our news letter and information about our All the World's Primates website which is fully referenced with up to date taxonomy, 3000 photos, video and audio files.

---

## **Routledge**

**Booth: 5**

711 3rd Ave.  
New York, NY 10017  
561-430-4815  
[www.routledge.com](http://www.routledge.com)

Routledge is the world's leading academic publisher in the Humanities and Social Sciences. We publish thousands of books and journals each year, serving scholars, instructors, and professional communities worldwide.

---

## **Turkana Basin Institute**

**Booth: 12**

Stony Brook University, N507 Social and Behavioral Sciences Bldg.  
Stony Brook, NY 11794-4364  
631-632-5800  
[www.turkanabasin.org](http://www.turkanabasin.org)

Participants on TBI's Origins Field School gain hands-on experience in survey methods, paleoenvironmental reconstruction, taphonomy, and more, and take field trips to important paleontological and archaeological sites, diverse ecological settings, and remarkable geological features throughout Kenya. Can be taken for undergrad or graduate credit to earn an Advanced Graduate Certificate.

# EXHIBITOR LISTING

---

## University Press of Florida

**Booth: 27**

2046 NE Waldo Road, Suite 2100  
Gainesville, FL 32609  
352-294-6809  
[www.upress.ufl.edu](http://www.upress.ufl.edu)

The University Press of Florida publishes award-winning titles in anthropology, archaeology, bioarchaeology, forensic anthropology, paleopathology, physical anthropology, and zooarchaeology. UPF's new journals program includes Bioarchaeology International and Forensic Anthropology. Both journals are now accepting submissions.

---

## W.W. Norton

**Booth: 1**

500 5th Avenue  
New York, NY 10110  
212-354-5500  
[books.wwnorton.com](http://books.wwnorton.com)

The oldest and largest publishing house owned wholly by its employees, W. W. Norton, Inc. publishes about 400 trade, college, and professional titles each year.

---

## Wenner-Gren Foundation for Anthropological Research

**Booth: 28**

470 Park Avenue South  
New York, , NY 10016  
212-683-5000  
[www.wennergren.org](http://www.wennergren.org)

The Wenner-Gren Foundation has varied grant, fellowship, networking, conference and symposia programs. It publishes both Current Anthropology, and SAPIENS, an online magazine to popularize anthropology. The Foundation works to support all branches of anthropology and closely related disciplines concerned with human biological and cultural origins, development, and variation.

---

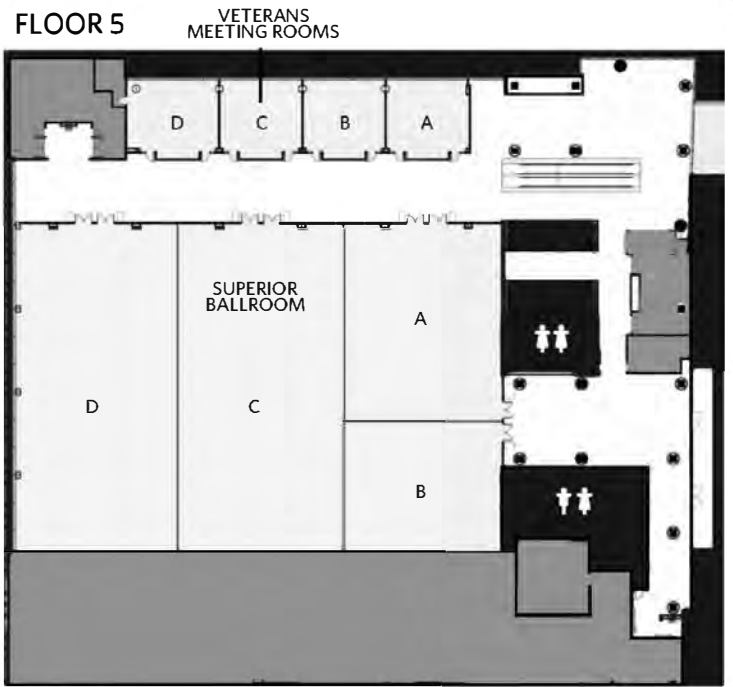
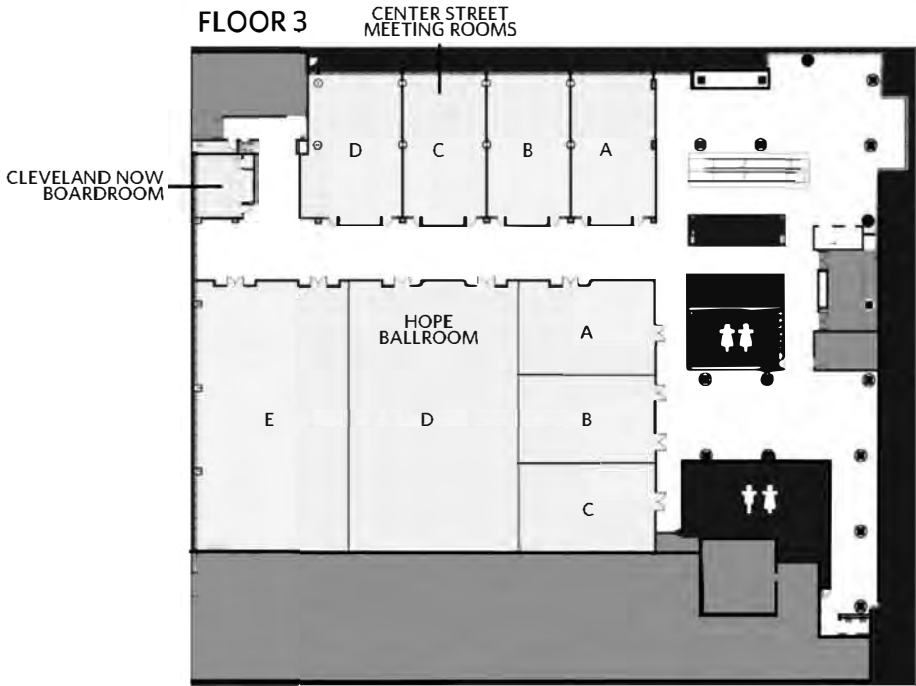
## Xcitex Inc.

**Booth: 9**

8 Cabot Road, Suite 1400  
Woburn, MA 01801  
800-780-7836  
[www.xcitex.com](http://www.xcitex.com)

Xcitex created ProCapture, an innovative end-to-end video system that combines 3-D motion capture and analysis in an integrated solution to meet the specific needs of scientists and researchers studying physical anthropology. ProAnalyst® is professional motion analysis software with specialized toolkits and over 1,500 users worldwide in industry and educational institutions.

# HILTON FLOOR PLAN

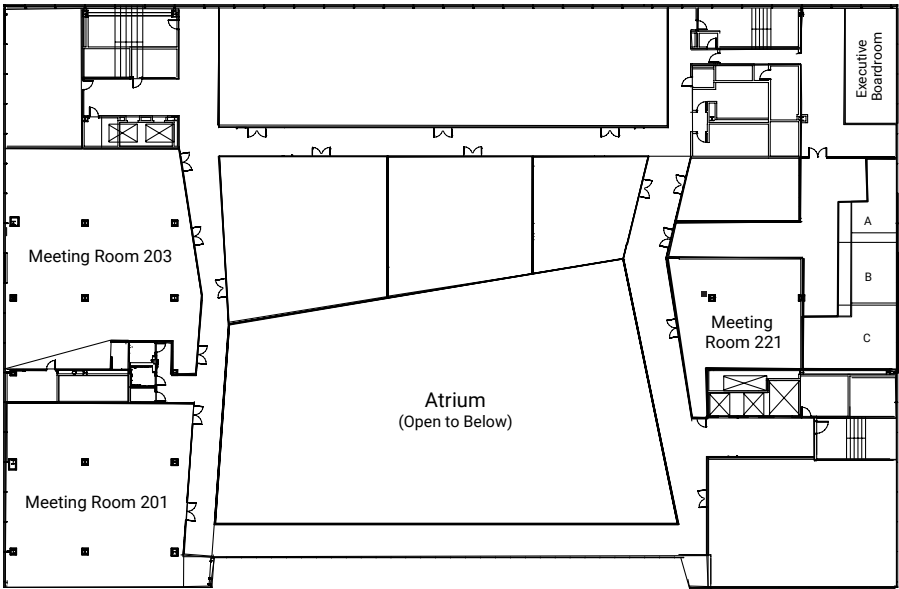


# CONVENTION CENTER FLOOR PLANS

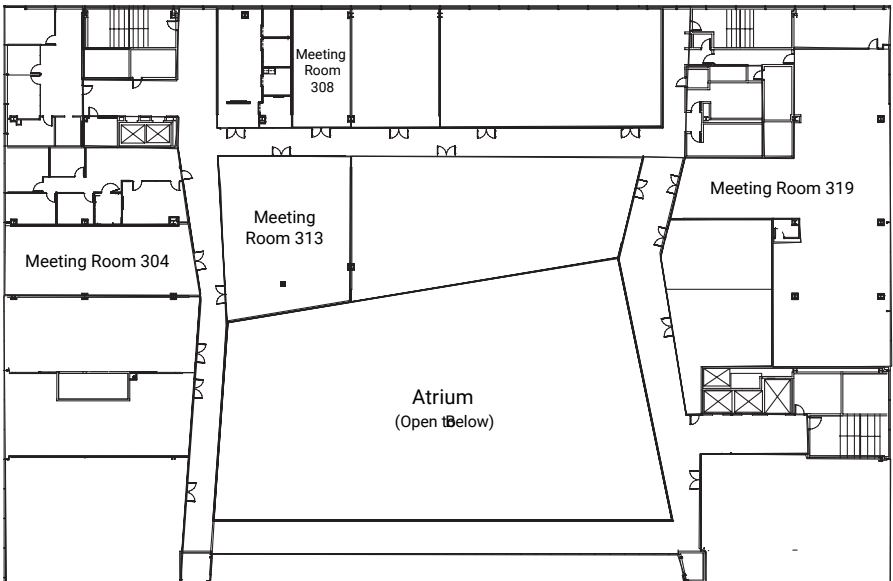




## 2ND FLOOR



## 3RD FLOOR



# SCIENTIFIC PROGRAM

All events take place at the Huntington Convention Center unless otherwise noted.

Session Title	Room	Time	Session #	Session type
<b>Thursday, All Day</b>				
<b>American Association of Physical Anthropologists</b>				
Primate Behavior	CC Ballroom BC	10:00 AM – 7:00 PM	1	Poster
Primate Diet and Foraging Behavior	CC Ballroom BC	10:00 AM – 7:00 PM	2	Poster
Bone Biology	CC Ballroom BC	10:00 AM – 7:00 PM	3	Poster
Primate Postcranial Morphology and Locomotion	CC Ballroom BC	10:00 AM – 7:00 PM	4	Poster
Hominin Environments, Diet, and Behavior	CC Ballroom BC	10:00 AM – 7:00 PM	5	Poster
Bioarchaeology: Methods and Techniques	CC Ballroom BC	10:00 AM – 7:00 PM	6	Poster
Paleodemography	CC Ballroom BC	10:00 AM – 7:00 PM	7	Poster
Bioarchaeology: Diet, Migration and Identity	CC Ballroom BC	10:00 AM – 7:00 PM	8	Poster
<b>Thursday, Morning</b>				
<b>American Association of Physical Anthropologists</b>				
<i>Deciphering The Denisovans</i>	CC Ballroom A	8:00 AM – 12:00 PM	9	Podium
Primate Craniodental Functional Morphology	CC Room 21	8:00 AM – 11:45 AM	10	Podium
Primate Social Behavior	CC Room 26 AB	8:00 AM – 12:00 PM	11	Podium
Primate Genetics	CC Room 26 C	8:00 AM – 12:00 PM	12	Podium
Anthroengineering: a biological approach	CC Room 22	8:00 AM – 12:00 PM	13	Poster
True Grit: the effect of dietary grit on dental wear	CC Room 23	8:00 AM – 12:00 PM	14	Poster
Biocultural Approaches to the Plasticity of the Human Skeleton	CC Room 24	8:00 AM – 12:00 PM	15	Poster
<b>Thursday, Afternoon</b>				
<b>American Association of Physical Anthropologists</b>				
The Missing Dead: Underrepresented Groups in Bioarchaeology and Forensic Anthropology	CC Ballroom A	2:30 PM – 6:00 PM	16	Podium
Primate hosts and microbial interactions and communities: disease, development and evolution	CC Room 25	2:30 PM – 6:00 PM	17	Podium

# SCIENTIFIC PROGRAM

Evolutionary Anatomy, Functional Morphology, and Adaptation	CC Room 21	2:30 PM – 5:50 PM	18	Podium
Paleodemography, Health, and Disease	CC Room 26 AB	2:30 PM – 5:30 PM	19	Podium
Genotype - Phenotype Studies	CC Room 26 C	2:30 PM – 6:15 PM	20	Podium
Teaching Bio Anth Within and Without a Classroom	CC Room 22	2:30 PM – 6:00 PM	21	Poster
Recent Advancements in the Analysis of Bone Microstructure	CC Room 23	1:30 PM – 6:30 PM	22	Poster
Homo heidelbergensis: What's in a name or rather, who actually belongs?	CC Room 24	1:30 PM – 6:30 PM	23	Poster
<b>Friday, All Day</b>				
<b>American Association of Physical Anthropologists</b>				
Dental Anthropology: Variation, Disease and Diet	CC Ballroom BC	8:00 AM – 6:30 PM	24	Poster
Human Biology	CC Ballroom BC	10:00 AM – 6:30 PM	25	Poster
Primate Reproductive Ecology	CC Ballroom BC	10:00 AM – 6:30 PM	26	Poster
Human Skeletal Biology: Variation and Variability	CC Ballroom BC	10:00 AM – 6:30 PM	27	Poster
Non-human Primate Evolution	CC Ballroom BC	10:00 AM – 6:00 PM	28	Poster
Functional Morphology, Biomechanics and Evolutionary Anatomy	CC Ballroom BC	10:00 AM – 6:30 PM	29	Poster
Forensic Anthropology	CC Ballroom BC	10:00 AM – 6:30 PM	30	Poster
<b>Friday, Morning</b>				
<b>American Association of Physical Anthropologists</b>				
Evolutionary perspectives on the primate aging process	CC Ballroom A	8:00 AM – 12:30 PM	31	Podium
Hominin Fossils and Evolution	CC Room 25	8:00 AM – 12:00 PM	32	Podium
Bioarchaeology: Disease, Diet, and Violence	CC Room 26 AB	8:00 AM – 12:00 PM	33	Podium
Primate Conservation	CC Room 26 C	8:00 AM – 12:00 PM	34	Podium
Bioarchaeology of Urbanization: The Biological, Demographic, and Social Consequences of Population Increase and Agglomeration	CC Room 22	8:00 AM – 12:00 PM	35	Poster

# SCIENTIFIC PROGRAM

Evidence and methods surrounding the use of entheses to reconstruct muscle anatomy and activity	CC Room 23	8:00 AM – 12:00 PM	36	Poster
Global leadership in dental anthropological research: A symposium in honor of G. Richard Scott	CC Room 24	8:00 AM – 12:00 PM	37	Poster
<b>Friday, Afternoon</b>				
<b>American Association of Physical Anthropologists</b>				
The Evolution of Syphilis: A New Approach (Joint PPA-AAPA Symposium)	CC Ballroom A	2:30 PM – 5:30 PM	38	Podium
Energetics, Locomotion, and Nutrition	CC Room 25	2:30 PM – 5:30 PM	39	Podium
Primate Postcranial Functional Morphology	CC Room 26 AB	2:30 PM – 5:30 PM	40	Podium
Primate Reproduction	CC Room 26 C	2:30 PM – 5:30 PM	41	Podium
Advancing the field: Movement ecology in the nonhuman primates	CC Room 22	2:30 PM – 5:30 PM	42	Poster
From Pedestrian to Cerebral in the Pleistocene: A Symposium in Honor of Erik Trinkaus	CC Room 23	2:30 PM – 5:30 PM	43	Poster
Biological Anthropology of Brazilian populations – past and present	CC Room 24	2:30 PM – 5:30 PM	44	Poster
<b>Saturday, All Day</b>				
<b>American Association of Physical Anthropologists</b>				
Genetics	CC Ballroom BC	10:00 AM – 7:00 PM	45	Poster
Education in Biological Anthropology	CC Ballroom BC	10:00 AM – 7:00 PM	46	Poster
Primate Craniodental Anatomy	CC Ballroom BC	10:00 AM – 7:00 PM	47	Poster
Primate Ecology, Conservation and Genetics	CC Ballroom BC	10:00 AM – 7:00 PM	48	Poster
Hominin Evolution	CC Ballroom BC	10:00 AM – 7:00 PM	49	Poster
Paleopathology	CC Ballroom BC	10:00 AM – 7:00 PM	50	Poster
Skeletal Biology: Growth and Development	CC Ballroom BC	10:00 AM – 7:00 PM	51	Poster
Skeletal Biology: Human Variation	CC Ballroom BC	10:00 AM – 7:00 PM	52	Poster

# SCIENTIFIC PROGRAM

<b>Saturday, Morning</b>				
<b>American Association of Physical Anthropologists</b>				
(AAAG-AAPA-AAA-HBA session) Interpreting and communicating genetic variation in 2019: a conversation on race	CC Ballroom A	8:00 AM – 12:00 PM	53	Podium
Primate Diets and Foraging Behavior	CC Room 25	8:00 AM – 12:00 PM	54	Podium
Life History and Behavior Ecology	CC Room 26 AB	8:00 AM – 12:00 PM	55	Podium
Bioarchaeology and Forensic Anthropology: Shared Applications	CC Room 26 C	8:00 AM – 12:00 PM	56	Podium
Minimally Invasive Biomarkers in Human Population Biology Research: State of the Science and Future Directions	CC Room 22	8:00 AM – 12:00 PM	57	Poster
<b>Saturday, Afternoon</b>				
<b>American Association of Physical Anthropologists</b>				
Epigenetics: Bridging cultural and biological anthropology	CC Ballroom A	2:30 PM – 6:15 PM	58	Podium
Primate Behavior and Ecology	CC Room 25	2:30 PM – 6:00 PM	59	Podium
Population History	CC Room 26 AB	2:30 PM – 6:00 PM	60	Podium
Diet, Ecology and Behavior in Human Evolution	CC Room 26 C	2:30 PM – 5:45 PM	61	Podium
A life of science: A symposium dedicated to C. Owen Lovejoy in recognition of his many scientific contributions	CC Room 22	2:30 PM – 6:00 PM	62	Poster

# THURSDAY, ALL DAY SESSIONS

## Session 1

### Primate Behavior

#### Contributed Poster Presentations

Chair: Leila Porter

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 **Orangutan Nesting Behavior in Gunung Palung National Park, West Kalimantan, Indonesia.** L.A. BRUBAKER-WITTMAN, A. BLACKBURN, A.L. DIGIORGIO, F.S. HARWELL, E.E. KANE, T. SUSANTO, C.D. KNOTT.
- 2 **Habituation Update on Assirik Chimpanzees at Niokolo-Koba National Park, Senegal.** S. LINDSHIELD, P. NDIAYE, M. GUEYE, S.L. BOGART.
- 3 **Captive chimpanzees (*Pan troglodytes*) demonstrate contagion in spontaneous scratching behavior.** E.A. CARTMILL, D.M. FESSLER, B.N. FLORKIEWICZ, A. GANE, K. RYAN.
- 4 **Socio-communicative behaviors of West African chimpanzees (*Pan troglodytes verus*) in a savanna habitat at Fongoli, Senegal.** A. RABINOWITZ, J.D. PRUETZ, A. BRONIKOWSKI.
- 5 **Revisiting the savanna chimpanzee (*Pan troglodytes*) as a referential model for hominin origins: Issa, Tanzania as a case study.** L.F. MARCHANT, A.K. PIEL, F.A. STEWART.
- 6 **Species distribution models at different scales: Predicting the chimpanzee geographical distribution at continental and country levels.** B.J. SCHIERY, S.M. LINDSHIELD, P. NDIAYE, J. PRUETZ, S. BOGART, E.R. OTAROLA-CASTILLO.
- 7 **Intraspecific variation in ebony langurs: the importance of long-term data and broad geographic coverage.** V. NIJMAN.
- 8 **The ontogeny of infant aye-aye (*Daubentonia madagascariensis*) vocalizations.** L.M. PACIULLI, D.Q. WATTS, A.P. PANNICK, A.P. MILLER.
- 9 **Reappearance Diversity: Quantifying Musicality in Primate Vocalizations.** D. SCHRUTH, C. TEMPLETON, D. HOLMAN.
- 10 **Behavioral markers of stress in separated captive female and male ring-tailed lemurs (*Lemur catta*).** C.M. CROMER, L.M. PACIULLI, J.L. VERDOLIN.
- 11 **Climatic variables are strong predictors of allonursing and communal nesting.** A. LOUPPOVA, J.M. KAMILAR, A.L. BADEN.
- 12 **Determining dominance rank order in wild female white-faced capuchins: a comparison of three methods.** G.L. KING-BAILEY, K.M. JACK.
- 13 **The role of social interaction and nearest neighbor preferences in juvenile *Alouatta palliata* social development.** E.M. COGGESHALL, A.L. SCHREIER, C. MERRIGAN-JOHNSON, L.M. BOLT.
- 14 **Differences in grooming behaviors in mantled howler monkeys (*Alouatta palliata*) based on weather conditions.** H.N. HICKS.

# THURSDAY ALL DAY SESSIONS

- 15 Temperature alters chest redness in male geladas. P.M. DELACEY, T.J. BERGMAN, J.C. BEEHNER.
- 16 The Phylogeny of Baboon Social Organization. A.J. FUCHS, J.M. KAMILAR.
- 17 Male-Female Friendships in Kinda Baboons. A.H. WEYHER, J.M. KAMILAR.
- 18 Comparison of Play Frequency in Four Sympatric Monkey Species in Kibale National Park, Uganda. S.G. LUCCI, J.M. ROTHMAN.
- 19 Do polyspecific associations influence nutritional intake of female redbtail monkeys (*Cercopithecus ascanius*)? M.A. BRYER, J.M. ROTHMAN.
- 20 Risk of injury in two Asian colobines. A. KOENIG, J.A. FEDER, A. LU, C. BORRIES.
- 21 Consistent sex differences in stone play and stone tool use in free-ranging Balinese long-tailed macaques. C. CENNI, C. WRIGHT, N. GUNST, I. WANDIA, J. LECA.
- 22 When is object manipulation an expression of psychological disturbance caused by environmental stressors? A macaque-human comparison. S. CHERTOFF, K. HARKNESS, I. WANDIA, A. FOROUD, J. LECA.
- 23 Dynamic social networks in the wake of environmental disaster: Hurricane Maria and the Cayo Santiago macaques. S.M. LARSON, C.H. KAPLINSKY, A. RUIZ-LAMBIDES, M. MONTAGUE, N. SNYDER-MACKLER, M.L. PLATT, L.J. BRENT.
- 24 Assessing the impact of duration versus bout frequency data in studying infant handling. A.G. KING, T.C. RISSLING, P. SICOTTE.
- 25 Exploring sources of variation in inter-observer reliability scoring of facial expressions using the ChimpFACS. A.K. MOLINA, B.N. FLORKIEWICZ, E.A. CARTMILL.
- 26 The impact of sensory mode on anti-predator responses of Rylands' bald-faced saki monkeys (*Pithecia rylandsi*) in Peru. D.B. ADAMS, D.M. KITCHEN.

## Session 2

### Primate Diet and Foraging Behavior

#### Contributed Poster Presentations

Chair: Mitchell Irwin

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 Resource preference of a female aye-aye (*Daubentonia madagascariensis*) in Torotorofotsy, Madagascar. T.M. SEFCZEK, D.R. RANDIMBIHARINIRINA, O. RANDRIANARISON, E.E. LOUIS.

## THURSDAY ALL DAY SESSIONS

- 2 Variation in diet and foraging effort across seasons in the frugivorous Brown Lemur (*Eulemur fulvus*): Contrasts with a sympatric folivore (*Propithecus diadema*). M.T. IRWIN, V. RAHALINARIVO, J. RAHARISON, B. RAMORASATA, J. RANAIVOARISOA, J. RANDRIANASY, J.M. ROTHMAN.
- 3 Sodium content in plant & insect food resources consumed by chimpanzees in Gombe National Park, Tanzania. A. KAMANZI SHIMWA, C.M. MURRAY, M.L. POWER, R.C. O'MALLEY.
- 4 Detecting shifts in the trophic niches of sympatric Verreaux's sifaka (*Propithecus verreauxi*) and ring-tailed lemurs (*Lemur catta*) using stable isotope analyses. N.W. SAWYER, J.E. LOUDON, R. SCHACHT, M.L. SAUTHER, M. SPONHEIMER.
- 5 Fur regrowth varies among and within individual cheirogaleid lemurs. B.E. CROWLEY, E.E. EHMKE.
- 6 Dietary fiber and nutritional quality of the foods of Bornean orangutans (*Pongo pygmaeus wurmbii*) in Gunung Palung National Park, West Kalimantan, Indonesia. I. CHOWDHURY, M.E. EORI, T.W. SUSANTO, E.E. KANE, N. CONKLIN, C.D. KNOTT.
- 7 Stable isotope analysis reveals nutritional impacts of anthropogenic food sources in a group of dumpster-feeding Barbary macaques (*Macaca sylvanus*). S.T. SAIYED, N.E. TOROCZKAI, M.R. SCHURR, L.T. GETTLER, A. FUENTES.
- 8 Investigating interannual and seasonal variation in sifaka diet in Tsinjoarivo, Madagascar. E. THURAU, S. RASOLONJATOVO, F. RAHARISON, M. IRWIN.
- 9 To cook or not to cook: shellfish feeding in tufted capuchins. M.D. FOGACA, M.F. LAIRD, B.W. WRIGHT, R. SALMI, R.R. SANTOS.
- 10 Age-related variation in ingestive behavior patterns in *Sapajus* spp. J. CHALK-WILAYTO, M.F. LAIRD, K.A. WRIGHT, A.O. RIVERA, B.W. WRIGHT, P. IZAR, D. FRAGASZY, C.F. ROSS, D.S. STRAIT, A. VAN CASTEREN, E. VISALBERGHI, R.S. SCOTT, M.D. FOGAÇA.
- 11 Oral processing behaviors of captive mandrills (*Mandrillus sphinx*) at the Columbus Zoo. J. GEHERTY, S.W. MCGRAW.
- 12 Gut microbial composition differs based on reproductive state in wild Phayre's leaf monkeys. A. LU, E. MALLOTT, K. AMATO.
- 13 Gut microbiota in the full gastrointestinal tract of a ring-tailed lemur (*Lemur catta*). Y. ZENG, X. NI, D. ZENG, L. NIU, J. DENG, Y. LI, Y. ZHOU.
- 14 Implementing Nutritional Geometry to identify dietary constraints and strategies in the red-bellied lemur (*Eulemur rubriventer*). A. DU BOUR, J. RAHARISON, B. RAMORASATA, J. ROTHMAN, M.T. IRWIN.
- 15 Effects of mean annual precipitation and temperature on carbon and nitrogen isotopes in neighboring chimpanzee sites within Gombe and Ugalla National Parks. I. HERMSMEYER, A. SOMERVILLE, J. MOORE, A. FROEHLE, M. SCHOENINGER.
- 16 Differentiating between frugivory and folivory in primates using non-destructive XRF measurements of strontium/calcium ratios: A case study from Kibale National Park. M.I. HAMILTON, B. DRAKE, S.V. NELSON.
- 17 Nutritional balancing and composition varies with infant age in wild mother orangutans (*Pongo pygmaeus wurmbii*). T.D. BRANSFORD, S. UTAMI ATMOKO, E.R. VOGEL.
- 18 Arboreality and fruit-feeding in Bwindi mountain gorillas (*Gorilla beringei beringei*). K.R. OSTROFSKY, M.M. ROBBINS.



# THURSDAY ALL DAY SESSIONS

## Session 3

### Bone Biology

#### Contributed Poster Presentations

Chair: Kristian Carlson

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 Spatial autocorrelation of bone material stiffness and its implications for skeletal toughness. A.J. RAPOFF, W.S. MCGRAW, D.J. DA EGLING.
- 2 Population Variation in the Fusion Sequence of Primary and Secondary Ossification Centers in the Human Skeleton. M. LENOVER, M. SESELJ.
- 3 Uncertainties Regarding the Physical Basis of Lamellar Bone Periodicity in Secondary Osteons Suggest that Surrogates Based on Infilling/Periodicity Should be Considered. J.G. SKEDROS, M.S. DOUTRÉ.
- 4 Variation in the trabecular structure of the proximal tibia between obese and non-obese individuals. D.S. GLEIBER, D.L. CUNNINGHAM, D.J. WESCOTT.
- 5 Patterns in and determinants of cortical thickness and rigidity in the femoral diaphysis of Holocene *Homo sapiens*. K.J. CARLSON, A.A. KOLAWA, K.A. TOMMY, M.R. DOWDESWELL, N.B. STEPHENS, L.J. DOERSHUK, J.P. SAERS, J.T. STOCK, T.M. RYAN, A.D. GORDON, T. JASHASHVILI.
- 6 Trabecular patterning in the human skeleton: vertebral, humeral, femoral, and tibial variation. N.B. STEPHENS, J.P. SAERS, L.J. DOERSHUK, T. JASHASHVILI, K.J. CARLSON, A.D. GORDON, J.T. STOCK, T.M. RYAN.
- 7 Exploring *In Vivo* Linear Microcrack Prevalence By Sex and Age as a Variable of Skeletal Fragility. V. DOMINGUEZ, A. AGNEW.
- 8 Relationships between lower limb bone rigidity and whole-limb force and power production: Implications for estimating muscle performance in the past. A.A. MACINTOSH, J.T. STOCK.
- 9 Impact of subsistence, latitude, and terrain on lower limb bone robusticity in a globally distributed skeletal sample. T. DORSHORST, B. HOLT.
- 10 Correlations between low resolution pQCT and high resolution  $\mu$ CT scanning of trabecular bone: what are potential limits of inference from living people? J.P. SAERS, L.J. DOERSHUK, N.B. STEPHENS, T. JASHASHVILI, K.J. CARLSON, A.D. GORDON, T.M. RYAN, J.T. STOCK.
- 11 Population-specific trabecular variation patterns drive heterogeneity in modern human phenotypic covariance matrices of trabecular and cortical bone properties. A.D. GORDON, K.J. CARLSON, L.J. DOERSHUK, T. JASHASHVILI, J.P. SAERS, N.B. STEPHENS, J.T. STOCK, T.M. RYAN.
- 13 Differential adaptation of cortical and trabecular bone to mechanical loading and its dependence on age. B. MULDER, J.T. STOCK, S.A. INSKIP, C.C. CESSFORD, J.E. ROBB.
- 14 Evaluating Osteon Cement-Line Interface Distances for Advancing Understanding of Bone Adaptation. E.D. FINLINSON, B.W. KING, M.K. HENRIE, Z.M. LOHSE, J.G. SKEDROS.

# THURSDAY ALL DAY SESSIONS

## Session 4

### Primate Postcranial Morphology and Locomotion

#### Contributed Poster Presentations

Chair: Katie Bailey

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 Interspecific variation of calcaneal morphology in gorillas. C.M. HARPER, C.B. RUFF, A.D. SYLVESTER.
- 2 Geometric morphometric analyses of carpals and tarsals demonstrate differences in wild and captive baboon populations. M.M. DUDAS.
- 3 Ontogeny of intrinsic digit proportions in non-grasping mammals: a test of the grasping theory of primate hand and foot growth. A. HYDE, R.Z. GERMAN, J.W. YOUNG.
- 4 Assessing the influence of Hox11 genes on calcaneal trabecular bone formation. K.M. KJOSNESS, T.M. RYAN, P.L. RENO.
- 5 Functional morphology of chevron bones in mammals. A.M. ZAVODSZKY, G.A. RUSSO.
- 6 Trabecular ontogeny of African ape third metacarpals. K.P. DECKERS, C.J. DUNMORE, M.M. SKINNER, T.L. KIVELL.
- 7 *Ateles* species differences in limb bone properties, body length, and sexual dimorphism. J. RUNESTAD CONNOUR, S.L. CANINGTON, K. NIDA.
- 8 The Evolution and Morphological Diversification of the Subtribe Papionina. S.B. LABELLE, M. SINGLETON, J.M. CHEVERUD.
- 9 Post-cranial diversity in Catarrhines. B.A. KENYON, N. VON CRAMON-TAUBADEL.
- 10 Anatomical convergences in adult *Gorilla* and *Pongo* males. A.L. ZIHLMAN, C.E. UNDERWOOD.
- 11 Scapula shape and altitude in eastern gorillas (*Gorilla beringei*). M. SZAFRANIEC, R.S. JABBOUR.
- 12 The blood must flow: vertebral artery size relative to transverse foramen size in the tarsier cervical spine. T.K. NALLEY, P. AMIN, N. GRIDER-POTTER, F. MCGECHIE, J.M. ORGAN.
- 13 Skeletal-wide variation in phylogenetic signal across *Order Primates*. G.M. AGOSTINI, J.M. KAMILAR.
- 14 The effects of morphometric protocol on morphological integration statistics: a case study in scapulae. M.A. CONAWAY, H. JUNG, N. VON CRAMON-TAUBADEL.
- 15 The impact of locomotor function and phylogeny on biomechanical neck length of the femur. T.R. REIN.
- 16 A 3D analysis of sacroiliac joint surface topography among primates. P. MIYAN, S.T. MINCER, G.A. RUSSO.

## THURSDAY ALL DAY SESSIONS

- 17 **Sacral vertebral count and locomotor behavior of extant primates: An evaluation of selective constraint that locomotion exerts on sacral vertebral formula.** A.L. PETERSON.
- 18 **Using Novel 3D Techniques to Visualize and Quantify Primate Neck Anatomy.** F. MCGECHIE, S. SULLIVAN, K.M. MIDDLETON, C.M. HOLLIDAY, T.K. NALLEY, N. GRIDER-POTTER, C.V. WARD.
- 19 **Morphological integration in thoracolumbar vertebrae of *Macaca fascicularis*.** H. JUNG, N. VON CRAMON-TAUBADEL.
- 20 **Head and neck range of motion and its relation to cervical vertebral morphology in primates.** N. GRIDER-POTTER, T.K. NALLEY, N.E. THOMPSON, R. GOTO, Y. NAKANO.
- 21 **Effect of infant carriage on joint yield in wild vervet monkeys.** D. GIBBONS, B.A. PATEL, P.S. HENZI, C. YOUNG, L. BARRETT, J. JARRETT, N.E. THOMPSON.
- 22 **Assessing the determinants of primate gait kinematics in an ecological and phylogenetic framework, Part I: Phylogenetic methods for biomechanics.** T.L. HIERONYMUS, L.J. SHAPIRO, N.T. DUNHAM, A. MCNAMARA, J.W. YOUNG.
- 23 **Assessing the determinants of primate gait kinematics in an ecological and phylogenetic framework, Part II: Platyrrhine quadrupedalism.** L.J. SHAPIRO, T.L. HIERONYMUS, N.T. DUNHAM, A. MCNAMARA, J.W. YOUNG.
- 24 **Plantar pressure distribution in *Gorilla*.** R.E. WUNDERLICH, A. ZEININGER, D. SCHMITT.
- 25 **Work minimization and toppling concerns predict limb phasing in wild primates.** M.C. GRANATOSKY, C.F. ROSS, M.F. LAIRD, A. VAN CASTEREN, J. CHALK-WILAYTO, M. DUTRA FOGAÇA, J.A. LEDOGAR, D.S. STRAIT, B.W. WRIGHT, J.R. USHERWOOD.
- 26 **Muscle synergy based-locomotor control in bipedal and quadrupedal walking: *Macaca fuscata* and *Pan troglodytes*.** R. GOTO, T. SHITARA, S. LARSON, Y. NAKANO.
- 27 **Forelimb and hindlimb peak forces in *Gorilla*.** D. SCHMITT, R.E. WUNDERLICH, A. ZEININGER.
- 28 **Impact forces and hindlimb vertical impulses in *Gorilla*.** A. ZEININGER, D. SCHMITT, R.E. WUNDERLICH.
- 29 **Wild platyrrhine quadrupedal kinematics on multiple and inconsistent substrates.** A. MCNAMARA, N.T. DUNHAM, J.W. YOUNG, L.J. SHAPIRO.
- 30 **Arboreal primate gait kinematics: Do wild data validate laboratory inferences?** N.T. DUNHAM, A. MCNAMARA, B. DEMES, L.E. JOHNSON, L. SHAPIRO, J.W. YOUNG.
- 31 **Shoulder morphology and substrate use in extant cercopithecoid monkeys.** M. VERGAMINI, L.M. DAY, E. GAGARIN, H. FURCHAK, A.L. RECTOR.
- 32 **Arm-swinging and habitat use of the red-shanked douc in the Son Tra Nature Reserve, Vietnam.** K.E. BAILEY, J.W. WINKING, D.L. CARLSON, . TRAN VAN BANG, . HA THANG LONG.
- 33 ***Gorilla* hindlimb muscle fiber phenotypes.** D.J. DOYLE, M. HOLMES, D. SCHMITT, A. ZEININGER, C.E. WALL.
- 34 **Musculotendinous changes associated with hindlimb bone elongation in the Longshanks mouse.** M.M. BRADLEY, S. MOORE, C. ROLIAN.
- 35 **Phylogeny of Extant Colobines Using Morphological Data.** A. FERNANDEZ, S.R. FROST.
- 36 **Sexual dimorphism in absolute and relative enthesal length in *Colobus guereza* and *Hylobates lar*.** A.R. OTERO.

# THURSDAY ALL DAY SESSIONS

## Session 5

### Hominin Environments, Diet, and Behavior

#### Contributed Poster Presentations

Chair: Thomas Kaiser

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 The localized environment of early *Homo erectus* at East Turkana, northern Kenya. C.M. SMITH, M.D. BIERNAT, D.B. PATTERSON, A.S. HAMMOND.
- 2 Landscape Survey of Potential Combustion Features at FxJj20 Site Complex in Koobi Fora, Kenya. C.K. MILLER, R. CUTTS, D. BRAUN, J. HARRIS.
- 3 A preliminary study of Pleistocene bovid mortality profiles in East Turkana, Kenya. K.N. GURIAN, E. CORDINER, A.S. HAMMOND, F.L. FORREST.
- 4 The paleontological record of the *Australopithecus anamensis* site of Allia Bay, East Turkana. L. DUMOUCHEL.
- 5 Life history underpinnings of East Turkana faunal turnover during the early Pleistocene. J. FRAZIER, A. MCGROSKY.
- 6 Bovid Tribe Abundance as an Indicator of Spatial and Temporal Heterogeneity in the Omo-Turkana Basin from 2.0-1.38 Ma. A. HANSON, M.D. BIERNAT, K. O'BRIEN, A. ENNY, J. PORTER, D.R. BRAUN, W. BARR.
- 7 Mid-Pliocene paleoenvironment of Woranso-Mille (Ethiopia): implications for hominin diversity and *Australopithecus* paleoecology. D.F. SU, Y. HAILE-SELASSIE.
- 8 Bovid paleocommunities and *Australopithecus* environments in the lower Awash Valley, Ethiopia, from ~ 3.8-2.95 Ma. C.M. SEYOU, J. ROWAN, K.E. REED, W.H. KIMBEL.
- 9 Paleoenvironmental context of early *Homo sapiens* from the Kibish Formation, southern Ethiopia: evidence from bovid ecomorphology and abundance. Y.G. TSIGE, J. ROWAN, S. YIRGA, J.G. FLEAGLE.
- 10 Large mammal community structure and habitat variation in southern African *Paranthropus* and *Australopithecus*. K.D. O'NEILL, A.L. RECTOR.
- 11 Biogeography and paleoenvironments of *Paranthropus* and early *Homo*. A.L. RECTOR.
- 12 Ecological context of the South African Middle Stone Age from Sibudu, KwaZulu-Natal. J.R. ROBINSON.
- 13 Woody cover in modern African ecosystems: Implications for hominin landscape dynamics. E.W. NEGASH, J. WYNN, R. BOBE.
- 14 Frequency of enamel chipping in Tai Forest cercopithecids: Implications for dietary reconstruction in paleoanthropological contexts. L.D. FANNIN, D. GUATELLI-STEINBERG, E. GEISSLER, P. CONSTANTINO, W.S. MCGRAW.

## THURSDAY ALL DAY SESSIONS

- 15 Comparing intratooth isotope profiles of modern warthogs and fossil suids: a potential proxy for hydroclimate seasonality of hominin fossil sites. D. YANG, K.T. UNO, T.E. CERLING.
- 16 Primate Communities and Atmospheric CO<sub>2</sub> in the Plio-Pleistocene of east Africa. M.D. BIERNAT, K.E. REED.
- 17 Bite Force Analysis of the Human Mandible: Assessing Jaw Capabilities of Human Ancestors. H.J. MOSES, B.J. WELKER.
- 18 An experimental study of human hand pressures during suspension and implications for fossil hominin locomotion. V.A. LOCKWOOD, S. LU, S. WINTER, T.L. KIVELL.
- 19 An experimental investigation of asymmetrical Paleolithic wooden spear tips: expediency or design? R. BIERMANN GÜRBÜZ, S.J. LYCETT.
- 20 An experimental study of bone tools from Swartkrans Cave, South Africa. S. GARDNER, F. LENGLE WILLIAMS, J. HEATON, T. PICKERING.

### Session 6

#### Bioarchaeology: Methods and Techniques

##### Contributed Poster Presentations

*Chair: Jacqueline Eng*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

1:30 Even number presenters standby posters (1 hour).

6:00 Odd number poster presenters stand by their posters (1 hour).

- 1 Ancient DNA study of M21 Excavated from Lingkou site, Lintong, Shaan Xi Province. Y. GUO, D. CAI, N. ZHANG, S. ZHU, C. LI, X. SHAO, Y. WANG, Q. LIANG.
- 2 Molecular Archaeological Research on Human Remains from the Khulhiin am and Khundiin khooloi Sites in Mongolia during the Mongol-Yuan period. N. ZHANG, D. CAI, Y. GUO, X. SHAO, S. ZHU, Y. WANG, Q. LIANG, C. LI.
- 3 Mitochondrial DNA Analysis of M21 Xiongnu Tomb in Hulaha Valley of Mongolia. X. SHAO, N. ZHANG, Y. GUO.
- 4 Enamel proteome sequences from Dmanisi (Georgia) enable molecular phylogeny beyond the limits of ancient DNA preservation. E. CAPPELLINI, F. WELKER, J.V. OLSEN, D. LORDKIPANIDZE, E. WILLERSLEV.
- 5 Ancient proteomics analysis in the early contact period, St. Catherines Island, Georgia. F. CRESPO, T. CUMMINS, M. MERCHANT, J. KLEIN, L. SPRINGS, D.A. BOLNICK, C.S. LARSEN, D.H. THOMAS.
- 6 Geospatial distributions of trace metals found in 17th and 18th Century New York African Burial Ground grave soil samples using XRF technology. C. CLINTON, C. DUNCAN, H. JACKSON, F. JACKSON.

## THURSDAY ALL DAY SESSIONS

- 7 Identifying and Interpreting Unexpected Spatial Patterns of Bioarchaeological Data Using Geographic Information Systems. M.C. STEWART, G. VERCELLOTTI.
- 8 Methods for the excavation of unmarked burials located beneath an historic structure. B.S. MCCLAIN, J. HAEFNER.
- 9 Developing a Rapid Technique for Identifying Human Bone in Bioarchaeological and Forensic Contexts: ZooMS and the Battle of Towton. N. NEFF, M. COLLINS, T. SUTHERLAND.
- 10 Synchrotron radiation holographic nanotomography of ancient human hair: Exploring number, distribution and shape of melanin granules, and their implications as to hair colour. K.O. LORENTZ, J.C. DA SILVA, C. CHRYSOSTOMOU, Y. MIYAUCHI, S. LEMMERS, M.R. ZARURI, F. FORUZANFAR, M. SAJJADI.
- 11 Analysis of cortisol levels from archaeological hair from the medieval nubian population of kulubnarti. G.B. BOWLAND, D. VAN GERVEN, R.M. BERNSTEIN.
- 12 An Analysis of Modified and Processed Human Bone Artifacts from Late Prehistoric (AD 700 – 1500) Southern Texas. M.S. TAYLOR.
- 13 The Physical and the Digital: a test of the reliability of craniometric data collection from 3D models. L. NOLDNER.
- 14 Preliminary Investigation of Aging Effects on Cross-Sectional Geometric Properties of Adult Ribs in a Medieval Polish and Modern Skeletal Sample. R.C. MAYUS, A.M. AGNEW.
- 16 Analysis of 3D Reconstruction Methods in Computed Tomography Research. A.A. TORRES, J. BROWN, S.R. WILLIAMS.
- 17 Osteometric sorting of metacarpals and metatarsals in commingled human skeletal assemblages. K.A. BROEHL.
- 18 Effects of microbial colonization on bone collagen stable carbon and nitrogen isotope values: Results from a long-term diagenesis modelling experiment. S. GARVIE-LOK, J. MORGAN, P. MAYNE CORREIA, M. PITRE.
- 19 Estimating the minimum number of individuals (MNI) from a looted, commingled context in Hualcayán, Peru. E.A. BRIGGS, K.C. JORGENSEN, R.E. BRIA, E.A. SHARP.
- 20 Incorporating Histological Methods to Examine the Response to Famine in Mid-19th-Century Ireland. L.A. MECKEL, H.R. BUCKLEY, J. GEBER.
- 21 Using cranial morphology to investigate population history in the genomic age: insights from the study of a 9500-year-old human skeleton from San Miguel Island, California. S.C. KUZMINSKY.

# THURSDAY ALL DAY SESSIONS

## Session 7

### Paleodemography

#### Contributed Poster Presentations

*Chair: Angela Lieverse*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 **Infanticide or expected child mortality? The curious abundance of babies in the Iron Age necropolis of Kopila hillfort, Korčula, Croatia.** L.L. DERN, D. RADOVČIĆ, E.R. ORLIKOFF, M.M. GLANTZ.
- 2 **Survivorship from historical death records and skeletal remains from the Oakwood Cemetery in Austin, Texas (1866-1914).** M.H. NGUYEN, C.A. WOLFE, M.D. HAMILTON, N.P. HERRMANN.
- 3 **Weighing the possibilities: Exploring a modified technique for the assessment of frailty in human skeletal remains.** K. GADDIS, M. RAMSIER, A. KOPERKIEWICZ, M. POLCYN, A. GRUENTHAL-RANKIN.
- 4 **Frail young, Enduring Adults: Paleopathology of a Bronze Age Chinese Skeletal Sample.** E. JOHNSON, R. MAO, H. WANG, E. BERGER, J. DITTMAR, I. YUAN.
- 5 **Oral and Sinus Infection Among Okhotsk Marine Foragers: Implications for Differential Frailty.** A.R. LIEVERSE, H. ISHIDA, D. KUBO, M. YONEDA.
- 6 **Late Copper Age multiple inhumation burials with subadults in the Carpathian Basin.** A.N. KARABOWICZ.
- 7 **Mortality or Methods: What Do Skeletal Age Estimates Really Tell Us About Past Populations?** S.M. GETZ, G.R. MILNER.
- 8 **Ancestral determination of crania from the ancient Roman necropolis of Sanisera.** M.F. PARKER, B. VILA, F. CONTRERAS.
- 9 **Mortuary practices' archaeology seen under a multivariate perspective: case study of southern Brazilian shellmounds.** A.A. BORELLA, D.V. BERNARDO.

# THURSDAY ALL DAY SESSIONS

## Session 8

### **Bioarchaeology: Diet, Migration and Identity**

#### **Contributed Poster Presentations**

*Chair: Chris Stantis*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 **Spatial differences in Late Neolithic to Early Bronze Age hunter-fisher-gatherer diet in Lake Baikal's Little Sea micro-region, Siberia.** H.G. MCKENZIE, A.R. LIEVERSE, A.G. NOVIKOV, O.I. GORIUNOVA, A.L. WATERS-RIST.
- 2 **Isotopic Estimation of Diet and Water Sources at the Archaeological Site of Tumilaca la Chimba, Peru.** B.I. QUISPE VILCAHUAMAN, B. TURNER-LIVERMORE, N. SHARRATT, C. CHINO.
- 3 **Assessing Fish Consumption in the Ancient Greek World Using Sulphur Stable Isotope Ratios.** K. MARI, L. REITSEMA, K. REINBERGER, C. BATCHELDER, S. VASSALLO, B. KYLE.
- 4 **Functional adaptation of trabecular bone in the Human mandibular condyle in relation to diet.** E.J. BROWN, J.T. STOCK.
- 5 **Exploring Provincial Interactions in the Tiwanaku State (C.E. 500-1100) Using Paleodiet Reconstruction.** J. SANTILLAN GOODE, A.C. DAHLSTEDT, P. GOLDSTEIN, M. SCHOENINGER, K.J. KNUDSON.
- 6 **Intra-Population Dietary Variation at Himera.** A. SCHMITZ, L.J. REITSEMA, K.L. REINBERGER, S. VASSALLO, B. KYLE.
- 7 **Reconstructing Weaning and Childhood Diets at the 6th-5th C. BCE Skeletal Population of the Greek Colony of Himera.** A.S. GANCZ, L.J. REITSEMA, K.L. REINBERGER, S. VASSALLO, B. KYLE.
- 8 **Why Do We Farm? The Effect of Climate Change and Risk on the North American Foraging-Farming Transition.** M.G. TORQUATO, E.R. OTÁROLA-CASTILLO.
- 9 **Tracking early human migrations through the Americas.** S.R. RENNIE, S. GONZALEZ, J. JOHNSON.
- 10 **Social structure, postmarital residence, and mortuary practice at Hualcayán, Peru.** C.M. PINK, E.A. SHARP, R.E. BRIA.
- 11 **Should I stay or should I go? Assessing residential mobility in Bronze Age Switzerland through the isotopic evidence.** A. VARALLI, J. DESIDERI, M. DAVID-ELBIALI, G. GOUDE, M. HONEGGER, M. BESSE.
- 12 **Finding Biological Markers of Mobility in Late Prehistoric Portugal and Spain: A Stable and Radiogenic Isotope Approach.** A.J. WATERMAN, R.H. TYKOT, D.W. PEATE.
- 13 **Isotopic perspectives on the shep-herd relationship at two Hellenistic (ca. 323 – 31 BCE) settlements in Thessaly, Greece.** K.G. BISHOP, S. GARVIE-LOK, M. HAAGSMA, S. KARAPANOU.



## THURSDAY ALL DAY SESSIONS

- 14 **Preliminary results from a recently discovered Holocene burial site in Northern Laos, Tam Pa Ping.** T.E. DUNN, A.J. ZACHWIEJA, L.L. SHACKELFORD, N. HUONG, P. DURINGER, J. PONCHE, C. AICHHOLZEZ, Q. BOESCH, E. PATOLE-EDOUMBA, A. BACON, D. SIHANAM, P. SICHANTHONGTIP, T. SAYAVONGKHAMDY, F. DEMETER.
- 15 **Living in Dust and Smog: Identity, Inequality, and Mortality During England's Industrial Revolution.** S.A. MCGUIRE.
- 16 **Appropriately managing archiving and access to culturally sensitive but scientifically valuable digital imagery.** J.M. WINCHESTER, T.M. RYAN, J. WISOR, L. COPES, T.K. BRENNAN, M.J. WAGNER, D.M. BOYER.
- 17 **Bioarchaeology of non-binary genders: perspectives from the Adena tradition of the Ohio Valley region.** R. WAKEFIELD.
- 18 **Reinterment of the human remains excavated from the Erie County Poorhouse Cemetery: persons never to be forgotten again.** M.M. MAYBERRY, J.E. SIRIANNI, D. PERRELLI.
- 19 **Surveying Portugal residents' view on the creation and dissemination of three-dimensional replicas of human skeletal remains.** V. CAMPANACHO, F. ALVES CARDOSO.
- 20 **Embodied Cultural Identity in Late Bronze Age Central Greece.** K.E. STILES.
- 21 **Public health policies, inequality, and industrialization in 20th century Cleveland health outcomes: a study from the Hamann-Todd Osteological Collection.** S.A. MATHENA-ALLEN.
- 22 **Reconstructing Mobility and Workload in Guale Populations from the Georgia Coast.** C. RUSSELL, C.B. RUFF, C. LARSEN.

# THURSDAY, MORNING SESSIONS

## Session 9

### Deciphering The Denisovans

#### Invited Podium Symposium

*Chair: C. Eduardo Guerra Amorim. Co-organizers: Serena Tucci*

CC Ballroom A

Nested in the Altai Mountains in southern Siberia, there is a cave that revealed one of the most stunning scientific discoveries that have been made in recent years: the Denisovans. This elusive new archaic hominin species, distinct from Neanderthals and modern humans, is currently known only for its DNA extracted mostly from a terminal phalanx bone, probably from the left fifth digit ("pinky bone") of a girl who lived around 41,000 years ago. Her group and their descendants left very little behind. The sequencing of their genome in 2010, however, showed that substantial amounts of their DNA still persist today in modern human populations in Melanesia. Celebrating the 10th anniversary of the excavation of this specimen, this symposium will bring together archaeologists, geneticists, and paleoanthropologists in order to expand and explore the most exciting findings made in the past 10 years related to this archaic hominin group. Furthermore, this interdisciplinary venue will also point out to the next steps involving the study of this species, the technological innovations that are enabling scientists to discover more about these archaic humans, the mystery involving their place in human evolution, their geographical range, their interactions with Neanderthals, and the legacy they left to modern humans. While many questions remain unanswered, there is one thing we can be sure about – Denisovans changed our paradigm about human evolution and how we understand our species. Thus, this symposium represents a timely opportunity to promote cooperation and discussion among researchers from different fields and strengthen the role our discipline will play in the following years in the study of archaic humans.

- 8:00 **Technology overview and orientation.**
- 8:15 **A parietal fragment from Denisova cave.** B.T. VIOLA, P. GUNZ, S. NEUBAUER, V. SLON, M.B. KOZLIKIN, M.V. SHUNKOV, M. MEYER, S. PÄÄBO, A.P. DEREVIANKO.
- 8:30 **Placing the Denisovans in human evolution.** C.B. STRINGER.
- 8:45 **What do Denisovans look like? Looking into the Middle and Late Pleistocene hominin fossil record from Asia.** M. MARTINON-TORRES, B. JOSÉ MARÍA, X. SONG, W. XIUJIE, L. WU.
- 9:00 **Age estimates for hominin fossils and the onset of the Upper Palaeolithic at Denisova Cave.** T. HIGHAM, K. DOUKA, V. SLON, Z. JACOBS, C. RAMSEY, F. MAFESSONI, M. KOZLIKIN, B. LI, D. COMESKEY, T. DEVIESE, S. BROWN, B. VIOLA, M. BUCKLEY, M. MEYER, R. ROBERTS, S. PAABO, A. DEREVIANKO, M. SHUNKOV, J. KELSO.
- 9:15 **In search of the Denisovans: biomolecular ways for the identification of new human fossils in the Eurasian archaeological record.** K. DOUKA, S. BROWN, T. HIGHAM, A. DEREVIANKO, M. SHUNKOV.
- 9:30 **Archaic encounters: Retracing interactions between Neandertals and Denisovans.** V. SLON.

## THURSDAY MORNING SESSIONS

- 9:45 Predation at Denisova cave during the Middle Paleolithic: a story of human and beasts. W. RENDU, S. VASILYEV, M. KOZLIKIN, M. BAUMANN, M. SHUNKOV.
- 10:00 BREAK.
- 10:30 Through introgressed DNA, a single genome contains the story of many populations. B. VERNOT.
- 10:45 Multiple deeply divergent Denisovan ancestries in Papuans. G.S. JACOBS, G. HUDJASHOV, S. LAURI, K. PRADIPTAJATI, C.C. DARUSALLAM, D.J. LAWSON, M. MAYUKH, L. PAGANI, F. RICAUT, M. STONEKING, M. METSPALU, H. SUDOYO, J. LANSING, M.P. COX.
- 11:00 The landscape of Denisovan ancestry in the Americas. E. HUERTA-SANCHEZ, K. WITTDILLON, A. FUNK, L. LOPEZ.
- 11:15 Discussant: John Hawkes.

### Session 10

#### Primate Craniodental Functional Morphology

##### Contributed Podium Presentations

Chair: Andrea Taylor

CC Room 21

- 8:00 Covariation among dental wear, craniofacial morphology, and pathologies in *Macaca fascicularis*. C.A. KIRCHHOFF, S.B. COOKE, C.E. TERHUNE, A.N. ROMERO.
- 8:15 The effects of diet on chewing muscle ontogeny in lemurs. K.A. PRUFROCK, J.M. PERRY.
- 8:30 The uncertainty of the potto and exudate-feeding in Lorisidae. A. BURROWS, A. HARTSTONE-ROSE, L.T. NASH, M.T. SILCOX, K.R. SELIG, S. LÓPEZ-TORRES.
- 8:45 The effect of jaw muscle architecture dynamics on the biomechanics and evolution of the primate feeding system: a theoretical perspective. J. IRIARTE-DIAZ.
- 9:00 Modelling ontogenetic changes in masticatory performance within *Macaca fascicularis* and their impact upon dietary and social ecology: a multibody dynamics study. E. DICKINSON, L.C. FITTON, K. KUPCZIK.
- 9:15 Ontogenetic allometry in catarrhine crania: scaled variants or variance in scaling? E.A. SIMONS, S.R. FROST.
- 9:30 Strain regimes in the ramus of *Macaca mulatta* estimated using finite element modeling. C.F. ROSS, J. IRIARTE-DIAZ, A.B. TAYLOR, P.C. DECHOW, S. WILSHIN, H. MEHARI ABRAHA, O. PANAGIOTOPOULOU.
- 9:45 Particle Based Modeling (PBM) Geometric Morphometric Analysis of the basioccipital bone in *Pax7*-deficient mice. L. NEVELL, J. CATES, S. PRAJAPATI, L.D. NELON, J. CHANG, M.E. RANDOLPH, B. WOOD, C. KELLER, R.T. WHITAKER.
- 10:00 BREAK.
- 10:30 Fiber-type phenotype of the anterior superficial masseter in African apes: A preliminary test of the frequent recruitment hypothesis. A.B. TAYLOR, M. WEST, M. HOLMES.

# THURSDAY MORNING SESSIONS

- 10:45 Investigating variation in euarchontan dental topography as a signal of dietary breadth. K.R. SELIG, M.S. RAMSAY, M.T. SILCOX.
- 11:00 Enamel growth variation corresponds with LEH defect depth in great apes. K. MCGRATH, D.J. REID, D. GUATELLI-STEINBERG, K. ARBENZ-SMITH, S. EL-ZAATARI, L.M. FATICA, M.R. CRANFIELD, T.S. STOINSKI, T.G. BROMAGE, A. MUDAKIKWA, S.C. MCFARLIN.
- 11:15 Predicting distribution of enamel on a tooth. J. JERNVALL, T.J. HÄKKINEN, S. SOVA, I.J. CORFE.

## Session 11

### Primate Social Behavior

#### Contributed Podium Presentations

Chair: TBA

CC Room 26 AB

- 8:00 Changes in Male Grooming Networks Associated With Permanent Fission of a Chimpanzee Community at Ngogo. D.P. WATTS.
- 8:15 Nepotistic cooperation among maternal and paternal kin in male chimpanzees from Gombe National Park, Tanzania. J.T. FELDBLUM, K.K. WALKER, I.C. GILBY, A.E. PUSEY.
- 8:30 Factors influencing the strength, equality, and stability of male chimpanzee social bonds at Gombe National Park. J. BRAY, I.C. GILBY.
- 8:45 Act like a lady, think like a boss: Alpha status in a captive female chimpanzee (*Pan troglodytes*). B.F. WISINSKI, C. CLOUTIER BARBOUR.
- 9:00 Re-evaluating the analysis of dominance: Investigations of dominance in captive chimpanzees (*Pan troglodytes*) and wild Tibetan macaques (*Macaca thibetana*) from a context-dependent perspective. J.A. FUNKHOUSER, J.A. MAYHEW, L.K. SHEERAN.
- 9:15 Absolute brain size correlates very strongly with social group size in Primates. P. SCHOENEMANN.
- 9:30 Flexible grouping patterns of lowland woolly monkeys (*Lagothrix lagotricha poeppigii*): evidence of a multilevel society in a New World primate? K.M. ELLIS, L. ABONDANO, A. DI FIORE.
- 9:45 Sex differences in behavioral coordination in white-bellied spider monkeys. C.J. SCARRY, A. LINK, A. DI FIORE.
- 10:00 BREAK.
- 10:30 Urinary oxytocin in capuchin monkeys: Validation and the influence of social behavior. M.E. BENITEZ, M.J. SOSNOWSKI, O.B. TOMEO, S.F. BROSINAN.
- 10:45 Allomaternal Care by Conspecifics Influences Activity Budgets of *Colobus guereza* Mothers. D.L. RABOIN, A.L. BADEN, J.M. ROTHMAN.
- 11:00 A meta-analysis of fission-fusion dynamics: towards a standardization of methods to facilitate inter- and intra-species comparisons. C.H. BATIST, A.L. BADEN.
- 11:15 Conditional dispersal and its effects on kin cooperation in female *Colobus vellerosus*. E.C. WIKBERG, N. TING, P. SICOTTE.

# THURSDAY MORNING SESSIONS

- 11:30 Home range and territoriality suggest that venom is a weapon in slow lorises. A.I. NEKARIS, M. CAMPARA, S. POINDEXTER, T. QUEIROZ, A. WELDON, V. NIJMAN, M.A. IMRON.

## Session 12

### Primate Genetics

#### Contributed Podium Presentations

Chair: Leslie Knapp

CC Room 26 C

- 8:00 Adventures in museomics: The use of next generation sequencing to uncover great ape host and microbial genomes. A.T. OZGA, A.C. STONE.
- 8:15 Testing factors influencing the lemur gut microbiome: host genetics or diet? A.E. ASANGBA, M. DONOHUE, A. LAMB, R.J. LEWIS, R.E. JUNGE, M. IRWIN, S.R. LEIGH, P.C. WRIGHT, R.M. STUMPF.
- 8:30 Variation in butyrate-production pathways across human and nonhuman primates. E.K. MALLOTT, K.R. AMATO.
- 8:45 *Amylase* copy number analysis in several mammalian lineages reveals convergent adaptive bursts shaped by diet. P. PAJIC, P. PAVLIDIS, K. DEAN, L. NEZNANOVA, E. DAUGHERITY, R. ROMANO, D. GARNEAU, A. GLOBIG, O. GOKCUMEN, S. RUHL.
- 9:00 Age-Associated Epigenetic Changes in Chimpanzees and Humans. E.E. GUEVARA, R.R. LAWLER, N. STAES, C.M. WHITE, C.C. SHERWOOD, J.J. ELY, W.D. HOPKINS, B.J. BRADLEY.
- 9:15 Divergence between humans and chimpanzees at the cellular level. T.M. ZINTEL, D. DUCEY, J. PIZZOLLO, C.C. BABBITT.
- 9:30 The Evolution of TLR7 and TLR8 in Yellow Fever Virus Endemic Areas. N. TOROSIN, L.A. KNAPP.
- 9:45 *Papa-B* (MHC) diversity of wild bonobos (*Pan paniscus*) east and west of the Lomami River suggest different patterns of immunity. E.E. WROBLEWSKI, A.G. ANDERSON, L.A. GUETHLEIN, Y. LI, A.N. AVITTO, P. BERTOLANI, J.A. HART, T.B. HART, B.H. HAHN, P. PARHAM.
- 10:00 BREAK.
- 10:30 Macaque Y-chromosome introgression: Proteomic analysis of four Y-genes between rhesus (*Macaca mulatta*) and cynomolgus (*M. fascicularis*) macaques. C.A. RUIZ, M.E. CHANEY, A.J. TOSI.
- 10:45 Tracing gibbon phylogeography in Southeast Asia using complete mitochondrial genomes. L. YAO, R. DESALLE, C. ROOS.
- 11:00 Noninvasive genomics of Gombe chimpanzees: evaluating methods for wild primate population genomics. T.H. WEBSTER, A.T. OZGA, I.C. GILBY, M.A. WILSON SAYRES, Y. LI, B.H. HAHN, R.S. NOCKERTS, M.A. WILSON, A.E. PUSEY, A.C. STONE.

# THURSDAY MORNING SESSIONS

## Session 13

### **Anthroengineering: a biological approach**

#### **Invited Poster Symposium**

*Chair: Michael A. Berthaume. Co-organizers: Patricia Ann Kramer*

CC Room 22

Traditionally, anthropology and engineering have developed and operated in isolation, but recent advances in interdisciplinary research, supporting new, novel ways of thinking, has encouraged the two fields to work together to address significant questions within and across fields. The combination of cutting edge engineering techniques, such as multibody dynamic and finite element analysis, with advanced biological principles, such as functional bone remodelling and evolutionary adaptation, has undoubtedly benefited the field of biological anthropology. Using engineering and biological anthropology together has shed new light on human and primate evolution and biological adaptation. Within biological anthropology, anthroengineering has revolutionized our understanding of primate and human locomotion and dietary adaptation, helping us understand how evolution has shaped the order Primates and how humans evolved to become what we are today. This symposium serves two purposes: to formally introduce the subfield of anthroengineering and to discuss its role in biological anthropology. The use of engineering techniques has already improved our understanding of primate locomotion and diet, and yet the full utility of an integrated anthroengineering approach has not yet been realized. We seek with this symposium to extend the foundational work by discussing how to move forward approaching questions of anthropological interest from an anthroengineering perspective.

- 1 **South African hominin dental biomechanics.** M.A. BERTHAUME, K. KUPCZIK.
- 2 **Micro- and macro-wear of human dental enamel. A materials science perspective.** O. BORRERO-LOPEZ, A. PAJARES, P.J. CONSTANTINO, B.R. LAWN.
- 3 **Investigating dietary properties and the feeding ecologies of lemurs in human-maintained habitats.** S.L. CANINGTON, J.M. PERRY.
- 4 ***In vivo* bending deformation of the human lumbar spine during axial loading: Implications for hominin postural adaptation.** E.R. CASTILLO, D.E. LIEBERMAN.
- 5 **Dental Fracture Mechanics: What broken teeth can reveal about diet and feeding behavior.** P.J. CONSTANTINO, B.R. LAWN.
- 6 **Investigating fossil hominin climbing behaviors: Novel applications of existing technology.** E.M. FEUERRIEGEL, P.A. KRAMER.
- 7 **Dentin hardness distribution and chewing frequency in two sympatric colobines.** E. GEISLER, W.S. MCGRAW, D.J. DAEGLING.
- 8 **Deforming feet, deforming substrates: 3D dynamics of the human foot during footprint formation revealed through biplanar X-ray methods.** K.G. HATALA, S. MEGHERHI, D.A. PERRY, S.M. GATESY.
- 9 **Design and function of the chewing muscles in papionins: fiber phenotype and fiber architecture.** M.A. HOLMES, K. LUNN, A.B. TAYLOR.

# THURSDAY MORNING SESSIONS

- 10 **Saving face: the role of artificial intelligence in evaluating craniofacial variation for the treatment of orofacial dysfunction.** M.J. KESTERKE, G. SANKARANARAYANAN, M. SAUTTER, R. BHATTACHARYA, R. BHATTACHARJEE, A. READ-FULLER, L.V. REDDY.
- 11 **Three-dimensional tarsal morphology and movements in anthropoid primates.** S. KUO, M.C. GRANATOSKY, M.F. LAIRD, B. PATEL, C. ORR, C.F. ROSS, C.V. WARD.
- 12 **Bone remodeling in the macaque (*Macaca fascicularis*) skeleton: effects of loading frequency and magnitude.** S.E. LAD, W. MCGRAW, D.J. DAEGLING.
- 13 **Food mechanical properties and dietary ecology in sympatric *Pithecia* and *Chiropotes* during a period of preferred food scarcity.** J.A. LEDOGAR, B.W. WRIGHT, M.C. GRANATOSKY, M.F. LAIRD, J. CHALK-WILAYTO, M.D. FOGAÇA, A. VAN CASTEREN, C.F. ROSS, D.S. STRAIT.
- 14 **Anticipating turns: How many steps are affected?** M. OCHOA, S.G. LAUTZENHEISER, A.D. SYLVESTER, P.A. KRAMER.
- 15 **The mechanical and nutritional properties of African savanna vegetation: potential implications for early hominin feeding behavior.** O.C. PAINE, A. KOPPA, A.G. HENRY, J.N. LEICHLITER, E.J. DEVEREUX, C. RYDER, D. CODRON, J. CODRON, M. SPONHEIMER.
- 16 **Comparative biomechanics of the Hominidae mandible.** A.L. SMITH, C.F. ROSS, Z. ALEMSEGED, A.B. TAYLOR, C. ROBINSON, C.V. WARD, P. GUNZ, B. KIMBEL.
- 17 **The effects of femoral metaphyseal morphology on growth plate biomechanics in juvenile apes and humans.** P.A. STAMOS, M.A. BERTHAUME.
- 18 **Fragmentation as a function of cyclical work between immature and mature leaves.** J.N. TRAFF, D.J. DAEGLING.

## Session 14

### **True Grit: the effect of dietary grit on dental wear**

#### **Invited Poster Symposium**

*Chair: Myra F. Laird. Co-organizers: Adam van Casteren*

**CC Room 23**

Dental microwear techniques are used to reconstruct dietary transitions in human evolution and ecological differences within extant primates. Variation in dental microwear is thought to reflect differences in food mechanical properties. More recently, dust and other dietary grit has been proposed as to drive dental microwear formation. However, questions remain as to the amount and types of grit affecting dental wear. Behavioral studies suggest primates react diversely to dietary grit, yet we know little about the influence that ecology and feeding behaviors may have an effect on the incorporation of grit into diet and how this could influence dental wear formation and selective pressures. This symposium will explore the effect of dietary grit on dental wear using a two-pronged approach. Half of the presenters focus on how grit is arrayed within an environment, and primate behavioral responses to dietary grit. The other half examines the influence of dietary grit on dental wear using an array of techniques and species. Ideas we will explore include: Where is grit found in a primate's habitat? How does grit become included in diet? How does dietary grit influence primate feeding behavior? What types of dietary grit influence dental morphology?

## THURSDAY MORNING SESSIONS

How much dietary grit is needed to influence microwear formation? Our synthesis of sub-disciplines within biological anthropology and diverse approaches to studying dietary grit will facilitate discussions on distinguishing dietary and grit-related signals in dental morphology.

10:00 Break.

Discussant: Peter Lucas.

- 1 **Grit in unexpected places: The prevalence of grit in the diets of robust capuchin species.** A. VAN CASTEREN, M.D. FOGAÇA, D.M. FRAGASZY, P. IZAR, C.F. ROSS, R.S. SCOTT, B.W. WRIGHT, K.A. WRIGHT, D.S. STRAIT.
- 2 **The behavioral ecology of grit avoidance in gelada monkeys.** V.V. VENKATARAMAN, P.J. FASHING, N. NGUYEN.
- 3 **Mechanisms for avoiding sand-laden foods in a population of coastal foraging monkeys (*Macaca fascicularis*).** J.E. ROSIEN, N.J. DOMINY, S. MALAIVIJITNOND, A.W. TAN.
- 4 **The influence of dietary grit on capuchin feeding behavior.** M.F. LAIRD, M.C. GRANATOSKY, C.F. ROSS.
- 5 **Periodical increase of dust load reduces chewing efficiency in forest dwelling Western chimpanzees (*Pan troglodytes verus*).** E. SCHULZ-KORNAS, J. STUHLTRÄGER, M. CLAUSS, R.M. WITTIG, K. KUPCZIK.
- 6 **Effects of particle concentration and size on tooth wear.** F. RODRIGUEZ-ROJAS, O. BORRERO-LOPEZ, P.J. CONSTANTINO, F. GUIBERTEAU, B.R. LAWN.
- 7 **The role of grit in dental microwear textures: evidence from Artificial Resynthesis Technology (ART).** K.L. KRUEGER, E. CHWA, A. PETERSON, R. DELONG, A. FOK.
- 8 **Toward a volumetric and chronometric measure of tooth wear rates in ovicaprines.** R.H. MADDEN, J. LEMBERG, J.P. PARKES, B.A. BUCHHOLZ.
- 9 **Impacts of grit on dental microwear formation: a time series approach.** L.R. DESANTIS, M.F. TEAFORD, M. DUTRA FOGAÇA.
- 10 **Function and variation in the mechanical properties of *Papio anubis* tooth enamel.** F.R. FOSTER.
- 11 **Diet, Grit and Dental Microwear Textures: the facts.** G. MERCERON, L. DESANTIS, P.S. UNGAR.
- 12 **Dental microwear in laboratory primates: Insights into the complexity of dental microwear formation.** M.F. TEAFORD, M.F. LAIRD, C.F. ROSS, A.B. TAYLOR, P.S. UNGAR, C.J. VINYARD.



# THURSDAY MORNING SESSIONS

## Session 15

### **Biocultural Approaches to the Plasticity of the Human Skeleton**

#### **Invited Poster Symposium**

*Chair: Sophia C. Dent. Co-organizers: Steph M. Berger, Jacob S. Griffin*

CC Room 24

Human skeletal phenotypes result from complex interactions between the body's physiology and environmental influences. Bone is one of the largest tissues in the human body, and its integration with other physiological systems allows the skeleton to serve as a sensitive indicator of context at individual and population levels - how does the skeleton embody inputs such as developmental environment, diet, and energetics, and how does change over time in skeletal phenotypes elucidate larger evolutionary trends? Bioarchaeological analysis of skeletal remains utilize osseous measures and related biomarkers to generate diachronic data on the variability of skeletal phenotypic expression. In comparison, the study of skeletons in living people integrates measures of skeletal plasticity with biomarkers of physiological functioning and directly observable environmental influences to understand the biocultural contexts and mechanisms contributing to skeletal phenotypes. The purpose of this symposium is to bring the study of past and living skeletons together - to reconstruct how skeletal phenotypes result from an interplay of physiological reactions, and to better understand the various ways in which bone specifically adapts to and records its context. This requires a focus on pathways, and we embrace the multiple definitions of the term: a series of chemical reactions in a living organism; neurological communication among organs; and a course of action to achieve a desired result. The participants in this symposium represent research that focuses on chemical pathways by which bones integrate context, considers bone within the framework of its relationship with other organs, and/or explores and develops common measurements, models, and theoretical frameworks that unite the study of skeletons in the past and present. A focus on pathways linking biocultural context to skeletal phenotypes, whether they are theoretical and/or testable, will allow us to explore and discuss interdisciplinary engagement and bridging the gap between human biology and bioarchaeology.

**8:30** Presenters at posters.

**9:30** Break (15 min).

**9:45** Individual poster presentations.

**11:00** Discussant: Laurie J. Reitsema, followed by discussion.

- 1** Porotic cranial lesions in living forager-horticulturalists: theoretical pathways and preliminary evidence. A.S. ANDERSON, A.D. BLACKWELL, B.C. TRUMBLE, R.C. THOMPSON, L.S. WANN, A.H. ALLAM, B. FROHLICH, M.L. SUTHERLAND, J.D. SUTHERLAND, J. STIEGLITZ, D.E. RODRIGUEZ, A. IRIMIA, M. LAW, G. BARISANO, H. CHUI, D.E. MICHALIK, C. ROWAN, G. LOMBARDI, R. BEDI, A.R. GARCIA, D. CUMMINGS, J.K. MIN, J. NARULA, C.E. FINCH, G.S. THOMAS, H. KAPLAN, M. GURVEN.
- 2** Exploring pathways to skeletal phenotypes: Biomarkers of inflammation, skeletal health, and oral health in NHANES 2003-2004. S.C. DENT, S.M. BERGER, J.S. GRIFFIN.

## THURSDAY MORNING SESSIONS

- 3 **Variation in the human calcaneus: investigating the relationship between skeletal phenotype and behavior.** L.J. DOERSHUK, N.B. STEPHENS, J.P. SAERS, T. JASHASHVILI, K.J. CARLSON, A.D. GORDON, J.T. STOCK, T.M. RYAN.
- 4 **Exploring pathways to skeletal phenotypes: Biomarkers of skeletal health and bone mineral density in NHANES 2003-2004.** J. GRIFFIN, S. BERGER, S. DENT.
- 5 **Critical ages of development: Impacts of post-natal early-life stress at the Greek colony Himera (Sicily).** M. QUADIR, C.J. GARLAND, L.J. REITSEMA, S. VASALLO, B. KYLE.
- 6 **Correlations between dental wear and oral cavity characteristics: Mandibular torus, palatine torus, and oral exostoses.** L.R. LEASE.
- 7 **Estrogen, energy, and skeletal biology: Life history approaches to understanding skeletal phenotype in living women of reproductive age.** K.M. LEE, M.P. ROGERS, A. GALBARCZYK, G. JASIENSKA, J.D. POLK, K.B. CLANCY.
- 8 **Do teeth forming in different early life periods show differential discrepancy with known age?** J.S. NELSON, L. HARRINGTON, E. HOLLAND, H.F. CARDOSO.
- 9 **The cost of survival: the contextual analysis of adaptive plasticity and constraint in human skeletal and dental remains.** D. TEMPLE.
- 10 **Evaluating Life History Trade-Offs Through the Presence of Linear Enamel Hypoplasia at Pueblo Bonito and Hawikku: A Biocultural Study of Early Life Stress and Survival in the Ancestral Pueblo Southwest.** A. HAM, D. TEMPLE, H. KLAUS, D. HUNT.
- 11 **Insulin and Energetic Regulation of Skeletal Growth.** V.A. TOBOLSKY, J. HOLLANDER, T.D. CAPELLINI, L. ZENG, D.E. LIEBERMAN.

# THURSDAY, AFTERNOON SESSIONS

## Session 16

### **The Missing Dead: Underrepresented Groups in Bioarchaeology and Forensic Anthropology**

#### **Invited Podium Symposium**

*Chair: Susan Guise Sheridan*

CC Ballroom A

By definition, bioarchaeology is an integrative field of anthropology. The adoption of a biocultural approach has resulted in a shift from case-specific, descriptive studies to synthetic analyses of past adaptation. Today, bioarchaeology readily employs social theory, epidemiological models such as the developmental origins of health and disease (DOHaD), organic and analytical chemistry techniques, advanced statistical modeling, and 3D imaging, to name a few. Nevertheless, the field is hampered by the missing – those not seen in the bioarchaeological record. As a result, reconstructions of demography, diet, disease, daily life, death (remembrance and commemoration), and biodistance suffer. This is due to a variety of factors, including the limited ways skeletal material can respond to physiological change, poor excavation and curation practices, and at times, a lack of imagination about who is not readily identifiable in skeletal assemblages and why. This session will explore ways these underrepresented groups are being addressed, both bioarchaeologically and forensically, of particular interest in today's political climate. Topics include socio-political exclusion, such as migrants, the institutionalized, LGBTQI individuals, women, the impoverished, and slaves; as well as those missing due methodological limits such as the very young and old, burned remains, mixed and fragmented collections resulting from poor curation, looting, war, and/or burial practices. To ignore these individuals biases our interpretation of the past. This session will provide an overview of the missing, explore shifting paradigms permitting new hypothesis generation, offer specific examples of successful integration of these categories, and offer future directions for expanded bioarchaeological investigations.

- 2:30 **Missing migrants and the search for identity.** L.E. BAKER.
- 2:45 **Until They All Come Home: The Recovery and Identification of America's Prisoner of War/Missing in Action Personnel.** J.R. GOLIATH.
- 3:00 **Using commingled and fragmentary remains to reconstruct social interaction and social change.** A.J. OSTERHOLTZ, A. LOPEZ, J. PAIGE, D.L. MARTIN, K. BAUSTIAN.
- 3:15 **Incomplete (or completely missing) skeletal collections as the result of excavation and curation practices.** J.M. ULLINGER.
- 3:30 **Missing identities: Identifying burned and cremated remains in bioarchaeological and forensic settings.** C.W. SCHMIDT, R.L. QUATAERT.
- 3:45 **In search of the missing, the overlooked, and the invisible: paleodemographic conundrums, sexuality and gender, and epigenetics in Lambayeque bioarchaeology.** H.D. KLAUS.
- 4:00 **Uncovering the institutionalized: Reconstructing the interplay of gender, sex, and social race on the lives of women institutionalized in the Mississippi State Asylum, Jackson, MS (AD 1855-1935).** M.K. ZUCKERMAN.

## THURSDAY AFTERNOON SESSIONS

- 4:15 **The fetus in bioarchaeology: new approaches to unlocking the maternal-infant nexus.**  
S. HALCROW, A. SNODDY, C. KING, A. ADAMS, B. ARRIAZA, V. STANDEN, M. OXENHAM.
- 4:30 **AT THE INTERSECTION OF GENDER, AGE, AND RACE: The Complexity of Social Identity in Early-20th Century Cuba.** P.L. GELLER.
- 4:45 **Assessing the existence of the male-female health-survival paradox in past populations.** S.N. DEWITTE.
- 5:00 **Countering the Invisibility of Disability in Bioarchaeology.** J.L. MULLER.
- 5:15 **Missing anthropologists: The lack of minority representation in bioanthropology.**  
A. FUENTES, S.G. SHERIDAN.
- 5:30 **Discussant: Sabrina Agarwal.**

### Session 17

#### **Primate hosts and microbial interactions and communities: disease, development and evolution**

##### **Invited Podium Symposium**

*Chair: Negin Valizadegan. Co-organizers: Negin Valizadegan, Jessica F. Brinkworth.*

CC Room 25

This symposium features cutting edge research by a diverse and multidisciplinary group of scholars on the evolutionary interactions between primate immunity, microbiota and their effect on health and disease. Primates have co-evolved with microorganisms for millions of years, such that some microbial communities direct tissue and organ development and function, ensure tissue integrity, enable immunity and affect metabolism. In disease states, these communities are disrupted, and can contribute to symptoms and mortality. The distribution of microorganisms across vector populations and host bodies, therefore, has major implications for health and reproductive fitness. Understanding the patterns of microbial colonization and function is not only important for explaining differences in primate health and disease, but may also clarify mechanisms driving variation and divergence of species. This symposium presents new research from biological anthropology as well as immunology, microbiology, cancer biology and HIV research that illuminates the roles of multi-way interactions between microbial communities, hosts, pathogens and vectors in primate disease susceptibility and progress. Authors investigate relationships between microbiota and disease states, growth and development and environment in both extant and ancient host populations, and how these relationships have affected host immune function and variation. Our goal in this symposium is to contribute to a better understanding of how microorganisms operate in immunity, health and primate evolution. As this kind of research has important implications for primate evolution, conservation and human health, this symposium will draw high attendance and have significant scientific impact. We aim to publish the symposium in an edited volume or a special issue of an appropriate peer-reviewed journal in the following year.

## THURSDAY AFTERNOON SESSIONS

- 2:30 Development of gut microbiota and the brain across the first year of life: A longitudinal study of human infants. M. FOX.
- 2:45 Ancient oral microbiome of a fisher-hunter-gatherer community from the Pacific Northwest Coast. A.C. BADER, K.R. AMATO, J.F. BRINKWORTH, K. YARLAGADDA, J.S. CYBULSKI, J. MITCHELL, B. PETZELT, R.S. MALHI.
- 3:00 Characterization of the microbiome in the AIDS-resistant natural host Sooty mangabey monkey (*Cercocebus atys*). R.M. BOCHART, S.E. BOSINGER, J. COHEN, G. THARP, S. JEAN, A. ERICSEN, B. MADETI, M. CRANE.
- 3:30 Anthropology-parasitology-microbiome perspectives on human evolutionary medicine. G. PERRY, D. HERNANDEZ.
- 3:45 Examining patterns in gut microbial eukaryotes and bacteria across the primate phylogeny. K.R. AMATO, A. MANN, F. MAZEL, E. MORIEN, V. BILLY, L. PARFREY.
- 4:00 The skin microbiome of the Cayo Santiago rhesus macaques. C. ROCHE, L. BRENT, J. WANG, M. MONTAGUE, K. WATSON, A. RUIZ LAMBIDES, M. PLATT, J. HORVATH.
- 4:15 The Role of Microbiota in Human Reproductive Tract Cancers. D.M. WALSH, I. MERT, J. CHEN, X. HOU, S.J. WEROHA, N. CHIA, H. NELSON, A. MARIANI, M.R. WALTHER-ANTONIO.
- 4:30 The Wild Primate Microbiome Partially Protects Against Obesity. J.B. CLAYTON, D. SIDIROPOULOS, G. AL-GHALITH, T. WARD, R. SHIELDS-CUTLER, A. JOHNSON, P. VANGAY, R. BLEKHMANN, P. KASHYAP, A. RAMER-TAIT, D. KNIGHTS.
- 4:45 The Blood Microbiome of Human and Non-Human Primates. N. VALIZADEGAN, R.M. STUMPF, J.F. BRINKWORTH.
- 5:00 Early environments and the development of the human microbiome: implications for growth and health. A.L. THOMPSON, K.M. HOUCK.
- 5:15 Assessing the Prevalence and Distribution of Antimicrobial Resistance at the Human-Wildlife Interface in Rural Uganda. R.M. STUMPF, A. ASANGBA, C. IRUMBA, M. AINEBYONA, R. RUSEN, R.L. SMITH, H. ONYUTH, K. GIGGS.
- 5:30 Microbial mismatch: The evolution of the primate microbiome. E.A. MCKENNEY, M.S. THOEMMES.
- 5:45 Discussant: Beth Archie.

### Session 18

#### Evolutionary Anatomy, Functional Morphology, and Adaptation

##### Contributed Podium Presentations

Chair: Emily Middleton

CC Room 21

- 2:30 Effects of Binocular Field Width on Grasping Performance in *Cheirogaleus* and *Microcebus*: Implications for Primate Origins. A.D. KEMP.
- 2:45 Can the humeri of the *Adapis* group shed new light on the locomotor repertoire of these early primates? New data using 3D Geometric Morphometrics on the distal humerus. J. MARIGÓ, A. FABRE, N. VERRIÈRE, M. GODINOT.

# THURSDAY AFTERNOON SESSIONS

- 3:00 Identifying plantigrade adaptations in Miocene hominoids with implications for hominin bipedalism. E.J. MCNUTT.
- 3:15 An ape partial postcranial skeleton from the Middle Miocene of Napudet, Turkana Basin, Kenya. G.A. RUSSO, C.V. WARD, S. KUO, F.R. MCGECHIE, I.O. NENGO.
- 3:30 First complete primate skull from La Venta, Colombia. S.B. COOKE, L.B. HALENAR-PRICE, L. STROIK, A. LINK, G.A. GIRALDO CORREA, B. SHEARER, R.P. KNIGGE, M. TALLMAN.
- 3:45 The taxonomic status of the large-bodied colobine specimen KNM-WT 16827. M. ANDERSON.
- 4:00 First metacarpal trabecular morphology: Implications for thumb use in great apes and *Australopithecus*. C.J. DUNMORE, T.L. KIVELL, N.B. STEPHENS, A. BARDO, J. HUBLIN, M.M. SKINNER.
- 4:15 Bigger bipeds should have shorter arms: a new perspective in hominin limb evolution. A.K. YEGIAN.
- 4:30 Great apes and humans evolved from a long-back ancestor. A.L. MACHNICKI, P.L. RENO.
- 4:45 Testing hypotheses about the relationships between diet and the primate torso: Implications for human evolution. E.K. BOYLE, S. ALMÉCIJA.
- 5:00 Sociality and diet drove selection for shifts in primate brain size. M. GRABOWSKI, B.T. KOPPERUD, M. TSUBOI, T.F. HANSEN.
- 5:15 Experimental animal models for domestication: insights into modern human craniofacial evolution. N. SINGH, K. HARVATI.

## Session 19

### Paleodemography, Health, and Disease

#### Contributed Podium Presentations

*Chair: Frank Williams*

CC Room 26 AB

- 2:30 Untangling the Osteological Paradox: Using Discordance in Dental and Skeletal Age Estimates to Identify Periods of Heightened Biosocial Stress. C.B. MCPHERSON, J.T. WATSON.
- 2:45 Survivorship and urbanization in medieval England. E.S. HOOK, B.S. WALTER, S.N. DEWITTE.
- 3:00 The impact of frailty in the Spanish influenza pandemic of 1918. A. WISSLER.
- 3:15 A Woman's World: Approaches to exploring obstetrical dilemmas in past populations. C. MCGOVERN.
- 3:30 The Deciduous Dilemma – New perspectives from Neolithic Northern Vietnam for studying health and stress in infants. A.B. ADAMS, S.E. HALCROW, M.F. OXENHAM.
- 3:45 Tooth Size and Vertebral Neural Canal Size as Bioarchaeological Evidence of the Developmental Origins of Health and Disease Hypothesis. S.L. YAUSSEY.

## THURSDAY AFTERNOON SESSIONS

- 4:00 **Black Sea steppe warriors: health status and demographic structure of the Scythians from Moldova (4th-2nd c. BC).** S. ŁUKASIK, J. BIJAK, M. KRENZ-NIEDBAŁA, V. SINIKA.
- 4:15 **Bioarchaeological Signatures of Health and Inequality at the Middle Bronze Age Rural Site Kaman-Kalehöyük.** C.P. ANDERSON, L. ATICI, S. OMURA.
- 4:30 **Investigating social organization and community composition at the Tiwanaku-style temple complex of Omo M10 in the Moquegua Valley, Peru through analysis of phenotypic variation.** K.M. JOHNSON.
- 4:45 **As the World Churns: Changing Activities and Identities in a Historic Dutch Dairy Farming Community.** C. CHILCOTE, S.C. AGARWAL, A. WATERS-RIST, M. HOOGLAND.
- 5:00 **The Impact of the Roman Conquest of Egypt on the Non-Elite - Evidence from the Wall of the Crow Cemetery at Giza.** J.E. KAISER.
- 5:15 **Does dental fluctuating asymmetry predict lesion status in systemic stress indicators? Kind of....** A. O'DONNELL, E. MOES, K. RUSK.

### Session 20

#### Genotype - Phenotype Studies

##### Contributed Podium Presentations

*Chair: Alan Rogers*

CC Room 26 C

- 2:30 ***In vitro* gene regulatory responses to growth factors in short-statured African rainforest hunter-gatherers.** C.M. BERGEY, K.E. GROGAN, G.F. HARRISON, V.G. YOTOVA, L.B. BARREIRO, G. PERRY.
- 2:45 **Investigating human stature variation in prehistory with per-individual ancient DNA and osteological data.** S. MARCINIAK, C.M. BERGEY, A. SILVA, A. HAŁUSZKO, M. FURMANEK, B. VESELKA, P. VELEMSKY, G. VERCELLOTTI, J. WAHL, K. KISS, T. HAJDU, N. VON CRAMON-TAUBADEL, R. PINHASI, G. PERRY.
- 3:00 **Ancient DNA reveals genetic effects on anthropometric phenotypes in Prehistoric Europe.** S.L. COX, C.B. RUFF, I. MATHIESON.
- 3:15 **Evolutionary genomic patterns of recent natural selection on body size sexual dimorphism in *Homo sapiens*.** A.M. ARNER, K.E. GROGAN, C.M. BERGEY, H. REYES-CENTENO, M. GRABOWSKI, G. PERRY.
- 3:30 **Meta-analysis identifies 48 SNPs with multiple independent effects on human facial features.** J.D. WHITE, J. ROOSENBOOM, K. INDENCLEEF, J. MOHAMMED, J. LI, A. ORTEGA-CASTRILLON, T. SWIGUT, M. LEE, T. GONZALEZ-ZARZAR, A.A. ZAIDI, J.R. SHAFFER, E. FEINGOLD, S. RICHMOND, R.J. ELLER, S. WALSH, M.L. MARAZITA, J. WYSOCKA, S.M. WEINBERG, P. CLAES, M.D. SHRIVER.
- 3:45 **SNPs discovered in European GWAS shape worldwide facial diversity.** M.D. SHRIVER, J.D. WHITE, T. LASISI, R.J. ELLER, T. GONZÁLEZ-ZARZAR, K. INDENCLEEF, J. LI, H. HOSKENS, A. ORTEGA-CASTRILLÓN, A. ZAIDI, S.M. WEINBERG, J. WYSOCKA, S. WALSH, J.M. AKEY, P. CLAES.

## THURSDAY AFTERNOON SESSIONS

- 4:00 **Pigmentation variation and in admixed populations and associated genetic loci.** H.L. NORTON, A. BIGHAM, E.J. PARRA.
- 4:15 **Selection at adenylyl cyclase genes associated with tanning response in populations of the Americas.** E.E. QUILLEN, N.G. JABLONSKI, M.D. SHRIVER.
- 4:30 **New insights into human hair variation: High-throughput phenotyping paves way for genome-wide association studies and selection screens.** T. LASISI, A. ZAIDI, T.H. WEBSTER, N.G. JABLONSKI, M.D. SHRIVER.
- 4:45 **High Altitude Adaptation and the Evolutionary History of *EPAS1* Gene in Tibetan Population.** X. ZHANG, K. WITT, X. JIN, A. ASAN, R. NIELSEN, E. HUERTA-SANCHEZ.
- 5:00 **High variability and decoupling from phylogenetic effects characterize the human microbiome.** S.R. LEIGH, D. MCDONALD, N.J. DOMINY, T.L. GOLDBERG, J. LAMBERT, J.L. METCALF, A. GOMEZ, G.A. BRITTON, R.M. STUMPF, R. KNIGHT, E.K. MALLOTT, K.R. AMATO.
- 5:15 **Gut microbiome community composition is significantly influenced by shared living-space in rural agriculturalists from Burkina Faso.** D.K. JACOBSON, T.S. KAGONE, N. MEDA, H. CARABIN, T. HONAP, K. SANKARANARAYANAN, C.M. LEWIS, JR.
- 5:30 **Association of *MAOA* and *HTTLPR* genetic variants, trauma, resilience, and psychosocial outcomes in Syrian refugee youth.** C.J. CLUKAY, R. DAJANI, D. HAMADMAD, K. HADFIELD, C. PANTER-BRICK, C.J. MULLIGAN.
- 5:45 **Heritability of the Body Composition and Blood Pressure association in ethnically distinct indigenous populations.** S. GHOSH, T. DOSAEV, J. PRAKASH, G. LIVSHITS.

### Session 21

#### Teaching Bio Anth Within and Without a Classroom

##### Invited Poster Symposium

*Chair: Jessica L. Westin. Co-organizers: Margarita Hernandez, Becca Peixotto, Molly Selba*  
CC Room 22

Since its inception in 2014, the Committee on Diversity's Anthropologists outside of Anthropology departments, Contingent, and Teaching-focused faculty (AACT) Task Force has aimed to provide a venue for AAPA members outside of traditional research positions, and students aspiring to non-traditional (i.e. non-research or non-academic) careers. We have presented our work through poster sessions on education-related topics, and have hosted panels covering non-traditional career pathways. These events have generated great interest, and this year, AACT is teaming up with the AAPA Education Committee to host a poster session to share strategies for promoting education and outreach to the local community, K-12 education, and higher education. This poster session will highlight novel lesson plans, activities, and mentoring strategies created by anthropologists working in a variety of formal and informal education settings. We include submissions from research and teaching faculty, undergraduate and graduate students, museum professionals, and non-traditional educators. Symposium topics include units or lesson plans created for public outreach and education, efforts to mentor and train the next generation of teachers, how to present research to the public, museum education, and managing student projects.



# THURSDAY AFTERNOON SESSIONS

Discussant: Briana Pobiner.

- 1 **Training Graduate Students To Be Effective Instructors: Our Experience With A Student-Led Pedagogy Interest Group.** K.M. LESCIOTTO, K. FLAHERTY.
- 2 **Capstone Projects: Combining Critical Thinking and Creativity.** K. SOLURI.
- 3 **NCSE's Scientist in A Classroom Program: Using Primatology to Teach Middle Schoolers about Climate Change and Evolution.** L.J. VOLKERS, M. VERGAMINI, A.L. RECTOR.
- 4 **Managing an undergraduate research lab at a teaching-focused university.** L. KAUFFMAN.
- 5 **Community Outreach: Engaging the Public While Hosting a World Lemur Festival Event at Salt Lake Community College.** M.S. SCHAEFER.
- 6 **Anthropology and Experiential Learning on a Study Abroad in South Africa.** L.M. DAY, J.L. HARRYMAN, B. JACOBY, J. JONES, C.A. MCGRATH, K.D. O'NEILL, S.M. PHILBEN, M. VERGAMINI, L.J. VOLKERS, A.L. RECTOR.
- 7 **Cradle Ambassadors: Public Palaeoanthropology in the Tourism Space.** K. HUNTER.
- 8 **Anthropology outreach initiatives: How to get involved in the local community as a graduate student.** M. HERNANDEZ, T. LASISI, C. MCGUIRE, E. KATE, G. BUCKLEY.
- 9 **Teaching race and gender as bioculturally relevant, not genetic proxies of human difference.** A.R. HUBBARD.
- 10 **Día de Salud: A model for community-based outreach to improve health care access for low-income families.** A.C. DONA, G. EICK, A. HUYNH, J. SNODGRASS.
- 11 **Working with Low Income Students: Ideas and concepts to create a more inclusive classroom.** B. SMITH, C. PACE, M. KISSEL, K. RUSSO.
- 12 **Team-based learning in an introductory bio anth course (or, why I will never go back to just lecturing!).** J.L. WESTIN.
- 13 **"Active learning" in the anthropology classroom improves student engagement, retention, and inclusion.** T. KEETON, A.R. HUBBARD.
- 14 **Caves in the Classroom: Explore Hominid Fossils with Virtual Reality in DinalediVR.** B. PEIXOTTO, A. MONTGOMERY, D. GARCIA MARTINEZ, N. HLOPHE, M. OCHOA, M. RAMALEPA, M. TSIKOANE, S.J. TUCKER, J. MEAD, M. ELLIOTT, L.R. BERGER.
- 15 **Science and Anthropology in Underrepresented Spaces: Discovery Program and Full STEAM Ahead.** S.M. PHILBEN, K.D. O'NEILL, M. VERGAMINI, C.M. CARTOZZO, J. JONES, A.L. RECTOR.
- 16 **Opening Adult Learners Up to New Ideas Using Museum Experiences.** N.M. BURT.
- 17 **Using R stats to teach about hominins and adorable primates.** K.A. WARREN, M. KISSEL.
- 18 **Creating opportunities for K-12 outreach with undergraduate mentors.** D.M. MULHERN, N.C. NEFF, H. BROOKSHIER, M. WILSON.
- 19 **Science Engagement with Religious Institutions and Publics.** R.C. O'MALLEY, E. CROCKER.

# THURSDAY AFTERNOON SESSIONS

## Session 22

### Recent Advancements in the Analysis of Bone Microstructure

#### Invited Poster Symposium

*Chair: Janna M. Andronowski.*

*Co-organizers: Janna M. Andronowski, Isabel Maggiano, Corey Maggiano*

CC Room 23

The investigation of human hard tissues allows us to address a wide range of anthropologically relevant questions about ourselves, past and present, due to their resilience after death and ability to record important aspects of our biological, cultural, and environmental contexts. This symposium focuses on the study of bone histomorphology through innovations in method and theory that further our understandings of bone microstructure and what it can say about human life. Research expertise spans multiple forms of advanced microscopy, imaging, staining techniques, and chemical analyses that push our studies toward the third and fourth dimensions, analyzing bone structure and chemistry, spatially and temporally. The represented work uses comparative, experimental, and discovery-based approaches to provide results illuminating bone growth, physical adaptation, and health for applications across bioarchaeology, anatomy, forensics, and paleontology. This interdisciplinary approach will allow us to delve deeper into bone microarchitectural variation and what it means for understanding human life.

**Discussant: David Cooper.**

- 1 **Image processing techniques for extracting complex three-dimensional cortical pore networks from high-resolution micro-computed tomography (micro-CT) images of the human femoral neck and rib.** M.E. COLE, S.D. STOUT, A.M. AGNEW.
- 2 **The utility of geographic information systems (GIS) software for the spatial analysis of bone microstructure.** T.P. GOCHA.
- 3 **Morphological characteristics of inter-osteonal transverse connections in human Haversian tissue.** I.S. MAGGIANO, C.M. MAGGIANO, D.M. COOPER.
- 4 **Application of Synchrotron micro-Computed Tomography and Confocal Laser Scanning Microscopy to evaluate sex-related differences in the human osteocyte lacunar-canalicular network across the lifespan.** J.M. ANDRONOWSKI, R.A. DAVIS, G. TUBO, D.M. COOPER.
- 5 **Animal models as a platform to probe the spatio-temporal coordination of cortical remodeling and its functional significance.** D.M. COOPER, K. HARRISON, B. HIEBERT, J. ANDRONOWSKI.
- 6 **A population perspective on the co-localization of trace elements in archaeological bone.** T.M. SWANSTON, T.L. VARNEY, I. COULTHARD, R. MURPHY, R. SIMPSON, D.M. COOPER.
- 7 **Skeletal microstructure growth dynamics in ancient humans and fossil rats from Indonesian islands.** J.J. MISZKIEWICZ, P. MAHONEY, J. LOUYS, S. O'CONNOR, C. MORGAN, B. WYATT, P. BELLWOOD.
- 8 **Microscopic markers of an infradian biorhythm in human juvenile ribs.** R. PITFIELD, J.J. MISZKIEWICZ, P. MAHONEY.

## THURSDAY AFTERNOON SESSIONS

- 9 **The Use of Raman Spectroscopy to Examine Bone Composition in Infant Ribs.** M.E. SOTO MARTINEZ, C.M. CROWDER, X. BI.
- 10 **Optical staining of bone mineral in human osteons reveals a fiber texture of mineral grains.** S. GOMEZ, B. HU, T. BROMAGE.
- 11 **Use of Special Stains to Narrow Etiology in the Histopathology of Anemia.** L. WATAMANIUK.
- 12 **The Use of Laser Scanning Confocal Microscopy in Detecting Bone Microstructure Using Basic Fuchsin and Toluidine Blue Stains.** A.C. SMITH.
- 13 **Semi-quantitative BSE-SEM evaluation of osteocyte and vascular porosity across complete bone cross section.** B. HU.
- 14 **Feasibility of volumetric bone mineral density (vBMD) to predict rib structural properties.** R.L. HUNTER, Y. KANG, K.C. BRILEY, A.M. AGNEW.

### Session 23

#### **Homo heidelbergensis: What's in a name or rather, who actually belongs?**

##### **Invited Poster Symposium**

*Chair: Mirjana Roksandic. Co-organizers: Christopher Bae*

**CC Room 24**

Despite attempts to properly define *Homo heidelbergensis*, there is no consensus on what this taxon represents, beyond the general agreement that they are Middle Pleistocene hominins not easily assigned to *H. erectus* or to modern *H. sapiens*. Opinions on how to define and interpret *H. heidelbergensis* range from calls to limit it to Neanderthal ancestry or to limit it to non-Neanderthal ancestry, to either reserve the term for European Middle Pleistocene specimens or to include the specimens from Africa or possibly even the entire Old World. Some have even argued to abandon the use of this taxonomic name altogether. Recent years have seen substantial challenges to the views that dominated paleoanthropology for the last three decades, most prominently in what concerns the Middle Pleistocene hominins. Non-invasive studies of hidden morphological structures, advances in radiometric dating and last but not least, important strides in ancient DNA research have contributed to challenging what has become an orthodox view of modern humans emerging from a single African source and replacing all other "species" across the Old world. From recognition of Denisovans as a new group of MP hominins, acceptance that Neanderthals did interact and mate with modern humans on a regular basis, the evidence of introgression of genes into the Neanderthal genome and the increasingly common recognition of the persistence of morphologically distinct regional populations (*H. naledi*, *H. floresiensis*) have played an important role in this change. *Homo heidelbergensis* is still an important taxon in this debate and we need to examine its validity and the range of its hypodigm in an open discussion among researchers who hold varying positions. We are currently preparing to submit a proposal to publish these proceedings in *Journal of Human Evolution* (JHE) given that the theme of this symposium aligns closely with one of JHE's major themes.

## THURSDAY AFTERNOON SESSIONS

Discussant: Leslie Aiello.

- 1 *Homo heidelbergensis*: what do we need to set the question of the validity of this taxon to rest. M. ROKSANDIC, C. BAE.
- 2 The Late Middle Pleistocene fossils from Montmaurin (Haute-Garonne, France). A contribution to the question of the emergence of the Neandertal lineage. A. VIALET, M. MARTINEZ DE PINILLOS, J. BERMUDEZ DE CASTRO, M. MARTINON-TORRES, B. BERTRAND, T. COLLARD.
- 3 The Neanderthals before the Neanderthals: The Levantine scenario. I. HERSHKOVITZ.
- 4 Was *Homo heidelbergensis* in Africa? A. MOUNIER, M. MIRAZÓN LAHR.
- 5 Middle Pleistocene human fossils found in China: isolated evolution or influenced by migration? X. WU, W. LIU.
- 6 Assessing the status of *Homo heidelbergensis* through dental morphology and ancestral state reconstruction approaches. A. GOMEZ-ROBLES.
- 7 Hohlenstein-Stadel mitochondrial DNA and the “Middle Pleistocene Out of Africa Model”. C. POSTH, J. KRAUSE.
- 8 Middle Pleistocene hominin systematics: *Homo heidelbergensis*, *Homo sapiens*, and the species concept revisited. S.G. ATHREYA.
- 9 Classifying the Middle Pleistocene hominins: Testing taxonomic hypotheses using supraorbital morphology. S. WHITE, C. SOLIGO, M. POPE, S. HILLSON.

# FRIDAY, ALL DAY SESSIONS

## Session 24

### Dental Anthropology: Variation, Disease and Diet

#### Contributed Poster Presentations

*Chair: Daniel Ehrlich*

8:00 Poster setup.

10:00 Poster session opens.

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

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

- 1 **Interobserver Agreement in Scoring Dental Morphology using ASUDAS in South Australian Whites.** S. HAY, L.E. CIRILLO, T. VLEMINCQ-MENDIETA, D. KENESSEY, R.L. PERASH, S.J. COLE, K.A. BROEHL, G. SCOTT.
- 2 **Closing the gap: Examining sex differences in oral health.** G. ERRICO, G. HUNT, D. HUNT.
- 3 **Discriminant function analysis of cervical diameters of permanent teeth to estimate sex of subadult skeletal remains.** M.K. GRIFFITH, S. HILLSON.
- 4 **Exploring Sex- and Age-Based Variations in Diet in Ancient Greek Sicily Using Dental Microwear Analysis.** A. JOHNSON, L.J. REITSEMA, A.K. SMITH, S. VASSALLO, B. KYLE.
- 5 **Testing the Effectiveness of Permanent Canine Tooth Metrics for Sex Estimation in a Medieval Prussian Sample.** A. GRUENTHAL-RANKIN, K. GADDIS, A. KOPERKIEWICZ, M. POLCYN, M. RAMSIER.
- 6 **Life history parameters recorded in dental cementum.** P. CERRITO, S.E. BAILEY, B. HU, T.G. BROMAGE.
- 7 **Dental microwear texture analysis as a tool for discerning intra-population dietary patterns: Evidence from the Croatian Copper Age site of Potočani.** J.L. DROKE, J.C. AHERN, I. JANKOVIĆ, M. NOVAK, J. BALEN, H. POTREBICA, C.W. SCHMIDT.
- 8 **Dental Microwear Texture Analysis of Archaic Period Groups in Indiana and Kentucky.** E. EDWARDS, A. MCDANIEL, C. SCHMIDT, C. MOORE.
- 9 **Dental microwear analysis of the ancient population from Jiayi Cemetery, Northwestern China.** W. ZHANG, H. CUI, P. LI, J. LI.
- 10 **The impact of environmental grit on dental wear at Tell el-Amarna, Egypt: Investigating the windblown sand theory.** E.L. MOREY.
- 11 **Diet and Catastrophe: Dental Microwear Analysis of a Population Under Siege at the Ancient Greek Colony of Himera.** E.C. FLEMING, L.J. REITSEMA, K.L. REINBERGER, S. VASSALLO, B. KYLE.
- 12 **Eating in or dining out: a multiscale (local to global) examination of stable carbon and nitrogen isotope ratios from the Roman period (AD 200-400) community at Oymaağaç, Turkey.** K.E. MARKLEIN.
- 13 **Diet in the northern highlands of Ecuador during the Formative Period (3500 – 500 BC): Insights from bone collagen stable carbon and nitrogen isotope analysis.** P. TORRES PEÑA, S. GARVIE-LOK.

## FRIDAY ALL DAY SESSIONS

- 14 **Micro-sampling tooth dentine for stable carbon and nitrogen isotope analysis: early life dietary analysis of prehistoric hunter-gatherers around Lake Baikal, Siberia.** V.M. VAN DER HAAS, O.I. GORIUNOVA, V.I. BAZALIISKII, A.W. WEBER.
- 15 **Got fish? Diet and dental health of the Late Intermediate (ca. 1000-1450 CE) peoples in the Atacama Desert, northern Chile.** M.P. ALFONSO-DURRUTY, E.M. GAYÓ, V.G. STANDEN, V. CASTRO, C. LATORRE, C. SANTORO, D. VALENZUELA.
- 16 **Decontaminating Dental Calculus for Ancient Starch Research.** S. CLARKE, M. SOTO, J. INWOOD, J. MERCADER.
- 17 **Assessing striae of Retzius periodicity nondestructively using perikymata counts and distribution in two new populations.** B.J. BETZ, M.C. O'HARA, L. OLDERSHAW.
- 18 **Late Neolithic children of Belgium: A comparison of deciduous molar morphology from four caves burials.** F.L. WILLIAMS, R.L. GEORGE.
- 19 **To be or not to be MZ or DZ: Diagnosing zygosity in South Australian white twins from nonmetric crown traits.** S.J. COLE, K.A. BROEHL, L.E. CIRILLO, S. HAY, D. KENESSEY, R.L. PERASH, T. VLEMINCQ-MENDIETA, G. SCOTT.
- 20 **Transmigration of impacted mandibular canines in ancient Nubia.** A.J. PTACEK, B.J. BAKER, K.L. BOLHOFNER.
- 21 **Raising the Roof: Assessing Global Frequencies of Palatine Torus.** R.L. PERASH, S.J. COLE, G. SCOTT.
- 22 **An Intra-site Biodistance Analysis of the Maya: Dental Evidence for Urbanism at Copan.** K. MILLER WOLF.
- 23 **Biological Distance and Burial Practice: An Investigation of the Perry site (1LU25).** A.N. STEWART.
- 24 **Presence of Lingual Cuspule and paraconid on one Archaic period individual from the Ohio Valley.** E.C. BLANKENSHIP-SEFCZEK.
- 25 **A Re-Evaluation of the Sinodont and Sundadont Dental Complexes for the Peopling of the Japanese Archipelago.** S.A. KLAINER, G.R. SCOTT.
- 26 **Hyksos in Egypt – utilising biodistance methods to interpret archaeological and textual evidence from Tell el-Dab'a.** N. MAARANEN, S.R. ZAKRZEWSKI, H. SCHUTKOWSKI.
- 27 **Identity and Dental Modification in Prehispanic Ecuador.** S.L. JUENGST.
- 28 **Pulling teeth: Dental avulsion at Kulubnarti, Sudan, in regional context.** K.L. BOLHOFNER, B.J. BAKER.
- 29 **The Embodiment of Gendered Weaning Stress in the Dental Structures of Archaic Texas Hunter-Gatherers: An Analysis of Age-at-Formation of Linear Enamel Hypoplasia.** C.L. ZNACHKO, L.G. KOUTLIAS.
- 30 **Investigating patterns of growth disturbances in a Neolithic sample from Liguria (north-western Italy, 4800-4400 BCE) from the analysis of enamel defects and diet.** I. DORI, E. ORELLANA GONZÁLEZ, G. GOUDE, A. VARALLI, J. MOGGI-CECCHI, V.S. SPARACELLO.
- 31 **Unexcused abscesses: the unexpected demographics of dental abscesses at Ancón, Peru.** C. MONESMITH, B. GREEN, S.R. WILLIAMS.
- 32 **Childhood growth and diet: insights from analysis of deciduous teeth from the Tooth Fairy collection (France).** M. LE LUYER, M. BAS, P. MAHONEY, P. BAYLE.

# FRIDAY ALL DAY SESSIONS

- 33 **Health inequality as seen in human skeletal remains in early modern period in Japan.** H. TOMITA, N. SEGUCHI, N. SEGUCHI.
- 34 **Population history of southern Italy during Greek colonization inferred from dental remains.** H. RATHMANN, B. KYLE, K. HARVATI, R. POSAMENTIR, G. SALTINI SEMERARI.
- 35 **DMTA of Muchik sacrifice victims from Cerro Cerillos.** M.R. HOFFMAN, M.C. VERMILLION, C.W. SCHMIDT, H.D. KLAUS.
- 36 **Dental Pathology and Dietary Intake of Inner Asian Steppe Inhabitants during the Historic Mongol Period- Yuan Dynasty (ca. CE 1200-1400).** M. MACHICEK, J.T. ENG.
- 37 **Life History Perspectives on Carious Lesion Formation.** K. KUBEHL, D.H. TEMPLE.
- 38 **Famine and Tooth Decay: Assessing the Relationship between Famine and Caries Frequencies.** A.K. KINDLER, B.S. WALTER.
- 39 **Corn, Culture, and Caries: A Temporal Study of Carious Lesions on the Mississippian Periphery.** E.M. LAGAN, R.A. COOK, M. HUBBE.
- 40 **A Study of Remains of Human Beings Excavated in the Graveyard of Xiabandi.** Y. WANG.
- 41 **Preliminary analysis of dental pathologies frequencies among individuals at Los Indios archaeological site (AD 600-1200) Santa Isabel, Puerto Rico: considering oral health during the Late Ceramic Age (AD 600-1500).** A. BELTRAN-BURGOS.
- 42 **Dental Disease in an Egyptian Colonial Cemetery at Tombos.** M.J. FURTNER, M.R. BUZON.

## Session 25

### Human Biology

#### Contributed Poster Presentations

*Chair: Melissa Liebert*

CC Ballroom BC

- 8:00 Poster setup.
- 10:00 Poster session opens.
- 1:30 Odd number presenters stand by their posters (1 hour).
- 5:30 Even number presenters stand by their posters (1 hour).
- 1 **Ecological predictors of allomaternal care across human societies.** J.S. MARTIN, E.J. RINGEN, A.V. JAEGGI.
  - 2 **Household exposure to allomaternal care improves early cognitive outcomes in older female infants.** B. SINGLETARY.
  - 3 **Impact of socioeconomic status on breastfeeding initiation and duration.** E.E. TYLER, L.M. SCHELL.
  - 4 **An evolutionary model for the origins of temporal discounting in humans and non-human animals.** B.A. VILLMOARE, D. KLEIN, P. LIENARD, T. MCHALE.
  - 5 **The role of the precuneus in accurate long-range projectile throwing: a transcranial magnetic stimulation study.** J.K. RILLING, L. RICHEY, D. GRAF, M. LEE, C. EPSTEIN.

## FRIDAY ALL DAY SESSIONS

- 6 **An ethological investigation of the evolutionary causes and consequences of fasting in humans.** C.D. PLACEK.
- 7 **Presence of Xenoestrogens in the Hunter-Gatherer Diet of Mbendjele BaYaka from Republic of Congo.** M.D. WASSERMAN, I. THOMPSON, E. CHESTER, K. JANMAAT.
- 8 **Geophagy in The Gambia: An exploration of the motivators for eating earth among men and women.** J.D. CRAMER, M. JALLOW, J.D. MILLER, S.L. YOUNG.
- 9 **When did families in Kodinhi (Kerala State, India) start having unprecedented numbers of twins? Preliminary results.** R. RAKER, S. RIFAIE, A. SHENOY, S. EWING, E. BARAGAR, G. SAVARIMUTHU, J. FRANCIS, R. BLAIR, L. MADRIGAL.
- 10 **Ancestral climatic histories and their influence on interindividual variation in cold-induced vasodilation responses.** K.A. WEST, B. FLOYD.
- 11 **The interaction of climatic and energetic factors on human nasal morphology.** A.P. KELLY, S.D. MADDUX.
- 12 **Selection for lifetime reproductive success among ethnic Tibetans residing at high altitude in Nepal.** C. JEONG, D.B. WITONSKY, B. BASNYAT, M. NEUPANE, C.M. BEALL, G. CHILDS, S.R. CRAIG, J. NOVEMBRE, A. DI RIENZO.
- 13 **A Method for Identifying Cold-Induced Activation of Brown Adipose Tissue.** V.M. BATTISTA, J. TORPY.
- 14 **Are we what we eat? Regional diet, but not climate, shapes cranial morphology in Jomon foragers.** L.T. BUCK, I. DE GROOTE, Y. HAMADA, J.T. STOCK.
- 15 **Impact of the 1854 cholera epidemic at the Erie County Poorhouse, Buffalo, New York.** R.L. HIGGINS, J.E. SIRIANNI.
- 16 **Dental Health At the Cusp of the Third Epidemiological Transition.** L.R. WILLIAMS, A. LANS, S. DUFFY.
- 17 **The Aftermath and Effects of Zika Virus on Human Growth and Development.** A.A. CHUGHTAI.
- 18 **The Effects of the Missouri and Mississippi Rivers in the Epidemiological Spread of the 1918 Influenza Epidemic.** S.A. CLARK, C.M. ORBANN.
- 19 **Selective mortality of tuberculosis after the 1918 influenza pandemic in two Newfoundland regions.** T. PASKOFF.
- 20 **Comparison of two Alaskan cultural groups during the 1918-19 influenza pandemic using social network modeling.** M. MURRAY, L. SATTENSPIEL.
- 21 **The Effects of Soundscape on the Prairie Madness Phenomenon.** A.D. VELEZ, M. CONDE-VALVERDE, J. MARCHAMALO-AMADO, A.E. AHONEN.
- 22 **Allostatic load predicts chronic disease in New Mexicans of Spanish-speaking descent.** C. MOSLEY, M. HEALY, K. RUSK, K. HUNLEY, H. EDGAR.
- 23 **Investigating symptoms of depression in African Americans by integrating genetic and sociocultural data.** K.C. FULLER, C. MCCARTY, C.C. GRAVLEE, C.J. MULLIGAN.
- 24 **The embodiment of social experience: How social support and workplace incivility vary with health indicators in female scientists of color.** M.A. RODRIGUES, R. NEUBAUER, D. HERRERA, R. MENDENHALL, E.A. STINE-MORROW, K.B. CLANCY.



# FRIDAY ALL DAY SESSIONS

- 25 **Menstrual cycle variability in rural Bangladeshi women.** B. BASU, D.J. HOLMAN, A. PAN, T.T. NGUYEN.
- 26 **Men's secretory immunoglobulin-A, testosterone, and cortisol are significantly associated within a single day and across two sequential days.** G. ALBERT, N. LANDRY, T.L. ORTIZ, J.M. CARRÉ, S.A. ARNOCKY, C.R. HODGES-SIMEON.
- 27 **The Effect of Polycystic Ovarian Syndrome (PCOS) on Bone Mineral Density.** S. BRUCKLER, M. MOORE.
- 28 **A Closer Look at Global Prevalence of Obstetric Fistula.** L.R. LANG, C. KNOTT.
- 29 **How conflicting messages during pregnancy affect U.S. women's self-reported and biological stress levels.** G.T. RITCHIE-EWING, B.A. PIPERATA.
- 30 **Climate Change and Invisible Suffering: Transgenerational Impacts of Traumatic Maternal Experiences of Extreme Drought.** B. STRAIGHT, C.E. HILTON, G. ONICESCU, B. NEEDHAM, A. NAUGLE, O.C. OWUOR, Y. SHEN, S.M. HAFT, S. LESEELA, D.L. LESEELA, C. JESKA, C. KELEMPU.
- 31 **Maternal stress, anxiety, and fear of childbirth among planned homebirth mothers: results from a mixed methods study.** N.L. FALK-SMITH, L. MADRIGAL, L. MADRIGAL.
- 32 **Media interpretations of "Palaeo-diets" for pregnant women, babies, and toddlers: Relationships to anthropological evidence and public health guidelines.** L.J. MCKERRACHER, T. MOFFAT, M.E. BARKER, D.M. SLOBODA.
- 33 **Exploring the Effect of Socioeconomic Factors on Body Size and Health in the United States from 2000-2018.** E.Y. CHU, B.T. NEW.
- 34 **Secular trends in cardiovascular and metabolic health among the Indigenous Shuar of Amazonian Ecuador.** A.M. TREADWAY, M.A. LIEBERT, F.C. MADIMENOS, S.S. URLACHER, T.J. CEPON-ROBINS, T.E. GILDNER, J.M. SCHROCK, C.J. HARRINGTON, D. AMIR, A.D. BLACKWELL, R.G. BRIBIESCAS, J.J. SNODGRASS, L.S. SUGIYAMA.
- 35 **Metabolic syndrome in urban young adults from Merida, Mexico.** S. DATTA BANIK, A. NUDEL ONTIVEROS, R. MÉNDEZ GONZÁLEZ.
- 36 **The Global History of Health Project - Asia Module.** Q. WANG, Q. ZHANG.
- 37 **Testing least cost path (LCP) models for travel time and kilocalorie expenditure: implications for landscape genomics.** K.M. GOWEN, T.S. DE SMET, R.M. GARRUTO, J.K. LUM.
- 38 **Human Walking Behavior.** A. BONNER-HARRIS, C. WALL-SCHEFFLER.
- 39 **Daily Lives of Samburu Pastoralist Children: Work, herding, and food consumption.** D. ALLEN, C.E. HILTON, B. STRAIGHT.
- 40 **Coping strategies of maternal and infant feeding practices after a natural disaster among Zapotec peoples in Oaxaca, Mexico.** N. PAREDES RUVALCABA.
- 41 **Integration of growth in head circumference, body length, and body weight in rural Gambian infants during the first year of life.** R.M. BERNSTEIN, Z. STANLEY, N. AFFARA, D.B. DUNGER, K.K. ONG, A.M. PRENTICE, S.E. MOORE.
- 42 **Quantifying growth faltering across the first year of life in rural Gambian infants.** D.J. NAUMENKO, J. DYKES, G. O'CONNOR, Z. STANLEY, N. AFFARA, D.B. DUNGER, K.K. ONG, A.M. PRENTICE, S.E. MOORE, R.M. BERNSTEIN.

## FRIDAY ALL DAY SESSIONS

- 43 **The infancy-childhood transition in rural Gambian infants.** G. O'CONNOR, Z. STANLEY, J. DYKES, D.J. NAUMENKO, N. AFFARA, D.B. DUNGER, K.K. ONG, A.M. PRENTICE, S.E. MOORE, R.M. BERNSTEIN.
- 44 **Quantifying growth pulses across the first year of life in rural Gambian infants.** J. DYKES, J.A. CUMMINGS, D.J. NAUMENKO, G. O'CONNOR, Z. STANLEY, N. AFFARA, D.B. DUNGER, K.K. ONG, A.M. PRENTICE, S.E. MOORE, R.M. BERNSTEIN.
- 45 **Influence of sex, season of birth, and gestational age at delivery on growth in rural Gambian infants from birth to one year.** Z. STANLEY, J. DYKES, D.J. NAUMENKO, G. O'CONNOR, N. AFFARA, D.B. DUNGER, K.K. ONG, A.M. PRENTICE, S.E. MOORE, R.M. BERNSTEIN.
- 46 **Breastfeeding and complementary feeding patterns in a rural Gambian population.** J. WASHABAUGH, S.E. MOORE, N. AFFARA, D.B. DUNGER, K.K. ONG, A.M. PRENTICE, R.M. BERNSTEIN.
- 47 **A cautionary theory: Learning from the origins of allometric scaling.** A.B. BRUMMER, J.D. MONK, A.B. RODDY.

### Session 26

#### Primate Reproductive Ecology

##### Contributed Poster Presentations

*Chair: Cheryl Knott*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

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

- 1 **Sex Differences in Orangutan Long Bone Skeletal Strength in Relation to Flanging Status.** A.E. KRALICK.
- 2 **Exploring adaptive functions of geophagy across non-human primates: Considering the role of sexual selection.** B.N. MYERS, C.D. PLACEK.
- 3 **Timing of reproductive onset among female vervet monkeys (*Chlorocebus pygerythrus*) in wild and human-impacted populations.** S.R. PARKE, A.M. RICH, M.B. BLASZCZYK, C.A. SCHMITT.
- 4 **Maternal position within the dominance hierarchy in *Macaca mulatta*: Associations with offspring 2D:4D ratio and growth.** J. ARROYO, L. MADRIGAL, R. LONES-KHALFOUNI, M. LEBRÓN, M. MARTÍNEZ, C. ESCABÍ.
- 5 **Tainted love: Why do female olive baboons dart after copulations?** J.T. WALZ, D.M. KITCHEN.
- 6 **Social influences on reproductive development and maturation in female geladas.** J.A. FEDER, J.C. BEEHNER, A. LU.
- 7 **Effect of Reproduction on Javan Slow Loris Mother's Activity Budget and Ranging Behavior.** A. WELDON, S. POINDEXTER, M. CAMPERA, M.A. IMRON, K. NEKARIS.

# FRIDAY ALL DAY SESSIONS

- 8 Gestation length in African and Asian colobines. C. BORRIES, C.S. MONGLE, A. KOENIG.
- 9 The reproductive ecology of the Kinda baboon: female synchrony and male reproductive skew. M. PETERSDORF, J.P. HIGHAM, A.H. WEYHER.

## Session 27

### Human Skeletal Biology: Variation and Variability

#### Contributed Poster Presentations

Chair: Erin Waxenbaum

CC Ballroom BC

- 8:00 Poster setup.
- 10:00 Poster session opens.
- 1:30 Even number presenters stand by their posters (1 hour).
- 5:30 Odd number presenters stand by their posters (1 hour).
- 1 Pelvic sexual dimorphism: The relationship between sacral slope, body mass, and greater sciatic notch shape. S.M. ZALESKI.
- 2 A natural history of the femoral neck. A.G. CLAXTON.
- 3 Variation in Sexual Dimorphism Due to Climatic Stress. M.E. FEILER, E.B. WAXENBAUM.
- 4 Ontogenetic processes in the nasal cavity among Alaskan Inuits: Implications for respiratory adaptations in cold-dry environments. L.N. BUTARIC, S.D. MADDUX, C.L. NICHOLAS, A. EVTEEV.
- 5 Talar forces and moments in turning. S.G. LAUTZENHEISER, A.D. SYLVESTER, P.A. KRAMER.
- 6 Measuring enthesal morphology of the opponens pollicis muscle in digital and physical specimens of *Homo sapiens*. L.A. BOWLAND, M.W. TOCHERI, C.M. ORR.
- 7 Geometric morphometric assessment of skull symmetry in 6-8.0 year old humans. J.M. CRONIN, A.M. SHAUGHNESSY, J. VANNAHEUANG, L.E. CIRILLO, G.D. RICHARDS, R.S. JABBOUR.
- 8 Ontogeny of human cranial vault microstructure. D. LOMBARDO, H. COQUEUGNIOT, T. COLARD.
- 9 Investigating covariation between cranial vault thickness and brain size. H.E. MARSH.
- 10 Relationship between chondrocranial-derived components of the nasal complex and cranial base. T.R. YOKLEY, B. JACOBSON, J.E. SCOTT, N.E. HOLTON.
- 11 Middle meningeal arteriovenous and dural sinus variation in 6-8.0 year old humans. I.B. REICH, P.S. SIMONE, C.M. CONNOR, C. LEE, T.W. SHIEN, R.S. JABBOUR, G.D. RICHARDS.
- 12 3D geometric morphometric analyses of the human torso morphology reveal new understandings about the torso integration in primates. N. TORRES-TAMAYO, D. GARCÍA-MARTÍNEZ, S. NALLA, A. BARASH, S.A. WILLIAMS, E. BLANCO-PÉREZ, F. MATA-ESCOLANO, J. SANCHIS-GIMENO, M. BASTIR.
- 13 To Correct for Size or Not: Examining the Problem Using the Pelvis. H. DELPRETE.

## FRIDAY ALL DAY SESSIONS

- 14 An automated tool for measuring human limb bones using 2D images. A.B. LEE, P. LI, D.W. HOIEM.
- 15 Patterns of Skeletal Asymmetry in the Human Pelvis. A. ERIKSEN, N. VON CRAMON-TAUBADEL.
- 16 Morphological integration and modularity in the humerus of modern humans. M.F. BRASIL.
- 17 Length variation in the upper limbs and hands of modern Thai skeletons. D.T. CASE, K.R. SAVELL.
- 18 Sacroiliac joint fusion in nulliparous and parous females and males. M.N. AULDS.

### Session 28

#### Non-human Primate Evolution

##### Contributed Poster Presentations

Chair: Kieran McNulty

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

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

- 1 New ages for old primates: a revised geochronology for the highly endemic late Uintan and early Duchesnean assemblages from the Devil's Graveyard Formation of West Texas. C.J. CAMPISANO, A.L. DEINO, C.J. LEPRE, E. KIRK.
- 2 Phylogenetic Affinities of Sivaladapidae within Adapoidea. K. RUST.
- 3 Olfactory system anatomy in *Homunculus* and the ecological importance of olfactory cues among stem platyrrhines. I.K. LUNDEEN, R.F. KAY.
- 4 Morphometric affinities of a new fossil ulna from Buluk, Kenya. A.C. NISHIMURA, G.A. RUSSO, I. NENGO, E.R. MILLER.
- 5 Moving through time: Intermediate phalanges from East African early and middle Miocene catarrhines reveal locomotor changes. I.D. ARNEY, M. MCCROSSIN, B. BENEFIT, I. NENGO.
- 6 A Phylogenetic Analysis of European Pliopithecoids. A.C. HOLMES, D.R. BEGUN.
- 7 The *Oreopithecus bambolii* (IGF 11778) lumbar region: Revised anatomy. A.S. HAMMOND, L. ROOK, S. MOYÀ-SOLÀ, S. ALMÉCIJA.
- 8 Lower molar endostructure in *Rudapithecus hungaricus* (late Miocene, Hungary). C. ZANOLLI, D.R. BEGUN, J. KELLEY.
- 9 Mandibular third premolar root morphology in *Rudapithecus hungaricus* and its implications for diet. R.M. MARTIN, A. LE CABEC, D.R. BEGUN, K. KUPCZIK.
- 10 A deformation-based geometric morphometric analysis of the vestibular apparatus in the Miocene apes *Hispanopithecus laietanus* and *Rudapithecus hungaricus*. A. URCIUOLI, C. ZANOLLI, D. BEGUN, S. ALMÉCIJA, J. DUMONCEL, S. MOYÀ-SOLÀ, D.M. ALBA.

## FRIDAY ALL DAY SESSIONS

- 11 **Taxonomic variation in the large catarrhines from Rusinga and Mfangano Islands.** K.P. MCNULTY.
- 12 **Insights into the paleobiology of early Colobinae: new views from the Late Miocene of Central Africa, Chad.** L.T. PALLAS, H.T. MACKAYE, A. LIKIUS, P. VIGNAUD, F. GUY, G. DAVER.
- 13 **The oldest, most complete skeleton of *Theropithecus*, ARI-VP-1/26 from Woranso-Mille, Afar, Ethiopia.** S.R. FROST, N.G. JABLONSKI, Y. HAILE-SELASSIE.
- 14 **New macaque remains from the Middle Pleistocene of Gruta da Aroeira, Portugal.** D.M. ALBA, J. DAURA, M. SANZ, E. SANTOS, A.S. YAGÜE, E. DELSON, J. ZILHÃO.
- 15 **Palaeoproteomic analysis of Early Pleistocene *Gigantopithecus blacki*.** F. WELKER, J. RAMOS-MADRIGAL, W. WANG, M. KUHLWILM, M. DE MANUEL MONTERO, F. DEMETER, C. LALUEZA-FOX, T. MARQUES-BONET, J.V. OLSEN, E. CAPPELLINI.
- 16 **Night and day: Subfossil faunal representation in neighboring Malagasy caves illustrates interaction and exclusion by predator and prey.** L.R. GODFREY, Z.S. KLUKKERT, M.E. LEWIS, N.J. RAHANTAHARIVAO, L. RANIVOHARIMANANA, P. FAINA, N. SCROXTON, S.J. BURNS.
- 17 **Resolving the taxonomic status of *Cercopithecus dryas* Schwarz 1932 and *C. salongo* Thys van den Audenaerde 1977.** C.C. GILBERT, E.J. SARGIS, E. GILISSEN, J.L. ARENSON, B.A. PATEL, M. NAKATSUKASA, K.M. DETWILER, T.B. HART, J.A. HART.
- 18 **Trophic shifts, diversification, and the adaptive origins of crown primates.** J.E. SCOTT.
- 19 **The evolution of body size in Strepsirrhine primates.** A. PENNA, L. POZZI.
- 20 **Identification of Extant Cercopithecoid Isolated Molars using 3D GM.** E.J. MAZELIS.
- 21 **Predicting skull shape from admixture history in a multigenerational macaque cross sample.** D.C. KATZ, L.T. BUCK, J. DEVINE, R.R. ACKERMANN, B. HALLGRIMSSON, L.J. HLUSKO, S. KANTHASWAMY, T.D. WEAVER.

# FRIDAY ALL DAY SESSIONS

## Session 29

### Functional Morphology, Biomechanics and Evolutionary Anatomy

#### Contributed Poster Presentations

*Chair: Maja Seselj*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

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

- 1 Capturing 3D locomotor kinematics of modern humans to determine behavioral substrate navigation. A.L. WISEMAN, T. O'BRIEN, I.E. DE GROOTE.
- 2 Muscle myosin heavy chain content and the evolution of hominin walking costs. M.C. O'NEILL, B.R. UMBERGER.
- 3 Tibial torsion and patterns of metatarsal robusticity in humans: an osteometric study. M.A. SCHRANK, J.S. WOLLMANN, A.S. MARSHALL, L.T. GRUSS.
- 4 Tibial torsion and pressures in the feet during walking and standing in humans: an experimental study. J.S. WOLLMANN, A.S. MARSHALL, M.A. SCHRANK, L.T. GRUSS.
- 5 Covariation across the thoracolumbar vertebral column in hominoids. E.R. MIDDLETON.
- 6 Humans have relatively larger lumbar vertebrae than African apes. N. KORPINEN, M. NISKANEN, J. JUNNO, T. VÄRE.
- 7 Stature estimation as allometry. L.W. KONIGSBERG, S.R. FRANKENBERG.
- 8 Applying BayesModelS to body mass prediction; comparisons with traditional approaches and recommendations for future paleontological reconstructions. J.D. PAMPUSH, G.S. YAPUNCICH, E.J. FUSELIER.
- 9 Obstetric constraints in large-brained cebids and modern humans: a comparison of coping mechanisms. N.M. LAUDICINA, M. CARTMILL.
- 10 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. ZOLLIKOOPER.
- 11 The Role of Broca's Area in Stone Toolmaking Action Perception. Z. ANWARZAI, S.S. PUTT, L. RUCK, C. YANG, P. SCHOENEMANN.
- 12 Finding heterochronic signals through the noise: can statistical reduction of landmark datasets find a heterochronic relationship in the pannins? J.S. MASSEY, K.P. MCNULTY.
- 13 Enamel thickness in the deciduous dentition of humans and great apes. A. ORTIZ, S.E. BAILEY, J. HUBLIN, M.M. SKINNER, G.T. SCHWARTZ.
- 14 Mixed support for the patterning cascade model in bears: Implications for understanding the evolution and development of hominoid molar morphology. E.A. KOZITZKY, S.E. BAILEY.
- 15 Covariance among zygomatic bone shape, eye orbit shape, and the zygomaticotemporal space. A. PETTIT, B. VILLMOARE.
- 16 Integration of the canine region within the hominine alveolar arch. J. LAWRENCE, W.H. KIMBEL.

# FRIDAY ALL DAY SESSIONS

## Session 30

### Forensic Anthropology

#### Contributed Poster Presentations

*Chair: Nicole Siegel*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

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

- 1 The Frequency and Distribution of Drug Research Across the American Journal of Physical Anthropology: Does Drug Use Affect Skeletal Biology? M.C. SPIROS, H.S. MCKEE.
- 2 Research from records: retrieving and sharing useful data from a non-research database. S. DANESHVARI BERRY, H.J. EDGAR.
- 3 Current and proposed qualifications for forensic anthropologists. N.V. PASSALACQUA, M.A. PILLOUD.
- 4 NMDID: A new research resource for biological anthropology. H.J. EDGAR, S.R. DANESHVARI BERRY.
- 5 Using Elliptical Fourier Analysis to Validate the Use of Upper-Facial Traits in the Construction of the Biological Profile. J.R. LEWMAN, S.P. NAWROCKI, K.E. LATHAM.
- 6 Multi-Isotopic Investigation to Determine the Provenance of an Unidentified Female. G. GOAD, K. VEROSTICK, E. KIMMERLE, G. KAMENOV.
- 7 Differentiating human skeletal remains through energy dispersive X-ray fluorescence (EDXRF). K. CAMPEAU.
- 8 Best Practices for the Macerating Human Thyroid Cartilage. A.M. LAGOY, T. SOMOGYI, E.A. EVANGELOU, E.A. DIGANGI.
- 9 A Retrospective Analysis of Qualitative Postmortem Interval Estimation in Louisiana. S.I. RECK.
- 10 Features of Decomposition from an Accidental Burial with a Defined Postmortem Interval in a Northern Latitude State. P.R. STUBBLEFIELD.
- 11 Out in the Cold: How cold temperatures and weather conditions influence the rate of decomposition in pig proxies (*Sus scrofa*). K.C. WOOLLEN.
- 12 Shape analysis of the pubic symphyseal outline in a modern human sample. M.J. RUE, C.C. CATALDO-RAMIREZ, R.R. DUNN, H.M. GARVIN.
- 13 Application of the 3D quantitative shape analysis method for age assessment from os coxae in European samples. A. KOTEROVA, J. VELEMINSKA, E. CUNHA, J. BRUZEK.
- 14 Reconsidering osteoarthritis as a skeletal age indicator. A.P. WINBURN, M.K. STOCK.
- 16 Testing a computational approach for estimating age-at-death on a modern Portuguese population. L.J. JOHNSON, J.D. BETHARD.

## FRIDAY ALL DAY SESSIONS

- 17 **Quantifying error in virtual data collection: the impact of MSCT scan segmentation protocol and inter-observer error in 3-D landmark placement on the human subadult pelvis.** M.K. STOCK, L.K. CORRON, L.E. CIRILLO, H.M. GARVIN, C.N. HULSE, S.J. COLE, K.E. STULL, A.R. KLALES.
- 18 **Estimating Body Mass for Subadults: A Radiographic Study of the Femur.** E.F. PINKSTON, S. GLASGOW, A. GRUENTHAL-RANKIN, M. RAMSIER, S. CHAN.
- 19 **Assessing the potential of ilium outlines, greater sciatic notch metrics, and indices of pubic/ischial length for subadult sex estimation.** H.M. GARVIN, K. SEVERA, E. TERNENT, M.K. STOCK, L. CIRILLO, K.E. STULL.
- 20 **A test of Wescott's second cervical vertebra sex estimation method on a middle-aged to senescent sample.** K.M. RAYMOND, D.K. JULIEN, L.C. COOPER, K.A. WEST, E.A. DIGANGI.
- 21 **Determining sex in forensic anthropology: A review of proposed methodologies.** S.A. WALTMAN.
- 22 **Sexual Dimorphism in the Proximal Phalanges of the Hand: Verification of Logistic Regression analysis methods.** I.T. NOBLE, D. MULHERN.
- 23 **Expression of Sexual Dimorphism Among the German, Irish, and Italian Ancestry Groups in the Huntington Collection.** A. ESPINOZA, D.R. HUNT, G. HUNT.
- 24 **Testing the effectiveness of methods for estimating biological sex from subadult skeletal remains.** D. ZABNICKA.
- 25 **Facial masculinity-femininity and socioeconomic status: A study of sub-Saharan Africans' 3D facial models.** A.I. YAHAYA, C. SOLIGO.
- 26 **Estimating Sex Using the Human Mandibular Canine.** B.L. BLEVINS.
- 27 **An examination of musculoskeletal markers to analyze activity levels of a documented modern population using the Coimbra method.** E.L. WIEDENMEYER, M. SPRADLEY, N.P. HERRMANN.
- 28 **Identifying Intracranial Complications of Sinusitis From Skeletonized Remains: Forensic and Bioarchaeological Implications.** S.M. MCCRANE.
- 29 **The Effects of Orthopedic Pathologies on the Prevalence of Hip Osteoarthritis.** A.M. SANCHEZ, S.D. TALLMAN.
- 30 **Variability of saw blades and saw marks measured from nonhuman bone: Implications for the evaluation of accuracy of microscopic saw mark analysis.** A.R. GROSSO, S.A. TOTH, D.L. NEIDICH.
- 31 **Relationships between individual level variables and fracture characteristics in human ribs subjected to anterior-posterior loading.** A.L. HARDEN, V.M. DOMINGUEZ, A.M. AGNEW.
- 32 **Fracture Patterning and Distribution in the Appendicular Skeleton as a Result of a Blast Event.** K.M. LANE, A.F. GOODING.
- 33 **The curious case of goldenhar-gorlin syndrome: Identification and skeletal manifestation.** D. LOPEZ, H. WALSH-HANEY.
- 34 **A Comparison of Gunshot Wound Trauma between Physical Crania and 3D Printed Models.** J.E. SANGER, E.A. DIGANGI.
- 35 **The Relationship Between Localized Bone Density and the Area and Perimeter of Exit Wounds.** E.A. EVANGELOU, T. SOMOGYI, K.E. SHERIDAN, E.A. DIGANGI.



## FRIDAY ALL DAY SESSIONS

- 36 **Estimation of Bullet Construction from Cranial Entrance and Exit Wound Diameters.**  
T. SOMOGYI, E.A. EVANGELOU, K.E. SHERIDAN, E.A. DIGANGI.
- 37 **Isotopic Analyses in Contemporary Forensic Cases from Coconino County, Arizona.**  
T. LAMBRIGGER, C.M. KELLNER, L. CZARNECKI, F. RAMOS.
- 38 **Variation of Skeletal Growth and Development Patterns in Populations with Diverse Socio-Economic Backgrounds.** L.K. CORRON, K.E. STULL, Y. YANG.
- 39 **Secular Change in Popular Morphological Traits of the Skull and Pelvis.** A.R. KLALES, H. LONG.
- 40 **Interpreting intra-population variability from dental morphology and tooth dimensions of a modern Seminole Native American sample.** M.K. GREEN, S.D. TALLMAN.
- 41 **Nonmetric cranial trait expression in pre-contact Southwest Native Americans and modern Asians.** M.L. ATKINSON, S.D. TALLMAN.
- 42 **Nasofacial skeletal differentiation among Equatorial Africans, Europeans and African-Americans.** A.S. WILLIAMS, A.D. FOSTER, R.G. FRANCISCUS.
- 43 **Secular change in macromorphoscopic trait frequencies in modern European Americans.**  
G.S. KILROY, B.S., S.D. TALLMAN, PH.D.
- 44 **A Forensic Anthropological Perspective on Latin American Genetic Diversity.** B.T. NEW, K. SPRADLEY, L. FEHREN-SCHMITZ.

# FRIDAY, MORNING SESSIONS

## Session 31

### Evolutionary perspectives on the primate aging process

#### Invited Podium Symposium

Chair: *Melissa Emery Thompson*. Co-organizers: *Alexandra Rosati*

CC Ballroom A

Nonhuman primates are critical referents for understanding the evolution of human senescence and lifespan. Yet the very reason that primates are such important models – their long lifespans – has limited their use in aging research. Most comparative perspectives on aging have been made through the lens of demography, by comparing mortality rates. However, there is very little understanding of what factors lead to ‘natural’ death in most species, let alone what factors contribute to variation in the aging process among individual primates. Thus, to better understand the evolution of lifespan, it is essential to uncover the underlying processes that contribute to aging. In this symposium, we bring together emerging perspectives on the aging process in primates. This work will highlight new data and theory on aging phenotypes, focusing on the physical, physiological, behavioral, and cognitive mechanisms that constrain lifespan across the primate order. Each paper will focus on one or more of the following questions: (1) What are the critical processes that comprise senescence in primates? (2) What social, ecological, or individual characteristics predict variation in health or the rate of aging? (3) How do primates adjust their behaviors and bodies to accommodate the aging process? Our participants will address different dimensions of aging and a diverse range of species, including humans living in the context of subsistence environments. Additionally, each paper will contextualize its findings within a broader comparative perspective to provide insights into the ultimate questions of how aging has been shaped by the evolutionary history of primates. A major goal of the symposium is to share the innovative toolsets being used to study aging by various long-term research groups, and in doing so, stimulate new collaborative research initiatives among participants.

- 8:00 **Physical frailty, aging, and mortality in wild chimpanzees.** M. EMERY THOMPSON, Z.P. MACHANDA, E. OTALI, M.N. MULLER, R.W. WRANGHAM.
- 8:15 **Skeletal aging in Virunga mountain gorillas (*Gorilla beringei beringei*) from Volcanoes National Park, Rwanda.** S.C. MCFARLIN, L. BAIGES-SOTOS, J. GALBANY, H. GLOWACKA, J. JUNNO, T. MUHIRE, C.B. RUFF, T.G. BROMAGE, M.R. CRANFIELD, W. ECKARDT, K. GILARDI, T.S. STOINSKI, A. MUDAKIKWA.
- 8:30 **Influence of physical activity on aging and frailty in human foragers.** M. SAYRE, H. PONTZER, B.A. WOOD, G.A. ALEXANDER, D.A. RAICHLEN.
- 8:45 **Glucocorticoid levels predict lifespan in wild female baboons.** S.C. ALBERTS, F.A. CAMPOS, J. ALTMANN, L. GESQUIERE, E.A. ARCHIE.
- 9:00 **Chimpanzee reverse zoonoses: unfortunate natural experiments in great ape comparative medicine and demography.** T.L. GOLDBERG, S. BASNET, M. EMERY-THOMPSON, J.E. GERN, K.A. GRINDLE, K.E. LANGENGRABER, Z. MACHANDA, J.C. MITANI, M.M. MULLER, J.D. NEGREY, E. OTALI, L. OWENS, A.C. PALMENBERG, T.E. PAPPAS, S. PHILLIPS-GARCIA, R.B. REDDY, E.J. SCULLY, R.W. WRANGHAM.

# FRIDAY MORNING SESSIONS

- 9:15 **Trade-offs between Reproduction and Immunity in Wild Female Chimpanzees (*Pan troglodytes schweinfurthii*) of Kibale National Park, Uganda.** S. PHILLIPS-GARCIA, T.L. GOLDBERG, M.N. MULLER, Z.P. MACHANDA, S. FRIANT, E. OTALI, J. CARAG, K.E. LANGERGRABER, J.C. MITANI, R.W. WRANGHAM, M. EMERY THOMPSON.
- 9:30 **Changing social relationship among aging male chimpanzees.** Z. MACHANDA, A. ROSATI, L. HAGBERG, E. OTALI, M. EMERY THOMPSON, M. MULLER, R. WRANGHAM.
- 9:45 **Aggression, coalition formation, and aging in wild chimpanzees.** M.N. MULLER, M. EMERY THOMPSON, D.K. ENIGK, L. HAGBERG, Z.P. MACHANDA, K. SABBI, R.W. WRANGHAM.
- 10:00 **BREAK.**
- 10:30 **Age and pathology-related changes in neuron density in the chimpanzee cortex.** M.K. EDLER, E.L. MUNGER, P.R. HOF, W.D. HOPKINS, J.J. ELY, J.M. ERWIN, R.S. MEINDL, E.J. MUFSON, C.C. SHERWOOD, M. RAGHANTI.
- 10:45 **Lifespan changes in macaque social and economic decision making.** A.G. ROSATI.
- 11:00 **Problem-solving with regard to age in Barbary macaques.** E. RATHKE, J. FISCHER.
- 11:15 **Age-related decline in executive function in primates.** A. LACREUSE.
- 11:30 **Transcriptional signatures of the aging nonhuman primate brain.** K.L. CHIOU, A.R. DECASIEN, M.J. MONTAGUE, C.C. SHERWOOD, M.L. PLATT, J.P. HIGHAM, N. SNYDER-MACKLER.
- 11:45 **Discussant: Susan Alberts.**
- 12:00 **National Institutes of Aging Information Session: Melissa Gerald.**

## Session 32

### Hominin Fossils and Evolution

#### Contributed Podium Presentations

*Chair: Juliet Brophy*

CC Room 25

- 8:00 **Phylogenetic Analysis of Miocene Apes and Early Hominins Using Qualitative and Quantitative Morphological Characters.** K.D. PUGH.
- 8:15 **Hominin origins: New evidence from the eastern Mediterranean.** D.R. BEGUN, M. BÖHME, G. KOUFOS, N. SPASSOV, A. SEVIM EROL, A. YENER YAVUZ.
- 8:30 **4.2 Ma *Australopithecus anamensis* axial remains: the oldest australopith vertebrae in the fossil record.** M.R. MEYER, S.A. WILLIAMS.
- 8:45 **Intraspecific variability in early *Australopithecus afarensis* mandibular morphology: new insights from 3.6 Million-year-old hominin juvenile mandibles from Woranso-Mille, Ethiopia.** Y. HAILE-SELASSIE, T.M. RYAN.
- 9:00 **Morphometric affinities of the Burtele hallux with implications for inferring hominin pedal grasping capabilities.** T.C. PRANG.

## FRIDAY MORNING SESSIONS

- 9:15 **The atlas of the *Australopithecus* specimen StW 573 ("Little Foot").** A. BEAUDET, R.J. CLARKE, J.L. HEATON, T.R. PICKERING, K.J. CARLSON, R. CROMPTON, T. JASHASHVILI, L. BRUXELLES, K. JAKATA, J. HOFFMAN, J. DHAENE, D. STRATFORD.
- 9:30 **The wrist and hand of the StW 573 ("Little Foot").** T. JASHASHVILI, B.A. PATEL, K.J. CARLSON, J.L. HEATON, T.R. PICKERING, R. CROMPTON, K. KUMAN, A. BEAUDET, J. MCCLYMONT, L. BRUXELLES, D. STRATFORD, R.J. CLARKE.
- 9:45 **A nearly complete lower back of *Australopithecus sediba*.** S.A. WILLIAMS, T.C. PRANG, M.R. MEYER, K.R. OSTROFSKY, T.K. NALLEY, D. GARCÍA-MARTINEZ, M. BASTIR, P. SCHMID, S.E. CHURCHILL, L.R. BERGER.
- 10:00 **BREAK.**
- 10:30 **Comparative two-dimensional relative enamel thickness (RET) of South African hominin premolars.** M.C. O'HARA, M.M. SKINNER, D. GUATELLI-STEINBERG.
- 10:45 **New mandible from Ologesailie sheds light on Middle Pleistocene human evolution in Africa.** S.E. BAILEY, R. POTTS.
- 11:00 **Bony labyrinth morphology of the Broken Hill, Eyasi I, and Kabua I hominin fossils.** H. REYES-CENTENO, C. STRINGER, K. HARVATI.
- 11:15 **Comparative morphology of the Herto 16/5 juvenile cranium (Middle Awash, Ethiopia).** G.D. RICHARDS.
- 11:30 **The Guercy 1 Neanderthal cranium from Baume Moula-Guercy (Soyons, Ardèche).** R.S. JABBOUR, G.D. RICHARDS, G. GUIPERT, A. DEFLEUR.
- 11:45 **The path to *Homo*, revisited.** L. SCHROEDER, R.R. ACKERMANN.

### Session 33

#### **Bioarchaeology: Disease, Diet, and Violence**

##### **Contributed Podium Presentations**

*Chair: Sian Halcrow*

CC Room 26 AB

- 8:00 **To live and die in the Ocoña Valley: the human remains from Corral Redondo, Peru.** M. LOZADA, D. ZBOROVER, S. CHEEVER.
- 8:15 **Bioarchaeological analysis of Nasca 'trophy' head individuals from the site of Zorropata in Peru (AD 450-1000).** C.M. KELLNER, S. DOST KERCHUSKY.
- 8:30 **Violence and the "other": migration and sacrifice in pre-Hispanic central Mexico.** S. PACHECO-FORÉS.
- 8:45 **Skeletal remains and historical traces of Ming Dynasty elites in Shaanxi, China.** E. BERGER, W. YE, L. YANG.
- 9:00 **Biological distance at the center of the Viking world.** E.M. PESCHEL, B. HALLGRIMSSON, M. KATZENBERG.
- 9:15 **Morphological Analysis of Human Skeletal Remains from a Late Neolithic Dolmen, Switzerland.** I. SIEBKE, A. FURTWÄGLER, N. STEURI, G. ARENZ, M. RAMSTEIN, J. KRAUSE, S. LÖSCH.

# FRIDAY MORNING SESSIONS

- 9:30 Migration into Egypt during the Second Intermediate Period. C. STANTIS, H. SCHUTKOWSKI.
- 9:45 Absent to Limited Breastfeeding in 19th Century Dairy Farmers from the Netherlands. A.L. WATERS-RIST, M.L. HOOGLAND.
- 10:00 BREAK.
- 10:30 Are we what we eat? A 3D Geometric morphometric analysis of human mandibular variation over time in Britain in relation to dietary changes. C.S. HIRST.
- 10:45 Stable Isotope Measures of Weaning Age and Early Childhood Diet in the Ancient Andes: Variation in Early Life Experiences and Health Outcomes across Status and Sex in Tiwanaku-Affiliated Sites in Peru and Bolivia. A.M. GREENWALD, D. BLOM, N. ZOLOTOVA, K. KNUDSON.
- 11:00 Refining our understanding of human diets: Using bulk and compound-specific amino acid stable isotope data to investigate pre-Columbian dietary practices of Lake Titicaca, Bolivia inhabitants (1500 BC – AD 1100). M.J. MILLER, I. KENDALL, S. HALCROW, R.P. EVERSLED, C.A. HASTORF.
- 11:15 Evidence for intestinal parasitic infection from coprolites at the Bronze Age settlement of Must Farm, UK (920-790 BCE). M.L. LEDGER, H. WHELTON, R. BALLANTYNE, I.D. BULL, M. KNIGHT, P.D. MITCHELL.
- 11:30 A Systematic Review of Palaeoepidemiological Investigations in Neoplastic Disease. T. SIEK.
- 11:45 Comparison of Musculoskeletal Disorders Associated with Diabetes in Three North American Historical Human Skeletal Collections. C.F. UPSON-TABOAS.

## Session 34

### Primate Conservation

#### Contributed Podium Presentations

Chair: Linda Marchant

CC Room 26 C

- 8:00 Conservation to Coexist: Participatory Action Research for Wildlife Conservation, Economic Development, and Biological Anthropology Research. K.M. MILICH, K. SORBELLO, J. MCCARTEN, L. WISEMAN-JONES, R. BUSOBOZI, M. KUGONZA.
- 8:15 Effective seed dispersal of an economically important plant resource by western chimpanzees at Fongoli, Senegal. W.D. AGUADO, H.S. ROGERS, S. LINDSHIELD, J.D. PRUETZ.
- 8:30 Mitochondrial DNA Demonstrates the Significance of a Western Gateway in Uganda for Eastern Chimpanzee (*Pan troglodytes schweinfurthii*) Gene Flow. A.M. RICH, C.A. SCHMITT, M.D. WASSERMAN, K.D. HUNT, F.A. KAESTLE.
- 8:45 Biomarkers of cardiac health across the lifespan in wild-born chimpanzees (*Pan troglodytes*). M.F. COLE, A.G. ROSATI.
- 9:00 Modeling rainforest ecology as a product of local socioeconomic pressures in Masoala National Park, Madagascar. R.J. BANKOFF.

## FRIDAY MORNING SESSIONS

- 9:15 **Species-Specific Scale Responses to Habitat Loss in a Nocturnal Lemur.**  
T.S. STEFFENS, F. MERCADO MALABET, S.M. LEHMAN.
- 9:30 **Water availability, primate ranging behavior, and implications for parasite transmission: an experimental and observational study of wild red-fronted lemurs (*Eulemur rufifrons*) in a dry deciduous forest.** C.R. AMOROSO, P.M. KAPPELER, C. FICHTEL, C.L. NUNN.
- 9:45 **Quantitatively designing and testing the effects of data-driven interventions to address lemur-hunting in Madagascar.** C. BORGERSON, B. RAZAFINDRAPAOY, D. RAJAONA, B. RASOLOFONIAINA.
- 10:00 **BREAK.**
- 10:30 **Applying the random encounter model to estimate density of *Cercopithecus lomamiensis* from camera traps in the Lomami National Park and buffer zone of the Democratic Republic of the Congo.** C.S. FOURNIER KORCHIA, E.G. NOONBURG, P. AYALI, T.B. HART, J.A. HART, K.M. DETWILER.
- 10:45 **Its elementary my dear anthropologist: using lead and arsenic concentrations and stable carbon and nitrogen isotope analysis to estimate anthropogenic disturbance among free-ranging vervet monkeys (*Chlorocebus pygerythrus*) in South Africa.**  
J.E. LOUDON, A.E. LEWIS, J.P. GROBLER, T.R. TURNER, M. SPONHEIMER.
- 11:00 **An Ethnographic Approach to Characterizing Zoonotic Disease Risk from Primate Hunting in an Indigenous Reserve in Guyana.** M.S. MILSTEIN, C.A. SHAFFER, T.M. WOLF, D.A. TRAVIS.

### Session 35

#### **Bioarchaeology of Urbanization: The Biological, Demographic, and Social Consequences of Population Increase and Agglomeration**

##### **Invited Poster Symposium**

*Chair: Tracy K. Betsinger. Co-organizers: Tracy K. Betsinger, Sharon N. DeWitte*

CC Room 22

Over half of people today live in cities, and urban populations will increase in the future. It is crucial to understand the consequences that urbanization has had and will continue to have on human populations. Urbanization has long been a focus of bioarchaeological research, but seldom has this research been brought together in a cohesive way to explore the range of human biological, demographic, and sociocultural responses to this major shift in settlement pattern. Urbanization is characterized by population accumulation and increased population density, among other features, and is frequently associated with negative biological impacts. However, the relationship between urbanization and human “health” is nuanced and require a careful examination, particularly given the heterogeneity that exists within and between urban contexts. Studies of contemporary urbanization have found both positive and negative outcomes, which likely have parallels in past human societies. Indeed, bioarchaeological studies of urbanization have yielded varying results, including differences based on age, sex, and socioeconomic status. The impacts of urbanization are surely dependent, at least in part, on local ecological and sociocultural conditions. To explore the variability in human responses to urbanization, this session will include studies from a wide

# FRIDAY MORNING SESSIONS

range of geographic locations (e.g., Americas, Europe, Asia) and temporal periods (e.g., 5000 BC – 1900 CE). Additionally, the studies presented here utilize an extensive array of bioarchaeological methodological approaches and lines of evidence to explore whether and how urbanization impacts biology, demography, and cultural behavior. Included in our session are studies that incorporate isotopic analysis of diet and mobility, archaeoparasitology, stress markers, dietary deficiencies, growth, degenerative joint disease, ancient DNA, measures of mortality and frailty, and mortuary patterns. These diverse studies of a range of populations enable cross-cultural and temporal comparisons to be considered, thus making our understanding of the impact of urbanization more robust and holistic.

Discussant: Charlotte Roberts.

- 1 **Colonial urbanism: A comparative exploration of skeletal stress in two 18th century North American French colonies.** A.B. SCOTT, M. DANFORTH, S. MACINNES, N. HUGHES, M. FONZO.
- 2 **With People, came Parasites: An examination of human intestinal parasites and urbanization at the 18th century Fortress of Louisbourg.** M. FONZO, A.B. SCOTT, M. DUFFY.
- 3 **Royal Estates and Commoner Foods: Reconstructing Diet among Servants in the Inka Imperial Heartland.** B.L. TURNER, C.L. NUÑEZ FLORES, B.I. QUISPE VILCAHUAMAN.
- 4 **Exploring patterns of appositional growth amongst the urban child.** R. IVES, L. HUMPHREY.
- 5 **Residual Rickets and Respiratory Disease in Rural and Urban Post-Medieval London.** D.A. BOYD.
- 6 **Dietary variation in an urbanizing city: A temporal analysis of diet in Late Medieval London using stable isotopes.** B.S. WALTER, S.N. DEWITTE, T. DUPRAS, J. BEAUMONT.
- 9 **The Bioarchaeology of Urbanisation in Denmark.** J.A. GAMBLE.
- 10 **Impact of urbanization on tuberculosis and leprosy prevalence in medieval Denmark.** K.S. KELMELIS, D.D. PEDERSEN.
- 11 **Physical Activity as Evidenced by Degenerative Joint Disease in Adults from a Rural and Urban Medieval Polish Comparison.** H.M. JUSTUS, T.K. BETSINGER, A.M. AGNEW.
- 12 **Frailty and Survivorship in Medieval Poland: A Comparison of Urban and Rural Populations.** T.K. BETSINGER, S.N. DEWITTE, H. JUSTUS, A.M. AGNEW.
- 13 **Urban-rural differences in respiratory tract infections in medieval and early modern Polish subadult samples.** M. KRENZ-NIEDBAŁA, S. ŁUKASIK.
- 14 **Childhood morbidity and mortality in the rising urban environments of the Industrial Era.** S. REEDY.
- 15 **Patterns of land use in the early urban centers of the Near East: bioarchaeological evidence.** A. SOLTYSIAK.
- 16 **Understanding Heterogeneity in Urban Mortuary Behavior: Between Action and Symbolic Meaning in the Indus Age.** G. ROBBINS SCHUG.
- 17 **Urbanization and Ancient Parasitism.** D. SHIN, S. SHIM, H. LEE, Y. KIM, J. HONG, M. SEO.
- 18 **Urbanizing Childhood: The Children of the Spring Street Presbyterian Church and the Changing Landscape of Lower Manhattan.** M.A. ELLIS.
- 19 **The Urban Environment of a Neighborhood in Teotihuacan, Mexico.** R. STOREY, G.M. BUCKLEY.

# FRIDAY MORNING SESSIONS

## Session 36

### **Evidence and methods surrounding the use of entheses to reconstruct muscle anatomy and activity**

#### **Invited Poster Symposium**

*Chair: Karyne N. Rabey. Co-organizers: Karyne N. Rabey, Erin Marie Williams-Hatala*  
CC Room 23

The ability to make behavioural inferences from skeletal remains is crucial for understanding the habitual behaviours of past human populations and extinct animals. Muscle attachment site (enthesis) morphologies are often used by researchers in fields as diverse as bioarchaeology and palaeontology to infer cultural behaviour, technology use, subsistence strategies, labour differences, social stratification, locomotor patterns, and evolutionary pathways. Their use stems from the fact that some entheses tend to be clearly visible on the surface of bone, and are thought to reflect aspects of the muscular anatomy and therefore potential muscle recruitment history. However, the anatomy, physiology, and mechanical properties of the muscle/tendon-bone interface are complex, and numerous variables are known to influence enthesal morphology (e.g., muscle function, enthesal type, biomechanics, age, sex, genetics, health variables). Yet the interactive and dynamic influences of these variables are rarely taken into account in muscular and behavioural reconstructions. Additionally, multiple methods to attempt to qualify and/or quantify enthesal morphologies and function based on surface variables exist, but none of them have been experimentally validated. Thus, we are currently uncertain of both the relationships among, and the underlying mechanisms linking muscle anatomy, behavioural profile, and enthesal morphology. This symposium has been developed to create cross conversation among researchers conducting enthesal research, with the aim of working toward greater consideration of the complexity of the processes governing enthesal morphology in analyses and methodological standardization.

**Discussants:** Karyne N. Rabey, Erin Marie Williams-Hatala.

- 1 The Aetiology of Enteseal Changes - Insights from the Biomedical Literature.**  
C.A. WILCZAK, C.Y. HENDERSON, V. MARIOTTI, S. VILLOTTE.
- 2 Covariation bone biomechanics and enteseal changes in reindeer long bones – implication of activity?** S.T. NIINIMÄKI, H.A. PUOLAKKA, A.K. SALMI.
- 3 Spring function of the Achilles tendon in walking and running gaits.** A.D. FOSTER, J.W. YOUNG, F.F. CAPOBIANCO III, J.T. PEABODY, N.A. PULEO.
- 4 Elevated activity levels do not influence extrinsic fiber attachment morphology on the surface of muscle-attachment sites.** C.M. TURCOTTE, D.J. GREEN, K. KUPCZIK, S. MCFARLIN, E. SCHULZ-KORNAS.
- 5 Markers of subtle activity variation? Entesis bilateral asymmetry in humans.**  
M.S. DRAPEAU, O.A. DE CARVALHO.
- 6 Comparative morphology of the hominoid subscapularis entesis.** D.J. GREEN.
- 7 The empirical evidence of a relationship between enteseal changes and past human behaviors: Some examples and counterexamples, focusing on the upper limb.**  
S. VILLOTTE.



## FRIDAY MORNING SESSIONS

- 8 **Interdisciplinary evidence of the effects of physical activity in the patterns of human hand entheses.** F. KARAKOSTIS, K. HARVATI.
- 9 **Can muscle activity be predicted from surface and internal enthesal morphology?** K.N. RABEY, K.G. HATALA, E. WILLIAMS-HATALA.
- 10 **New methods for quantifying enthesal shape and adaptation to functional loading.** N. KONOW, J.M. WINCHESTER, D.M. BOYER, I.J. WALLACE.
- 11 **A Photogrammetric Method for Quantifying Enteseal Shape and Rugosity.** E.S. WILLIAMS-HATALA, K.G. HATALA, M.L. COLLYER, S. MEGHERHI, K.L. FISKE, O. CIROLI, K.N. RABEY.
- 12 **Never Done: A bioarchaeological study of women's work, task, and occupation in medieval Edinburgh, Scotland.** L.K. IDE, L. FIBIGER, C.Y. HENDERSON, C. PICKARD.

### Session 37

#### **Global leadership in dental anthropological research: A symposium in honor of G. Richard Scott**

##### **Invited Poster Symposium**

*Chair: Marin A. Pilloud. Co-organizers: Victoria M. Swenson, Donovan M. Adams*

CC Room 24

For over 40 years, G. Richard Scott has made significant advances and contributions to the field of dental anthropology. He is a Professor of Anthropology Emeritus at the University of Alaska, Fairbanks and a Foundation Professor at the University of Nevada, Reno. He has served as the president of the Dental Anthropology Association, and the past and current editor of the journal *Dental Anthropology*. Scott has produced three books, two edited volumes, and over 70 articles and book chapters, which have placed him as a leading expert on dental anthropology with a focus on dental morphology. Scott is well known for creating and defining, along with Christy G. Turner II, many of the morphological traits as part of the Arizona State University Dental Anthropology System (ASUDAS; also known as the Turner-Scott dental anthropology system). Upon Turner's death, Professor Scott initiated the "Christy G. Turner, II Legacy Project" by scanning over 30,000 data sheets and over 3,000 photographic slides, and calculating frequency distributions for 29 key crown and root traits of different population groups. Undertaking this monumental task to share with the discipline is testament to his commitment to the field, his colleagues, and students. This symposium brings together experts in the field of dental anthropology to honor the interdisciplinary and ground-breaking nature of Scott's work.

**Discussant: Clark Spencer Larsen.**

- 1 **It's getting better all the time: A look at the contributions of G. Richard Scott to dental anthropology.** C.E. SKIPPER, R.L. PERASH, L.E. CIRILLO, V.M. SWENSON, D.M. ADAMS, R.L. GEORGE, S.J. COLE, C.N. HULSE, T. VLEMINCQ-MENDIETA, D. KENESSEY, S. HAY, M.A. PILLOUD.
- 2 **Dental morphology of fossil *Homo sapiens*.** G. SCOTT, M. MARTINON-TORRES.

## FRIDAY MORNING SESSIONS

- 3 Exploring the relationship between dental development, population variation, and environment. K.E. STULL, L. CORRON, C.N. HULSE, Y. YANG.
- 4 Native American origins: An interdisciplinary critique of current models. J.F. HOFFECKER, G.R. SCOTT, D.H. O'ROURKE, M.A. SICOLI, L.J. HLUSKO.
- 5 Population Variation in Dental Development and Its Effect on Forensic Age Estimation. K.N. HEIM, M.A. PILLOUD, H. GEHA, Y. WU.
- 6 Examining the frequency of crenulated premolars and their association with crenulated molars. C. MAIER, G. SCOTT.
- 7 A validation of dental methods to estimate ancestry. D.E. KENESSEY, A. SBEI, M. MCKINNEY, M.A. PILLOUD.
- 8 Tooth be told: A preliminary investigation of dental morphological variation among medieval Polish Populations. V.M. SWENSON, A. SPINEK, K. TUNIA.
- 9 Validating foundational assumptions of dental morphology using quantitative genetics. K.S. PAUL, C.M. STOJANOWSKI, W.N. DUNCAN, K.M. JOHNSON.
- 10 Quest for consilience: Using dental morphology, craniometrics, and stable isotopes to classify an undocumented skull collection. D. DECHANT, L.E. CIRILLO.
- 11 'Basque'ing in Uniqueness: An Examination of Basque Dental Variation. D. MALARCHIK, G. SCOTT.
- 12 Exploring the population history of modern Latinos through dental morphology. R.L. GEORGE, G. SCOTT.
- 13 World-wide variation in incisor shoveling reveals evidence of selection in the Beringian Standstill population. L.J. HLUSKO, J.P. CARLSON, G. CHAPLIN, S.A. ELIAS, J.F. HOFFECKER, M. HUFFMAN, N.G. JABLONSKI, T.A. MONSON, D.H. O'ROURKE, M.A. PILLOUD, C. TAYLOR, G.R. SCOTT.
- 14 The muddle in the middle: Dental morphological assessment of population diversity on the Peruvian Central Coast during the Prehispanic Period. T. VLEMINCQ-MENDIETA, S. HILLSON, L.S. OWENS, P.A. EECKHOUT, K. MAKOWSKI.
- 15 The ASUDAS and fossil hominin teeth: categorical success with qualification(s). J.D. IRISH.
- 16 Ancient Genetic Analysis of the Northwest Alaskan Birnirk to Thule Archaeological Transition. S.L. RAGSDALE, L.E. NORMAN, J.C. TACKNEY, D.H. O'ROURKE.

# FRIDAY, AFTERNOON SESSIONS

## Session 38

### The Evolution of Syphilis: A New Approach (Joint PPA-AAPA Symposium)

#### Invited Podium Symposium

Chair: Brenda J. Baker

CC Ballroom A

The perception that a new disease suddenly appeared in Europe in the late 15th century sparked debate about the origin of syphilis that has raged for more than five centuries. Questions concerning the spread of infections (pinta, yaws, bejel, and syphilis) caused by *Treponema pallidum* subspecies and their emergence in different parts of the world continue to be contested in anthropological and medical circles. Expanding upon an interdisciplinary seminar held at the School for Advanced Research in April 2018, this interdisciplinary symposium aims to move beyond this debate to tackle broader questions and improve understanding of treponemal disease. How did the causative organism(s) and humans co-evolve? How can investigating the ways that related treponemal diseases affected people across both time and space be advanced? Until recently, *T. pallidum* could not be cultured and subspecies relationships were poorly known because phylogenetic reconstructions derived from a small number of genetic loci. Understanding treponemal biology, epidemiology, and clinical manifestations is crucial for vaccine development today and for investigating the distribution of infection in past populations, which also necessitates use of standard diagnostic criteria and approach for recording skeletal lesions. Adequate contextualization requires information on cultural and environmental conditions and site dating with justification for correcting marine or freshwater reservoir effects. Stable isotope analyses may assess aquatic contributions to diet, physiological changes arising from treponemal disease and its treatments (e.g., mercury), or residential mobility of those affected. Participants will review the current state of scholarship and make recommendations to stimulate future work. Shifting the focus from the point of origin to who was affected (e.g., children versus adults, males or females, among different socioeconomic groups) and its distribution (e.g., along rivers or coastlines or inland, in urban and rural settings) will advance our understanding of treponemal disease and its impact on people through time.

- 2:30 **Treponemal infections: One disease or many?** S.A. LUKEHART, D.C. MABEY.
- 2:45 **Disease ecology and the relationship of human- and nonhuman primate-infecting *Treponema pallidum*.** S. KNAUF, C. ROOS.
- 3:00 **Phylogenetic investigations of *Treponema pallidum* and related spirochetes.** S. WININGEAR, A.C. STONE.
- 3:15 **Historic *Treponema pallidum* genomes: Towards a reconstruction of the evolution of treponemal diseases using ancient DNA.** V.J. SCHUENEMANN.
- 3:30 **Radiocarbon Evidence Pertaining to the Origin and Spread of Treponemal Disease.** M. DEE.
- 3:45 **A Biogeochemical Assessment of Treponemal Disease: Diagnosis, Host Mobility, & Mercury Treatment.** L.A. GREGORICKA.

## FRIDAY AFTERNOON SESSIONS

- 4:00 A Critical Review of Diagnostic Criteria Used to Identify Treponemal Infection in Human Skeletal Remains. B.J. BAKER.
- 4:15 Treponemal disease in Europe: A critical review of the skeletal evidence. C.A. ROBERTS.
- 4:30 Silent evidence of Pre-Columbian treponemal infection in the Western half of the Old World. M. HENNEBERG, R.J. HENNEBERG.
- 4:45 Evaluating the evidence of treponemal disease from India. V. MUSHRIF-TRIPATHY.
- 5:00 The Antiquity of Treponemal disease in the Asia-Pacific regions: Implications for settlement history. H.R. BUCKLEY, M. VLOK, K. DOMETT, H. HOANG TRINH, M. OXENHAM.
- 5:15 Sociopolitical patterns in treponemal disease prevalence in the pre-Columbian eastern United States. M.O. SMITH, T.K. BETSINGER.
- 5:30 Discussion: Moderated by Brenda Baker.

### Session 39

#### **Energetics, Locomotion, and Nutrition**

##### **Contributed Podium Presentations**

*Chair: Julie Lesnik*

CC Room 25

- 2:30 Changes in costovertebral joint anatomy have been selected for in humans and increase ventilation during endurance running. W.E. CALLISON, N.B. HOLOWKA, D.E. LIEBERMAN.
- 2:45 No dilemma: A broad pelvis explains some of the advantages of women's gait. C.M. WALL-SCHEFFLER, M.J. MYERS.
- 3:00 Walking before footwear: plantar calluses protect the foot without trading-off tactile sensitivity. N.B. HOLOWKA, B. WYNANDS, T. DRECHSEL, D.W. HAILE, R. OJIAMBO MANG'ENI, P. OKUTOYI, T.K. SIGEI, V.A. TOBOLSKY, A.K. YEGIAN, C. ZIPPENFENNIG, T.L. MILANI, D.E. LIEBERMAN.
- 3:15 Endurance activity as a driver of morphological thermal adaptation: the energetics of ultramarathons in extreme temperatures. D.P. LONGMAN, A. MACINTOSH, R. ROBERTS, S. OAKLEY, J.C. WELLS, J.T. STOCK.
- 3:30 Being Overweight is Associated with Lower Physical Activity in US Population but Not among Forager-Horticulturalists. D.K. CUMMINGS, B.C. TRUMBLE, J. STIEGLITZ, H. KAPLAN, M. GURVEN.
- 3:45 Extreme endurance running alters the gut microbiota. R.N. CARMODY, E.M. VENABLE, A.S. BOLZE, L. CHRISTOPHER, B.A. CARLSON, M.P. LOUIS, T. GARLAND, JR..
- 4:00 The effect of the alpha-actinin 3 (ACTN3) R577X polymorphism and mtDNA on energy expenditure in modern humans. Z.S. SWANSON, H. PONTZER, A. LUKE, L.R. DUGAS, M.E. STEIPER.
- 4:15 Paternal age at conception effect on offspring telomere length as a potential adaptive intergenerational signaling mechanism: testing of transmission across four generations in the Philippines. D.T. EISENBERG, N.R. LEE, P.H. REJ, M. HAYES, C.W. KUZAWA.

## FRIDAY AFTERNOON SESSIONS

- 4:30 Culture change in the urban north: The intergenerational effects of dietary and socio-demographic patterns among Alaska Native women and children living in Anchorage, Alaska. R.L. FRIED, C.W. KUZAWA.
- 4:45 Evaluating the effects of maternal prenatal stress on fetal growth patterns and birth outcomes in Soweto, South Africa. A.W. KIM, R.S. MOHAMED, L. NYATI, C.W. KUZAWA, S.A. NORRIS.
- 5:00 Chronic stressors lead to dysregulated endocrine-immune function and diabetes risk in Honduran immigrant women. A.R. GARCIA, S. MURILLO, B.C. TRUMBLE, M.D. GURVEN, A.D. BLACKWELL.
- 5:15 The Potential Effect of Climate Adaptation on the Morphology of the Pelvis. J. EYRE.

### Session 40

#### Primate Postcranial Functional Morphology

##### Contributed Podium Presentations

*Chair: Jacqueline Runestad Conner*

CC Room 26 AB

- 2:30 Rethinking the evolution of the plantar aponeurosis and the medial longitudinal arch. D.E. LIEBERMAN, N.B. HOLOWKA, F. SICHTING.
- 2:45 Influence of substrate compliance on wild primate gait kinematics. J.W. YOUNG, N.T. DUNHAM, A. MCNAMARA, L.J. SHAPIRO.
- 3:00 Impact of gait selection on potential limb interference in primates and cats. B.A. PERCHALSKI, A. ZEININGER.
- 3:15 Lighten the load: calcanei of leaping galagids have relatively less cortical bone volume than quadrupedal species. K.L. LEWTON, B.A. PATEL.
- 3:30 Locomotor ontogeny and trabecular architecture within the hands and feet of great apes. A.J. RAGNI.
- 3:45 3-D kinematics, kinetics, and EMG of knuckle-walking in chimpanzees. N.E. THOMPSON, B.A. PATEL, J.T. STERN JR, S.G. LARSON.
- 4:00 Studying trabecular bone tissue structure-function relationship using 3D printing. M.M. BARAK, M. PATEL.
- 4:15 Hierarchical Patterns of Constraint and Functional Trait Complexes in the Primate Shoulder and Hip Regions. E.R. AGOSTO, B.M. AUERBACH.
- 4:30 Covariance between carpal morphology and suspensory behavior in extant anthropoids, with implications for functional analysis of fossil specimens. C. WUTHRICH.
- 4:45 Do structural equation models work to explain the factors shaping cortical bone morphology? R.A. JOHNSTON, L.W. COWGILL.
- 5:00 Arboreal Positional Behavior in Humans, Chimpanzees, and Gorillas. E.E. KOZMA, H. PONTZER, C. SANZ, D. MORGAN.
- 5:15 The evolution of the primate forelimb and neocortical areas involved in manual dexterity. A.C. HALLEY, M.K. BALDWIN, L. KRUBITZER.

# FRIDAY AFTERNOON SESSIONS

- 5:30 Differences in fore- vs. hindlimb autopod function in extant hominoids is reflected in pollical vs. hallucal metapodial strength properties. B.A. PATEL, T. JASHASHVILI, C.M. ORR.

## Session 41

### Primate Reproduction

#### Contributed Podium Presentations

Chair: Erin Vogel

CC Room 26 C

- 2:30 A tale of three monkeys: male-mediated prenatal loss explained. J.C. BEEHNER, M.N. ZIPPLE, E.K. ROBERTS, S.C. ALBERTS.
- 2:45 Linking female sociability and infant survival in capuchins: the roles of direct and indirect social connections, food competition, and energetic status. U. KALBITZER, M.L. BERGSTROM, F.A. CAMPOS, S.D. CARNEGIE, M. EMERY THOMPSON, K.M. JACK, A.D. MELIN, L.M. FEDIGAN.
- 3:00 Adolescent female orangutans benefit from associations with their mother in Gunung Palung National Park, West Kalimantan, Indonesia. C.A. O'CONNELL, W. SETIADI, C.D. KNOTT.
- 3:15 Mating behavior and paternity in wild woolly monkeys (*Lagothrix lagotricha poeppigii*): is mating success a good predictor of reproductive success? L. ABONDANO, K.M. ELLIS, A. DI FIORE.
- 3:30 Inter- and intra-group variation in infant transport in wild Weddell's saddleback tamarins (*Leontoebus weddelli*) in northwestern Bolivia. L.M. PORTER, W.M. ERB.
- 3:45 The development of male chimpanzee reproductive strategies. R.B. REDDY, K.E. LANGERGRÄBER, A.A. SANDEL, J.C. MITANI.
- 4:00 Response to selection on facial coloration in *Mandrillus sphinx*. J.K. SCHAFER, A.D. GORDON, B. NGOUBANGOYE, J.M. SETCHELL.
- 4:15 Female northern pig-tailed macaques (*Macaca leonina*) are more attracted to males with darker red anogenital coloration. F.A. TRÉBOUET, S. MALAIVIJITNOND, U.H. REICHARD.
- 4:30 Priority of Access Model is a Good Fit Despite the Occurrence of Following, an Alternative Mating Strategy in Wild Crested Macaques (*Macaca nigra*). L.M. DANISH, A. PASETHA, M. AGIL, A. ENGELHARDT.
- 4:45 Quantitative genetics of sexually-selected traits in male rhesus macaques. C.M. KIMOCK, C. DUBUC, J.P. HIGHAM.
- 5:00 Intergenerational Fitness Effects of Early Life Adversity in Baboons. M.N. ZIPPLE, E.A. ARCHIE, J. TUNG, J. ALTMANN, S.C. ALBERTS.
- 5:15 Social relationship quality vs quantity: Which is a better predictor of survival in female baboons? F.A. CAMPOS, E.A. ARCHIE, S.C. ALBERTS.
- 5:30 Male mutation bias is pervasive across primates. L. HENRIQUES VISCARDI, V. RODRIGUES PAIXÃO-CÔRTEZ, G. REALES, T.H. WEBSTER, M. BORTOLINI, C. GUERRA AMORIM.

# FRIDAY AFTERNOON SESSIONS

- 5:45 **What goes around: Mothers' birth condition influences daughters' age at first pregnancy and uterine size in the common marmoset (*Calithrix jacchus*).** J. RUTHERFORD, C. ROSS, D. LAYNE COLON, A. SILLS, T. ZIEGLER, S. TARDIF.

## Session 42

### **Advancing the field: Movement ecology in the nonhuman primates**

#### **Invited Poster Symposium**

*Chair: Stephanie A. Poindexter*

CC Room 22

Research on nonhuman primate movement ecology spans a wide range of disciplines and physical anthropologists doing work in this area focus on diverse topics including sensory morphology, feeding ecology, foraging cognition, dispersal patterns, and group structure. Uncovering the mechanisms, patterns, and motivations for primate movement has emerged as a prominent topic of study over the past few decades. The movement ecology paradigm has helped to focus these research efforts by looking at the intrinsic motivations to move, the basic ability to physically move, where and when to move, and the broad range of external cues that inform movement decisions. It has become vitally important to understand movement processes as suitable habitat decreases and human populations increasingly driving wild primates to change the way they perceive and interact with their environment. In response to these changes and in ideal conditions, movement can determine the fate of individuals, the structure and dynamics of populations, communities, and ecosystems, as well as their evolution and diversity. This symposium was conceptualized to bring together physical anthropologists working on the various aspects of primate movement ecology to determine our current understanding of the internal state, movement capacity, navigational capacity, and environmental cues that facilitate primate movement. This interdisciplinary group utilizes diverse methods, equipment, and experiments, which can all be used to advance our understanding of movement ecology. It is our hope that this symposium will encourage more researchers to evaluate their ecological, social, and behavioral data from a movement perspective.

**Discussant: Julie Teichroeb.**

- 1 Impediments to human bipedalism in tropical rainforests.** N.J. DOMINY, V.V. VENKATARAMAN.
- 2 Moving through ecology: orangutan positional behavior in a mosaic habitat.** E.E. KANE, A. BLACKBURN, T. SUSANTU, C.D. KNOTT.
- 3 Navigational demand and how it's linked to olfaction and spatial memory in primates.** S.A. POINDEXTER, R.M. DECAMP, E.C. GARRETT.
- 4 Seeing the flowers for the trees: trichromacy provides food detection advantages for white-faced capuchins.** J.D. HOGAN, L.M. FEDIGAN, C. HIRAMATSU, S. KAWAMURA, A.D. MELIN.

## FRIDAY AFTERNOON SESSIONS

- 5 **Where the Wild Things Are...and How They Get There: Bonobo, chimpanzee and human use of visual spatial information navigating in virtual reality.** F.L. DOLINS, C. MENZEL, K. JANMAAT, K. SCHWELLER, M. ALLRITZ, J. CALL.
- 6 **The Environment Beyond Points of Directional Change.** A. HOWARD, E. GURARIE, E. VISALBERGHI, P. IZAR, D. FRAGASZY, W. FAGAN.
- 7 **Dispersal decisions in monogamous owl monkeys (*Aotus azarae*): How ecological and social factors influence the timing of natal dispersal.** M.K. CORLEY, E. FERNANDEZ-DUQUE.
- 8 **Who Pays the Costs of Cohesion? Maintaining behavioral synchrony in baboon troops on the move.** M.C. CROFOOT, R. HAREL.
- 9 **Do primates really trapline?** T.L. KUMPAN, E.A. SMELTZER, W.D. AGUADO, A.Q. VINING, J.A. TEICHROEB.
- 10 **Sensory cues related to short distance foraging choices in a nocturnal, folivorous primate.** R. SAWYER, T. RANAIVOSON, D. WALKER, S. VAGLIO, K. NEKARIS, G. DONATI.

### Session 43

#### **From Pedestrian to Cerebral in the Pleistocene: A Symposium in Honor of Erik Trinkaus**

##### **Invited Poster Symposium**

*Chair: Libby W. Cowgill. Co-organizers: Sheela Athreya, John Willman, Scott Maddux*  
CC Room 23

This poster symposium celebrates the extraordinary contributions of Erik Trinkaus to Late Pleistocene paleoanthropology. A member of the National Academy of Sciences, Erik has spent the last forty-five years contributing knowledge foundational to contemporary understanding of Neandertal and early *Homo sapiens* evolution, functional anatomy, and paleobiology. His extensive and diverse publication record spans the last half million years of human evolution and almost every anatomical region of the body. His work is clearly and consistently unified by a deep commitment to situating skeletal material in appropriate archaeological and behavioral contexts, evaluating fossil specimens within the broader scope of human variation, and focusing on population dynamics and evolutionary processes. Erik's authorship of over a dozen books and more than 250 articles and chapters includes numerous analyses of original fossil material such as the classic *The Shanidar Neandertals*, along with popular science books like *The Neandertals: Changing the Image of Mankind*. Further, in addition to his own research, Erik has been extremely successful in the education and training of students (chairing 16 dissertation committees and shaping the perspectives of countless other young academics) and championing the work of international anthropologists, especially those from developing countries. Thus, as Erik nears retirement, we honor not only his personal contributions to the field, but his inestimable impact on the academic careers of numerous students and close collaborators, both domestic and abroad.



## FRIDAY AFTERNOON SESSIONS

Discussants: Fred H. Smith, João Zilhão.

- 1 The making of a paleoanthropologist: The influences of Erik Trinkaus. R. POTTS.
- 2 A consideration of the 'anomalous' narial margin patterning in the Krapina Neandertal maxillae. R.G. FRANCISCUS.
- 3 Looking for Neandertal derived traits: new data from the Le Moustier 2 Neandertal neonate (Le Moustier, France). B. MAUREILLE, C. PARTIOT.
- 4 Another look at canine variation in Neanderthals. D. GUATELLI-STEINBERG, G.V. CALHOUN, M. HUBBE.
- 5 Paleobiology and Taphonomy of the Middle Paleolithic Neandertal Remains from Ciemna Cave, Southern Poland. J.C. WILLMAN, B. GINTER, R. HERNANDO, M. LOZANO, K. SOB CZYK, D. STEFAŃSKI, A. SZCZEPANEK, K. WERTZ, P. WOJTAL, M. ZAJĄC, K. ZARZECKA-SZUBIŃSKA, E. TRINKAUS, P. VALDE-NOWAK.
- 6 The Evolution of Human Body Size and Shape. C.B. RUFF.
- 7 Surface area and volume of the body in Late Pleistocene *Homo*. T.W. HOLLIDAY, B.M. KASABOVA.
- 8 Genetic variation in body weight ontogeny and its contribution to body size sexual dimorphism in captive baboons (genus, *Papio*). J.L. JOGANIC, F. SANTOS, L.A. COX, M.C. MAHANEY, J. ROGERS, J.M. CHEVERUD, A.G. COMUZZIE.
- 9 Neanderthal thermoregulation: old ideas and new. C. OCOBOCK, A. NICLOU.
- 10 Professor Erik Trinkaus and paleoanthropological studies in China. W. LIU, X. WU.
- 11 Commingled skeletons in Cussac cave (Gravettian, Dordogne, France): Paleobiology and mortuary behaviors. S. KACKI, I. DORI, P. GUYOMARC'H, E.M. SCHOTSMANS, V.S. SPARACELLO, S. VILLOTTE.
- 12 Further insights on Late Upper Paleolithic (Epigravettian) funerary use of Arene Candide Cave (Liguria, Italy). New AMS dates and paleopathology. V.S. SPARACELLO, I. DORI, S. ROSSI, A. VARALLI, J. MOGGI CECCHI, J. RIEL-SALVATORE, V. FORMICOLA.
- 13 Neandertal oral health: new techniques and future directions. S.A. LACY.
- 14 Mortality and skeletal lesion profiles among Prehispanic Lower Pecos foragers of south-west Texas. C.E. HILTON, M.D. OGILVIE.
- 15 Scapular retroversion asymmetry and its correlates: New indicators of habitual upper limb activities. L.W. COWGILL, S.D. MADDUX.
- 16 A Symposium in Honor of Erik Trinkaus: Talk to the Hand. W. NIEWOEHNER.
- 17 Neandertal-Upper Paleolithic *H. sapiens* population dynamics. L.L. SHACKELFORD, S.G. ATHREYA.
- 18 How did the Neanderthal juxtastoid eminence come into being although it does not exist? M.S. PONCE DE LEÓN, C.P. ZOLLIKOFER.
- 19 Dental developmental patterns and tissue volume variation along the arcade in Neanderthals and Upper Paleolithic humans. P. BAYLE, T. COLARD, M. LE LUYER.

# FRIDAY AFTERNOON SESSIONS

## Session 44

### **Biological Anthropology of Brazilian populations – past and present**

#### **Invited Poster Symposium**

*Chair: Hilton P. Silva*

CC Room 24

Physical Anthropology has been a recognized research field in Brazil since the end of the 19th Century when it was mostly involved with discussions about races, admixture, and the building of the Nation. Nevertheless, starting in the 1950's until the early 1990's, the field almost disappeared from academic institutions in the country, even though some individual researchers continued to work with themes related. As a holistic and dynamic field which, throughout its history, has responded to diverse theoretical currents and paradigms according to the various latitudes where it has been applied, biological anthropology has proven its importance. Nevertheless, until 2010 there was no formal training, whether at the undergraduate or graduate level, in physical/biological anthropology in Brazil. The objective of this session is to bring together representatives of the most important centers conducting investigations in the field of biological anthropology in the country, some of them in partnership with USA researchers. The session provides a broad spectrum perspective on how the field has been developing in the country, the types of studies conducted, from pre-historic to contemporary populations, and helps demonstrate that the field can have an important role in the comprehension and the search for solution to the distinct problems faced by the society.

**Discussant: Douglas Crews.**

- 1 **Biological anthropology in Brazil: Past and present perspectives.** H.P. SILVA.
- 2 **Runs of homozygosity and admixture dynamics in the African-derived Brazilian *quilombo* populations.** K. NUNES, R.B. LEMES, L. KIMURA, J.E. CARNAVALLI, R.C. MINGRONI-NETTO, P.A. OTTO, D. MEYER.
- 3 **Relationship among molecular markers, blood biochemistry, and anthropometry in Amazonian Native American populations.** I.G. DINIZ, H.P. SILVA, J.F. GUERREIRO.
- 4 **Infant condition and the timing of deciduous tooth emergence in the Brazilian Amazon.** J. SPENCE, D. GUATELLI-STEINBERG, B.A. PIPERATA, B. FLOYD, H.P. SILVA.
- 5 **Factors associated with cardiovascular diseases in men and women: epidemiological transition in traditional Brazilian African-derived communities (*quilombos*).** S.G. PAIVA, M.C. NOBREGA, M. KLAUTAU-GUIMARAES, L. MADRIGAL, A. RIVARA, S.F. OLIVEIRA.
- 6 **Chronic diseases in Amazonian populations: Socioepidemiology and biocultural perspectives.** A.K. SILVA, L.A. FIGUEIRAS, R.B. TAVARES, H.P. SILVA.
- 7 **Oral health in a rural population of the Brazilian Amazon: Implications for interpretation of dental caries in the past.** P. DA-GLORIA, B.A. PIPERATA, C. HOFFMANN, M. SIMIONATTO, R. OLIVEIRA, F.N. NOGUEIRA.
- 8 **Resilience of the hunter-gatherers of Lagoa Santa, Brazil: a new case of Paleoamerican late survival.** D.V. BERNARDO, P. DA-GLORIA, W.A. NEVES.
- 9 **Sedentism and Dietary Variation among the semi-nomadic Naduhup of the Northwest Amazon.** H.M. WRIGHT, MS, G.H. SHEPARD, JR., PHD, B.A. PIPERATA, PHD.

# SATURDAY, ALL DAY SESSIONS

## Session 45

### Genetics

#### Contributed Poster Presentations

Chair: *Krithivasan Sankaranarayanan*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 Investigating the Phenotypic Consequences of Archaic Hominin Introgression on Modern Human Biology. E. JAGODA.
- 2 Diverse and distinct histories of admixture in East African Nilotic speakers. R.L. RAAUM, D. ISABIRYE, E.I. MUNANURA.
- 3 Genetic Research of Ancient Human Remains in the Central Plains during Yangshao Period. J. LI, Y. ZHANG, H. ZHU, H. ZHOU.
- 4 Exploring population origins and dispersals using ancient DNA at Chelechol ra Orrak, Palau. J.H. STONE, C. KISIELINSKI, J. TACKNEY, S.M. FITZPATRICK, N. TING, D. O'ROURKE.
- 5 Human Mitochondrial Diversity Across West New Guinea: The Origin and Expansion of Haplogroups Q1 and P3. C.J. FUGINA, E.S. JELEN, M.C. MORAN, S.C. VELAZQUEZ, M. MONTES, C.A. ALMETER, C.N. RONEN, A.A. GUYON, R.M. GARRUTO, M. SHAMOON-POUR.
- 6 The Genomic Landscape of the Peruvian Andes. M.A. NIEVES-COLON, E. RAWLS, A. OBREGON-TITO, R. TITO, C. LEWIS, K. SANDOVAL MENDOZA, C.D. BUSTAMANTE, G.L. WOJCIK, C. GIGNOUX, J. BAKER, L. FEJERMAN, T. VIDAURRE, B. LIZÁRRAGA, V. RUBIN DE CELIS, A.C. STONE, A. MORENO-ESTRADA.
- 7 The molecular consequences of migration in a regional Amazonian city. R.E. DAVID.
- 8 Biodistance Analysis of North and South American Populations. J.R. STAMER, M. HUBBE.
- 9 African Ancestry in the Americas: Perspectives on Afro-Puerto Rican Maternal Ancestry. T. WINFUL, M.A. C. DELDUCCO, E. MUELLER, J. BENN TORRES, PHD.
- 10 Sex-biased admixture and geographic mating structure shape genomic variation in Cape Verde. K. BOBREK, S. BELEZA, A. GOLDBERG.
- 11 A candidate gene approach to assessing phenotype/genotype correlations in the nasal complex. N.E. HOLTON, T. WELK, L. MORENO-URIBE, T.R. YOKLEY, R.G. FRANCISCUS.
- 12 The MZ SNP: A Xq27.2 region associated with prostate cancer is also associated with monozygotic twinning. K. KELLY, S. BASHAR, K.B. CLANCY, H. HUANG, L. MADRIGAL.
- 13 A newly generated whole genome of *Treponema pallidum* subsp. *endemicum* strain Iraq B: implications for reconstructing the evolutionary history of treponematosi. Z. WANG, B.J. MOLINI, G.R. MILNER, S.A. LUKEHART.
- 14 A complex genotype-phenotype map underlies the generation of genetic variation in murine molars. C.C. ROSEMAN, R. GREEN, A. NEVES, C. PERCIVAL, L.K. DELEZENE, J.M. CHEVERUD, B. HALLGRIMSSON.

## SATURDAY ALL DAY SESSIONS

- 15 **A sample of HbAS African American football players differs significantly from a control African American football team in its mean weight and BMI. Is HbAS a benign condition in football?** D. WHITE, C.M. BALENTINE, C. FLANSBURG, R.W. GRIEGER, J. LUND, M. CIAMBELLA, E. GONZALEZ, E. CORIS, A.C. STONE, L. MADRIGAL.
- 16 **A haplotype-level analysis reveals adaptive polymorphic gene duplications in humans affecting pigmentation and hair morphology.** M. SAITOU, O. GOKCUMEN.
- 17 **Differential energy gain from saturated and polyunsaturated fats.** K. CHADAIDEH, R.N. CARMODY.
- 18 **Adiposity, leptin, and single nucleotide polymorphisms in Kansas Mennonites.** C. GERHOLD, M. CRAWFORD, M. MOSHER.
- 19 **Studying oral health status in Pre-Hispanic and Colonial indigenous individuals from Central Mexico through paleogenomics.** M.J. BRAVO LÓPEZ, V. VILLA ISLAS, A. SOLÍS GUZMÁN, E. CAMPOS MEJÍA, A. HERRERA MUÑOZ, J. GÓMEZ VALDÉS, M.C. ÁVILA ARCOS.
- 20 **Expression of the  $\mu$ -opioid receptor gene in the frontal cortex of a mouse model for the evolution of human endurance running.** N.Y. MAZUMDAR, J.D. POLK, T. GARLAND, JR., L.L. SHACKELFORD, J.S. RHODES.
- 21 **Using a Mouse Model to Study the Evolution of a Bipedal Trait: Characterizing the Regulatory Landscape of Muscles with Divergent MHC I Expression.** S.R. QUEENO, M. YOUNG, D. RICHARD, M.C. O'NEILL, T.D. CAPELLINI, K.N. STERNER.
- 22 **A spoonful of bacteria helps the gluten go down: Probing the human oral microbiome for evidence of recent adaptation to host diets enriched in wheat, barley, and rye.** C.K. LAPOSKI.
- 23 **Biogeographic study of human gut associated crAssphage suggests impacts from industrialization and recent expansion.** K. SANKARANARAYANAN, T. HONAP, S. SCHNORR, A. OZGA, C. WARINNER, C. LEWIS JR..
- 24 **Impact of modernization on human gut microbiome diversity on three islands of Vanuatu.** M. LI, K. GOWEN, A. ROOME, D. JACOBSON, N. PATEL, J.K. LUM, K. SANKARANARAYANAN.
- 25 **Polygenic Adaptation to Amazonian Rainforest.** C.M. COUTO-SILVA, K. NUNES, M. BORTOLINI, F.M. SALZANO, T. HÜNEMEIER.
- 26 **Revisiting Heterozygous Advantage for Phenylketonuria Carriers.** A.B. POTTER, M.J. COOPER.
- 27 **A novel composite evolutionary approach reveals *SPRR3* gene in the epidermal differentiation complex as a target of balancing selection in humans.** I. STARR, T. WILD, O. GOKCUMEN.
- 28 **The world-wide distribution of the C677T allele of the MTHFR gene.** L. REYES, F. GONZALEZ-HERNANDEZ, D. GODFREY, M. JEAN, M. BIDAL, L. MADRIGAL.
- 29 **Ancient Genomic and Epigenomic Simulation Using the epiPALEOMIX Pipeline.** C.E. BARRETT, J. KELLY.
- 30 **Microhaplotypes: New markers in Anthropological Genetics.** M.S. SCHANFIELD, R. HART, K. LONG, K. MADDELLA, C. WOOTEN, R. LAGACE, J. CHANG, F. OLDONI, K. KIDD, D. PODINI.
- 31 **Effects of domestication and selective breeding on coat coloration in alpacas through exon 4 analysis of agouti gene.** E.K. BLYSTONE.

## SATURDAY ALL DAY SESSIONS

- 32 Using DNA to determine the species and geographic origins of elephant ivory discovered in a 16th century Portuguese shipwreck. A. DE FLAMINGH, A. COUTU, S. CHIRIKURE, J. SEALY, R.S. MALHI, A.L. ROCA.
- 33 An epigenetic measure of biological aging in rhesus macaques. E.A. GOLDMAN, K.L. CHIOU, L.J. BRENT, M.J. MONTAGUE, M.L. PLATT, J.E. HORVATH, S. SAMS, K.N. STERNER, N. SNYDER-MACKLER.
- 34 Stabilizing selection on bamboo lemur cyanide-detoxification enzymes suggests regulatory evolution. M. LAUTERBUR, M.E. CHANEY, A.J. TOSI, P.C. WRIGHT.
- 35 Repeatability of female odor preferences in mate choice. L.A. KNAPP.
- 36 Evolvability and Constraint in Traits of the Primate Vertebral Column with Respect to Functional Trait Complexes. B.M. AUERBACH, E.R. AGOSTO.
- 37 Estimating extinct primate vomeronasal traits using maximum likelihood ancestral state reconstruction methods. R.M. DECAMP, E.C. GARRETT.
- 38 The dynamic evolution of the xenobiotic-metabolizing cytochrome P450 enzymes (*CYP1-3*) among primates. M.E. CHANEY, M.G. ROMINE, H. PIONTKIVSKA, A.J. TOSI.
- 39 The evolution of human neutrophilia and the functional divergence of a bactericidal cell in primates. J.F. BRINKWORTH, K. VAN ETTEN, P. BHATT, K. MCCLURE, M. WOO, N. VALIZADEGAN, S. GUNASEKERA, Y. SUAREZ, B. ALDRIDGE.

### Session 46

#### Education in Biological Anthropology

##### Contributed Poster Presentations

*Chair: Briana Pobiner*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 Does learning evolutionary theory within anthropology help students reason about human evolution? E.P. BEGGROW.
- 2 Engaging students in anthropology through the exploration of ancestry identity. L.N. PEARSON.
- 3 The use of bout's during activity decreases women's core temperature more than men's. H.K. CHEYNEY KANE, C. WALL-SCHEFFLER.
- 5 Exploring biological anthropology content on popular science YouTube channels. D. SHAPIRO.
- 6 Among elderly Kuwaitis social support buffers functional and physiological dysregulation. K.A. ZNIDARSIC, A.N. EDES, Y. AL-KANDARI, D.E. CREWS.
- 7 Disentangling and Disappropriating Science. J. LUND, C.M. LEWIS, JR..

## SATURDAY ALL DAY SESSIONS

- 8 Walking with hominins and chewing with lemurs in K-12 classrooms: Incorporating 3D digital repositories into state-specific lesson plans. A.N. ROSSILLO, R.W. COOK, E.L. FULWOOD.
- 9 Race science and its misuse of research in biological anthropology. D.M. ADAMS, M.A. PILLOUD.
- 10 Kenyan biology teachers' experiences teaching evolution. B. POBINER, H. CHIRCHIR, J. MUNGA, M. GRANATA, H. FARKOSH.
- 11 Effectively teaching primary literature comprehension in bioanthropology. S. NEWELL.
- 12 Metric and Non Metric Comparative Study of Sexual Dimorphism of the Zygomatic. M.L. ORRAND, S. GARDNER.
- 13 The sensitive camel and the wishing troll: Paint chips redefining arbitrary categories of skin pigmentation in anthropological education. A. BIERNASKI, L. WILLIAMS.
- 14 Virtual Reality Evolutionary Anatomy Lab (VREAL): Virtual lab spaces for instruction and collaboration. A.P. VAN ARSDALE, J. TYNES, K. LUKOSIUTE, A. SIMONSON, S. COX.

### Session 47

#### Primate Craniodental Anatomy

##### Contributed Poster Presentations

*Chair: Andrew Deane*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 Virtual Dissection of Complex Masticatory Muscles with DiceCT. R. SAAVEDRA, R. KILE, R.A. MENEGAZ.
- 2 The evolution of gape and bite force potential in primates. H. GLOWACKA, G.T. SCHWARTZ.
- 3 Trabecular ontogeny of the mandibular condyle in callitrichids. N.D. SIEGEL, C.J. VINYARD.
- 4 Functional correlates of jaw shape diversity in platyrrhine sclerocarpic harvesters. Z.S. KLUKKERT.
- 5 The effects of chewing time on gonial morphology in the mammalian mandible. S.M. MAGEE, S.E. ALAVI, F.R. FOSTER.
- 6 Mandibular shape variation within hylobatid species is not consistent with genetic diversity. J.M. ZICHELLO.
- 7 Palatine morphological variation associated with diet in lemurs. G.Y. GALDAMEZ, S.M. ZALESKI.
- 8 Dental topography metrics from lemurs as ecometrics along spatial environmental gradients on Madagascar. E.L. FULWOOD.

# SATURDAY ALL DAY SESSIONS

- 9 **The Impact of Food Texture Preference on Oral Processing in Modern Humans.** E.M. FRANKS, T.W. MOBERLY, M. JELTEMA, P.J. LUCK, J. BECKLEY, E. FOEGEDING, C.J. VINYARD.
- 10 **Do abrasion and attrition leave the same trace? A microscopic tooth wear study on chimpanzee molar wear facets.** J. STUHLTRÄGER, E. SCHULZ-KORNAS, R.M. WITTIG, O. KULLMER, K. KUPCZIK.
- 11 **Identifying dietary differences in howler monkey (*Alouatta* spp.) molars.** T. CICAČAK.
- 12 **A comparison of cercopithecoid molar outlines using elliptical Fourier analysis.** A.C. KIM, F.L. WILLIAMS.
- 13 **Enamel extension rate patterns in the great apes.** C. KUFELDT.
- 14 **An assessment of the neurovascular structures of the trigeminal nerve and their relationship to tooth morphology in *Rattus sp.*, *Pithecia pithecia*, *Saimiri sciureus*, and *Chiropotes sp.*** C.B. YOAKUM, C.E. TERHUNE.
- 15 **Junk DNE: How Surface Simplification and Scanning Resolution Affect Measures of Dental Crown Sharpness.** P.E. MORSE, J.D. PAMPUSH, R.F. KAY.
- 16 **The use of enamel and dentine extension rates to estimate crown and root formation time and examine the M1 eruption process in wild chimpanzees.** M. MALONE.
- 17 **Is mountain life tougher? Examining differential maximum incisor bending and shearing strength in *Gorilla gorilla* and *G. beringei*.** L.N. AUSTIN, J.W. MOFFIT, A.S. DEANE.
- 18 **Variation in enamel formation front angles and enamel thickness in anterior and posterior cercopithecoid teeth.** L. OLDERSHAW, M. O'HARA, D. GUATELLI-STEINBERG, S. MCGRAW.
- 19 **Through thick and thin: Tooth crown strength and enamel thickness variation in apes and fossil hominins.** G.T. SCHWARTZ, A. MCGROSKY, D.S. STRAIT.
- 20 **A tale of two stresses: Comparing the relationships between maximum incisor shearing strength and maximum incisor bending strength and anthropoid diet.** A.S. DEANE, L.N. AUSTIN, J.W. MOFFITT.
- 21 **Assessment of dental microwear formation using a capuchin model: grit versus diet.** R.S. SCOTT, O. BOSS, L.R. DESANTIS, C. MARCIL, C. ROSS, A. SCHWARTZ, B.W. WRIGHT, K.A. WRIGHT, A. VAN CASTEREN, D.S. STRAIT.
- 22 **Incisor microwear textures in four genera of Sumatran primates.** L.K. DELEZENE, S.A. JEFFRESS, M.F. TEAFORD, P.S. UNGAR.
- 23 **Dental macrowear, diet and anterior tooth use in *Ptilocolobus badius* and *Colobus polykomos*.** G.V. CALHOUN, E.M. LAGAN, D. GUATELLI-STEINBERG, P.E. MORSE, W. MCGRAW.
- 24 **Metameric variation of upper molars in extant hominoids.** W. MORITA, N. MORIMOTO, R.T. KONO, G. SUWA.
- 25 **Understanding Canine Cranial Morphology: The Impact of Selection for Facial Reduction in Dogs.** M.C. SELBA, G.U. OECHTERING, H. HENG, V.B. DELEON.
- 26 **Bony labyrinth shape variation as a marker of prenatal stress and the maternal environment.** D.L. WARD, E. POMEROY, J.E. ROY, L.T. BUCK, J.T. STOCK, M.T. SILCOX, T. VIOLA.
- 27 **Get an eyeful of this: Gross anatomy and morphometrics of the squirrel monkey (*Saimiri*) interorbital region.** L.B. HALENAR-PRICE, B. SHEARER, C.E. TERHUNE, C. YOAKUM, S.B. COOKE.

## SATURDAY ALL DAY SESSIONS

- 28 **A unique pattern of serotonergic innervation in the human amygdala.** C.H. LEW, K.M. GROENIGER, K.L. HANSON, D. CUEVAS, D. GREINER, B. HRVOJ-MIHIC, U. BELLUGI, C.M. SCHUMANN, K. SEMENDEFERI.
- 29 **Correlations between Cranial Morphometric Variation and Climate in western South America.** B. HERRERA, M. HUBBE.
- 30 **Scaling of whole brain blood flow rate in marsupials and euarchontans.** A.R. HARRINGTON, L. LANGE-HODGSON, V. WEISBECKER, D.M. BOYER.
- 31 **Evolving the primate retina: using time to generate high visual acuity.** C.J. CHARVET, D.J. TINDAL-BURGESS.
- 32 **Interneurons of the anthropoid striatum: reorganization and computational considerations.** K.L. HANSON, C.H. LEW, B. HRVOJ-MIHIC, E. HALGREN, M. RAGHANTI, K. SEMENDEFERI.
- 33 **Examining fluctuating asymmetry in *Macaca fascicularis*.** A.N. ROMERO, C.A. KIRCHHOFF, S.B. COOKE, C.E. TERHUNE.

### Session 48

#### Primate Ecology, Conservation and Genetics

##### Contributed Poster Presentations

Chair: Lisa Paciulli

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 **Environmental predictors of *Propithecus* pelage variation.** A.N. SPRIGGS, B.J. BRADLEY, J.M. KAMILAR, A.D. GORDON.
- 2 **Comparing Evolutionary Models of Primate Hair Color Variation.** R.B. BELL, B.J. BRADLEY, J.M. KAMILAR.
- 3 **Colors of primate pelage: The independent evolution of sexual dichromatism in the primate order.** T.C. WILSON, J.E. LOUDON.
- 4 **Are there clade level differences in the sexual dimorphism of primate hair morphology?** J.M. KAMILAR, A.N. SPRIGGS, A. MAKSIMOSKI, B.J. BRADLEY.
- 5 **Exome Sequencing Reveals Patterns of Selection Across Brown Lemurs (*Eulemur*).** A.J. ZAMORA, T.H. WEBSTER, J.M. KAMILAR.
- 6 **The Influence of Breeding System and Group Size on the Probability of Extinction in Diurnal Lemurs.** F.M. MERCADO MALABET, L.T. KUMPAN, S.M. LEHMAN.
- 7 **Are we overestimating commensal species densities? A case study of the long-tailed macaque (*Macaca fascicularis fascicularis*).** M.F. HANSEN, V.A. NAWANGSARI, S. ELLEGAARD, M.M. MOELLER, F.M. VAN BEEST, N.M. SCHMIDT, M. STELVIG, C. TRAEHOLT, T. LABELSTEEN.



## SATURDAY ALL DAY SESSIONS

- 8 Body temperature estimates for Bornean orangutans (*Pongo pygmaeus wurmbii*) from internal fecal temperature measurements. F.S. HARWELL, R. GOTAMA, K.S. SCOTT, B. PHILIP, C.D. KNOTT.
- 9 Shifting Spaces: short-term home range patterns in white-handed gibbons in mosaic habitat in western Thailand. M. SOBASZEK, L.E. LIGHT.
- 10 Observation of visitors at a chimpanzee ecotourism site reveals opportunity for multiple modes of pathogen transmission. D.B. GLASSER, T.L. GOLDBERG, J.M. ROTHMAN.
- 11 Terrestrial tree hugging in a primarily arboreal lemur: a risky but effective thermoregulatory strategy. C. CHEN-KRAUS, N.A. RAHARINORO, R.R. LAWLER, A.F. RICHARD.
- 12 Occurrence of flame retardants, legacy and current use pesticides in primate habitat throughout Kibale National Park, Uganda. T. STEINICHE, S. WANG, E. JOHNSON, M. VENIER, M. WASSERMAN.
- 13 Environmental, but not social cues predict nest site selection and use in a communally breeding primate. A.L. BADEN.
- 14 The influence of anthropogenic forest edge on the social cohesion of mantled howler monkeys in Costa Rica. J.R. ROSSO, A.L. SCHREIER, E.M. COGGESHALL, C. MERRIGAN-JOHNSON, L.M. BOLT.
- 15 Assessing the impacts of natural disaster on primate habitat in Sulawesi, Indonesia. N.B. GROW-BLONG.
- 16 Modeling *Varecia* current and future habitat in eastern Madagascar. A.N. MANCINI, T. MORELLI, A.B. SMITH, E. BALKO, C. BORGERSON, R. DOLCH, Z. FARRIS, S. FEDERMAN, S. HOLMES, M. IRWIN, R. JACOBS, S. JOHNSON, T. KING, S. LEHMAN, E. LOUIS, A. MURPHY, T.H. RATOLOJANAHARY, O. RAZAFINDRATSIMA, A.L. BADEN.
- 17 Paleoclimatic legacies structure present-day mammal communities in the global tropics. J. ROWAN, K.E. REED, L. BEAUDROT, A. ZAMORA, I.E. SMAIL, J.M. KAMILAR.
- 18 Paternal activity budgets of San Martin titi monkeys (*Plecturocebus oenanthe*) in response to habitat destruction, daily temperature range, and infant age. S. HODGES.

### Session 49

#### Hominin Evolution

##### Contributed Poster Presentations

*Chair: Scott Williams*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 How much does size dimorphism in *Australopithecus afarensis* reflect changes in male or female body size? J. PLAVCAN.

## SATURDAY ALL DAY SESSIONS

- 2 Predicting glenohumeral range of motion from bone geometry *in silico*, with application to fossil hominins. E.C. LEE, N.M. YOUNG, M.J. RAINBOW.
- 3 Joint proportions in early hominins. A.M. PRABHAT, C.K. MILLER, J.M. DESILVA.
- 4 Assessing hominin hips using ilium cross-sectional shape. Z. COFRAN, C. VANSICKLE, D. GARCÍA-MARTÍNEZ, C.S. WALKER, B. PIERCY.
- 5 Evaluating the Significance of Hominin Femoral Variation. L.H. EASON.
- 6 New cranial capacity estimates for Sts 19 and Sts 25 (*Australopithecus africanus*). R.C. MCCARTHY.
- 7 A new interpretation of the anomalous dental modifications of Olduvai Hominid 1 (OH1), Tanzania. R. HERNANDO, J.C. WILLMAN, M. MATU, I. CREVECOEUR.
- 8 Ontogeny of vault shape in *Homo erectus* with implications for KNM-ER 42700. K.L. BAAB, A. NESBITT.
- 9 Morphological affinities of Plio-Pleistocene hominins and its phylogenetics implications: a phenetic multivariate exploratory analysis. T.C. CAMPOS, D.V. BERNARDO, T.F. DE ALMEIDA.
- 10 Revisiting Herto: New evidence and perspectives on *Homo sapiens* from Ethiopia. Y. SAHLE, Y. BEYENE, A. DEFLEUR, B. ASFAW, G. WOLDEGABRIEL, W.K. HART, L.E. MORGAN, P.R. RENNE, J. CARLSON, T.D. WHITE.
- 11 Anatomic and geometric morphometric assessment of the Herto 16/5 endocranium (Middle Awash, Ethiopia). L.E. CIRILLO, D. DECHANT, R.S. JABBOUR, G.D. RICHARDS.
- 12 The Krapina Neandertal Site: Using Dental Metrics To Determine Population Variability In Neandertals. B.A. KEELING.
- 13 Similarities and differences of femoral diaphyseal ontogeny in modern humans and Neanderthals. N. MORIMOTO, M. PONCE DE LEÓN, L. GOLOVANOVA, V. DORONICHEV, T. AKAZAWA, O. KONDO, C. ZOLLIKOFER.
- 14 New insight on the Neandertal pelvis: Virtual reconstruction of the pelvis of Regourdou 1 specimen. R. RMOUTILOVA, J. BRUZEK, R. LEDEVIN, A. GÓMEZ-OLIVENCIA, C. COUTURE-VESCHAMBRE, T. HOLLIDAY, S. MADELAINE, J. VELEMÍNSKÁ, B. MAUREILLE.
- 15 Crown shape analysis of the maxillary dentition of *Homo naledi*. J.K. BROPHY, D.J. DE RUITER, L.R. BERGER.
- 16 New associated immature postcranial remains of *Homo naledi* from the Dinaledi Chamber, South Africa. D.R. BOLTER, M.C. ELLIOTT.
- 17 An analysis of the trabecular morphology of the *Homo naledi* talus, and its inferred functional implications. C.P. KASL, A.J. RAGNI, W.E. HARCOURT-SMITH.
- 18 Another massive distal humerus of *Paranthropus boisei* from Koobi Fora, Kenya. M.R. LAGUE.
- 19 Hibernation, puberty and chronic kidney disease in hominins from Spain half a million years ago. A. BARTSIOKAS, J. ARSUAGA.
- 20 Effect of sampling bias in endocast volume comparisons between Neandertals and recent modern humans. C. VANSICKLE, Z. COFRAN.
- 21 Maxillary sinus growth and development in Neanderthals and *H. sapiens*. F. LANDI, A. PROFICO, P. O'HIGGINS.

## SATURDAY ALL DAY SESSIONS

- 22 Fluctuating sea levels in Australomelanesia and some shifting hypotheses about human population of Flores, Indonesia. R.B. ECKHARDT, S. CHAVANAVES, K.J. HSŪ, M. HENNEBERG.
- 23 A virtual assessment of the proposed suprainiac fossa on the early modern European calvaria from Cioclovina, Romania. A.M. BOSMAN, K. HARVATI.
- 24 Analysis of an isolated hunter-gathering population, the Pericú, and implications for the effects of isolation on hominin skeletal remains. C.B. YOUNG, J. MANUEL ARGUELLES, B. YAÑEZ.
- 25 10,000 years of mandibular evolution in southern South America: Implications for morphological diversification. L.P. MENENDEZ, M.L. SARDI, N.A. SCHEIFLER, M.E. GONZALEZ, P. MESSINEO, G.G. POLITIS.
- 26 A developmental model of hominin brain evolution. S.D. HURST, R.L. HOLLOWAY, L.M. KITCHELL, H.M. GARVIN.
- 27 Using Bayes Theorem to Identify New Species in the Fossil Record. J.K. SPEAR, J. SHAPIRO.

### Session 50

#### Paleopathology

#### Contributed Poster Presentations

*Chair: Madeleine Mant*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

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

6:00 Odd number presenters stand by their posters (1 hour).

- 1 Cranial injuries in the Bronze Age sample from Bezdanjača cave, Croatia. I. JANKOVIC, M. NOVAK.
- 2 Violence and Geographic Fluidity: Using Incremental Strontium Isotopes to Track Geographic Residence Throughout the Life Course in Prehistoric Arequipa, Peru. C.K. SCAFFIDI, G. KAMENOV, G. GORDON, C. TICA, R. ULLOA, K. KNUDSON, J. KRIGBAUM.
- 3 Integrative archaeometrical and osteological approach suggests violent deaths for Dutch colonizers in 17th Century Northeastern Brazil. A. CAMPELO DOS SANTOS, H. LAVALLE SULLASI, S. MONTEIRO DA SILVA.
- 4 Reconstruction of intentional violence in the Central European Early Medieval: perimortem axe skull injuries at Pohansko-Břeclav. M. BERNER, J. MACHÁČEK, V. SLÁDEK.
- 5 Colonialism and Structural Violence: Implications for Childhood Physiological Stress and Mortality Risk. C.J. GARLAND, L.J. REITSEMA.
- 6 Similarities and differences in cranial trauma in high and low status cemeteries in Colonial Mexico City. P. LYNCH, C. WILLERMET, E. MOES, H. EDGAR, C. RAGSDALE.

## SATURDAY ALL DAY SESSIONS

- 7 **Analysis of an American Heroine?: The Skeletal Remains from the Gravesite of "Captain" Molly Corbin.** E.A. DIGANGI.
- 8 **Nonspecific Stress and Age-at-Death in Colonial Period North Coast Peru.** M. PHILLIPS, H.D. KLAUS, D.H. TEMPLE.
- 9 **Demographic reconstruction of health and disease at the St. Lawrence County Poorhouse, Canton, NY.** M.L. MANT, M. PITRE, C. MCCARTHY, A. HALE.
- 10 **Comparative Analysis of the Health of Free Blacks in the Northeast, South and Southwest.** E.D. TURNER-BYFIELD.
- 11 **A Case of Maternal and Perinatal Death in the Spring and Autumn Period in Jinnan region of China.** T. HAN, S. YOU, S. RUAN, X. MAN, X. LIAO, A. WANG, S. YANG.
- 12 **Rich grave goods, bad health? The preliminary results of the bioarchaeological study of the Middle Bronze Age cremation burials from Jagodnjak, Eastern Croatia.** M. NOVAK, I. JANKOVIC, D. TRESIC PAVICIC.
- 13 **Skeletal trauma as an indicator of past living conditions in Medieval Cambridge.** J.M. DITTMAR, P.D. MITCHELL, C. CESSFORD, S. INSKIP, B. NEIL, I.K. SEALEY, J. ROBB.
- 14 **Stress in Greek Mother Cities and Colonies.** N.K. TUCHSCHERER.
- 15 **Mortuary based variation in early stress experiences at CA-CCO-138.** C.M. CHEVERKO.
- 16 **Relations between cultural perceptions of childhood and childhood stress in an ancient Greek colony.** M.R. KAYE, B. KYLE, S. VASSALLO, L.J. REITSEMA.
- 17 **Post-mortem Birth, Death in Childbirth, or Mortuary Practices? A Case Study From Bronze Age China.** A. SHULTS, R. MAO, H. WANG, I. YEH-HUI YUAN, S. JUENGST.
- 18 **EMPHASIS: Environmental Mismatch in Primates and Humans, Anthropogenic Impacts and Settings Survey.** A.R. ELLER, S. CANINGTON, R.M. AUSTIN, C.A. HOFMAN, S.B. SHOLTS.
- 19 **Reconstructing host immune status in acquired syphilis: a bioarchaeological and immunological approach.** M.E. DUNCANSON, M.K. ZUCKERMAN, S. DEWITTE, F. CRESPO.
- 20 **Assessment of pathological conditions found in Andean Holocene inhabitants of Cuncaicha rock shelter, Peru.** M. FRANCKEN, J. BEIER, H. REYES-CENTENO, K. RADEMAKER, K. HARVATI.
- 21 **Diagnosing SAPHO syndrome in human remains.** J. MARGOLIS, M. HUBBE, M.M. QUINN.
- 22 **Macroscopic analysis of periosteal new bone in human long bones.** E. FRAUENHOFER.
- 23 **A probable case of cranial osteopenia in aboriginal societies from northern Argentina.** H. DRUBE, S. MARTÍNEZ, E. SILVERA, S. SALCEDA, G. LAMENZA.
- 24 **Proximate and Ultimate Causes of Rising NCD Mortality in the Mississippi State Asylum (1855-1935), Jackson, MS.** A.C. DAFOE, M.K. ZUCKERMAN, N.P. HERRMANN, A.M. PLEMONS, B.N. HIGGS.
- 25 **Oral health and osteoarthritis: impacts from social and environmental variation among Iron Age steppe groups of southern Siberia and Inner Asia.** J.T. ENG, M. MACHICEK.
- 26 **Osteoarthritis and osteophytosis in the vertebral column in two prehistoric populations from the semi-arid north of Chile.** D.K. JULIEN, K.M. RAYMOND.
- 27 **Back-breaking poverty: Schmorl's nodes in institutionalized and impoverished populations in the late 19th and early 20th century United States.** L.A. TREMBLAY.

# SATURDAY ALL DAY SESSIONS

- 28 **A Study on Spondyloarthritis of Individuals from Taosi North Cemetery.** X. MAN, S. RUAN, P. MU, X. LIAO.
- 29 **The role of social status in spinal degenerative joint disease outcomes: Evidence from Medieval Villamagna, Italy (800-1450 AD).** K.M. KINKOPF, S.C. AGARWAL, C. GOODSON, F. CANDILIO, A. COPPA, M. RUBINI.
- 30 **Development of a Radiological Checklist for Differential Diagnosis of Cancer and Neoplastic Disease in Mummified Human Remains.** J. WILLOUGHBY, A. NELSON.
- 31 **A bioarchaeology of care case study: Possible Juvenile Rheumatoid Arthritis from 14th-15th century Transylvania.** K.A. VEROSTICK, K.M. PADULA, D.N. WILLIAMS, Z. NYARADI, A. GONCIAR, J.D. BETHARD.
- 32 **Severe skeletal lesions associated with a documented case of juvenile leukemia.** J. MEYERS, E. GOODERHAM, L. MARINHO, H. NAHAL, K. NICHOLS, D. O'NEILL, L. SPAKE, H.F. CARDOSO.
- 33 **Physical (in)activity and the etiology of osteoarthritis.** I.J. WALLACE, G. RIEW, R. LANDAU, N.B. HOLOWKA, A.M. BENDELE, A.J. GRODZINSKY, E.H. FRANK, D.E. LIEBERMAN.
- 34 **The importance of age-at-death in orbital roof lesion analysis.** B. GARDNER, T. JAKOB.
- 35 **Arthropathic changes in the human skeletal remains from the Eastern Zhou China.** K. PECHENKINA, W. FAN.

## Session 51

### **Skeletal Biology: Growth and Development**

#### **Contributed Poster Presentations**

*Chair: Maja Seselj*

CC Ballroom BC

- 8:00 Poster setup.
- 10:00 Poster session opens.
- 1:30 Even number presenters standby their posters (1 hour).
- 6:00 Odd number poster presenters stand by their posters (1 hour).
- 1 **Exploring age-related variations during calcaneal growth.** G. GABANINI, C. FIGUS, R. SORRETINO, N.B. STEPHENS, M.G. BELCASTRO, W. HARCOURT-SMITH, T.M. RYAN, S. BENAZZI.
  - 2 **The application of histomorphometry to puberty in the archaeological record.** J.A. DOLDING-SMITH, R. PITFIELD, C. DETER, P. MAHONEY.
  - 3 **Childhood growth, cessation, and recovery: Links between lines of growth arrest and bone quantity.** T.R. VALLEROY, L.W. COWGILL.
  - 4 **Examination of nutritional, endocrinal, and metabolic effects on skeletal development and maturation.** K. REUSCH, J. GUERRERO.
  - 5 **Sex-specific cervical vertebral growth in height & depth: A study using computed tomography.** C.A. MILLER, S. HWANG, M.M. COTTER, H.K. VORPERIAN.

## SATURDAY ALL DAY SESSIONS

- 6 **Bioarchaeological Evidence for Canalization in Subadult Body Size and Growth, Colonial Lambayeque Valley, Peru.** V.M. GARCIA, D.H. TEMPLE, H.D. KLAUS, J.A. THOMAS, S.N. BALL.
- 7 **Exploring age-related variations during talar growth.** C. FIGUS, N.B. STEPHENS, R. SORRENTINO, E. BORTOLINI, L.M. SCALISE, G. GABANINI, M. ROMANDINI, F. LUGLI, S. ARRIGHI, F. BADINO, G. MARCIANI, G. OXILIA, D. PANETTA, M.G. BELCASTRO, W. HARCOURT-SMITH, T.M. RYAN, S. BENAZZI.
- 8 **Timing is everything: Implementing a Life Course Perspective to Investigate Developmental Origins of Health and Disease in a Medieval Italian Skeletal Sample.** P. BEAUCHESNE, T. TROMBLEY, S.C. AGARWAL, K. KINKOPF, C. GOODSON, F. CANDILIO, A. COPPA, M. RUBINI.
- 9 **Skeletal growth in wild chimpanzees: urinary bone biomarkers capture age variation in bone turnover.** A.A. SANDEL, M. ARPONEN, I.R. CLARK, S. TUOMI, K.K. IVASKA.

### Session 52

#### **Skeletal Biology: Human Variation**

##### **Contributed Poster Presentations**

*Chair: Brigitte Holt*

CC Ballroom BC

8:00 Poster setup.

10:00 Poster session opens.

1:30 Even number presenters standby their posters (1 hour).

6:00 Odd number poster presenters stand by their posters (1 hour).

2 **Tympanic dehiscence: Its prevalence and expression in Pacific Northwest Native crania.** G.L. TASA.

3 **Impacts of Thoracic Kyphosis Relative to the Midfacial Skeleton.** K.L. CEUNINCK, T. TRAN, A. ENGEL, W. SENSAROVIC, J. STARBUCK.

4 **Geographic variation in long bone growth and age estimation of juvenile skeletal remains.** H.F. CARDOSO, C. PRIMEAU, L. HUMPHREY, L. HARRINGTON, E. HOLLAND, L. RIOS, M. HOOGLAND, L. SPAKE, J. NELSON, E. GOODERHAM.

5 **Assessing craniofacial variation and sexual dimorphism in a skeletal sample from medieval Prussia.** C.S. PRITCHARD, A. ARIEL GRUENTHAL-RANKIN, A. KOPERKIEWICZ, M. POLCYN, M. RAMSIER.

6 **A multi-method approach to evaluate the presence of non-local individuals at the prehistoric Schild site in western Illinois.** A.R. THOMPSON, K.M. HEDMAN, M.A. FORT, S.C. DENT, D.C. COOK.

7 **Temporal Rift: Gene Flow or Genetic Drift? A case study of Korean Joseon Dynasty (1392-1910) and Modern (post-1910) Populations.** K.I. HARRINGTON, C.J. BAE, U. LEE, E. WOO, S. AHN, K. HU.

## SATURDAY ALL DAY SESSIONS

- 8 Diachronic changes in craniofacial morphology among the Middle-Late Holocene populations from Hehuang region, Northwest China. L. HE, D.H. TEMPLE, M. WANG, Q. ZHANG, W. LIU, N.V. CRAMON-TAUBADEL.
- 9 3D Morphometric Analysis of Cranial Variation at the Egyptian Colonial Site of Tombos in Nubia. M.R. BUZON, M.G. TORQUATO, E.R. OTÁROLA-CASTILLO.
- 10 The future of craniometrics in archaeology?: A focus on diversity. S.A. PONIROS.
- 11 Diversity in Tudor England: Exploring Origins and Ancestry in the Crew of Henry VIII's flagship, the *Mary Rose*. K.E. FAILLACE, J. SCORRER, R. MADGWICK.
- 12 Modern evidence of femoroacetabular impingement: implications for interpretations in the archaeological record. A.B. LAWRENCE, S. TOWNSLEY, C.V. WARD, B.D. CRIST, D.L. DUREN.
- 13 In Service to the Sultan: Biological affinity analysis of Vlach Ottoman vassals from southern Croatia. K. ALLEN, M. ŠLAUS, A. ADAMIĆ HADŽIĆ, N. VON CRAMON-TAUBADEL.
- 14 Sexual Dimorphism of Cranial Fluctuating Asymmetry in a Historic Hispanic Population. R.M. MELORO, J.T. HEFNER, M. HEILEN, V.B. DELEON.
- 15 Sex differences in the patterning of age-related bone loss in the human hallux metatarsal in Post-medieval rural and urban populations. L.A. WILSON, I. DE GROOTE, L.T. HUMPHREY.
- 16 Patterns of cranial morphological diversity among peoples of African descent. A.S. CUNNINGHAM, V. BURKE DELEON.
- 17 Lower mechanization levels are associated with increased age-related limb bone strength in European skeletal samples. B. HOLT.
- 18 Diachronic change in the Holocene Baltic head: the effects of farmed and aquatic foods on skull and tooth morphology. M.B. RIVERA, G. ZARIŃA, J.T. STOCK.
- 19 Osteological development of the foot during the Medieval to Post-Medieval transition. M.E. ALBEE.
- 20 Preliminary insights into human femoral bone remodelling at Late Bronze Age multiple burials from Iran. R. NASERI, J.J. MISZKIEWICZ, T.J. STEWART, A. SOŁTYSIAK.
- 21 Variation in Long Bone Diaphyseal Morphology in Coastal and Inland Hunter-Gatherers from Prehistoric Alaska. E.R. ROSA, D.H. TEMPLE.
- 22 Cortical Defects of the Distal Femur in Pacific Northwest Natives. J. VOGEL.
- 23 Comparison of eight- and four-muscle model for assessment of upper limb muscle activity during cereal grinding. M. STRUŠKA, M. HORA, V. SLÁDEK.
- 24 A new method for obtaining tibial torsion in living humans. A.S. MARSHALL, M.A. SCHRANK, J.S. WOLLMANN, L.T. GRUSS.
- 25 Midline Shifts in Modern Populations: Comparison of Migrants and a Donated Skeletal Collection. K.E. HELGESON, C.C. SIEGERT, C.P. MCDANELD, N.P. HERRMANN, M. SPRADLEY, M.D. HAMILTON.
- 26 The Influence of Habitual Activities and Lifelong Occupations on Morphological Measures of Skeletal Robusticity. L. BLIZZARD, H. DEAN, H.E. HORBALY, M. HUBBE.
- 27 The influence of occupation, habitual activity, and SES on osteometric variation in modern humans. H.E. HORBALY, M. HUBBE.

## SATURDAY ALL DAY SESSIONS

- 28 **Complex Clavicles: A novel method for landmark collection on structures lacking clearly defined features.** D.E. EHRLICH, B.A. PATEL, D.J. GREEN.
- 29 **Prediction of humerus length from the insertions of pectoralis major and the deltoid.** O.M. PEARSON, E.C. HILL.
- 30 **Introduction and Major Findings: The Backbone of Europe: Health, Diet, Work, and Violence over Two Millennia.** C.S. LARSEN, R.H. STECKEL, C.A. ROBERTS, J. BATEN.
- 31 **Proliferative periosteal reactions: assessment of trends in Europe over the past two millennia.** C. MARQUES, V. MATOS, N.J. MEINZER.
- 32 **Paleodemography of the Hamingmangha Site - a Neolithic Settlement Abandoned after a Disaster.** Q. ZHANG, Q. WANG, H. ZHU, P. MU, S. RUAN, S. YOU, N. OTGONTAMIR, Y. WANG, T. HAN.
- 33 **Artificially deformed skulls from Da'an Site – Earliest Evidence and Longest in situ Practice during the Neolithic Age.** Q. ZHANG, Q. WANG, Q. ZHANG, X. SUN, H. CUI, Z. ZOU, P. LI, J. LI.
- 34 **The Developmental Origins of Health and Disease: Early Life Health Conditions and Adult Age at Death in Europe.** R.H. STECKEL, C.A. ROBERTS.



# SATURDAY, MORNING SESSIONS

## Session 53

### **(AAAG-AAPA-AAA-HBA session) Interpreting and communicating genetic variation in 2019: a conversation on race**

#### **Invited Podium Symposium**

*Chair: Jennifer A. Raff. Co-organizers: Jennifer Raff*

CC Ballroom A

New findings regarding genetic variation in contemporary and ancient human populations have led to increasingly prominent discussions about the nature and meaning of race. In the last year, these discussions have taken on a new urgency, as research from genomics and behavioral genetics has been cited as evidence for the “naturalness” of traditional racial categories not just by white nationalist groups, but also public intellectuals and political leaders. The explosion in popularity of personal ancestry testing brings discussions of the meaning of biological ancestry to the dinner table in a significant number of households. Results from genetic ancestry tests are also now being used in the criminal justice system to catch criminals, to identify relatives separated by United States immigration enforcement, and to apply for membership in tribal nations. It is crucial that scientific voices are part of these discussions. Anthropological geneticists have long been at the forefront of these issues, as they are experienced not only in directly documenting patterns of genetic variation, but also in bridging the disciplines of population genetics, anthropology, and history to interpret these data in a broad context. This session, co-sponsored with the AAA will bring together leading researchers and science communicators to share their latest findings with respect to human variation and to critically examine how we conceptualize race in different contexts. Recognizing that these discussions frequently filter into the public sphere in ways that may be unanticipated by researchers, we will also address what it means to conduct research in human variation in a time when it is subject to scrutiny on social media. A secondary focus of the symposium will focus on effective approaches for communicating our work with different audiences: our peers in biological anthropology, scientists from other disciplines, the media, political groups, and the general public.

- 7:55 Introduction: Jennifer Raff.
- 8:00 Genes, race and identity: a brief history. A.D. RUTHERFORD.
- 8:15 Human races owe their reality to inaccurate historical concepts of variation not genes. N.G. JABLONSKI.
- 8:30 The Role of Black Feminist Theory in Critiquing Scientific Practices and Concepts of Race. R.J. WATKINS.
- 8:45 Unwinding the Triple Helix: Race, Sex, and History in Population Genomics. R.W. SMITH.
- 9:00 Beyond race: Functional consequences of human genetic variation within the human population. O. GOKCUMEN.
- 9:15 Translating unique variants: the classroom, the courtroom, and the dinner table. A.W. BIGHAM.
- 9:30 Hidden in plain sight: the persistence of racemaking in contemporary population genomics. D.A. BOLNICK.

# SATURDAY MORNING SESSIONS

- 9:45 New Digs: Revisiting Paleoanthropology in the Genome Editing Era. K.O. FOX.
- 10:00 BREAK.
- 10:30 Genetic Astrology. M.G. THOMAS.
- 10:45 Genetic discourse and public spaces: the struggle to keep DNA from becoming race. L.C. SPRINGS, J.F. GARBER, D.A. BOLNICK.
- 11:00 Decolonizing science communication by telling regional stories. L. WADE.
- 11:15 Scientific Racism: From Dissident Professionals to Citizen Science. A. PANOFSKY.
- 11:30 Reconciling past injustices; building a future in African American genomics. F.L. JACKSON.
- 11:45 Discussant: Agustín Fuentes.

## Session 54

### Primate Diets and Foraging Behavior

#### Contributed Podium Presentations

Chair: Anna Nekaris

CC Room 25

- 8:15 The ontogeny of termite gathering among chimpanzees in the Goulougo Triangle, Republic of Congo. S. MUSGRAVE, E. LONSDORF, D. MORGAN, C. SANZ.
- 8:30 Bonobo (*Pan paniscus*) dietary diversity: testing fallback food models. A.J. HICKMOTT, M.L. WAKEFIELD, M.T. WALLER, C.M. BRAND, F.J. WHITE.
- 8:45 The dietary niche of blue, red-tailed and hybrid monkeys (*Cercopithecus mitis*, *C. ascanius*, and *C. mitis* x *C. ascanius*) in Gombe National Park, Tanzania. S.H. CRAWFORD, K.M. DETWILER.
- 9:00 Feeding and foraging behavior of chacma baboons (*Papio hamadryas ursinus*) in a temperate and anthropogenically-altered habitat in South Africa. N.W. ELLWANGER, T.Q. BARTLETT.
- 9:15 Foraging in a landscape of fear: chacma baboons (*Papio hamadryas ursinus*) in the anthropogenic habitats of Hemel-en-Aarde Valley, South Africa. A.L. ELLWANGER, J.E. LAMBERT.
- 9:30 Digestive and sensory adaptations for the grass-eating niche: Insights from the gelada (*Theropithecus gelada*) genome. M.C. JANIAK, K.L. CHIOU, A. LU, T.J. BERGMAN, J.C. BEEHNER, N. SNYDER-MACKLER, A.D. MELIN.
- 9:45 Individual Variation in Long-Tailed Macaque (*Macaca fascicularis*) 'Robbing and Bartering' Practices at Uluwatu Temple, Bali. J.V. PETERSON, A. FUENTES.
- 10:00 BREAK.
- 10:30 I see, you smell: interspecific variation in sensory use for fruit evaluation among sympatric New World monkeys. C.C. VEILLEUX, C. HIRAMATSU, S. WEBB, F. AURELI, C.M. SCHAFFNER, S. KAWAMURA, A.D. MELIN.
- 10:45 Fecal isotopes as indicators of weaning and diet in wild Bornean orangutans. C.D. KNOTT, B. CROWLEY, M. BROWN, T. SUSANTO.

# SATURDAY MORNING SESSIONS

- 11:00 The role of spatial memory as it relates to nutritional balancing in Bornean orangutans (*Pongo pygmaeus wurmbii*). S.E. ALAVI, E.R. VOGEL.
- 11:15 Nutrient goals of wild Bornean orangutans at Gunung Palung National Park: a case for nutrient balancing. A.L. DIGIORGIO, C.D. KNOTT.
- 11:30 The benefits of negative energy balance? Oxidative stress and inflammation in wild Bornean orangutans (*Pongo pygmaeus wurmbii*). E.R. VOGEL, D.J. NAUMENKO, T.D. BRANSFORD, S. UTAMI ATMOKO.

## Session 55

### Life History and Behavior Ecology

#### Contributed Podium Presentations

*Chair: Anne Pisor*

CC Room 26 AB

- 8:00 Comparing Sleep Segmentation Between Traditional and Western Populations: a Test of the Sentinel Hypothesis. E.C. SHATTUCK, D.R. SAMSON.
- 8:15 Activity, labor demands, and sex shape sleep patterns among Himba pastoralists. S.P. PRALL, G. YETISH, B.A. SCELZA, J.M. SIEGEL.
- 8:30 Seasonal changes in sleep duration may be adaptive among San hunter-gatherers. G. YETISH, J. SIEGEL.
- 8:45 Epigenetic Insights into Early Life Plasticity and Reproductive Function. G.R. BENTLEY, R. STÖGER, R.D. EMES, B. BAR-SADE, K. BEGUM, O. EDEN, P. MELAMED.
- 9:00 Facultative fatherhood? Parental and alloparental caretaking tradeoffs in Cebu, the Philippines. S. ROSENBAUM, T.W. MCDADE, S. AGUSTIN, C.W. KUZAWA, L.T. GETTLER.
- 9:15 Life histories, aging, and testosterone levels among Datoga, Hadza, and Qom men. L.C. ALVARADO, C.R. VALEGGIA, P.T. ELLISON, C.L. LEWARCH, M.N. MULLER.
- 9:30 New Estimates of Hunter-Gatherer Mortality Patterns From Improved Fits of the Siler Model. J. JONES, M.D. GURVEN, M.H. PRICE.
- 9:45 Hadza Hunter-Gatherers Exhibit Gender Differences in Space Use and Spatial Cognition Consistent with the Ecology of Male and Female Targeted Foods. B.M. WOOD, J.A. HARRIS, L. VASHRO, M. SAYRE, D.A. RAICHLEN, H. PONTZER, A. SANCILIO, J. BERBESQUE, A.N. CRITTENDEN, A.Z. MABULLA, J.H. JONES, E. CASHDAN.
- 10:00 BREAK.
- 10:30 The Life History of Hunting Skill: Cross-cultural and Individual Variation. J. KOSTER, R. MCELREATH.
- 10:45 Strategic risk portfolios in humans: Are preferences for new between-community social relationships a function of a chronic lack of resources and existing between-community relationships? A.C. PISOR.
- 11:00 Husband, Lover, Pater, Genitor: Concurrency and Paternity in Himba Pastoralists. B. SCELZA, S. PRALL, N. SWINFORD, S. GOPALAN, E. ATKINSON, R. MCELREATH, J. SHEEHAMA, B. HENN.

## SATURDAY MORNING SESSIONS

- 11:15 Socio-ecological predictors of maternal uncle investment in the bilateral, semi-nomadic Shodagor. M.H. KEITH, K.E. STARKWEATHER.
- 11:30 Temporal clustering of sexual contacts can maintain endemic sexually transmitted virus in mobile subsistence populations. A. HAZEL, J. HOLLAND JONES.
- 11:45 The perils and promise of the WEIRD: contextualizing results from WEIRD and non-WEIRD populations. K.B. CLANCY.

### Session 56

#### **Bioarchaeology and Forensic Anthropology: Shared Applications**

##### **Contributed Podium Symposium**

*Chair: Katelyn Bolhofner*

CC Room 26 C

- 8:00 Aging Methods and Population Structures: Does Transition Analysis Call for a Re-examination of Bioarchaeological Data? M.A. CLARK, A. SIMON, M. HUBBE.
- 8:15 Interpreting skeletal growth in the past: Error and estimation of childhood growth in historic African American communities. C.A. WOLFE, N.P. HERRMANN.
- 8:30 Age Indicators Reveal Population Information: A New Computational Framework for Estimating Ancestry from Pubic Symphyseal Shape. B.F. ALGEE-HEWITT, J. KIM.
- 8:45 Validation of the auricular surface method for sex estimation in non-adult human remains. A. SANTOS, Á. MONGE CALLEJA, C. ARANDA, L. LUNA.
- 9:00 Near-Infrared Spectroscopy to Predict Collagen Yield. C.M. RYDER, M. SPONHEIMER, S. TALAMO, H. FEWLASS, E. SMITH, W.J. PESTLE.
- 9:15 From flesh to mesh: Bodies as maps in 3D GIS. J. WHITE, J. POUNCETT, R. SCHULTING.
- 9:30 Photogrammetry in the field: Visualizing pathological lesions in a case of metastatic carcinoma from Antiochia ad Cragum, Turkey. M.K. MOORE, E. HAMMERL, B. KREIMER, M. HOFF.
- 9:45 Skeletal element independence and implications for quantification. V. SGHEIZA.
- 10:00 BREAK.
- 10:30 The Epidemiology of Longevity and Behaviour - Evidence from the skeleton and its value in Human Identification. A.S. LA VALLEY, L. MCNERN, S. VASSALLO, X. KYRIAKOU.
- 10:45 Restructuring our idea of individual function and community participation: The ICF model in paleopathology. L. COLLIER, L. LOWE, C. VILLA.
- 11:00 Traumatic predictors of femicide: A forensic anthropological approach to domestic violence. M.J. DAVID, H. WALSH-HANEY.
- 11:15 A Push for Trans-inclusive Language in Forensic Anthropology. F.A. BOUDERDABEN.

# SATURDAY MORNING SESSIONS

## Session 57

### **Minimally Invasive Biomarkers in Human Population Biology Research: State of the Science and Future Directions**

#### **Invited Poster Symposium**

*Chair: J. Josh. Snodgrass. Co-organizers: J. Josh Snodgrass, Geeta Eick*

**CC Room 22**

Biomarkers can provide objective measures of health, facilitate the identification of physiological mechanisms through which humans adapt to environmental stressors, and allow the mapping of processes through which social and cultural factors get under the skin to shape human development, behavior, and health. The expansion of 'field-friendly' techniques has allowed researchers to measure an array of biological parameters in population-based studies using sample types such as saliva, urine, hair, feces, and finger prick blood collected onto filter paper. Despite significant progress in the development of biomarkers for various minimally invasively collected sample types, however, several challenges have impeded their widespread adoption in biological anthropology and related disciplines. This invited symposium summarizes the state-of-the-science on minimally invasive biomarkers, presents insights obtained from recently validated markers, and charts a course for the future. The 'Methods' posters survey current biomarker techniques for measuring various physiological or health parameters, such as immune function, bone turnover, and cancers. Biomarker data can provide valuable insights into important evolutionary and biocultural questions, which will be discussed in the set of posters dealing with 'Application to Key Theoretical Questions in Evolutionary Biology, Biocultural Anthropology, and Epidemiology'. These focus attention on a diverse array of applications such as documenting physiological adaptation, understanding transgender health, and detailing environmental contributors to aging. In 'Biomarkers: Challenges and Solutions in Statistical Analysis', posters detail the complexity of diurnal biomarker sampling and examine how best to make use of longitudinal study design and simultaneous sampling of multiple biomarkers. Finally, two posters consider 'The Future of Minimally Invasive Biomarkers' through their examination of point-of-care devices for data collection and providing potentially medically important information to study participants and the future technologies that have the potential to revolutionize the field of minimally-invasive biomarker research.

**8:00** Opening Remarks: J. Josh Snodgrass.

Discussant 2: Peifeng Hu, Perspective from Demography, Epidemiology, and Biomedicine.

Discussant 1: Thom McDade, Human Biology and Biocultural Anthropology Reflections.

Discussant 3: Vicky M. Oelze, Perspective from Archaeology, Biological Anthropology, and Primatology.

- 1** **DBS 2.0: Renewed investment in methods development of biomarkers from dried blood spots.** J. SNODGRASS, G. EICK, S.S. URLACHER.
- 2** **Human Eco-immunology in the Field: Measuring multiple dimensions of immune function with minimally invasive, field-adapted techniques.** A.D. BLACKWELL, A.R. GARCIA.

## SATURDAY MORNING SESSIONS

- 3 **Measuring attack on self: The current state of minimally invasive biomarkers for autoimmunity.** T.J. CEPON-ROBINS.
- 4 **The long, twisting road: searching for biomarkers of chronic psychosocial stress.** J.A. DECARO.
- 5 **Life history insights from dried blood spot-based measurement of bone turnover markers.** M.J. DEVLIN, G.N. EICK, J. SNODGRASS.
- 6 **Current and future applications of minimally-invasive biomarkers in the detection and treatment of various types of cancers.** A.M. DELOUIZE, F.A. ABAR, G. EICK, J. SNODGRASS.
- 7 **Human reproductive hormone measures: Methodological considerations and anthropological importance.** T.E. GILDNER.
- 8 **Telomere length analysis from minimally invasively collected samples: promises and pitfalls.** P.H. REJ, D.T. EISENBERG.
- 9 **The Milky Ways: Studying hormones, growth factors and immune function as normal human biological variation in human milk.** E.A. QUINN.
- 10 **Hormones from noninvasively collected samples to assess physiological responses to social, environmental and anthropogenic stressors in nonhuman primates.** S. CHOWDHURY, J.L. BROWN, L. SWEDELL.
- 11 **Minimally invasive biomarkers in evolutionary anthropology: Tools for understanding human variation, adaptation, and developmental plasticity.** S.S. URLACHER.
- 12 **The Science of Biomarkers and the Nuance and Noise in Biocultural Data.** R.G. NELSON.
- 13 **Key questions and future directions: Integrating biomarkers to understand (trans) gender experience and health disparities.** L. DUBOIS, R. JUSTER, J. GIBB, T. WALKER, S.I. POWERS.
- 14 **Developmental origins of health disparities: Early life adversity and DNA methylation in childhood.** Z.M. THAYER, C. WALKER, K. LY, E. MARKS, S. MORTON.
- 15 **The use of biomarkers to answer questions about the evolution of mind and behavior: Integrating human biology, human behavioral ecology, and evolutionary psychology.** L.S. SUGIYAMA, J.M. SCHROCK.
- 16 **Collecting Biomarkers of Chronic Diseases of Ageing in Field Settings.** B.C. TRUMBLE, A.R. GARCIA, D.K. CUMMINGS, T.S. KRAFT, J. STIEGLITZ, M. GURVEN, H. KAPLAN.
- 17 **Statistical modeling of diurnal biomarker data: Guidelines, challenges, and future directions.** M.A. LIEBERT, S.S. URLACHER.
- 18 **Improving health care accessibility to research participants through point-of-care technologies.** F.C. MADIMENOS, G. EICK, J. SNODGRASS.
- 19 **After Theranos: Next-generation biomarkers and technologies.** G.N. EICK, J. SNODGRASS.

# SATURDAY, AFTERNOON SESSIONS

## Session 58

### **Epigenetics: Bridging cultural and biological anthropology**

#### **Invited Podium Symposium**

*Chair: Genevieve Housman. Co-organizers: Chris Barrett, Ainash Childebayeva, Elizabeth Clausing, Mary Rogers, Karthik Yarlagadda*

CC Ballroom A

Epigenetics involves modifications to DNA expression that are independent of the underlying nucleotide code. While some epigenetic modifications are responsive to environmental effects, others are stable across generations. Gaining a better understanding of these mechanisms and how epigenetic patterns affect phenotypes of humans and nonhuman primates is of increasing interest to biological anthropologists. Recent work has focused on the impact of stress on the epigenome, evolutionary epigenetic differences between species, and the interplay between genetics and behavior. Additionally, epigenetic theory has been applied to the social sciences, including the study of embodiment, local biologies, and local ecologies. While the dynamism between cultural and biological environments influences epigenetic variation, it has been difficult to make sense of the outcomes. Anthropology, as a multidisciplinary field, inherently lends itself to better understanding epigenetic variation throughout life history. However, while epigenetic theory has been applied interdisciplinarily, there is little communication between researchers representing the social and the biological aspect of this work. More researchers have started to make use of this interdisciplinary approach to great effect in their work. For example, epigenetic methods have been used to investigate racial health disparities, complex traits and diseases, the effects of childhood exposures on future health and disease outcomes, evolution, and adaptation. It is clear that epigenetics has started to bridge the space between nature and culture - two concepts that have traditionally operated in opposition. This session aims to move beyond these divisions and begin collaborative discussion between biological and social aspects of anthropological epigenetics.

- 2:30 Evolution of the Epigenome in Ultraconserved Non-coding Elements in Animals over 300 Million Years.** C. FAULK.
- 2:45 Recent regulatory changes shaped human vocal and facial anatomy.** G. HOUSMAN, D. GOKHMAN, L. CARMEL.
- 3:00 Socioecological correlates of epigenetic variation in nonhuman primates.** J. TUNG, T.P. VILGALYS, N. SNYDER-MACKLER, J. SANZ, A.J. LEA, S.C. ALBERTS, L.B. BARREIRO, C.J. JOLLY, J. ROGERS, M.E. WILSON.
- 3:15 The relationship between stress, gene methylation, and reproductive function.** M.P. ROGERS, K.M. LEE, A. GALBARCZYK, G. JASIENSKA, R.S. MALHI, K.B. CLANCY.
- 3:30 Population diversity, diet and epigenetics.** M. MOSHER, C. GERHOLD.
- 3:45 Epigenetic predictors of pubertal timing.** A.M. BINDER.
- 4:00 Germline epigenetic inheritance: Challenges and opportunities for linking paternal experience with offspring biology and health.** C.P. RYAN, C.W. KUZAWA.

## SATURDAY AFTERNOON SESSIONS

- 4:15 **High-Altitude Epigenetics.** A. CHILDEBAYEVA, D.C. DOLINOV, J.M. GOODRICH, M. RIVERA-CHIRA, F. LEON-VELARDE, M. KIYAMU, T.D. BRUTSAERT, A.W. BIGHAM.
- 4:30 **Epigenetics, gene expression, and stress in mothers and offspring in the Democratic Republic of Congo: A biocultural investigation of the intergenerational effects of stress.** C.J. MULLIGAN, F.M. MAISHA, C.J. CLUKAY, C. HSIAO, P. REJ, N. ESCOFFIER, E. QUINN, L. NEVELL, D.A. KERTES.
- 4:45 **Shifts in biology and mental health among Hispanic immigrant mothers and children in Nashville, TN before and after the 2016 presidential election.** E.S. CLAUSING, A.L. NON.
- 5:00 **From Cheap Chicken to Genome Instability: Arsenic, Diabetes, and the Social Nature of One-Carbon Metabolism.** H. LANDECKER.
- 5:15 **Living with a permeable body: corporeal plasticity and its politics from ancient medicine to epigenetics.** M. MELONI.
- 5:30 **Mutable Environments and Permeable Human Bodies.** M. LOCK.
- 5:45 **Discussants: Amy Non, Zaneta Thayer.**

### Session 59

#### **Primate Behavior and Ecology**

##### **Contributed Podium Presentations**

*Chair: Andrew Halloran*

CC Room 25

- 2:30 **Competitive ability complements coalition formation in wild male chimpanzees.** D.K. ENIGK, M. EMERY THOMPSON, Z.P. MACHANDA, E. OTALI, R.W. WRANGHAM, M.N. MULLER.
- 2:45 **Sex differences in adrenal hormone production throughout development among Kanyawara chimpanzees (*Pan troglodytes schweinfurthii*) at Kibale National Park, Uganda.** K.H. SABBI, M.N. MULLER, Z.P. MACHANDA, E. OTALI, R.W. WRANGHAM, M. EMERY THOMPSON.
- 3:00 **What factors influence nest reuse among chimpanzees (*Pan troglodytes verus*)?** A.R. HALLORAN, C.E. BOLTEN.
- 3:15 **Brain size, body size, and time allocation strategies in primates.** J.M. SCHROCK, L.S. SUGIYAMA, J. SNODGRASS.
- 3:30 **Health Outcomes Associated with Higher Allostatic Load in Zoo-Housed Western Lowland Gorillas (*Gorilla gorilla gorilla*).** A.N. EDES, B.A. WOLFE, D.E. CREWS.
- 3:45 **Identifying a new dwarf lemur (*Cheirogaleus*) species from southern Madagascar.** A.T. MCLAIN, R. LEI, C.L. FRASIER, J.M. TAYLOR, C.A. BAILEY, S.E. ENGBERG, R.A. MITTERMEIER, R. RANDRIAMAMPIONONA, E.E. LOUIS, JR.
- 4:00 **Glandular microbiomes vary by species and host traits in wild and captive lemurs.** S.L. BORNBUSCH, L.K. GREENE, R.L. HARRIS, C.M. DREA.
- 4:15 **Keeping their cool: Behavioral thermoregulation and body temperature patterns of wild vervet monkeys.** R. MCFARLAND, L. BARRETT, A. FULLER, R.S. HETEM, S.K. MALONEY, D. MITCHELL, S.P. HENZI.



## SATURDAY AFTERNOON SESSIONS

- 4:30 Coevolution and coextinction of primates and their parasites. J.P. HERRERA, C.L. NUNN.
- 4:45 Contribution of tree-fall canopy gaps to variation in nitrogen content of fruits and leaves from *Varecia* and *Eulemur* food trees in northeastern Madagascar. M. MOGILEWSKY, N. VASEY, M. ANDRIAMAHAIHAVANA, Z. RAKOTOMALALA, T.M. EPPLEY.
- 5:00 Diversity and distribution patterns of a primate community in the Peruvian Amazon. R.M. HORES, S.M. FORD.

### Session 60

#### Population History

##### Contributed Podium Presentations

*Chair: Ellen Quillen*

CC Room 26 AB

- 2:30 Superarchaic admixture confirms a deep separation of Neanderthals and Denisovans. A.R. ROGERS, A. ACHENBACH, K. GWIN, N. HARRIS.
- 2:45 Spectrum of Neandertal introgression across modern-day humans indicates multiple episodes of human-Neandertal interbreeding. F.A. VILLANEA, J.G. SCHRAIBER.
- 3:00 An Archaeogenomic Investigation of Consanguinity During the Neolithic Transition. R.O. TASKENT, A.P. SUMER, D. KOPTÉKIN, M. OZKAN, F.C. CEBALLOS, O. GOKCUMEN, M. SOMEL.
- 3:15 Estimation of archaic hominin haplotype frequencies in contemporary Aleuts. J.M. MUSKRAT, T.N. MARRIAGE, K. BEATY, L. SYKORA, S. ALDEN, C. BARRETT, M. CRAWFORD, D. O'ROURKE, J. RAFF.
- 3:30 Genomic ontologies provide evidence against environmental adaptation during the Beringian standstill. S.D. NIEDBALSKI, J.C. LONG.
- 3:45 Using whole mitochondrial genomes from 100 ancient Indigenous British Columbian individuals to infer the impacts of European colonization. A.C. OWINGS, J.W. JOHNSON, J. LINDO, Y. CUI, S. GAO, H. LI, C.E. HUGHES, B. PETZELT, J. MITCHELL, C. MARSHALL, J.S. CYBULSKI, R.S. MALHI.
- 4:00 Patterns of Genetic Coding Variation in a Native American Population before and after European Contact. J. LINDO, M. ROGERS, L. MALLOTT, B. PETZELT, J. MITCHELL, D. ARCHER, J. CYBULSKI, R. MALHI, M. DEGIORGIO.
- 4:15 Mitochondrial haplogroup variation from the archaeological site of Cundisa, Bolivia. J. KENNEDY, T. HONAP, S. CHÁVEZ, S. CHÁVEZ, K. SANKARANARAYANAN.
- 4:30 Polynesian ancestry in South America? A genomic insight from Mocha Island, Chile. C. DE LA FUENTE, R. CAMPBELL, F. SANTANA, M. MORAGA, E. WILLERSLEV.
- 4:45 Genetic History of Los Floridanos, Florida's First Spanish Families. T.G. SCHURR, C.B. SOLANO, C. SUPER, R.E. FLESKES.
- 5:00 An initial examination of biological affinities of northeastern Indian populations relative to other South Asians. A dental morphology investigation. B.E. HEMPHILL, T. POJAR, B. LANGSTIEGH.

# SATURDAY AFTERNOON SESSIONS

5:15 A Method for Identifying Source Populations in Genetic Ancestry Studies. A.J. KOEHL, J.C. LONG.

## Session 61

### Diet, Ecology and Behavior in Human Evolution

#### Contributed Podium Presentations

*Chair: Amy Rector*

CC Room 26 C

- 2:30 Intra-annual variation in diets of Plio-Pleistocene papionins from Kenya. S.A. BLUMENTHAL, T.E. CERLING, K.L. CHRITZ, J.A. LEE-THORP, F. MANTHI.
- 2:45 Differences in dietary habits between papionins and hominins from the Shungura Formation, Ethiopia: evidence from an improved Dental Microwear Texture Analysis based on surface sampling on phases I and II molar facets. F. MARTIN, C. PLASTIRAS, A. KALLEN, A. FRANCISCO, J. BOISSERIE, G. MERCERON.
- 3:00 Morpho-functional traits of the mandible suggest no hard food adaptation in the hominin lineage. T.M. KAISER, J. MARCÉ-NOGUÉ, T.A. PÜSCHEL, A. DAASCH.
- 3:15 Evidence of *Macrotermes* termites within the *Zinjanthropus* horizon at Olduvai Gorge, Tanzania. J. LESNIK, R. O'MALLEY, A. MABULLA, E. BAQUEDANO, M. DOMINGUEZ-RODRIGO, C. MAGILL.
- 3:30 ED-XRF study of Oldowan artifacts documents raw material selection and transport through time on the Homa Peninsula, Kenya. E.M. FINESTONE, T.W. PLUMMER, D.R. BRAUN, P. DITCHFIELD, J.S. REEVES.
- 3:45 Neanderthal Hypercarnivory Revisited – Experimental Study of  $\delta^{15}\text{N}$  Shifts in Dietary Items Produced by Various Cooking Techniques. K.K. FOECKE, A.S. BROOKS, C. FRANCE.
- 4:00 Putrid, fermented, spoiled, decayed, let's call the whole thing "off": consumption of putrid meat by Neanderthals. M.M. BEASLEY, J. LESNIK, A. PERRI.
- 4:15 A review of prehistoric cannibalism in Europe: choice or necessity? S.M. BELLO, E. HOWE, J. COLE.
- 4:30 Persistence hunting in Levant: Both Neandertals and modern humans could run down a horse. M. HORA, H. PONTZER, V. SLÁDEK.
- 4:45 Tales teeth tell: Wintertime stress, nursing, and lead exposure in Neanderthal children. T.M. SMITH, C. AUSTIN, D.R. GREEN, R. JOANNES-BOYAU, S. BAILEY, D. DUMITRIU, S. FALLON, R. GRÜN, H.F. JAMES, M. MONCEL, I.S. WILLIAMS, R. WOOD, M. ARORA.
- 5:00 Cranial trauma prevalence in Neanderthals and early Upper Paleolithic modern humans. J. BEIER, N. ANTHES, J. WAHL, K. HARVATI.
- 5:15 Ecological niche models of human land use in Late Pleistocene Southeast Asia suggest both abiotic and biotic variables influenced human dispersal. A.J. ZACHWIEJA, F. DEMETER, A. BACON, T. NGUYEN, A. NGUYEN, K. WESTAWAY, P. DURINGER, J. PONCHE, P. SICHANTHONGTIP, T. SAYAVONGKHAMDY, T.E. DUNN, L.L. SHACKELFORD.

# SATURDAY AFTERNOON SESSIONS

5:30 **Paleoenvironmental studies Tor Hamar, Southern Jordan: Early modern human behavioral adaptability during MIS 3.** M. BELMAKER, H. BOCHERENS, Y. NAITO, H.D. O'BRIEN, C. WISSING, T. TAMURA, S. KADOWAKI.

## Session 62

### **A life of science: A symposium dedicated to C. Owen Lovejoy in recognition of his many scientific contributions**

#### **Invited Poster Symposium**

*Chair: Philip L. Reno. Co-organizers: Michael Selby, Scott Simpson, Robert Tague, Robert Walker*  
CC Room 22

Professor C. Owen Lovejoy has had a long and distinguished scientific career that began in the late 1960s and continues unabated to this day. His numerous scholarly contributions span a diversity of interests, notably the application of biomechanics, developmental biology, and comparative functional anatomy to the understanding of hominin locomotion (especially *Australopithecus africanus*, *Au. afarensis*, and *Ardipithecus ramidus*), development and revision of skeletal aging techniques and their application in paleodemography, and modeling of hominin origins, among many other facets of biological anthropology. This body of research has had a determinative and lasting impact on our understanding of the course and nature of human biology and evolution and have been omnipresent at the AAPAs. These achievements have been recognized by his peers by election as a fellow to the American Association for the Advancement of Science and the American Academy of Arts and Sciences and to the National Academy of Sciences. While still a graduate student, Professor Lovejoy accepted an academic position at Kent State University (Kent, Ohio) where he continues as an active and engaged faculty member. His efforts were seminal in the formation of the Biological Anthropology Ph.D. program at Kent State University, which has gone on to become among the most productive in the field. During that span of time, he has taught and mentored many students who continue their scientific careers based on the lessons learned while at Kent State University. To honor Professor Lovejoy, former and current students, collaborators and colleagues will gather and present research and engage in an open discussion that reflects the broad and deep scholarly foundation he built.

Discussants: Nina Jablonski, Bruce Latimer, Owen Lovejoy, Richard S. Meindl.

- 1 **Regulatory Constraint During Human Knee Evolution Underlies Osteoarthritis Risk.** T.D. CAPELLINI, D. RICHARD, E. JAGODA.
- 2 **Evolutionary origin of skeletal tissues: dissecting "homology" at the morphological, cellular, and molecular genetic levels.** M. COHN, L. SLOTA, D. LOPEZ, G. ZHANG, O. TARAZONA.
- 3 **Evolutionary and developmental perspectives on human toe reduction.** P.L. RENO.
- 4 **Deconstructing genetic influence: evolution of the primate craniodental complex.** R.J. SHERWOOD, A.M. HARDIN, R.P. KNIGGE, D.L. DUREN, J. SUBEDI, S. WILLIAMS-BLANGERO, M.C. MAHANEY.

## SATURDAY AFTERNOON SESSIONS

- 5 The Hominid Anterior Inferior Iliac Spine and Why it Reflects the Unique Anatomy of our Iliac Isthmus. D. ZIRKLE, C. LOVEJOY.
- 6 Homeotic transformation of the human vertebral column – more global than local. R.G. TAGUE.
- 7 Variation in Maturational Timing Influences Interpretations of the Juvenile Skeleton. M.E. BOEYER, D.L. DUREN.
- 8 A comparative analysis of carpometacarpal joints four and five in various hominoid and cercopithecoid species. H. LAWRENTZ, C. LOVEJOY, R.S. MEINDL, M. RAGHANTI.
- 9 Is the locomotor diversity in odd-nosed monkeys reflected in their olecranon size or orientation? M.S. SELBY.
- 10 Heat increases IGF-I uptake in growth plate and perichondrium of mouse hindlimbs: Implications for human evolution. M.A. SERRAT, G. ION, D. THOMAS.
- 11 Canine-root size variation and its influence on the pattern of sexual dimorphism in the facial skeleton of *Australopithecus afarensis*. W.H. KIMBEL, Y. RAK, J. LAWRENCE.
- 12 The Lower Limb of *Ardipithecus ramidus*. S.W. SIMPSON, N.E. LEVIN, J. QUADE, M. ROGERS, S. SEMAW.
- 13 Reconsidering human origins in light of striatal neurochemistry. M. RAGHANTI, C. LOVEJOY.
- 14 Comparative palaeodemography of medieval British archaeological populations, with reference the Libben Site, Ottawa County, Ohio. J.C. OHMAN, C.A. DAVENPORT.
- 15 “Anthropologically, socially and politically sound”: American eugenics, anthropology, and the Galton Society. K.F. KERN.
- 16 Goethe, Darwin, and Wolff: Does Wolff’s “Law” Mean Anything? R.A. WALKER.
- 17 How to save anthropology: Lessons from primatology and human origins research. K. SAYERS.
- 18 Mechanical stimulus vs. selection in determining entheses morphology in mice. A.A. RUTH, K.M. MIDDLETON.

# AUTHOR INDEX

Poster presentations indicated as Session#. Poster # (i.e., "13.14 is Poster # 14 in Session 13). Podium presentations indicated as Session # [presentation time] (i.e., '32[4:45] is a paper starting at 4:45 PM in Session 32).

## A

Abar, Farnoush A, 57.6  
Abondano, Laura, 11[9:30],  
41[3:15]  
Achenbach, Alan, 60[2:30]  
Ackermann, Rebecca R, 28.21,  
32[11:45]  
Adamić Hadžić, Anita, 52.13  
Adams, Alisha B, 16[4:15], 19[3:30]  
Adams, Dara B, 59[3:15]  
Adams, Donovan M, 37.1, 46.9  
Addison, Brian J, 3.12  
Affara, Nabeel, 25.42, 25.43,  
25.44, 25.45, 25.46, 25.47  
Agarwal, Sabrina C, 19[4:45],  
50.29, 51.8  
Agil, Muhammad, 41[4:30]  
Agnew, Amanda M, 3.7, 6.14, 22.1,  
22.14, 30.31, 35.11, 35.12  
Agostini, Gina M, 4.13  
Agosto, Elizabeth R, 40[4:15],  
45.36  
Aguado, William D, 34[8:15], 42.9  
Agustin, Sonny, 56[9:00]  
Ahern, James C.M, 24.7  
Ahn, Shinwon, 52.7  
Ahonen, Ashley E, 25.22  
Aichholzer, Caroline, 8.14  
Ainebyona, Martin, 17[5:15]  
Akazawa, Takeru, 49.13  
Akey, Joshua M, 20[4:00]  
Al-Ghalith, Gabriel, 17[4:30]  
Al-Kandari, Yagoub, 46.6  
Alatorre Warren, José Luis, 29.10  
Alavi, Shauhin E, 47.5, 55[11:00]  
Alba, David M, 28.10, 28.14  
Albee, Malorie E, 52.19  
Albert, Graham, 25.27  
Alberts, Susan C, 31[8:45],  
41[2:30], 41[5:00], 41[5:15],  
58[3:00]  
Alden, Sarah, 60[3:15]  
Aldridge, Brian, 45.39  
Alemseged, Zeray, 13.16  
Alexander, Gene A, 31[8:30]  
Alfonso-Durruty, Marta P, 24.15  
Algee-Hewitt, Bridget FB, 30.15,  
54[8:30]  
Allam, Adel H, 15.1  
Allen, Diandra, 25.40  
Allen, Kathryn Grow, 52.13  
Allritz, Matthias, 42.5  
Almeter, Caleb A, 45.5  
Almécija, Sergio, 18[4:45], 28.7,  
28.10  
Altmann, Jeanne, 31[8:45],  
41[5:00]  
Alvarado, Louis C, 56[9:15]  
Alves Cardoso, Francisca, 8.19  
Amato, Katherine R, 2.12, 12[8:30],  
17[2:45], 17[3:45], 20[5:15]  
Amin, Pamela, 4.12  
Amir, Dorsa, 25.35  
Amoroso, Caroline R, 34[9:30]  
Anderson, Aaron G, 12[9:45]  
Anderson, Amy S, 15.1  
Anderson, Cheryl P, 19[4:15]  
Anderson, Monya, 18[3:45]  
Andriamahaihavana, Mc Antonin,  
59[5:30]  
Andronowski, Janna M, 22.4, 22.5  
Anthes, Nils, 61[5:00]  
Anwarzai, Zara, 29.11  
Aranda, Claudia M., 54[8:45]  
Arbenz-Smith, Keely, 10[11:00]  
Archer, David, 60[4:00]  
Archie, Elizabeth A, 31[8:45],  
41[5:00], 41[5:15]  
Arenson, Julia L, 28.17  
Arenz, Gabriele, 33[9:15]  
Ariel gruenthal-rankin, Ariel, 52.5  
Arner, Audrey M, 20[3:15]  
Arney, Irisa D, 28.5  
Arnocky, Steven A, 25.27  
Arora, Manish, 61[4:45]  
Arponen, Milja, 51.9  
Arriaza, Bernardo, 16[4:15]  
Arrighi, Simona, 51.7  
Arroyo, Juan Pablo, 26.4  
Arsuaga, Juan-Luis, 49.19  
Asan, Asan, 20[5:00]  
Asangba, Abigail, 12[8:15],  
17[5:15]  
Asfaw, Berhane, 49.10  
Athreya, Sheela G, 23.8, 43.17  
Atici, Levent, 19[4:15]  
Atkinson, Elizabeth, 56[11:00]

Atkinson, Megan L, 30.41  
Auerbach, Benjamin M, 40[4:15],  
45.36  
Aulds, Meredith N, 27.18  
Aureli, Filippo, 55[10:30]  
Austin, Christine, 61[4:45]  
Austin, Lauren N, 47.17, 47.20  
Austin, Rita M, 50.18  
Ávila Arcos, María C, 45.19  
Avitto, Alexa N, 12[9:45]  
Ayali, Pablo, 34[10:30]

## B

Baab, Karen L, 49.8  
Babbitt, Courtney C, 12[9:15]  
Bacon, Anne-Marie, 8.14, 61[5:15]  
Baden, Andrea L, 1.11, 11[10:45],  
11[11:00], 48.13, 48.16  
Bader, Alyssa C, 17[2:45]  
Badino, Federica, 51.7  
Bae, Christopher, 23.1, 52.7  
Baiges-Sotos, Laura, 31[8:15]  
Bailey, Carolyn A, 59[4:15]  
Bailey, Katie E, 4.32  
Bailey, Shara E, 24.6, 29.13, 29.14,  
32[10:45], 61[4:45]  
Baker, Brenda J, 24.20, 24.28,  
38[4:00]  
Baker, Julie, 45.6  
Baker, Lori E, 16[2:30]  
Baldwin, Mary K.L., 40[5:15]  
Balen, Jacqueline, 24.7  
Balentine, Christina M, 45.15  
Balko, Elizabeth, 48.16  
Ballantyne, Rachel, 33[11:15]  
Ball, Stephan N, 51.6  
Bankoff, Richard J, 34[9:00]  
Baquedano, Enrique, 61[3:15]  
Bar-Sade, Benjamin, 56[8:45]  
Baragar, Emma, 25.10  
Barak, Meir M, 40[4:00]  
Barash, Alon, 27.12  
Bardo, Ameline, 18[4:00]  
Barisano, Giuseppe, 15.1  
Barker, Mary E, 25.33  
Barreiro, Luis B, 20[2:30], 58[3:00]  
Barrett, Christopher E, 45.29,  
60[3:15]

# AUTHOR INDEX

- Barrett, Louise, 4.21, 59[4:45]  
Barr, W. Andrew, 5.6  
Bartlett, Thad Q, 55[9:00]  
Bartsiokas, Antonis, 49.19  
Bashar, Sonya, 45.12  
Bas, Marlon, 24.32  
Basnet, Sarmi, 31[9:00]  
Basnyat, Buddha, 25.13  
Bastir, Markus, 27.12, 32[9:45]  
Basu, Baishakhi, 25.26  
Batchelder, Chelsea, 8.3  
Baten, Joerg, 52.30  
Batist, Carly H, 11[11:00]  
Battista, Vincent M, 25.14  
Baumann, Malvina, 9[9:45]  
Baustian, Kathryn, 16[3:00]  
Bayle, Priscilla, 24.32, 43.19  
Bazaliiskii, Vladimir I, 24.14  
Beall, Cynthia M, 25.13  
Beasley, Melanie M, 61[4:00]  
Beaty, Kristine, 60[3:15]  
Beauchesne, Patrick, 51.8  
Beaudet, Amélie, 32[9:15], 32[9:30]  
Beaudrot, Lydia, 48.17  
Beaumont, Julia, 35.6  
Beckley, Jacqueline, 47.9  
Bedi, Ram, 15.1  
Beehner, Jacinta C, 1.15, 26.6, 41[2:30], 55[9:30]  
Beggrow, Elizabeth P, 46.1  
Begum, Khurshida, 56[8:45]  
Begun, David R, 28.6, 28.8, 28.9, 28.10, 32[8:15]  
Beier, Judith, 50.20, 61[5:00]  
Belcastro, Maria G, 51.1, 51.7  
Beleza, Sandra, 45.10  
Bello, Silvia M, 61[4:15]  
Bell, Rachel B, 48.2  
Bellugi, Ursula, 47.28  
Bellwood, Peter, 22.7  
Belmaker, Miriam, 61[5:30]  
Beltran-Burgos, Ariana, 24.41  
Benazzi, Stefano, 51.1, 51.7  
Bendele, Alison M, 50.33  
Benefit, Brenda, 28.5  
Benitez, Marcela E, 11[10:30]  
Benn Torres, PhD, Jada, 45.9  
Bentley, Gillian R, 56[8:45]  
Berbesque, J. Colette, 56[9:45]  
Berger, Elizabeth, 7.4, 33[8:45]  
Berger, Lee R, 21.14, 32[9:45], 49.15  
Berger, Steph M, 15.2  
Berger, Stephanie, 15.4  
Bergey, Christina M, 20[2:30], 20[2:45], 20[3:15]  
Bergman, Thore J, 1.15, 55[9:30]  
Bergstrom, Mackenzie L, 41[2:45]  
Bermudez de Castro, José-Maria, 23.2  
Bernardo, Danilo V, 7.9, 44.8, 49.9  
Berner, Margit, 50.4  
Bernstein, Robin M, 6.11, 25.42, 25.43, 25.44, 25.45, 25.46, 25.47  
Berthaume, Michael A, 13.1, 13.17  
Bertolani, Paco, 12[9:45]  
Bertrand, Benoit, 23.2  
Besse, Marie, 8.11  
Bethard, Jonathan D, 30.16, 50.31  
Betsinger, Tracy K, 35.11, 35.12, 38[5:15]  
Betz, Barbara J, 24.17  
Beyene, Yonas, 49.10  
Bhattacharjee, Ritesh, 13.10  
Bhattacharya, Raktim, 13.10  
Bhatt, Priya, 45.39  
Bidal, Manvie, 45.28  
Biermann Gürbüz, Rebecca, 5.19  
Biernaski, Adam, 46.13  
Biernat, Maryse D, 5.1, 5.6, 5.16  
Bigham, Abigail, 20[4:15], 53[9:15], 58[4:15]  
Bijak, Jakub, 19[4:00]  
Billy, Vincent, 17[3:45]  
Binder, Alexandra M, 58[3:45]  
Bishop, Katherine G, 8.13  
Bi, Xiaohong, 22.9  
Blackburn, Andrea, 1.1, 42.2  
Blackwell, Aaron D, 15.1, 25.35, 39[5:00], 57.2  
Blair, Raymond, 25.10  
Blanco-pérez, Esther, 27.12  
Blankenship-Sefczek, Erin C, 24.24  
Blaszczyk, Maryjka B, 26.3  
Blekhan, Ran, 17[4:30]  
Blevins, Brittny L, 30.26  
Blizzard, Lydia, 52.26  
Blom, Deborah, 33[10:45]  
Blumenthal, Scott A, 61[2:30]  
Blystone, Emma K, 45.31  
Bobe, René, 5.13  
Bobrek, Katya, 45.10  
Bochart, Rachele M, 17[3:00]  
Bocherens, Hervé, 61[5:30]  
Boesch, Quentin, 8.14  
Boeyer, Melanie E, 62.7  
Bogart, Stephanie L, 1.2, 1.6  
Böhme, Madelaine, 32[8:15]  
Boisserie, Jean-Renaud, 61[2:45]  
Bolhofner, Katelyn L, 24.20, 24.28  
Bolnick, Deborah A, 6.5, 53[9:30], 53[10:45]  
Bolten, Catherine E, 59[3:00]  
Bolter, Debra R, 49.16  
Bolt, Laura M, 1.13, 48.14  
Bolze, Andrew S, 39[3:45]  
Bonner-Harris, Azariea, 25.39  
Borella, Ana Claudia A, 7.9  
Borgerson, Cortni, 34[9:45], 48.16  
Bornbusch, Sally L, 59[4:30]  
Borrero-Lopez, Oscar, 13.2, 14.6  
Borries, Carola, 1.20, 26.8  
Bortolini, Eugenio, 51.7  
Bortolini, Maria Cátira, 41[5:30], 45.25  
Bosinger, Steven E, 17[3:00]  
Bosman, Abel M, 49.23  
Boss, Olivia, 47.21  
Bouderdaben, Fatimah A, 54[11:15]  
Bowland, Grace B, 6.11  
Bowland, Lucyna A, 27.6  
Boyd, Derek A, 35.5  
Boyer, Doug M, 8.16, 36.10, 47.30  
Boyle, Eve K, 18[4:45]  
Bradley, Brenda J, 12[9:00], 48.1, 48.2, 48.4  
Bradley, Madison M, 4.34  
Brand, Colin M, 55[8:30]  
Bransford, Timothy D, 2.17, 55[11:30]  
Brasil, Marianne F, 27.16  
Braun, David, 5.2, 5.6, 61[3:30]  
Bravo López, Miriam J, 45.19  
Bray, Joel, 11[8:30]  
Brennan, Tamira K, 8.16  
Brent, Lauren J.N, 1.23, 45.33  
Brent, Lauren, 17[4:00]  
Bria, Rebecca E, 6.19, 8.10  
Bribescas, Richard G, 25.35  
Briggs, Emily A, 6.19  
Briley, Karen C, 22.14  
Brinkworth, J. F, 17[2:45]  
Brinkworth, Jessica F, 17[4:45], 45.39  
Britton, Gillian AO, 20[5:15]  
Broehl, Kristen A, 6.17, 24.1, 24.19

# AUTHOR INDEX

- Bromage, Timothy G, 10[11:00], 22.10, 24.6, 31[8:15]  
Bronikowski, Anne, 1.4  
Brooks, Alison S, 61[3:45]  
Brookshier, Heather, 21.18  
Brophy, Juliet K, 49.15  
Brosnan, Sarah F, 11[10:30]  
Brown, Ella J. M, 8.4  
Brown, Janine L, 57.10  
Brown, Jp, 6.16  
Brown, Michelle, 55[10:45]  
Brown, Samantha, 9[9:00], 9[9:15]  
Brubaker-Wittman, Laura A, 1.1  
Bruckler, Sarah, 25.28  
Brummer, Alex B, 25.48  
Brutsaert, Tom D, 58[4:15]  
Bruxelles, Laurent, 32[9:15], 32[9:30]  
Bruzek, Jaroslav, 30.13, 49.14  
Bryer, Margaret A. H, 1.19  
Buchholz, Bruce A, 14.8  
Buck, Laura T, 25.15, 28.21, 47.26  
Buckley, Gina, 21.8, 35.19  
Buckley, Hallie R, 6.20, 38[5:00]  
Buckley, Michael, 9[9:00]  
Bull, Ian D, 33[11:15]  
Burke DeLeon, Valerie, 52.16  
Burns, Stephen J, 28.16  
Burrows, Anne, 10[8:30]  
Burt, Nicole M, 21.16  
Busobozi, Richard, 34[8:00]  
Bustamante, Carlos D, 45.6  
Butaric, Lauren N, 27.4  
Buzon, Michele R, 24.42, 52.9
- ## C
- Cai, Dawei, 6.1, 6.2  
Calhoun, Grace V, 43.4, 47.23  
Callison, William E, 39[2:30]  
Call, Josep, 42.5  
Campanacho, Vanessa, 8.19  
Campbell, Roberto, 60[4:30]  
Campeau, Kathryn, 30.7  
Campelo dos Santos, Andre Luiz, 50.3  
Campera, Marco, 26.7, 59[4:00]  
Campisano, Christopher J, 28.1  
Campos Mejía, Elizabeth, 45.19  
Campos, Fernando A, 31[8:45], 41[2:45], 41[5:15]  
Campos, Tamires C, 49.9  
Candilio, Francesca, 50.29, 51.8  
Canington, Stephanie L, 4.7, 13.3, 50.18  
Capellini, Terence D, 15.11, 45.21, 62.1  
Capobianco III, Florian F, 36.3  
Cappellini, Enrico, 6.4, 28.15  
Carabin, Hélène, 20[5:30]  
Carag, Jessica, 31[9:15]  
Cardoso, Hugo FV, 15.8, 50.32, 52.4  
Carlson, Bryce A, 39[3:45]  
Carlson, David L, 4.32  
Carlson, Joshua P, 37.13, 49.10  
Carlson, Kristian J, 3.5, 3.6, 3.10, 3.11, 15.3, 32[9:15], 32[9:30]  
Carmel, Liran, 58[2:45]  
Carmody, Rachel N, 39[3:45], 45.17  
Carnavalli, Juliana E P, 44.2  
Carnegie, Sarah D, 41[2:45]  
Carré, Justin M, 25.27  
Cartmill, Erica A, 1.3, 1.25  
Cartmill, Matt, 29.9  
Cartozzo, Claire M, 21.15  
Case, D. Troy, 27.17  
Cashdan, Elizabeth, 56[9:45]  
Castillo, Eric R, 13.4  
Castro, Victoria, 24.15  
Cataldo-Ramirez, Chelsea C, 30.12  
Cates, Joshua, 10[9:45]  
Ceballos, Francisco C, 60[3:00]  
Cenni, Camilla, 1.21  
Cepon-Robins, Tara J, 25.35, 57.3  
Cerling, Thure E, 5.15, 61[2:30]  
Cerrito, Paola, 24.6  
Cessford, Craig C, 3.13, 50.13  
Ceuninck, Kristyna L, 52.3  
Chadaideh, Katia, 45.17  
Chalk-Wilayto, Janine, 2.10, 4.25, 13.13  
Chaney, Morgan E, 12[10:30], 45.34, 45.38  
Chang, Jerry, 10[9:45]  
Chang, Joseph, 45.30  
Chan, Sherwin, 30.18  
Chaplin, George, 37.13  
Charvet, Christine J, 47.31  
Chavanaves, Sakdapong, 49.22  
Cheever, Sylvia, 33[8:00]  
Chen-Kraus, Chloe, 48.11  
Chen, Jun, 17[4:15]  
Chertoff, Sydney, 1.22  
Chester, Emily, 25.7  
Cheverko, Colleen M, 50.15  
Cheverud, James M, 4.8, 43.8, 45.14  
Cheyney Kane, Hayley K, 46.3  
Chia, Nicholas, 17[4:15]  
Chilcote, Celise, 19[4:45]  
Childebayeva, Ainash, 58[4:15]  
Childs, Geoff, 25.13  
Chino, Cesar, 8.2  
Chiou, Kenneth L, 31[11:30], 45.33, 55[9:30]  
Chirchir, Habiba, 46.10  
Chirikure, Shadreck, 45.32  
Chowdhury, Ishrat, 2.6  
Chowdhury, Shahrina, 57.10  
Christopher, Lauren, 39[3:45]  
Chritz, Kendra L, 61[2:30]  
Chrysostomou, Charalambos, 6.10  
Chu, Elaine Y, 25.34  
Chughtai, Aisha A, 25.18  
Chui, Helena, 15.1  
Churchill, Steven E, 32[9:45]  
Chwa, Evan, 14.7  
Chávez, Sergio, 60[4:15]  
Chávez, Stanislava, 60[4:15]  
Ciambella, Michelle, 45.15  
Cicak, Tessa, 47.11  
Cirillo, Laura E, 24.1, 24.19, 27.7, 30.17, 30.19, 37.1, 37.10, 49.11  
Ciroli, Olivia, 36.11  
Claes, Peter, 20[3:45], 20[4:00]  
Clancy, Kathryn BH, 15.7, 25.25, 45.12, 56[11:45], 58[3:15]  
Clarke, Ronald J, 32[9:15], 32[9:30]  
Clarke, Siobhan, 24.16  
Clark, Isabelle R, 51.9  
Clark, Melissa A, 54[8:00]  
Clark, Sonia A, 25.19  
Clausing, Elizabeth S, 58[4:45]  
Claus, Marcus, 14.5  
Claxton, Alexander G, 27.2  
Clayton, Jonathan B, 17[4:30]  
Clinton, Carter, 6.6  
Cloutier Barbour, Christina, 11[8:45]  
Clukay, Christopher J, 20[5:45], 58[4:30]  
Codron, Daryl, 13.15  
Codron, Jacqueline, 13.15  
Cofran, Zachary, 49.4, 49.20

# AUTHOR INDEX

- Coggeshall, Elizabeth M.C, 1.13, 48.14  
Cohen, Joyce, 17[3:00]  
Cohn, Marty, 62.2  
Colard, Thomas, 23.2, 27.8, 43.19  
Cole, James, 61[4:15]  
Cole, Mary E, 22.1  
Cole, Megan F, 34[8:45]  
Cole, Stephanie J, 24.1, 24.19, 24.21, 30.17, 37.1  
Collier, Larissa, 54[10:45]  
Collins, Matthew, 6.9  
Collyer, Michael L, 36.11  
Comeskey, Daniel, 9[9:00]  
Comuzzie, Anthony G, 43.8  
Conaway, Mark A, 4.14  
Conde-Valverde, Mercedes, 25.22  
Conklin, Nancy-Lou, 2.6  
Connor, Cortney M, 27.11  
Constantino, Paul, 5.14, 13.2, 13.5, 14.6  
Contreras, Fernando, 7.8  
Cook, Della C, 52.6  
Cooke, Siobhan B, 10[8:00], 18[3:30], 47.27, 47.33  
Cook, Rebecca W, 46.8  
Cook, Robert A, 24.39  
Cooper, David ML, 22.3, 22.4, 22.5, 22.6  
Cooper, Lindsay C, 30.20  
Cooper, Marianne J, 45.26  
Copes, Lynn, 8.16  
Coppa, Alfredo, 50.29, 51.8  
Coqueugniot, Hélène, 27.8  
Cordiner, Eleanor, 5.3  
Corfe, Ian J, 10[11:15]  
Coris, Eric, 45.15  
Corley, Margaret K, 42.7  
Corron, Louise, 30.17, 30.38, 37.3  
Cotter, Meghan M, 51.5  
Coulthard, Ian, 22.6  
Couto-Silva, Cainã M, 45.25  
Coutu, Ashley, 45.32  
Couture-Veschambre, Christine, 49.14  
Cowgill, Libby W, 40[4:45], 43.15, 51.3  
Cox, Laura A, 43.8  
Cox, Murray P, 9[10:45]  
Cox, Samantha L, 20[3:00]  
Cox, Shane, 46.14  
Craig, Sienna R, 25.13  
Cramer, Jennifer Danzy, 25.8  
Cramon-Taubadel, Noreen von, 52.8  
Crane, Maria, 17[3:00]  
Cranfield, Michael R, 10[11:00], 31[8:15]  
Crawford, Michael, 45.18, 60[3:15]  
Crawford, Sarah H, 55[8:45]  
Crespo, Fabian, 6.5, 50.19  
Crevecoeur, Isabelle, 49.7  
Crews, Douglas E, 46.6, 59[3:45]  
Crist, Brett D, 52.12  
Crittenden, Alyssa N, 56[9:45]  
Crocker, Elizabeth, 21.19  
Crofoot, Margaret C, 42.8  
Cromer, Carmen M, 1.10  
Crompton, Robin, 32[9:15], 32[9:30]  
Cronin, Jessica M, 27.7  
Crowder, Christian M, 22.9  
Crowley, Brooke, 2.5, 55[10:45]  
Cuevas, Deion, 47.28  
Cui, Hexun, 24.9, 52.33  
Cui, Yinqiu, 60[3:45]  
Cummings, Daniel K, 15.1, 39[3:30], 57.16  
Cummings, Jason A, 25.45  
Cummins, Timothy, 6.5  
Cunha, Eugénia, 30.13  
Cunningham, Andreama S, 52.16  
Cunningham, Deborah L, 3.4  
Cutts, Russell, 5.2  
Cybulski, Jerome S, 17[2:45], 60[3:45], 60[4:00]  
Czarnecki, Lawrence, 30.37
- ## D
- da Silva, Julio Cesar, 6.10  
Da-Gloria, Pedro, 44.7, 44.8  
Daasch, Alexander, 61[3:00]  
Dabelsteen, Torben, 48.7  
Daegling, David J, 3.1, 13.7, 13.12, 13.18  
Dafoe, Ashley C, 50.24  
Dahlstedt, Allisen C, 8.5  
Dajani, Rana, 20[5:45]  
Daneshvari Berry, Shamsi R, 30.2, 30.4  
Danforth, Marie, 35.1  
Danish, Lisa M, 41[4:30]  
Darusallam, Chelzie C, 9[10:45]  
Datta banik, Sudip, 25.36  
Daughterity, Erin, 12[8:45]  
Daura, Joan, 28.14  
Davenport, Carole A.L, 62.14  
Daver, Guillaume, 28.12  
David-Elbiali, Mireille, 8.11  
David, Micki J, 54[11:00]  
David, Randy E, 45.7  
Davis, Reed A, 22.4  
Day, Lisa M, 4.31, 21.6  
de Almeida, Tatiana F, 49.9  
de Carvalho, Olivia A, 36.5  
de Flamingh, Alida, 45.32  
De groote, Isabelle E, 25.15, 29.1, 52.15  
de la Fuente, Constanza, 60[4:30]  
de Manuel Montero, Marc, 28.15  
de Ruiter, Darryl J, 49.15  
de Smet, Timothy S, 47.17, 47.20  
Dean, Harrison, 52.26  
Dean, Kirsten, 12[8:45], 20[3:30]  
Decamp, Rebecca M, 42.3, 45.37  
DeCaro, Jason A, 57.4  
DeCasien, Alex R, 31[11:30]  
Dechant, Dorothy, 37.10, 49.11  
Dechow, Paul C, 10[9:30]  
Deckers, Kim P, 4.6  
Dee, Michael, 38[3:30]  
Defleur, Alban, 32[11:30], 49.10  
DeGiorgio, Michael, 60[4:00]  
Deino, Alan L, 28.1  
DeLacey, Patricia M, 1.15  
Delducco, Cassandra, 45.9  
DeLeon, Valerie B, 47.25, 52.14  
Delezene, Lucas K, 45.14, 47.22  
DeLong, Ralph, 14.7  
DeLouize, Alicia M, 57.6  
DelPrete, Hillary, 27.13  
Delson, Eric, 28.14  
Demes, Brigitte, 4.30  
Demeter, Fabrice, 8.14, 28.15, 61[5:15]  
Deng, Jiabo, 2.13  
Dent, Sophia, 15.2, 15.4, 52.6  
Derevianko, Anatoly, 9[8:15], 9[9:00], 9[9:15]  
Dern, Laresa L, 7.1  
DeSalle, Robert, 12[10:45]  
DeSantis, Larisa R G, 14.9, 47.21  
Desantis, Larisa, 14.11  
Desideri, Jocelyne, 8.11  
DeSilva, Jeremy M, 49.3  
Deter, Chris, 51.2



# AUTHOR INDEX

- Detwiler, Kate M, 28.17, 34[10:30], 55[8:45]  
Devereux, Emma J, 13.15  
Deviese, Thibaut, 9[9:00]  
Devine, Jay, 28.21  
Devlin, Maureen J, 57.5  
DeWitte, Sharon N, 16[4:45], 19[2:45], 35.6, 35.12, 50.19  
Dhaene, Jelle, 32[9:15]  
Di Fiore, Anthony, 11[9:30], 11[9:45], 41[3:15]  
Di Rienzo, Anna, 25.13  
Dickinson, Edwin, 10[9:00]  
DiGangi, Elizabeth A, 30.8, 30.20, 30.34, 30.35, 30.36, 50.7  
DiGiorgio, Andrea L, 1.1, 55[11:15]  
Diniz, Isabela G, 44.3  
Ditchfield, Peter, 61[3:30]  
Dittmar, Jenna, 7.4, 50.13  
Doershuk, Lily J, 3.5, 3.6, 3.10, 3.11, 15.3  
Dolch, Rainer, 48.16  
Dolding-Smith, Jessica AM, 51.2  
Dolinoy, Dana C, 58[4:15]  
Dolins, Francine L, 42.5  
Domett, Kate, 38[5:00]  
Dominguez-Rodrigo, Manuel, 61[3:15]  
Dominguez, Victoria M, 3.7, 30.31  
Dominy, Nathaniel J, 14.3, 20[5:15], 42.1  
Dona, Allison C, 21.10  
Donati, Giuseppe, 42.10  
Donohue, Mariah, 12[8:15]  
Dori, Irene, 24.30, 43.11, 43.12  
Doronichev, Vladimir, 49.13  
Dorshorst, Tabitha, 3.9  
Dosaev, Tasbulat, 20[6:00]  
Dost Kerchusky, Sarah, 33[8:15]  
Douka, Katerina, 9[9:00], 9[9:15]  
Doutré, Madison S, 3.3  
Dowdeswell, Mark R, 3.5  
Doyle, Daniel J, 4.33  
Drake, B. Lee, 2.16  
Drapeau, Michelle S.M, 36.5  
Drea, Christine M, 59[4:30]  
Drechsel, Tina, 39[3:00]  
Droke, Jessica L, 24.7  
Drube, Hilton, 50.23  
Du Bour, Amanda, 2.14  
DuBois, L. Zachary, 57.13  
Dubuc, Constance, 41[4:45]  
Ducey, Delaney, 12[9:15]  
Dudas, Madelynne M, 4.2  
Duffy, Michael, 35.2  
Duffy, Siobain, 25.17  
Dugas, Lara R, 39[4:00]  
Dumitriu, Dani, 61[4:45]  
Dumoncel, Jean, 28.10  
Dumouchel, Laurence, 5.4  
Duncan, Candice, 6.6  
Duncanson, Megan E, 50.19  
Duncan, William N, 37.9  
Dunger, David B, 25.42, 25.43, 25.44, 25.45, 25.46, 25.47  
Dunham, Noah T, 4.22, 4.23, 4.29, 4.30, 40[2:45]  
Dunmore, Christopher J, 4.6, 18[4:00]  
Dunn, Rhian R, 30.12  
Dunn, Tyler E, 8.14, 61[5:15]  
Dupras, Tosha, 35.6  
Duren, Dana L, 52.12, 62.4, 62.7  
Duringer, Philippe, 8.14, 61[5:15]  
Dutra Fogaça, Mariana, 4.25, 14.9  
Dykes, James, 25.43, 25.44, 25.45, 25.46
- ## E
- Eason, Lesley H, 49.5  
Eckardt, Winnie, 31[8:15]  
Eckhardt, Robert B, 49.22  
Eden, Or, 56[8:45]  
Edes, Ashley N, 46.6, 59[3:45]  
Edgar, Heather, 25.23, 50.6  
Edgar, Heather J.H, 30.2, 30.4  
Edler, Melissa K, 31[10:30]  
Edwards, Erin, 24.8  
Eeckhout, Peter A, 37.14  
Ehmke, Erin E, 2.5  
Ehrlich, Daniel E, 52.28  
Eick, Geeta, 21.10, 57.1, 57.5, 57.6, 57.18, 57.19  
Eisenberg, Dan T.A, 39[4:15], 57.8  
El-Zaatar, Sireen, 10[11:00]  
Elias, Scott A, 37.13  
Ellegaard, Signe, 48.7  
Eller, Andrea R, 50.18  
Eller, Ryan J, 20[3:45], 20[4:00]  
Elliott, Marina, 21.14, 49.16  
Ellis, Kelsey M, 11[9:30], 41[3:15]  
Ellis, Meredith AB, 35.18  
Ellison, Peter T, 56[9:15]  
Ellwanger, Amanda L, 55[9:15]  
Ellwanger, Nicholas W, 55[9:00]  
Ely, John J, 12[9:00], 31[10:30]  
Emery Thompson, Melissa, 31[8:00], 31[9:00], 31[9:15], 31[9:30], 31[9:45], 41[2:45], 59[2:30], 59[2:45]  
Emes, Richard D, 56[8:45]  
Engberg, Shannon E, 59[4:15]  
Engel, Adam, 52.3  
Engelhardt, Antje, 41[4:30]  
Eng, Jacqueline T, 24.36, 50.25  
Enigk, Drew K, 31[9:45], 59[2:30]  
Enny, Alyssa, 5.6  
Eori, Madeline E, 2.6  
Eppley, Timothy M, 59[5:30]  
Epstein, Charles, 25.5  
Erb, Wendy M, 41[3:30]  
Ericson, Adam, 17[3:00]  
Eriksen, Amandine, 27.15  
Errico, Gina, 24.2  
Erwin, Joseph M, 31[10:30]  
Escabí, Carla, 26.4  
Escoffier, Nicole, 58[4:30]  
Espinoza, Ashley, 30.23  
Evangélou, Elizabeth A, 30.8, 30.35, 30.36  
Evershed, Richard P, 33[11:00]  
Evtsev, Andrej, 27.4  
Ewing, Savannah, 25.10  
Eyre, Jennifer, 39[5:15]
- ## F
- Fabre, Anne-Claire, 18[2:45]  
Fagan, William, 42.6  
Faillace, Katie E, 52.11  
Faina, Peterson, 28.16  
Falk-Smith, Nicole L, 25.32  
Fallon, Stewart, 61[4:45]  
Fannin, Luke D, 5.14  
Fan, Wenquan, 50.35  
Farkosh, Holly, 46.10  
Farris, Zachary, 48.16  
Fashing, Peter J, 14.2  
Fatica, Lawrence M, 10[11:00]  
Faulk, Christopher, 58[2:30]  
Feder, Jacob A, 1.20, 26.6  
Federman, Sarah, 48.16  
Fedigan, Linda M, 41[2:45], 42.4  
Fehren-Schmitz, Lars, 30.44  
Feiler, Maria E, 27.3  
Feingold, Eleanor, 20[3:45]  
Fejerman, Laura, 45.6  
Feldblum, Joseph T, 11[8:15]

# AUTHOR INDEX

- Fernandez-Duque, Eduardo, 42.7  
Fernandez, Aileen, 4.35  
Fessler, Daniel M.T, 1.3  
Feuerriegel, Elen M, 13.6  
Fewlass, Helen, 54[9:00]  
Fibiger, Linda, 36.12  
Fichtel, Claudia, 34[9:30]  
Figueiras, Lúgia A, 44.6  
Figueroa-Soto, Cristina, 30.15  
Figus, Carla, 51.1, 51.7  
Finch, Caleb E, 15.1  
Finestone, Emma M, 61[3:30]  
Finlinson, Ethan D, 3.14  
Fischer, Julia, 31[11:00]  
Fiske, Kay L, 36.11  
Fitton, Laura C, 10[9:00]  
Fitzpatrick, Scott M, 45.4  
Flaherty, Kevin, 21.1  
Flansburg, Carroll, 45.15  
Fleagle, John G, 5.9  
Fleming, Elijah C, 24.11  
Fleskes, Raquel E, 60[4:45]  
Florkiewicz, Brittany N, 1.3, 1.25  
Floyd, Bruce, 25.11, 44.4  
Foecke, Kimberly K, 61[3:45]  
Foegeding, E. Allen, 47.9  
Fogaça, Mari D, 13.13  
Fogaça, Mariana D, 2.9, 2.10, 14.1  
Fok, Alex, 14.7  
Fonzo, Mattia, 35.1, 35.2  
Ford, Susan M, 59[5:45]  
Formicola, Vincenzo, 43.12  
Foroud, Afra, 1.22  
Forrest, Frances L, 5.3  
Fort, Mathew A, 52.6  
Foruzanfar, Farzad, 6.10  
Foster, Adam D, 30.42, 36.3  
Foster, Frederick R, 14.10, 47.5  
Fournier Korchia, Charlene S, 34[10:30]  
Fox, Keolu O, 53[9:45]  
Fox, Molly, 17[2:30]  
Fragaszy, Dorothy M, 2.10, 14.1, 42.6  
France, Christine, 61[3:45]  
Francisco, Arthur, 61[2:45]  
Franciscus, Robert G, 30.42, 43.2, 45.11  
Francis, Jancy, 25.10  
Francken, Michael, 50.20  
Frank, Eliot H, 50.33  
Frankenberg, Susan R, 29.7  
Franks, Erin M, 47.9  
Frasier, Cynthia L, 59[4:15]  
Frauenhofer, Eric, 50.22  
Frazier, James, 5.5  
Friant, Sagan, 31[9:15]  
Fried, Ruby L, 39[4:30]  
Froehle, Andrew, 2.15  
Frohlich, Bruno, 15.1  
Frost, Stephen R, 4.35, 10[9:15], 28.13  
Fuchs, Amanda J, 1.16  
Fuentes, Agustin, 2.7, 16[5:15], 55[9:45]  
Fugina, Christopher J, 45.5  
Fuller, Andrea, 59[4:45]  
Fuller, Kia C, 25.24  
Fulwood, Ethan L, 46.8, 47.8  
Funk, Alyssa, 9[1:00]  
Funkhouser, Jake A, 11[9:00]  
Furchak, Hannah, 4.31  
Furmanek, Mirosław, 20[2:45]  
Furtner, Margaret J, 24.42  
Furtwängler, Anja, 33[9:15]  
Fuselier, Edward J, 29.8
- ## G
- Gabanini, Gaia, 51.1, 51.7  
Gabbard, Aubree, 46.4  
Gaddis, Katherine, 7.3, 24.5  
Gagarin, Ernesto, 4.31  
Galbany, Jordi, 31[8:15]  
Galbarczyk, Andrzej, 15.7, 58[3:15]  
Galdamez, Gladys Y, 47.7  
Gamble, Julia A, 35.9  
Gancz, Abigail S, 8.7  
Gane, Austin, 1.3  
Gao, Shizhu, 60[3:45]  
Garber, James F, 53[10:45]  
Garcia Martinez, Daniel, 21.14, 32[9:45]  
Garcia, Angela R, 15.1, 39[5:00], 57.2, 57.16  
Garcia, Viridiana M, 51.6  
García-Martínez, Daniel, 27.12, 49.4  
Gardner, Brianna, 50.34  
Gardner, Sara, 5.20, 46.12  
Garland, Jr., Theodore, 39[3:45], 45.20  
Garland, Carey J, 15.5, 50.5  
Garneau, Danielle, 12[8:45]  
Garrett, Eva C, 42.3, 45.37  
Garruto, Ralph M, 25.38, 45.5  
Garvie-Lok, Sandra, 6.18, 8.13, 24.13  
Garvin, Heather M, 30.12, 30.17, 30.19, 49.26  
Gatesy, Stephen M, 13.8  
Gayó, Eugenia M, 24.15  
Geber, Jonny, 6.20  
Geha, Hassem, 37.5  
Geherty, Joseph, 2.11  
Geissler, Elise, 5.14, 13.7  
Geller, Pamela L, 16[4:30]  
George, Rebecca L, 24.18, 37.1, 37.12  
Gerhold, Chad, 45.18, 58[3:30]  
German, Rebecca Z, 4.3  
Gern, James E, 31[9:00]  
Gesquiere, Laurence, 31[8:45]  
Gettler, Lee T, 2.7, 56[9:00]  
Getz, Sara M, 7.7  
Ghosh, Sudipta, 20[6:00]  
Gibb, James, 57.13  
Gibbons, Daniel, 4.21  
Giggs, Katie, 17[5:15]  
Gignoux, Chris, 45.6  
Gilardi, Kirsten, 31[8:15]  
Gilbert, Christopher C, 28.17  
Gilby, Ian C, 11[8:15], 11[8:30], 12[11:00]  
Gildner, Theresa E, 25.35, 57.7  
Gillissen, Emmanuel, 28.17  
Ginter, Bolesław, 43.5  
Giraldo Correa, Gustavo A, 18[3:30]  
Glantz, Michelle M, 7.1  
Glasgow, Sheena, 30.18  
Glasser, Darcey B, 48.10  
Gleiber, Devora S, 3.4  
Globig, Anja, 12[8:45]  
Glowacka, Halszka, 31[8:15], 47.2  
Goad, Gennifer, 30.6  
Gocha, Timothy P, 22.2  
Godfrey, David, 45.28  
Godfrey, Laurie R, 28.16  
Godinot, Marc, 18[2:45]  
Gokumen, Omer, 12[8:45], 20[3:30], 45.16, 45.27, 53[9:00], 60[3:00]  
Gokhman, David, 58[2:45]  
Goldberg, Amy, 45.10  
Goldberg, Tony L, 20[5:15], 31[9:00], 31[9:15], 48.10  
Goldman, Elisabeth A, 45.33  
Goldstein, Paul, 8.5

# AUTHOR INDEX

- Goliath, Jesse R, 16[2:45]  
Golovanova, Lubov, 49.13  
Gomez, Andres, 20[5:15]  
Gomez, Santiago, 22.10  
Gomez-Robles, Aida, 23.6  
Gómez-Olivencia, Asier, 49.14  
Gómez Valdés, Jorge, 45.19  
Gonciar, Andre, 50.31  
Gonzalez-Hernandez, Francisco, 45.28  
Gonzalez-Zarzar, Tomas, 20[3:45], 20[4:00]  
Gonzalez, Eduardo, 45.15  
Gonzalez, Mariela E, 49.25  
Gonzalez, Silvia, 8.9  
Gooderham, Ellie, 50.32, 52.4  
Gooding, Alice F, 30.32  
Goodrich, Jaclyn M, 58[4:15]  
Goodson, Caroline, 50.29, 51.8  
Gopalan, Shyamalika, 56[11:00]  
Gordon, Adam D, 3.5, 3.6, 3.10, 3.11, 15.3, 41[4:00], 48.1  
Gordon, Gwyneth, 50.2  
Goriunova, Olga I, 8.1, 24.14  
Gotama, Rinaldi, 48.8  
Goto, Ryosuke, 4.20, 4.26  
Goude, Gwenaëlle, 8.11, 24.30  
Gowen, Kyle, 25.38, 45.24  
Grabowski, Mark, 18[5:00], 20[3:15]  
Graf, Daniel, 25.5  
Granata, McKenzie, 46.10  
Granatosky, Michael C, 4.25, 13.11, 13.13, 14.4  
Gravlee, Clarence C, 25.24  
Green, Brittany, 24.31  
Green, Daniel R, 61[4:45]  
Green, David J, 36.4, 36.6, 52.28  
Greene, Lydia K, 59[4:30]  
Green, Madelyn K, 30.40  
Green, Rebecca, 45.14  
Greenwald, Alexandra M, 33[10:45]  
Gregoricka, Lesley A, 38[3:45]  
Greiner, Demi, 47.28  
Grider-Potter, Neysa, 4.12, 4.18, 4.20  
Grieger, Ryan W, 45.15  
Griffin, Jacob, 15.2, 25.4  
Griffith, Maura K, 24.3  
Grindle, Kristine A, 31[9:00]  
Grobler, J P, 34[10:45]  
Grodzinsky, Alan J, 50.33  
Groeniger, Kimberly M, 47.28  
Grogan, Kathleen E, 20[2:30], 20[3:15]  
Grosso, Alicia R, 30.30  
Grow-Blong, Nanda B, 48.15  
Gruenthal-Rankin, Ariel, 7.3, 24.5, 30.18  
Gruss, Laura T, 29.3, 29.4, 52.24  
Grün, Rainer, 61[4:45]  
Guatelli-Steinberg, Debbie, 5.14, 10[11:00], 32[10:30], 43.4, 44.4, 47.18, 47.23  
Guerra Amorim, C. Eduardo, 41[5:30]  
Guerreiro, João F, 44.3  
Guerrero, Jasleen, 51.4  
Guethlein, Lisbeth A, 12[9:45]  
Guevara, Elaine E, 12[9:00]  
Gueye, Mallé, 1.2  
Guiberteau, Fernando, 14.6  
Guipeit, Gaspard, 32[11:30]  
Gunasekera, Suvanthee, 45.39  
Gunst, Noëlle, 1.21  
Gunz, Philipp, 9[8:15], 13.16  
Guo, Yaqi, 6.1, 6.2, 6.3  
Gurarie, Elie, 42.6  
Gurian, Kaita N, 5.3  
Gurven, Michael D, 15.1, 39[3:30], 39[5:00], 56[9:30], 57.16  
Guy, Franck, 28.12  
Guyomarc'h, Pierre, 43.11  
Guyon, Amelia A, 45.5  
Gwin, Kiela, 60[2:30]
- ## H
- Ha Thang Long,, 4.32  
Haagsma, Margriet, 8.13  
Hadfield, Kristin, 20[5:45]  
Haefner, Joshua, 6.8  
Haft, Stephanie M, 25.31  
Hagberg, Lindsey, 31[9:30], 31[9:45]  
Hahn, Beatrice H, 12[9:45], 12[11:00]  
Haile-Selassie, Yohannes, 5.7, 28.13, 32[8:45]  
Haile, Diresbachew W, 39[3:00]  
Hajdu, Tamás, 20[2:45]  
Häkkinen, Teemu J, 10[11:15]  
Halcrow, Sian E, 19[3:30], 33[11:00]  
Halcrow, Siân, 16[4:15]  
Hale, Abbie, 50.9  
Halenaar-Price, Lauren B, 18[3:30], 47.27  
Halgren, Eric, 47.32  
Halley, Andrew C, 40[5:15]  
Hallgrimsson, Benedikt, 28.21, 33[9:00], 45.14  
Halloran, Andrew R, 59[3:00]  
Hamada, Yuzuru, 25.15  
Hamadmad, Dima, 20[5:45]  
Ham, Allison, 15.10  
Hamilton, Marian I, 2.16  
Hamilton, Michelle D, 7.2, 52.25  
Hammerl, Emily, 54[9:30]  
Hammond, Ashley S, 5.1, 5.3, 28.7  
Hansen, Malene F, 48.7  
Hansen, Thomas F, 18[5:00]  
Hanson, Annalys, 5.6  
Hanson, Kari L, 47.28, 47.32  
Han, Tao, 50.11, 52.32  
Harcourt-Smith, William, 49.17, 51.1, 51.7  
Harden, Angela L, 30.31  
Hardin, Anna M, 62.4  
Harel, Roi, 42.8  
Harkness, Kelsey, 1.22  
Harper, Christine M, 4.1  
Harrington, Arianna R, 47.30  
Harrington, Christopher J, 25.35  
Harrington, Katherine I, 52.7  
Harrington, Lesley, 15.8, 52.4  
Harris, J.w.k., 5.2  
Harris, Jacob A, 56[9:45]  
Harris, Nathan, 60[2:30]  
Harrison, Genelle F, 20[2:30]  
Harrison, Kim, 22.5  
Harris, Rachel L, 59[4:30]  
Harryman, Jerri L, 21.6  
Hart, John A, 12[9:45], 28.17, 34[10:30]  
Hart, Rebecca, 45.30  
Hartstone-Rose, Adam, 10[8:30]  
Hart, Terese B, 12[9:45], 28.17, 34[10:30]  
Hart, William K, 49.10  
Harvati, Katerina, 18[5:15], 24.34, 32[11:00], 36.8, 49.23, 50.20, 61[5:00]  
Harwell, Faye S, 1.1, 48.8  
Hastorf, Christine A, 33[11:00]  
Hatala, Kevin G, 13.8, 36.9, 36.11  
Hayes, M. Geoffrey, 39[4:15]  
Hay, Savannah, 24.1, 24.19, 37.1  
Hazel, Ashley, 56[11:30]

# AUTHOR INDEX

- Hałuszko, Agata, 20[2:45]  
 Healy, Meghan, 25.23  
 Heaton, Jason, 5.20, 32[9:15], 32[9:30]  
 Hedman, Kristin M, 52.6  
 Hefner, Joseph T, 52.14  
 Heilen, Michael, 52.14  
 Heim, Kelly N, 37.5  
 He, Letian, 52.8  
 Helgeson, Kari E, 52.25  
 Hemphill, Brian E, 60[5:00]  
 Henderson, Charlotte Y, 36.1, 36.12  
 Heng, Hock Gan, 47.25  
 Henn, Brenna, 56[11:00]  
 Henneberg, Maciej, 38[4:30], 49.22  
 Henneberg, Renata J, 38[4:30]  
 Henrie, Marshall K, 3.14  
 Henriques viscardi, Lucas, 41[5:30]  
 Henry, Amanda G, 13.15  
 Henzi, S Peter, 4.21, 59[4:45]  
 Hermismeyer, Isabel, 2.15  
 Hernandez, Diego, 17[3:30]  
 Hernandez, Margarita, 21.8  
 Hernando, Raquel, 43.5, 49.7  
 Herrera Muñoz, Alberto, 45.19  
 Herrera, Brianna, 47.29  
 Herrera, Denise, 25.25  
 Herrera, James P, 59[5:15]  
 Herrmann, Nicholas P, 7.2, 30.27, 50.24, 52.25, 54[8:15]  
 Hershkovitz, Israel, 23.3  
 Hetem, Robyn S, 59[4:45]  
 Hickmott, Alexana J, 55[8:30]  
 Hicks, Heather N, 1.14  
 Hiebert, Beverly, 22.5  
 Hieronymus, Tobin L, 4.22, 4.23  
 Higgins, Rosanne L, 25.16  
 Higgs, Brittany N, 50.24  
 Higham, James P, 26.9, 31[11:30], 41[4:45]  
 Higham, Thomas, 9[9:00]  
 Higham, Tom, 9[9:15]  
 Hill, Ethan C, 52.29  
 Hillson, Simon, 23.9, 24.3, 37.14  
 Hilton, Charles E, 25.31, 25.40, 43.14  
 Hiramatsu, Chihiro, 42.4, 55[10:30]  
 Hirst, Cara S, 33[10:30]  
 Hlophe, Nompumelelo, 21.14  
 Hlusko, Leslea J, 28.21, 37.4, 37.13  
 Hoang Trinh, Hiep, 38[5:00]  
 Hodges-Simeon, Carolyn R, 25.27  
 Hodges, Shannon, 48.18  
 Hoffecker, John F, 37.4, 37.13  
 Hoffman, Jakobus, 32[9:15]  
 Hoffman, Megan R, 24.35  
 Hoffmann, Christian, 44.7  
 Hoff, Michael, 54[9:30]  
 Hofman, Courtney A, 50.18  
 Hof, Patrick R, 31[10:30]  
 Hogan, Jeremy D, 42.4  
 Hoiem, Derek W, 27.14  
 Holland Jones, James, 56[11:30]  
 Holland, Emily, 15.8, 52.4  
 Hollander, Judith, 15.11  
 Holliday, Casey M, 4.18  
 Holliday, Trenton W, 43.7, 49.14  
 Holloway, Ralph L, 49.26  
 Holman, Darryl J, 1.9, 25.26  
 Holmes, Andrew C, 28.6  
 Holmes, Megan, 4.33, 10[10:30], 13.9  
 Holmes, Sheila, 48.16  
 Holowka, Nicholas B, 39[2:30], 39[3:00], 40[2:30], 50.33  
 Holt, Brigitte, 3.9, 52.17  
 Holton, Nathan E, 27.10, 45.11  
 Honap, Tanvi, 20[5:30], 45.23, 60[4:15]  
 Honegger, Matthieu, 8.11  
 Hong, Jong Ha, 35.17  
 Hoogland, Menno L.P, 33[9:45]  
 Hoogland, Menno, 19[4:45], 52.4  
 Hook, Emma S.L, 19[2:45]  
 Hopkins, William D, 12[9:00], 29.10, 31[10:30]  
 Hora, Martin, 52.23, 61[4:30]  
 Horbaly, Haley E, 52.26, 52.27  
 Hores, Rose M, 59[5:45]  
 Horvath, Julie E, 17[4:00], 45.33  
 Hoskens, Hanne, 20[4:00]  
 Houck, Kelly M, 17[5:00]  
 Housman, Genevieve, 58[2:45]  
 Hou, Xiaonan, 17[4:15]  
 Howard, Allison, 42.6  
 Howe, Esther, 61[4:15]  
 Hrvoj-Mihic, Branka, 47.28, 47.32  
 Hsiao, Chu, 58[4:30]  
 Hsü, Kenneth J, 49.22  
 Huang, Hong, 45.12  
 Hubbard, Amelia R, 21.9, 21.13  
 Hubbe, Mark, 24.39, 43.4, 45.8, 47.29, 50.21, 52.26, 52.27, 54[8:00]  
 Hu, Bin, 22.10, 22.13, 24.6  
 Hublin, Jean-Jacques, 18[4:00], 29.13  
 Hudjashov, Georgi, 9[10:45]  
 Huerta-Sanchez, Emilia, 9[11:00], 20[5:00]  
 Huffman, Michaela, 37.13  
 Hughes, Cris E, 60[3:45]  
 Hughes, Nicole, 35.1  
 Hu, Kyung-Seok, 52.7  
 Hulse, Courtney N, 30.17, 37.1, 37.3  
 Humphrey, Louise T, 35.4, 52.4, 52.15  
 Hünemeier, Tábita, 45.25  
 Hunley, Keith, 25.23  
 Hunt, David, 15.10, 24.2, 30.23  
 Hunter, K. Lindsay, 21.7  
 Hunter, Randee L, 22.14  
 Hunt, Gene, 24.2, 30.23  
 Hunt, Kevin D, 34[8:30]  
 Huong, Nguyen Thi Mai, 8.14  
 Hurst, Shawn D, 49.26  
 Huynh, Ashley, 21.10  
 Hwang, Seong Jae, 51.5  
 Hyde, Alexander, 4.3



- Ide, Lauren K, 36.12  
 Imron, Muhammad A, 26.7, 59[4:00]  
 Indencleef, Karlijne, 20[3:45], 20[4:00]  
 Inskip, Sarah A, 3.13, 50.13  
 Inwood, Jamie, 24.16  
 Ion, Gabriela, 62.10  
 Iriarte-Diaz, Jose, 10[8:45], 10[9:30]  
 Irimia, Andrei, 15.1  
 Irish, Joel D, 37.15  
 Irumba, Chris, 17[5:15]  
 Irwin, Mitch, 48.16  
 Irwin, Mitchell, 2.2, 2.8, 2.14, 12[8:15]  
 Isabirye, Dan, 45.2  
 Ishida, Hajime, 7.5  
 Ivaska, Kaisa K, 51.9  
 Ives, Rachel, 35.4  
 Izar, Patrícia, 2.10, 14.1, 42.6

# AUTHOR INDEX

## J

- Jabbour, Rebecca S, 4.11, 27.7, 27.11, 32[11:30], 49.11  
Jablonski, Nina G, 20[4:30], 20[4:45], 28.13, 37.13, 53[8:15]  
Jack, Katharine M, 1.12, 41[2:45]  
Jackson, Fatimah L.C, 6.6, 53[11:30]  
Jackson, Hasan, 6.6  
Jacobs, Guy S, 9[10:45]  
Jacobson, Benjamin, 27.10  
Jacobson, Dave, 45.24  
Jacobson, David K, 20[5:30]  
Jacobs, Rachel, 48.16  
Jacobs, Zenobia, 9[9:00]  
Jacoby, Brigid, 21.6  
Jaeggi, Adrian V, 25.1  
Jagoda, Eveyln, 45.1, 62.1  
Jakata, Kudakwashe, 32[9:15]  
Jakob, Tina, 50.34  
Jallow, Mawdo, 25.8  
James, Hannah F, 61[4:45]  
Janiak, Mareike C, 55[9:30]  
Janković, Ivor, 24.7, 50.1, 50.12  
Janmaat, Karlina, 25.7, 42.5  
Jarrett, Jonathan, 4.21  
Jashashvili, Tea, 3.5, 3.6, 3.10, 3.11, 15.3, 32[9:15], 32[9:30], 40[5:30]  
Jasienska, Grazyna, 15.7, 58[3:15]  
Jean, Marie, 45.28  
Jean, Sherrie, 17[3:00]  
Jeffress, Sara A, 47.22  
Jelen, Emily S, 45.5  
Jeltema, Melissa, 47.9  
Jeong, Choongwong, 25.13  
Jernvall, Jukka, 10[11:15]  
Jeska, Celina, 25.31  
Jin, Xin, 20[5:00]  
Joannes-Boyau, Renaud, 61[4:45]  
Joganic, Jessica L, 43.8  
Johnson, Abigail, 17[4:30]  
Johnson, Ashley, 24.4  
Johnson, Elizabeth, 7.4  
Johnson, Eric, 48.12  
Johnson, Jesse W, 60[3:45]  
Johnson, John, 8.9  
Johnson, Kent M, 19[4:30], 37.9  
Johnson, Laura E, 4.30  
Johnson, Liam J, 30.16  
Johnson, Steig, 48.16  
Johnston, Rob'yn A, 40[4:45]  
Jolly, Clifford J, 58[3:00]  
Jones, Jacob, 21.6, 21.15  
Jones, James H, 56[9:45]  
Jones, James Holland, 56[9:30]  
Jorgensen, Kelsey C, 6.19  
José María, Bermúdez de Castro, 9[8:45]  
Juengst, Sara, 24.27, 50.17  
Julien, Danielle K, 30.20, 50.26  
Junge, Randall E, 12[8:15]  
Jung, Hyunwoo, 4.14, 4.19  
Junno, Juho-Antti, 29.6, 31[8:15]  
Juster, Robert-Paul, 57.13  
Justus, Hedy M, 35.11, 35.12

## K

- Kacki, Sacha, 43.11  
Kadowaki, Seiji, 61[5:30]  
Kaestle, Frederika A, 34[8:30]  
Kagone, Thérèse S, 20[5:30]  
Kaiser, Jessica E, 19[5:00]  
Kaiser, Thomas M, 61[3:00]  
Kalbitzer, Urs, 41[2:45]  
Kallend, Auria, 61[2:45]  
Kamanzi Shimwa, Axelle, 2.3  
Kamenov, George, 30.6, 50.2  
Kamilar, Jason M, 1.11, 1.16, 1.17, 4.13, 48.1, 48.2, 48.4, 48.5, 48.17  
Kane, Erin E, 1.1, 2.6, 42.2  
Kang, Yun-Seok, 22.14  
Kanthaswamy, Sreetharan, 28.21  
Kaplan, Hillard, 15.1, 39[3:30], 57.16  
Kaplinksky, Cassandre H, 1.23  
Kappeler, Peter M, 34[9:30]  
Karabowicz, Amy N, 7.6  
Karakostis, Fotios Alexandros, 36.8  
Karapanou, Sophia, 8.13  
Kasabova, Boryana M, 43.7  
Kashyap, Purna, 17[4:30]  
Kasl, Colin P, 49.17  
Kate, Emily, 21.8  
Katz, David C, 28.21  
Katzenberg, M. Anne, 33[9:00]  
Kauffman, Laurie, 21.4  
Kawamura, Shoji, 42.4, 55[10:30]  
Kaye, Madison R, 50.16  
Kay, Richard F, 28.3, 47.15  
Keeling, Brian A, 49.12  
Keeton, T. Joshua, 21.13  
Keith, Monica H, 56[11:15]  
Kelempu, Caroline Sisina, 25.31  
Keller, Charles, 10[9:45]  
Kelley, Jay, 28.8  
Kellner, Corina M, 30.37, 33[8:15]  
Kelly, Alexa P, 25.12  
Kelly, John, 45.29  
Kelly, Kilian, 45.12  
Kelmelis, Kirsten S, 35.10  
Kelso, Janet, 9[9:00]  
Kemp, Addison D, 18[2:30]  
Kendall, Iain, 33[11:00]  
Kenessey, Dori E, 24.1, 24.19, 37.1, 37.7  
Kennedy, Jennifer, 60[4:15]  
Kenyon, Brittany A, 4.9  
Kern, Kevin F, 62.15  
Kertes, Darlene A, 58[4:30]  
Kesterke, Matthew J, 13.10  
Kidd, Kenneth, 45.30  
Kile, Ranger, 47.1  
Kilroy, B.S., Grace S, 30.43  
Kim, Alexander C, 47.12  
Kim, Andrew W, 39[4:45]  
Kimbel, Bill, 13.16  
Kimbel, William H, 5.8, 29.16, 62.11  
Kim, Jieun, 30.15, 54[8:30]  
Kimmerle, Erin, 30.6  
Kimock, Clare M, 41[4:45]  
Kimura, Lilian, 44.2  
Kim, Yongjun, 35.17  
Kindler, Abigail K, 24.38  
King-Bailey, Gillian L, 1.12  
King, Allyson G, 1.24  
King, Brody W, 3.14  
King, Charlotte, 16[4:15]  
King, Tony, 48.16  
Kinkopf, Katherine, 50.29, 51.8  
Kirchhoff, Claire A, 10[8:00], 47.33  
Kirk, E. Christopher, 28.1  
Kisielinski, Caroline, 45.4  
Kissel, Marc, 21.11, 21.17  
Kiss, Krisztián, 20[2:45]  
Kitchell, Lindsey M, 49.26  
Kitchen, Dawn M, 26.5, 59[3:15]  
Kivell, Tracy L, 4.6, 5.18, 18[4:00]  
Kiyamu, Melisa, 58[4:15]  
Kjellstrom, Anna S.E, 35.8  
Kjosness, Kelsey M, 4.4  
Klainer, Shannon A, 24.25  
Klaes, Alexandra R, 30.17, 30.39

# AUTHOR INDEX

- Klaus, Haagen D, 15.10, 16[3:45], 24.35, 50.8, 51.6  
Klautau-Guimaraes, Maria de Nazare, 44.5  
Klein, David, 25.4  
Klein, Jon, 6.5  
Klukkert, Zachary S, 28.16, 47.4  
Knapp, Leslie A, 12[9:30], 45.35  
Knauf, Sascha, 38[2:45]  
Knigge, Ryan P, 18[3:30], 62.4  
Knight, Mark, 33[11:15]  
Knight, Rob, 20[5:15]  
Knights, Dan, 17[4:30]  
Knott, Cheryl D, 1.1, 2.6, 25.29, 41[3:00], 42.2, 48.8, 55[10:45], 55[11:15]  
Knudson, Kelly, 8.5, 33[10:45], 50.2  
Koehl, Anthony J, 60[5:15]  
Koenig, Andreas, 1.20, 26.8  
Kolawa, Adam A, 3.5  
Kondo, Osamu, 49.13  
Konigsberg, Lyle W, 29.7  
Kono, Reiko T, 47.24  
Konow, Nicolai, 36.10  
Koperkiewicz, Arkadiusz, 7.3, 24.5, 52.5  
Koppa, Abigale, 13.15  
Kopperud, Bjørn T, 18[5:00]  
Koptekin, Dilek, 60[3:00]  
Korpinen, Niina, 29.6  
Koster, Jeremy, 56[10:30]  
Koterova, Anezka, 30.13  
Koufos, George, 32[8:15]  
Koutlias, Lauren G, 24.29  
Kozitzky, Emma A, 29.14  
Kozlikin, Maxim B, 9[8:15], 9[9:00], 9[9:45]  
Kozma, Elaine E, 40[5:00]  
Kralick, Alexandra E, 26.1  
Kramer, Patricia A, 13.6, 13.14, 27.5  
Krause, Johannes, 23.7, 33[9:15]  
Kreimer, Ben, 54[9:30]  
Krenz-Niedbala, Marta, 19[4:00], 35.13  
Krigbaum, John, 50.2  
Krubitzer, Leah, 40[5:15]  
Krueger, Kristin L, 14.7  
Kubehl, Kayla, 24.37  
Kubo, Daisuke, 7.5  
Kufeldt, Chrisandra, 47.13  
Kugonza, Moses, 34[8:00]  
Kuhlwilms, Martin, 28.15  
Kullmer, Ottmar, 47.10  
Kuman, Kathleen, 32[9:30]  
Kumpan, Ludmila T, 48.6  
Kumpan, Tamara L, 42.9  
Kuo, Sharon, 13.11, 18[3:15]  
Kupczik, Kornelius, 10[9:00], 13.1, 14.5, 28.9, 36.4, 47.10  
Kuzawa, Chris W, 39[4:30]  
Kuzawa, Christopher W, 39[4:15], 39[4:45], 56[9:00], 58[4:00]  
Kuzminsky, Susan C, 6.21  
Kyle, Britney, 8.3, 8.6, 8.7, 15.5, 24.4, 24.11, 24.34, 50.16  
Kyriakou, Xenia Paula, 54[10:30]
- ## L
- L'Engle Williams, Frank, 5.20  
La Valley, Anna S, 54[10:30]  
LaBelle, Sophie B, 4.8  
Lacreuse, Agnes, 31[11:15]  
Lacy, Sarah A, 43.13  
Lad, Susan E, 13.12  
Lagace, Robert, 45.30  
Lagan, Emma M, 24.39, 47.23  
LaGoy, Alexis M, 30.8  
Lague, Michael R, 49.18  
Laird, Myra F, 2.9, 2.10, 4.25, 13.11, 13.13, 14.4, 14.12  
Lalueza-Fox, Carles, 28.15  
Lamb, Alicia, 12[8:15]  
Lambert, Joanna, 20[5:15], 55[9:15]  
Lambrigger, Taylor, 30.37  
Lamenza, Guillermo, 50.23  
Landau, Rebecca, 50.33  
Landecker, Hannah, 58[5:00]  
Landi, Federica, 49.21  
Landry, Nicholas, 25.27  
Lane, Katherine M, 30.32  
Lange-Hodgson, Leonie, 47.30  
Langergraber, Kevin E, 31[9:00], 31[9:15], 41[3:45]  
Lang, Lexi R, 25.29  
Langstiegh, Banrida, 60[5:00]  
Lans, Aja, 25.17  
Lansing, J Stephen, 9[10:45]  
Laposki, Corrin K, 45.22  
Larsen, Clark S, 6.5, 52.30  
Larsen, Clark Spencer, 8.22  
Larson, Sam M, 1.23  
Larson, Susan, 4.26, 40[3:45]  
Lasisi, Tina, 20[4:00], 20[4:45], 21.8  
Latham, Krista E, 30.5  
Latorre, Claudio, 24.15  
Laudicina, Natalie M, 29.9  
Lauri, Saag, 9[10:45]  
Lauterbur, M. Elise, 45.34  
Lautzenheiser, Steven G, 13.14, 27.5  
Lavalle Sullasi, Henry Socrates, 50.3  
Lawler, Richard R, 12[9:00], 48.11  
Law, Meng, 15.1  
Lawn, Brian R, 13.2, 13.5, 14.6  
Lawrence, Austin B, 52.12  
Lawrence, Julie, 29.16, 62.11  
Lawrentz, Heather, 62.8  
Lawson, Daniel J, 9[10:45]  
Layne Colon, Donna, 41[5:45]  
Le Cabec, Adeline, 28.9  
Le Luyer, Mona, 24.32, 43.19  
Lea, Amanda J, 58[3:00]  
Lease, Loren R, 15.6  
Lebrón, Manuel, 26.4  
Leca, Jean-Baptiste, 1.21, 1.22  
Ledevin, Ronan, 49.14  
Ledger, Marissa L, 33[11:15]  
Ledogar, Justin A, 4.25, 13.13  
Lee-Thorp, Julia A, 61[2:30]  
Lee, Amanda B, 27.14  
Lee, Chloe, 27.11  
Lee, Erin C.S, 49.2  
Lee, Hwa Young, 35.17  
Lee, Katharine MN, 15.7, 58[3:15]  
Lee, Minwoo, 25.5  
Lee, Myoung Keun, 20[3:45]  
Lee, Nanette R, 39[4:15]  
Lee, U-Young, 52.7  
Lehman, Shawn M, 34[9:15], 48.6, 48.16  
Leichliter, Jennifer N, 13.15  
Leigh, Steven R, 12[8:15], 20[5:15]  
Lei, Runhua, 59[4:15]  
Lemberg, Justin, 14.8  
Lemes, Renan B, 44.2  
Lemmers, Simone, 6.10  
Lenover, Makenna, 3.2  
Leon-Velarde, Fabiola, 58[4:15]  
Lepre, Christopher J, 28.1  
Lesciotto, Kate M, 21.1  
Leseela, Daniel L, 25.31  
Leseela, Saman, 25.31  
Lesnik, Julie, 61[3:15], 61[4:00]  
Levin, Naomi E, 62.12  
Lewarch, Caitlin L, 56[9:15]

# AUTHOR INDEX

- Lew, Caroline H, 47.28, 47.32  
Lewis Jr., Cecil, 20[5:30], 45.23, 46.7  
Lewis, Alycia E, 34[10:45]  
Lewis, Cecil, 45.6  
Lewis, Margaret E, 28.16  
Lewis, Rebecca J, 12[8:15]  
Lewman, Jordan R, 30.5  
Lewton, Kristi L, 40[3:15]  
Liang, Qiyao, 6.1, 6.2  
Liao, Xuezhzhu, 50.11, 50.28  
Li, Bo, 9[9:00]  
Li, Chang, 6.1, 6.2  
Lieberman, Daniel E, 3.12, 13.4, 15.11, 39[2:30], 39[3:00], 40[2:30], 50.33  
Liebert, Melissa A, 25.35, 57.17  
Lienard, Pierre, 25.4  
Lieverse, Angela R, 7.5, 8.1  
Light, Lydia E O, 48.9  
Li, Hongjie, 60[3:45]  
Li, Jiarui, 20[3:45], 20[4:00]  
Li, Jiawei, 45.3  
Li, Jiaxin, 24.9, 52.33  
Likius, Andossa, 28.12  
Li, Mian, 45.24  
Lindo, John, 60[3:45], 60[4:00]  
Lindshield, Stacy, 1.2, 1.6, 34[8:15]  
Link, Andres, 11[9:45], 18[3:30]  
Li, Peng, 27.14  
Li, Pengzhen, 24.9, 52.33  
Liu, Wu, 23.5, 43.10, 52.8  
Livshits, Gregory, 20[6:00]  
Li, Yang, 2.13  
Li, Yingying, 12[9:45], 12[11:00]  
Lizárraga, Beatriz, 45.6  
Lock, Margaret, 58[5:30]  
Lockwood, Victoria A, 5.18  
Lohse, Zoe M, 3.14  
Lombardi, Guido, 15.1  
Lombardo, Daniela, 27.8  
Lones-Khalfouni, Rebecca, 26.4  
Long, Holly, 30.39  
Long, Jeffrey C, 60[3:30], 60[5:15]  
Long, Kelly, 45.30  
Longman, Daniel P, 39[3:15]  
Lonsdorf, Elizabeth, 55[8:15]  
Lopez, Andrea, 16[3:00]  
Lopez, Davys, 62.2  
Lopez, Dayanira, 30.33  
Lopez, Lesly, 9[11:00]  
López-Torres, Sergi, 10[8:30]  
Lordkipanidze, David, 6.4  
Lorentz, Kirsi O, 6.10  
Lösch, Sandra, 33[9:15]  
Loudon, James E, 2.4, 34[10:45], 48.3  
Louis, Jr., Edward E, 59[4:15]  
Louis, Edward, 2.1, 48.16  
Louis, Monica P, 39[3:45]  
Louppova, Alexandra, 1.11  
Louys, Julien, 22.7  
Lovejoy, C. Owen, 62.5, 62.8, 62.13  
Lowe, Leah, 54[10:45]  
Lozada, Maria Cecilia, 33[8:00]  
Lozano, Marina, 43.5  
Lu, Amy, 1.20, 2.12, 26.6, 55[9:30]  
Lucci, Sara G, 1.18  
Luck, Paige J, 47.9  
Lugli, Federico, 51.7  
Łukasik, Sylwia, 19[4:00], 35.13  
Luke, Amy, 39[4:00]  
Lukehart, Sheila A, 38[2:30], 45.13  
Lukosiute, Kamile, 46.14  
Lum, Jeffrey Koji, 45.24  
Lum, Jeffrey K, 25.38  
Luna, Leandro H., 54[8:45]  
Lundeen, Ingrid K, 28.3  
Lund, Justin, 45.15, 46.7  
Lunn, Kiera, 13.9  
Lu, Szu-Ching, 5.18  
Lycett, Stephen J, 5.19  
Ly, Kien, 57.14  
Lynch, Paige, 50.6
- ## M
- Maaranen, Nina, 24.26  
Mabey, David C, 38[2:30]  
Mabulla, Audax Z.P, 56[9:45]  
Mabulla, Audax, 61[3:15]  
Machanda, Zarin P, 31[8:00], 31[9:00], 31[9:15], 31[9:30], 31[9:45], 59[2:30], 59[2:45]  
Machicek, Michelle, 24.36, 50.25  
Machnicki, Allison L, 18[4:30]  
Macháček, Jiří, 50.4  
MacInnes, Sarah, 35.1  
Macintosh, Alison A, 3.8, 39[3:15]  
Mackaye, Hassane T, 28.12  
Maddella, Katrina, 45.30  
Madden, Richard H, 14.8  
Maddux, Scott D, 25.12, 27.4, 43.15  
Madelaide, Stéphane, 49.14  
Madeti, Bhavani, 17[3:00]  
Madgwick, Richard, 52.11  
Madimenos, Felicia C, 25.35, 57.18  
Madrigal, Lorena, 25.10, 25.32, 25.32, 26.4, 44.5, 45.12, 45.15, 45.28  
Mafessoni, Fabrizio, 9[9:00]  
Magee, Sara M, 47.5  
Maggiano, Corey M, 22.3  
Maggiano, Isabel S, 22.3  
Magill, Clayton, 61[3:15]  
Mahaney, Michael C, 43.8, 62.4  
Mahoney, Patrick, 22.7, 22.8, 24.32, 51.2  
Maier, Christopher, 37.6  
Maisha, Felicien M, 58[4:30]  
Makowski, Krzysztof, 37.14  
Maksimoski, Alyse, 48.4  
Malaijijitnond, Suchinda, 14.3, 41[4:15]  
Malarchik, Diana, 37.11  
Malhi, Ripan S, 17[2:45], 45.32, 58[3:15], 60[3:45], 60[4:00]  
Mallott, Elizabeth K, 2.12, 12[8:30], 20[5:15]  
Mallott, Liz, 60[4:00]  
Malone, Maire, 47.16  
Maloney, Shane K, 59[4:45]  
Mancini, Amanda N, 48.16  
Mann, Allison, 17[3:45]  
Manthi, Fredrick, 61[2:30]  
Mant, Madeleine L, 50.9  
Manuel Arguelles, Juan, 49.24  
Man, Xingyu, 50.11, 50.28  
Mao, Ruilin, 7.4, 50.17  
Marazita, Mary L, 20[3:45]  
Marchamalo-Amado, Julio, 25.22  
Marchant, Linda F, 1.5  
Marciani, Giulia, 51.7  
Marcil, Claire, 47.21  
Marciniak, Stephanie, 20[2:45]  
Marcé-Nogué, Jordi, 61[3:00]  
Margolis, Julie Anna, 50.21  
Mariani, Andrea, 17[4:15]  
Marigó, Judit, 18[2:45]  
Mari, Katey, 8.3  
Marinho, Luísa, 50.32  
Mariotti, Valentina, 36.1  
Marklein, Kathryn E, 24.12  
Marks, Emma, 57.14  
Marques-Bonet, Tomas, 28.15  
Marques, Carina, 52.31  
Marriage, Tara N, 60[3:15]

# AUTHOR INDEX

- Marshall, Aubree S, 29.3, 29.4, 52.24
- Marshall, Charla, 60[3:45]
- Marsh, Hannah E, 27.9
- Martin, Debra L, 16[3:00]
- Martinez de Pinillos, Marina, 23.2
- Martin, Florian, 61[2:45]
- Martin, Jordan S, 25.1
- Martinon-Torres, Maria, 9[8:45], 23.2, 37.2
- Martin, Robert M.G, 28.9
- Martínez, Melween, 26.4
- Martínez, Susana, 50.23
- Massey, Jason S, 29.12
- Mata-escolano, Federico, 27.12
- Mathena-Allen, Sarah A, 8.21
- Mathieson, Iain, 20[3:00]
- Matos, Vitor, 52.31
- Matu, Marie, 49.7
- Maureille, Bruno, 43.3, 49.14
- Mayberry, Melanie M, 8.18
- Mayhew, Jessica A, 11[9:00]
- Mayne correia, Pamela, 6.18
- Mayukh, Mondal, 9[10:45]
- Mayus, Rebecca C, 6.14
- Mazel, Florent, 17[3:45]
- Mazelis, Eric J, 28.20
- Mazumdar, Natasha Y, 45.20
- McCarten, Jillian, 34[8:00]
- McCarthy, Caroline, 50.9
- McCarthy, Robert C, 49.6
- McCarty, Christopher, 25.24
- McClain, Brittany S, 6.8
- McClure, Keaton, 45.39
- McClymont, Juliet, 32[9:30]
- McCrane, Samantha M, 30.28
- McCrossin, Monte, 28.5
- McDade, Thomas W, 56[9:00]
- McDanel, Chloe P, 52.25
- McDaniel, Alexandria, 24.8
- McDonald, Daniel, 20[5:15]
- McElreath, Richard, 56[10:30], 56[11:00]
- McFarland, Richard, 59[4:45]
- McFarlin, Shannon C, 10[11:00], 31[8:15], 36.4
- McGechie, Faye, 4.12, 4.18, 18[3:15]
- McGovern, Candace, 19[3:15]
- McGrath, Christina A, 21.6
- McGrath, Kate, 10[11:00]
- McGraw, Scott W, 2.11
- Mcgraw, Scott, 47.18
- McGraw, W. Scott, 3.1, 5.14, 13.7, 13.12, 47.23
- McGrosky, Amanda, 5.5, 47.19
- McGuire, Chloe, 21.8
- McGuire, Sara A, 8.15
- McHale, Timothy, 25.4
- McKee, Hayden S, 30.1
- McKenney, Erin A, 17[5:30]
- McKenzie, Hugh G, 8.1
- McKerracher, Luseadra J, 25.33
- McKinney, Mason, 37.7
- McLain, Adam T, 59[4:15]
- McNamara, Allison, 4.22, 4.23, 4.29, 4.30, 40[2:45]
- McNern, Laura, 54[10:30]
- McNulty, Kieran P, 28.11, 29.12
- McNutt, Ellison J, 18[3:00]
- McPherson, Cait B, 19[2:30]
- Mead, John, 21.14
- Meckel, Lauren A, 6.20
- Meda, Nicolas, 20[5:30]
- Megherhi, Sabreen, 13.8, 36.11
- Mehari Abraha, Hyab, 10[9:30]
- Meindl, Richard S, 31[10:30], 62.8
- Meinzer, Nicholas J, 52.31
- Melamed, Philippa, 56[8:45]
- Melin, Amanda D, 41[2:45], 42.4, 55[9:30], 55[10:30]
- Meloni, Maurizio, 58[5:15]
- Meloro, Raphaela M, 52.14
- Mendenhall, Ruby, 25.25
- Méndez González, Rosa María, 25.36
- Menegaz, Rachel A, 47.1
- Menendez, Lumila P, 49.25
- Menzel, Charles, 42.5
- Mercader, Julio, 24.16
- Mercado Malabet, Fernando, 34[9:15], 48.6
- Merceron, Gildas, 14.11, 61[2:45]
- Merchant, Michael, 6.5
- Merrigan-Johnson, Carrie, 1.13, 48.14
- Mert, Ismail, 17[4:15]
- Messineo, Pablo, 49.25
- Metcalf, Jessica L, 20[5:15]
- Metspalu, Mait, 9[10:45]
- Meyer, Diogo, 44.2
- Meyer, Marc R, 32[8:30], 32[9:45]
- Meyer, Matthias, 9[8:15], 9[9:00]
- Meyers, Julia, 50.32
- Michalik, David E, 15.1
- Middleton, Emily R, 29.5
- Middleton, Kevin M, 4.18, 62.18
- Milani, Thomas L, 39[3:00]
- Milich, Krista M, 34[8:00]
- Miller Wolf, Katherine, 24.22
- Miller, Anna P, 1.8
- Miller, Catherine K, 5.2, 49.3
- Miller, Courtney A, 51.5
- Miller, Ellen R, 28.4
- Miller, Joshua D, 25.8
- Miller, Melanie J, 33[11:00]
- Milner, George R, 7.7, 45.13
- Milstein, Marissa S, 34[11:00]
- Mincer, Sarah T, 4.16
- Mingroni-Netto, Regina C, 44.2
- Min, James K, 15.1
- Mirazón Lahr, Marta, 23.4
- Miszkiwicz, Justyna J, 22.7, 22.8, 52.20
- Mitani, John C, 31[9:00], 31[9:15], 41[3:45]
- Mitchell, Duncan, 59[4:45]
- Mitchell, Joycelynn, 17[2:45], 60[3:45], 60[4:00]
- Mitchell, Piers D, 33[11:15], 50.13
- Mittermeier, Russell A, 59[4:15]
- Miyan, Penpichaya, 4.16
- Miyauchi, Yuko, 6.10
- Moberly, Trey W, 47.9
- Moeller, Maria M, 48.7
- Moes, Emily, 19[5:15], 50.6
- Moffat, Tina, 25.33
- Moffitt, Jacob W, 47.17, 47.20
- Moggi Cecchi, Jacopo, 24.30, 43.12
- Mogilewsky, Monica, 59[5:30]
- Mohamed, Rihlat S, 39[4:45]
- Mohammed, Jaaved, 20[3:45]
- Molina, Alexandra K, 1.25
- Molini, Barbara J, 45.13
- Moncel, Marie-Hélène, 61[4:45]
- Monesmith, Caitlin, 24.31
- Monge Calleja, Álvaro M., 54[8:45]
- Mongle, Carrie S, 26.8
- Monk, Julia D, 25.48
- Monson, Tesla A, 37.13
- Montague, Michael J, 17[4:00], 31[11:30], 45.33
- Montague, Mike, 1.23
- Monteiro da Silva, Sergio Francisco Serafim, 50.3
- Montes, Mauricio, 45.5
- Montgomery, Andrew, 21.14
- Moore, Christopher, 24.8
- Moore, James, 2.15



# AUTHOR INDEX

Moore, Megan K, 25.28, 54[9:30]  
Moore, Sarah, 4.34  
Moore, Sophie E, 25.42, 25.43,  
25.44, 25.45, 25.46, 25.47  
Moraga, Mauricio, 60[4:30]  
Moran, Molly C, 45.5  
Morelli, Toni Lyn, 48.16  
Moreno-Estrada, Andrés, 45.6  
Moreno-Uribe, Lina, 45.11  
Morey, Erika L, 24.10  
Morgan, Chelsea, 22.7  
Morgan, David, 40[5:00], 55[8:15]  
Morgan, Jill, 6.18  
Morgan, Leah E, 49.10  
Morien, Evan, 17[3:45]  
Morimoto, Naoki, 47.24, 49.13  
Morita, Wataru, 47.24  
Morse, Paul E, 47.15, 47.23  
Morton, Susan, 57.14  
Moses, Harrison J, 5.17  
Mosher, Mj, 45.18, 58[3:30]  
Mosley, Carmen, 25.23  
Mounier, Aurélien, 23.4  
Moyà-Solà, Salvador, 28.7, 28.10  
Mudakikwa, Antoine, 10[11:00],  
31[8:15]  
Mueller, Elsa, 45.9  
Mufson, Elliott J, 31[10:30]  
Muhire, Thadée, 31[8:15]  
Mulder, Bram, 3.13  
Mulhern, Dawn, 21.18, 30.22  
Muller, Jennifer L, 16[5:00]  
Muller, Martin N, 31[8:00], 31[9:00],  
31[9:15], 31[9:30], 31[9:45],  
56[9:15], 59[2:30], 59[2:45]  
Mulligan, Connie J, 20[5:45], 25.24,  
58[4:30]  
Munanura, Edson I, 45.2  
Munga, Joanne, 46.10  
Munger, Emily L, 31[10:30]  
Mu, Pingyuan, 50.28, 52.32  
Murillo, Sergio, 39[5:00]  
Murphy, Asia, 48.16  
Murphy, Reg, 22.6  
Murray, Carson M, 2.3  
Murray, Megan, 25.21  
Musgrave, Stephanie, 55[8:15]  
Mushrif-Tripathy, Veena, 38[4:45]  
Muskrat, Josie M, 60[3:15]  
Mu, Xiuqian, 20[3:30]  
Myers, Bre N, 26.2  
Myers, Marcie J, 39[2:45]

## N

Nahal, Harman, 50.32  
Naito, Yuichi, 61[5:30]  
Nakano, Yoshihiko, 4.20, 4.26  
Nakatsukasa, Masato, 28.17  
Nalla, Shahed, 27.12  
Nalley, Thierra K, 4.12, 4.18, 4.20,  
32[9:45]  
Narula, Jagat, 15.1  
Naseri, Reza, 52.20  
Nash, Leanne T, 10[8:30]  
Naugle, Amy, 25.31  
Naumenko, Daniel J, 25.43, 25.44,  
25.45, 25.46, 55[11:30]  
Nawang Sari, Ventie A, 48.7  
Nawrocki, Stephen P, 30.5  
Ndiaye, Papa Ibnou, 1.2, 1.6  
Needham, Belinda, 25.31  
Neff, Nadia, 6.9, 21.18  
Negash, Enquye W, 5.13  
Negrey, Jacob D, 31[9:00]  
Neidich, Deborah L, 30.30  
Neil, Benjamin, 50.13  
Nekaris, Anna I, 59[4:00]  
Nekaris, K a i, 42.10  
Nekaris, K.a.i., 26.7  
Nelson, Laura D, 10[9:45]  
Nelson, Andrew, 50.30  
Nelson, Heidi, 17[4:15]  
Nelson, Jennifer, 15.8, 52.4  
Nelson, Robin G, 57.12  
Nelson, Sherry V, 2.16  
Nengo, Isaiah, 18[3:15], 28.4, 28.5  
Nesbitt, Allison, 49.8  
Neubauer, Rachel, 25.25  
Neubauer, Simon, 9[8:15]  
Neupane, Maniraj, 25.13  
Nevell, Lisa, 10[9:45], 58[4:30]  
Neves, Amanda, 45.14  
Neves, Walter A, 44.8  
New, Briana T, 25.34, 30.44  
Newell, Savannah, 46.11  
Neznanova, Lubov, 12[8:45]  
Ngoubangoye, Barthelemy,  
41[4:00]  
Nguyen, Anh Tuan, 61[5:15]  
Nguyen, Michelle H, 7.2  
Nguyen, Nga, 14.2  
Nguyen, Tanya T, 25.26  
Nguyen, Thi Mai Huong, 61[5:15]  
Nicholas, Christina L, 27.4  
Nichols, Katherine, 50.32

Niclou, Alexandra, 43.9  
Nida, Kayla, 4.7  
Niedbalski, Sara D, 60[3:30]  
Nielsen, Rasmus, 20[5:00]  
Nieves-Colon, Maria A, 45.6  
Niewoehner, Wesley, 43.16  
Niinimäki, Sirpa TJ, 36.2  
Nijman, Vincent, 1.7, 59[4:00]  
Nishimura, Abigail C, 28.4  
Niskanen, Markku, 29.6  
Niu, Lili, 2.13  
Ni, Xueqin, 2.13  
Noble, Ian T, 30.22  
Nobrega, Matheus C, 44.5  
Nockerts, Rebecca S, 12[11:00]  
Nogueira, Fernando N, 44.7  
Noldner, Lara, 6.13  
Non, Amy L, 58[4:45]  
Noonburg, Erik G, 34[10:30]  
Norman, Lauren E.Y, 37.16  
Norris, Shane A, 39[4:45]  
Norton, Heather L, 20[4:15]  
Novak, Mario, 24.7, 50.1, 50.12  
Novembre, John, 25.13  
Novikov, Alexei G, 8.1  
Nudel Ontiveros, Alejandra Itzel,  
25.36  
Nunes, Kelly, 44.2, 45.25  
Nunn, Charles L, 34[9:30], 59[5:15]  
Nuñez Flores, Claudia L, 35.3  
Nyaradi, Zsolt, 50.31  
Nyati, Lukhanyo, 39[4:45]

## O

O'Brien, Haley D, 61[5:30]  
O'Brien, Kaedan, 5.6  
O'brien, Thomas, 29.1  
O'Connell, Caitlin A, 41[3:00]  
O'Connor, G. Kesler, 25.43, 25.44,  
25.45, 25.46  
O'Connor, Sue, 22.7  
O'Donnell, Alexis, 19[5:15]  
O'hara, Mackie, 47.18  
O'Hara, Mackie C, 24.17, 32[10:30]  
O'Higgins, Paul, 49.21  
O'Malley, Robert, 21.19, 61[3:15]  
O'Malley, Robert C, 2.3  
O'Neill, Derek, 50.32  
O'Neill, Kelsey D, 5.10, 21.6, 21.15  
O'Neill, Matthew C, 29.2, 45.21  
O'Rourke, Dennis H, 37.4, 37.13,  
37.16, 45.4, 60[3:15]

# AUTHOR INDEX

Oakley, Saskia, 39[3:15]  
Obregon-Tito, Alexandra, 45.6  
Ochoa, Miguel, 13.14, 21.14  
Ocobock, Cara, 43.9  
Oechtering, Gerhard U, 47.25  
Ogilvie, Marsha D, 43.14  
Ohman, James C, 62.14  
Ojiambo Mang'Eni, Robert, 39[3:00]  
Okutoyi, Paul, 39[3:00]  
Oldershaw, Leigh, 24.17, 47.18  
Oldoni, Fabio, 45.30  
Oliveira, Rodrigo, 44.7  
Oliveira, Silviene F, 44.5  
Olsen, Jesper V, 6.4, 28.15  
Omura, Sachihiko, 19[4:15]  
Ong, Ken K, 25.42, 25.43, 25.44, 25.45, 25.46, 25.47  
Onicescu, Georgiana, 25.31  
Onyuth, Howard, 17[5:15]  
Orbann, Carolyn M, 25.19  
Orellana González, Eliza, 24.30  
Organ, Jason M, 4.12  
Orlikoff, Emily R, 7.1  
Orrand, Macie L, 46.12  
Orr, Caley, 13.11, 27.6, 40[5:30]  
Ortega-Castrillon, Alejandra, 20[3:45], 20[4:00]  
Ortiz, Alejandra, 29.13  
Ortiz, Triana L, 25.27  
Osterholtz, Anna J, 16[3:00]  
Ostrofsky, Kelly R, 2.18, 32[9:45]  
Otalí, Emily, 31[8:00], 31[9:00], 31[9:15], 31[9:30], 59[2:30], 59[2:45]  
Otero, Antonio R, 4.36  
Otgontamir, Nyamjantsan, 52.32  
Otto, Paulo A, 44.2  
Otárola-Castillo, Erik R, 1.6, 8.8, 52.9  
Owens, Lawrence S, 37.14  
Owens, Leah, 31[9:00]  
Owings, Amanda C, 60[3:45]  
Owuor, Olungah C, 25.31  
Oxenham, Marc F, 16[4:15], 19[3:30], 38[5:00]  
Oxilia, Gregorio, 51.7  
Ozga, Andrew, 12[8:00], 12[11:00], 45.23  
Ozkan, Mustafa, 60[3:00]

## P

Paabo, Svante, 9[9:00]  
Pace, Cara, 21.11  
Pacheco-Forés, Sofía, 33[8:30]  
Paciulli, Lisa M, 1.8, 1.10  
Padula, Katherine M, 50.31  
Pagani, Luca, 9[10:45]  
Paige, Julianne, 16[3:00]  
Paine, Oliver C.C, 13.15  
Paiva, Sabrina G, 44.5  
Pajares, Antonia, 13.2  
Pajic, Petar, 12[8:45]  
Pallas, Laurent T.J, 28.12  
Palmenberg, Ann C, 31[9:00]  
Pampush, James D, 29.8, 47.15  
Panagiotopoulou, Olga, 10[9:30]  
Pan, Anwasha, 25.26  
Panetta, Daniele, 51.7  
Pannick, Anna P, 1.8  
Panofsky, Aaron, 53[11:15]  
Panter-Brick, Catherine, 20[5:45]  
Pappas, Tressa E, 31[9:00]  
Paredes Ruvalcaba, Nerli, 25.41  
Parfrey, Laura, 17[3:45]  
Parham, Peter, 12[9:45]  
Parker, Madeline F, 7.8  
Parkes, John P, 14.8  
Parke, Stacy-Anne R, 26.3  
Parra, Esteban J, 20[4:15]  
Partiot, Caroline, 43.3  
Pasetha, Andre, 41[4:30]  
Paskoff, Taylor, 25.20  
Passalacqua, Nicholas V, 30.3  
Patel, Biren A, 4.21, 13.11, 28.17, 32[9:30], 40[3:15], 40[3:45], 40[5:30], 52.28  
Patel, Meha, 40[4:00]  
Patel, Nisha, 45.24  
Patole-Edoumba, Elise, 8.14  
Patterson, David B, 5.1  
Paul, Kathleen S, 37.9  
Pavlidis, Pavlos, 12[8:45]  
Peabody, John T, 36.3  
Pearson, Laurel N, 46.2  
Pearson, Osbjorn M, 52.29  
Peate, David W, 8.12  
Pechenkina, Kate, 50.35  
Pedersen, Dorte D, 35.10  
Peixotto, Becca, 21.14  
Penna, Anna, 28.19  
Perash, Rose L, 24.1, 24.19, 24.21, 37.1  
Perchalski, Bernadette A, 40[3:00]  
Percival, Christopher, 45.14  
Perrelli, Douglas, 8.18  
Perrí, Angela, 61[4:00]  
Perry, David A, 13.8  
Perry, George, 17[3:30], 20[2:30], 20[2:45], 20[3:15]  
Perry, Jonathan M.G, 10[8:15], 13.3  
Peschel, Emily M, 33[9:00]  
Pestle, William J, 54[9:00]  
Petersdorf, Megan, 26.9  
Peterson, Alexandria, 14.7  
Peterson, Amy L, 4.17  
Peterson, Jeffrey V, 55[9:45]  
Pettit, Alesha, 29.15  
Petzelt, Barbara, 17[2:45], 60[3:45], 60[4:00]  
Philben, Samantha M, 21.6, 21.15  
Phillips-Garcia, Sarah, 31[9:00], 31[9:15]  
Phillips, Megann, 50.8  
Philp, Brodie, 48.8  
Pickard, Catriona, 36.12  
Pickering, Travis, 5.20, 32[9:15], 32[9:30]  
Piel, Alexander K, 1.5  
Piercy, Breanna, 49.4  
Pilloud, Marin A, 30.3, 37.1, 37.5, 37.7, 37.13, 46.9  
Pinhasi, Ron, 20[2:45]  
Pink, Christine M, 8.10  
Pinkston, Erin F. E, 30.18  
Piontkivska, Helen, 45.38  
Piperata, phd, B A, 25.9  
Piperata, Barbara A, 25.30, 44.4, 44.7  
Pisor, Anne C, 56[10:45]  
Pitfield, Rosie, 22.8, 51.2  
Pitre, Mindy, 6.18, 50.9  
Pizzollo, Jason, 12[9:15]  
Placek, Caitlyn D, 25.6, 26.2  
Plastiras, Chris-Alexander, 61[2:45]  
Platt, Michael L, 1.23, 17[4:00], 31[11:30], 45.33  
Plavcan, J. Michael, 49.1  
Plemons, Amber M, 50.24  
Plummer, Thomas W, 61[3:30]  
Pobiner, Briana, 46.10  
Podini, Daniele, 45.30  
Poindexter, Stephanie A, 26.7, 42.3, 59[4:00]  
Pojar, Tsiapisa, 60[5:00]

# AUTHOR INDEX

Polcyn, Marek, 7.3, 24.5, 52.5  
Politis, Gustavo G, 49.25  
Polk, John D, 15.7, 45.20  
Pomeroy, Emma, 47.26  
Ponce de León, Marcia S, 29.10, 43.18, 49.13  
Ponche, Jean-Luc, 8.14, 61[5:15]  
Poniros, Sarah A, 52.10  
Pontzer, Herman, 31[8:30], 39[4:00], 40[5:00], 56[9:45], 61[4:30]  
Pope, Matt, 23.9  
Porter, Joshua, 5.6  
Porter, Leila M, 41[3:30]  
Posamentir, Richard, 24.34  
Posth, Cosimo, 23.7  
Potrebica, Hrvoje, 24.7  
Potter, Amiee B, 45.26  
Potts, Richard, 32[10:45], 43.1  
Pouncett, John, 54[9:15]  
Power, Michael L, 2.3  
Powers, Sally I, 57.13  
Pozzi, Luca, 28.19  
Prabhat, Anjali M, 49.3  
Pradiptajati, Kusuma, 9[10:45]  
Prajapati, Suresh, 10[9:45]  
Prakash, Jai, 20[6:00]  
Prall, Sean P, 56[8:15], 56[11:00]  
Prang, Thomas C, 32[9:00], 32[9:45]  
Prentice, Andrew M, 25.42, 25.43, 25.44, 25.45, 25.46, 25.47  
Price, Michael H, 56[9:30]  
Primeau, Charlotte, 52.4  
Pritchard, Carrisa S, 52.5  
Prufico, Antonio, 49.21  
Pruetz, Jill D, 1.4, 1.6, 34[8:15]  
Prufrock, Kristen A, 10[8:15]  
Ptacek, Alexandra J, 24.20  
Pugh, Kelsey D, 32[8:00]  
Puleo, Nicholas A, 36.3  
Puolakka, Hanna-Leena A, 36.2  
Pusey, Anne E, 11[8:15], 12[11:00]  
Putt, Shelby S. J, 29.11  
Pääbo, Svante, 9[8:15]  
Püschel, Thomas A, 61[3:00]

## Q

Quade, Jay, 62.12  
Quadir, Mustafa, 15.5  
Quataert, Robin L, 16[3:30]  
Queen, Samantha R, 45.21

Queiroz, Thais, 59[4:00]  
Quillen, Ellen E, 20[4:30]  
Quinn, E. A, 57.9  
Quinn, Edward, 58[4:30]  
Quinn, Melissa M, 50.21  
Quispe Vilcahuaman, Breidy Ivan, 8.2, 35.3

## R

Raau, Ryan L, 45.2  
Rabey, Karyne N, 36.9, 36.11  
Rabinowitz, Andrea, 1.4  
Raboin, Dominique L, 11[10:45]  
Rademaker, Kurt, 50.20  
Radović, Davorka, 7.1  
Raff, Jennifer, 60[3:15]  
Raghanti, Mary Ann, 31[10:30], 47.32, 62.8, 62.13  
Ragni, Anna J, 40[3:30], 49.17  
Ragsdale, Corey, 50.6  
Ragsdale, Sarah L, 37.16  
Rahalarivo, Vololonirina, 2.2  
Rahantaharivao, Noromamy J, 28.16  
Raharinoro, Njaratiana A, 48.11  
Raharison, Fanomezantsoa Jean-Luc, 2.8  
Raharison, Jean-Luc, 2.2, 2.14  
Raichlen, David A, 31[8:30], 56[9:45]  
Rainbow, Michael J, 49.2  
Rajaona, Delox, 34[9:45]  
Raker, Ravella, 25.10  
Rakotomalala, Zafimahery, 59[5:30]  
Rak, Yoel, 62.11  
Ramalepa, Maropeng, 21.14  
Ramer-Tait, Amanda, 17[4:30]  
Ramorasata, Bruno, 2.2, 2.14  
Ramos-Madrigril, Jazmin, 28.15  
Ramos, Frank, 30.37  
Ramsay, Malcolm S, 10[10:45]  
Ramsey, Christopher, 9[9:00]  
Ramsier, Marissa, 7.3, 24.5, 30.18, 52.5  
Ramstein, Marianne, 33[9:15]  
Ranaivoarisoa, Jean-Freddy, 2.2  
Ranaivoson, Tolotra, 42.10  
Randimbiharinarina, Domenico R, 2.1  
Randolph, Matthew E, 10[9:45]

Randriamampionona, Richard, 59[4:15]  
Randrianarison, Olivier, 2.1  
Randrianasy, Jeannot, 2.2  
Ranivoharimanana, Lovasoa, 28.16  
Rapoff, Andrew J, 3.1  
Rasolofoniaina, Be Jean Rodolph, 34[9:45]  
Rasolonjatovo, Safidy, 2.8  
Rathke, Eva-Maria, 31[11:00]  
Rathmann, Hannes, 24.34  
Ratolojanahary, Tianasoa H, 48.16  
Rawls, Erin, 45.6  
Raymond, Kimberly M, 30.20, 50.26  
Razafindrapaoly, BeNoel, 34[9:45]  
Razafindratsima, Onja, 48.16  
Read-Fuller, Andrew, 13.10  
Reales, Guillermo, 41[5:30]  
Reck, Sophia I, 30.9  
Rector, Amy L, 4.31, 5.10, 5.11, 21.3, 21.6, 21.15  
Reddy, Likith V, 13.10  
Reddy, Rachna B, 31[9:00], 41[3:45]  
Reed, Kaye E, 5.8, 5.16, 48.17  
Reedy, Sarah, 35.14  
Reeves, Jonathan S, 61[3:30]  
Reichard, Ulrich H, 41[4:15]  
Reich, Isabelle B, 27.11  
Reid, Donald J, 10[11:00]  
Reinberger, Katherine L, 8.3, 8.6, 8.7, 24.11  
Rein, Thomas R, 4.15  
Reitsem, Laurie J, 8.3, 8.6, 8.7, 15.5, 24.4, 24.11, 50.5, 50.16  
Rej, Peter, 39[4:15], 57.8, 58[4:30]  
rendu, William, 9[9:45]  
Renne, Paul R, 49.10  
Rennie, Samuel R, 8.9  
Reno, Philip L, 4.4, 18[4:30], 62.3  
Resendez, Skyler D, 20[3:30]  
Reusch, Kathryn, 51.4  
Reyes-Centeno, Hugo, 20[3:15], 32[11:00], 50.20  
Reyes, Lucio, 45.28  
Rhodes, Justin S, 45.20  
Ricaud, François-Xavier, 9[10:45]  
Rich, Alicia M, 26.3, 34[8:30]  
Richard, Alison F, 48.11  
Richard, Daniel, 45.21, 62.1  
Richards, Gary D, 27.7, 27.11, 32[11:15], 32[11:30], 49.11

# AUTHOR INDEX

Richey, Lynnet, 25.5  
 Richmond, Stephen, 20[3:45]  
 Riel-Salvatore, Julien, 43.12  
 Riew, Grant, 50.33  
 Rifaie, Sarah, 25.10  
 Rilling, James K, 25.5  
 Ringen, Erik J, 25.1  
 Rios, Luis, 52.4  
 Rissling, Tianna C, 1.24  
 Ritchie-Ewing, Genevieve T, 25.30  
 Rivara, Anna, 44.5  
 Rivera-Chira, Maria, 58[4:15]  
 Rivera, Anne O, 2.10  
 Rivera, Michael B. C, 52.18  
 Rmoutilova, Rebeka, 49.14  
 Robbins Schug, Gwen, 35.16  
 Robbins, Martha M, 2.18  
 Robb, John E, 3.13, 50.13  
 Roberts, Charlotte A, 38[4:15],  
 52.30, 52.34  
 Roberts, Eila K, 41[2:30]  
 Roberts, Rebecca, 39[3:15]  
 Roberts, Richard, 9[9:00]  
 Robinson, Chris, 13.16  
 Robinson, Joshua R, 5.12  
 Roca, Alfred L, 45.32  
 Roche, Christina, 17[4:00]  
 Roddy, Adam B, 25.48  
 Rodrigues paixão-côrtes,  
 Vanessa, 41[5:30]  
 Rodrigues, Michelle A, 25.25  
 Rodriguez-Rojas, Fernando, 14.6  
 Rodriguez, Daniel Eid, 15.1  
 Rogers, Alan R, 60[2:30]  
 Rogers, Haldre S, 34[8:15]  
 Rogers, Jeff, 58[3:00]  
 Rogers, Jeffrey, 43.8  
 Rogers, Mary P, 15.7, 58[3:15],  
 60[4:00]  
 Rogers, Michael, 62.12  
 Roksandic, Mirjana, 23.1  
 Rolian, Campbell, 4.34  
 Romandini, Matteo, 51.7  
 Romano, Rose-Anne, 12[8:45]  
 Romero, Ashly N, 10[8:00], 47.33  
 Romine, Melia G, 45.38  
 Ronen, Corinna N, 45.5  
 Rook, Lorenzo, 28.7  
 Roome, Amanda, 45.24  
 Roos, Christian, 12[10:45], 38[2:45]  
 Roosenboom, Jasmien, 20[3:45]  
 Rosa, Emily R, 52.21

Rosati, Alexandra G, 31[9:30],  
 31[10:45], 34[8:45]  
 Roseman, Charles C, 45.14  
 Rosenbaum, Stacy, 56[9:00]  
 Rosien, Jessica E, 14.3  
 Ross, Callum F, 2.10, 4.25,  
 10[9:30], 13.11, 13.13, 13.16,  
 14.1, 14.4, 14.12, 47.21  
 Ross, Corinna, 41[5:45]  
 Rossillo, Amanda N, 46.8  
 Rossi, Stefano, 43.12  
 Rosso, Jesse R, 48.14  
 Rothman, Jessica M, 1.18, 1.19,  
 2.2, 2.14, 11[10:45], 48.10  
 Rowan, Chris, 15.1  
 Rowan, John, 5.8, 5.9, 48.17  
 Roy, Jocelyn E, 47.26  
 Ruan, Sunzifeng, 50.11, 50.28,  
 52.32  
 Rubin de Celis, Verónica, 45.6  
 Rubini, Mauro, 50.29, 51.8  
 Ruck, Lana, 29.11  
 Rue, Megan J, 30.12  
 Ruff, Christopher B, 4.1, 8.22,  
 20[3:00], 31[8:15], 43.6  
 Ruhl, Stefan, 12[8:45]  
 Ruiz Lambides, Angelia, 17[4:00]  
 Ruiz-lambides, Angelina, 1.23  
 Ruiz, Cody A, 12[10:30]  
 Runestad Connour, Jacqueline,  
 4.7  
 Rusen, Rachel, 17[5:15]  
 Rusk, Katelyn, 19[5:15], 25.23  
 Russell, C. Kinley, 8.22  
 Russo, Gabrielle A, 4.5, 4.16,  
 18[3:15], 28.4  
 Russo, Karen, 21.11  
 Rust, Kathleen, 28.2  
 Ruth, Aidan A, 62.18  
 Rutherford, Adam D, 53[8:00]  
 Rutherford, Julianne, 41[5:45]  
 Ryan, Calen P, 58[4:00]  
 Ryan, Kelsey, 1.3  
 Ryan, Tim M, 3.6  
 Ryan, Timothy M, 3.5, 3.10, 3.11,  
 4.4, 8.16, 15.3, 32[8:45], 51.1,  
 51.7  
 Ryder, Christina M, 13.15, 54[9:00]

## S

Saavedra, Richard, 47.1  
 Sabbi, Kris H, 59[2:45]  
 Sabbi, Kristin, 31[9:45]  
 Saers, Jaap P.P, 3.5, 3.6, 3.11, 15.3  
 Saers, Jacobus P.P, 3.10  
 Sahle, Yonatan, 49.10  
 Saitou, Marie, 20[3:30], 45.16  
 Saiyed, Sana T, 2.7  
 Sajjadi, Mansur, 6.10  
 Salceda, Susana, 50.23  
 Salmi, Anna-Kaisa K, 36.2  
 Salmi, Roberta, 2.9  
 Saltini Semerari, Giulia, 24.34  
 Salzano, Francisco M, 45.25  
 Samson, David R, 56[8:00]  
 Sams, Sierra, 45.33  
 Sanchez, Aubrie M, 30.29  
 Sanchis-gimeno, Juan alberto,  
 27.12  
 Sancilio, Amelia, 56[9:45]  
 Sandel, Aaron A, 41[3:45], 51.9  
 Sandoval Mendoza, Karla, 45.6  
 Sanger, Jessica E, 30.34  
 Sankaranarayanan, Ganesh, 13.10  
 Sankaranarayanan, Krithi, 45.24  
 Sankaranarayanan, Krithivasan,  
 20[5:30], 45.23, 60[4:15]  
 Santana, Francisca, 60[4:30]  
 Santillan Goode, Julianna, 8.5  
 Santoro, Calogero, 24.15  
 Santos, Ana Luisa, 54[8:45]  
 Santos, Elena, 28.14  
 Santos, Frédéric, 43.8  
 Santos, Ricardo R, 2.9  
 Sanz, Crickette, 40[5:00], 55[8:15]  
 Sanz, Joaquin, 58[3:00]  
 Sanz, Montserrat, 28.14  
 Sardi, Marina L, 49.25  
 Sargis, Eric J, 28.17  
 Sattenspiel, Lisa, 25.21  
 Sautther, Michelle L, 2.4  
 Sautter, Mackenzie, 13.10  
 Savarimuthu, Gregory, 25.10  
 Savell, Kristen R. R, 27.17  
 Sawyer, Nora W, 2.4  
 Sawyer, Rachel, 42.10  
 Sayavongkhamdy, Thongsa, 8.14,  
 61[5:15]  
 Sayers, Ken, 62.17  
 Sayre, M. Katherine, 31[8:30],  
 56[9:45]

# AUTHOR INDEX

- Sbei, Andrea, 37.7  
Scaffidi, Cassandra K, 50.2  
Scalise, Lucia M, 51.7  
Scarry, Clara J, 11[9:45]  
Scelza, Brooke A, 56[8:15],  
56[11:00]  
Schacht, Ryan, 2.4  
Schaefer, Melissa S, 21.5  
Schafer, Jerred K, 41[4:00]  
Schaffner, Colleen M, 55[10:30]  
Schaner Tooley, Christine E,  
20[3:30]  
Schanfield, Moses S, 45.30  
Scheifler, Nahuel A, 49.25  
Schell, Lawrence M, 25.3  
Schieri, Benjamin J, 1.6  
Schmid, Peter, 32[9:45]  
Schmidt, Christopher W, 16[3:30],  
24.7, 24.8, 24.35  
Schmidt, Niels M, 48.7  
Schmitt, Christopher A, 26.3,  
34[8:30]  
Schmitt, Daniel, 4.24, 4.27, 4.28,  
4.33  
Schmitz, Autumn, 8.6  
Schnorr, Stephanie, 45.23  
Schoenemann, P. Thomas,  
11[9:15], 29.11  
Schoeninger, Margaret, 2.15, 8.5  
Schotsmans, Eline M.J, 43.11  
Schraiber, Joshua G, 60[2:45]  
Schränk, McKenzie A, 29.3, 29.4,  
52.24  
Schreier, Amy L, 1.13, 48.14  
Schrock, Joshua M, 25.35, 57.15,  
59[3:30]  
Schroeder, Lauren, 32[11:45]  
Schruth, David, 1.9  
Schuenemann, Verena J, 38[3:15]  
Schulting, Rick, 54[9:15]  
Schulz-Kornas, Ellen, 14.5, 36.4,  
47.10  
Schumann, Cynthia M, 47.28  
Schurr, Mark R, 2.7  
Schurr, Theodore G, 60[4:45]  
Schutkowski, Holger, 24.26,  
33[9:30]  
Schwartz, Andrew, 47.21  
Schwartz, Gary T, 29.13, 47.2,  
47.19  
Schweller, Ken, 42.5  
Scorrer, Jessica, 52.11  
Scott, Amy B, 35.1, 35.2  
Scott, G R, 37.4  
Scott, G. Richard, 24.1, 24.19,  
24.21, 37.2, 37.6, 37.11, 37.12  
Scott, George R, 24.25, 37.13  
Scott, Jeremiah E, 28.18  
Scott, Jill E, 27.10  
Scott, Katherine S, 48.8  
Scott, Rob S, 14.1  
Scott, Robert S, 2.10, 47.21  
Scroton, Nick, 28.16  
Scully, Erik J, 31[9:00]  
Sealey, Isabella K, 50.13  
Sealy, Judith, 45.32  
Sefczek, Timothy M, 2.1  
Seguchi, Noriko, 24.33, 24.33  
Selba, Molly C, 47.25  
Selby, Michael S, 62.9  
Selig, Keegan R, 10[8:30],  
10[10:45]  
Semaw, Sileshi, 62.12  
Semendeferi, Katerina, 47.28,  
47.32  
Sensakovic, William, 52.3  
Seo, Min, 35.17  
Serrat, Maria A, 62.10  
Seselj, Maja, 3.2  
Setchell, Joanna M, 41[4:00]  
Setiadi, Wuryantari, 41[3:00]  
Severa, Kieran, 30.19  
Sevim Erol, Ayla, 32[8:15]  
Seyoum, Chalachew M, 5.8  
Sgheiza, Valerie, 54[9:45]  
Shackelford, Laura L, 8.14, 43.17,  
45.20, 61[5:15]  
Shaffer, Christopher A, 34[11:00]  
Shaffer, John R, 20[3:45]  
Shamoon-Pour, Michel, 45.5  
Shao, Xinyue, 6.1, 6.2, 6.3  
Shapiro, Darshana, 46.5  
Shapiro, Jill, 49.27  
Shapiro, Liza J, 4.22, 4.23, 4.29,  
4.30, 40[2:45]  
Sharp, Emily A, 6.19, 8.10  
Sharratt, Nicola, 8.2  
Shattuck, Eric C, 56[8:00]  
Shaughnessy, Ana M, 27.7  
Shearer, Brian, 18[3:30], 47.27  
Sheehama, Jacob, 56[11:00]  
Sheeran, Lori K, 11[9:00]  
Shenoy, Aadhyaa, 25.10  
Shen, Yuqian, 25.31  
Shepard, jr., phd, Glenn H, 25.9  
Sheridan, Kevin E, 30.35, 30.36  
Sheridan, Susan Guise, 16[5:15]  
Sherwood, Chet C, 12[9:00],  
31[10:30], 31[11:30]  
Sherwood, Richard J, 62.4  
Shields-Cutler, Robin, 17[4:30]  
Shien, Tiffany W, 27.11  
Shim, Sang-Yuck, 35.17  
Shin, Dong Hoon, 35.17  
Shitara, Tetsuya, 4.26  
Sholts, Sabrina B, 50.18  
Shriver, Mark D, 20[3:45], 20[4:00],  
20[4:30], 20[4:45]  
Shults, Ashley, 50.17  
Shunkov, Michael, 9[8:15], 9[9:00],  
9[9:15]  
Shunkov, Mikhail, 9[9:45]  
Sichanthongtip, Phonephanh,  
8.14, 61[5:15]  
Sichting, Freddy, 40[2:30]  
Sicoli, Mark A, 37.4  
Sciotte, Pascale, 1.24, 59[5:00]  
Sidiropoulos, Dimitrios, 17[4:30]  
Siebke, Inga, 33[9:15]  
Siegel, Jerome M, 56[8:15],  
56[8:30]  
Siegel, Nicole D, 47.3  
Siegert, Courtney C, 52.25  
Siek, Thomas, 33[11:30]  
Sigei, Timothy K, 39[3:00]  
Sihanam, Daovee, 8.14  
Silcox, Mary T, 10[8:30], 10[10:45],  
47.26  
Sills, Aubrey, 41[5:45]  
Silva, Ana Maria, 20[2:45]  
Silva, Ariana Kelly, 44.6  
Silva, Hilton P, 44.1, 44.3, 44.4,  
44.6  
Silvera, Elina, 50.23  
Simionatto, Maria Regina, 44.7  
Simon, Allyson, 54[8:00]  
Simone, Pina S, 27.11  
Simons, Evan A, 10[9:15]  
Simonson, Aubrey, 46.14  
Simpson, Rachel, 22.6  
Simpson, Scott W, 62.12  
Singh, Nandini, 18[5:15]  
Singletary, Britt, 25.2  
Singleton, Michelle, 4.8  
Sinika, Vitaly, 19[4:00]  
Sirianni, Joyce E, 8.18, 25.16  
Skedros, John G, 3.3, 3.14  
Skinner, Matthew M, 4.6, 18[4:00],  
29.13, 32[10:30]  
Skipper, Cassie E, 37.1

# AUTHOR INDEX

- Šlaus, Mario, 52.13  
Slice, Dennis E, 30.15  
Sloboda, Deborah M, 25.33  
Slon, Viviane, 9[8:15], 9[9:00], 9[9:30]  
Slota, Leslie, 62.2  
Sládek, Vladimír, 50.4, 52.23, 61[4:30]  
Smail, Irene E, 48.17  
Smeltzer, Eve A, 42.9  
Smith, Adam B, 48.16  
Smith, Amanda L, 13.16  
Smith, April K, 24.4  
Smith, Ashley C, 22.12  
Smith, B. Katherine, 21.11  
Smith, Christopher M, 5.1  
Smith, Erin, 54[9:00]  
Smith, Maria O, 38[5:15]  
Smith, Rebecca L, 17[5:15]  
Smith, Rick W. A, 53[8:45]  
Smith, Tanya M, 61[4:45]  
Snoddy, Anne Marie, 16[4:15]  
Snodgrass, J. Josh, 21.10, 57.1, 57.5, 57.18, 57.19, 59[3:30]  
Snodgrass, Josh, 25.35, 57.6  
Snyder-Mackler, Noah, 1.23, 31[11:30], 45.33, 55[9:30], 58[3:00]  
Sobaszek, Margaret, 48.9  
Sobczyk, Krzysztof, 43.5  
Solano, Crystal B, 60[4:45]  
Soligo, Christophe, 23.9, 30.25  
Soluri, K. Elizabeth, 21.2  
Solís Guzmán, Axel, 45.19  
Somel, Mehmet, 60[3:00]  
Somerville, Andrew, 2.15  
Somogyi, Tessa, 30.8, 30.35, 30.36  
Song, Xing, 9[8:45]  
Sorbello, Kayce, 34[8:00]  
Sorrentino, Rita, 51.1, 51.7  
Sosnowski, Meghan J, 11[10:30]  
Soto Martinez, Miriam E, 22.9  
Soto, Maria, 24.16  
Sova, S. Susanna, 10[11:15]  
Softysiak, Arkadiusz, 35.15, 52.20  
Spake, Laure, 50.32, 52.4  
Sparacello, Vitale S, 24.30, 43.11, 43.12  
Spassov, Nikolai, 32[8:15]  
Spear, Jeffrey K, 49.27  
Spence, Jennifer, 44.4  
Spinek, Anna, 37.8  
Spiros, Micayla C, 30.1  
Sponheimer, Matt, 2.4, 13.15, 34[10:45], 54[9:00]  
Spradley, Kate, 30.44  
Spradley, M. Kate, 30.27, 52.25  
Spriggs, Amanda N, 48.1, 48.4  
Springs, Lauren C, 6.5, 53[10:45]  
Staes, Nicky, 12[9:00]  
Stamer, Julianne R, 45.8  
Stamos, Peter A, 13.17  
Standen, Vivien G, 16[4:15], 24.15  
Stanley, Zofia, 25.42, 25.43, 25.44, 25.45, 25.46  
Stantis, Chris, 33[9:30]  
Starbuck, John, 52.3  
Starkweather, Kathrine E, 56[11:15]  
Starr, Izzy, 45.27  
Steckel, Richard H, 52.30, 52.34  
Stefański, Damian, 43.5  
Steffens, Travis S, 34[9:15]  
Steiniche, Tessa, 48.12  
Steiper, Michael E, 39[4:00]  
Stelvig, Mikkel, 48.7  
Stephens, Nicholas B, 3.5, 3.6, 3.10, 3.11, 15.3, 18[4:00], 51.1, 51.7  
Stern Jr, Jack T, 40[3:45]  
Stern, Kirstin N, 45.21, 45.33  
Steuri, Noah, 33[9:15]  
Stewart, Ashley N, 24.23  
Stewart, Fiona A, 1.5  
Stewart, Marissa C, 6.7  
Stewart, Tahlia J, 52.20  
Stieglitz, Jonathan, 15.1, 39[3:30], 57.16  
Stiles, Kaitlyn E, 8.20  
Stine-Morrow, Elizabeth A.L, 25.25  
Stock, Jay T, 3.5, 3.6, 3.8, 3.10, 3.11, 3.13, 8.4, 15.3, 25.15, 39[3:15], 47.26, 52.18  
Stock, Michala K, 30.14, 30.17, 30.19  
Stoinski, Tara S, 10[11:00], 31[8:15]  
Stojanowski, Christopher M, 37.9  
Stone, Anne C, 12[8:00], 12[11:00], 38[3:00], 45.6, 45.15  
Stone, Jessica H, 45.4  
Stoneking, Mark, 9[10:45]  
Storey, Rebecca, 35.19  
Stout, Samuel D, 22.1  
Stoyanova, Detelina K, 30.15  
Straight, Bilinda, 25.31, 25.40  
Strait, David S, 2.10, 4.25, 13.13, 14.1, 47.19, 47.21  
Stratford, Dominic, 32[9:15], 32[9:30]  
Stringer, Chris B, 9[8:30], 32[11:00]  
Stroik, Laura, 18[3:30]  
Struška, Michal, 52.23  
Stubblefield, Phoebe R, 30.10  
Stuhlträger, Julia, 14.5, 47.10  
Stull, Kyra E, 30.17, 30.19, 30.38, 37.3  
Stumpf, Rebecca M, 12[8:15], 17[4:45], 17[5:15], 20[5:15]  
Stöger, Reinhard, 56[8:45]  
Suarez, Yaravi, 45.39  
Subedi, Janardan, 62.4  
Su, Denise F, 5.7  
Sudoyo, Herawati, 9[10:45]  
Sugiyama, Lawrence S, 25.35, 57.15, 59[3:30]  
Sullivan, Spiro, 4.18  
Sumer, Arev P, 60[3:00]  
Sun, Xiaofan, 52.33  
Super, Clare, 60[4:45]  
Susanto, Tri W, 2.6  
Susanto, Tri wahyu, 1.1  
Susantu, Tri Wahyu, 42.2, 55[10:45]  
Sutherland, James D, 15.1  
Sutherland, M Linda, 15.1  
Sutherland, Tim, 6.9  
Suwa, Gen, 47.24  
Swanson, Zane S, 39[4:00]  
Swanston, Treena M, 22.6  
Swedell, Larissa, 57.10  
Swenson, Victoria M, 37.1, 37.8  
Swigut, Tomek, 20[3:45]  
Swinford, Natalie, 56[11:00]  
Sykora, Lydia, 60[3:15]  
Sylvester, Adam D, 4.1, 13.14, 27.5  
Szafraniec, Maya, 4.11  
Szczepanek, Anita, 43.5

## T

- Tackney, Justin C, 37.16, 45.4  
Tague, Robert G, 62.6  
Talamo, Sahra, 54[9:00]  
Tallman, Ph.D., Sean D, 30.43  
Tallman, Melissa, 18[3:30]  
Tallman, Sean D, 30.29, 30.40, 30.41  
Tamura, Toru, 61[5:30]

# AUTHOR INDEX

- Tan, Amanda W. Y, 14.3  
Tarazona, Oscar, 62.2  
Tardif, Suzette, 41[5:45]  
Tasa, Guy L, 52.2  
Taskent, Recep O, 60[3:00]  
Tavares, Roseane B, 44.6  
Taylor, Andrea B, 10[9:30],  
10[10:30], 13.9, 13.16, 14.12  
Taylor, Catherine, 37.13  
Taylor, Justin M, 59[4:15]  
Taylor, Matthew S, 6.12  
Teaford, Mark F, 14.9, 14.12, 47.22  
Teichroeb, Julie A, 42.9  
Temple, Daniel, 15.9, 15.10, 24.37,  
50.8, 51.6, 52.8, 52.21  
Templeton, Chris, 1.9  
Terhune, Claire E, 10[8:00], 47.14,  
47.27, 47.33  
Tement, Elizabeth, 30.19  
Tharp, Gregory, 17[3:00]  
Thayer, Zaneta M, 57.14  
Thoemmes, Megan S, 17[5:30]  
Thomas, David H, 6.5  
Thomas, Dominic, 62.10  
Thomas, Gregory S, 15.1  
Thomas, Jaclyn A, 51.6  
Thomas, Mark G, 53[10:30]  
Thompson, Amanda L, 17[5:00]  
Thompson, Andrew R, 52.6  
Thompson, Iris, 25.7  
Thompson, Nathan E, 4.20, 4.21,  
40[3:45]  
Thompson, Randall C, 15.1  
Thurau, Emma, 2.8  
Tica, Cristina, 50.2  
Tindal-Burgess, Deselyn J, 47.31  
Ting, Nelson, 45.4, 59[5:00]  
Tito, Raul, 45.6  
Tobolsky, Victoria A, 15.11,  
39[3:00]  
Tocheri, Matthew W, 27.6  
Tomeo, Olivia B, 11[10:30]  
Tomita, Hirotaka, 24.33  
Tommy, Kimberleigh A, 3.5  
Toroczka, Noemi E, 2.7  
Torosin, Nicole, 12[9:30]  
Torpy, Jim, 25.14  
Torquato, Melissa G, 8.8, 52.9  
Torres Peña, Paula, 24.13  
Torres-tamayo, Nicole, 27.12  
Torres, Alejandro A, 6.16  
Tosi, Anthony J, 12[10:30], 45.34,  
45.38  
Toth, Sharon A, 30.30  
Townesley, Sarah, 52.12  
Traeholt, Carl, 48.7  
Traff, Jordan N, 13.18  
Tran Van Bang,, 4.32  
Tran, Tri, 52.3  
Travis, Dominic A, 34[11:00]  
Treadway, Amber M, 25.35  
Tremblay, Lori A, 50.27  
Tresic Pavicic, Dinko, 50.12  
Trinka, Erik, 43.5  
Trombley, Trent, 51.8  
Trumble, Benjamin C, 15.1,  
39[3:30], 39[5:00], 57.16  
Trébouet, Florian A, 41[4:15]  
Tsige, Yemane G, 5.9  
Tsikoane, Mathabela, 21.14  
Tsuboi, Masahito, 18[5:00]  
Tubo, Gina, 22.4  
Tuchscherer, Nyakeh K, 50.14  
Tucker, Steven J, 21.14  
Tung, Jenny, 41[5:00], 58[3:00]  
Tunia, Krzysztof, 37.8  
Tuomi, Sivi-kukka, 51.9  
Turcotte, Cassandra M, 36.4  
Turner-Byfield, Evonne D, 50.10  
Turner-Livermore, Bethany, 8.2  
Turner, Bethany L, 35.3  
Turner, Trudy R, 34[10:45]  
Tykot, Robert H, 8.12  
Tyler, Erica E, 25.3  
Tynes, Jordan, 46.14
- ## U
- Ullinger, Jaime M, 16[3:15]  
Ulloa, Rebecca, 50.2  
Umberger, Brian R, 29.2  
Underwood, Carol E, 4.10  
Ungar, Peter S, 14.11, 14.12, 47.22  
Uno, Kevin T, 5.15  
Upton-Taboas, Charity F,  
33[11:45]  
Urciuoli, Alessandro, 28.10  
Urlacher, Samuel S, 25.35, 57.1,  
57.11, 57.17  
Usherwood, James R, 4.25  
Utami Atmoko, Sri Suci, 2.17,  
55[11:30]
- ## V
- Vaglio, Stefano, 42.10  
Valde-Nowak, Pawel, 43.5  
Valeggia, Claudia R, 56[9:15]  
Valenzuela, Daniela, 24.15  
Valizadegan, Negin, 17[4:45],  
45.39  
Valleroy, Tessa R, 51.3  
Van Arsdale, Adam P, 46.14  
van Beest, Floris M, 48.7  
van Casteren, Adam, 2.10, 4.25,  
13.13, 14.1, 47.21  
van der Haas, Victoria M, 24.14  
Van Etten, Kathrine, 45.39  
Van Gerven, Dennis, 6.11  
Vangay, Pajau, 17[4:30]  
Vannaheuang, Jane, 27.7  
VanSickle, Caroline, 49.4, 49.20  
Varalli, Alessandra, 8.11, 24.30,  
43.12  
Väre, Tiina, 29.6  
Varney, Tamara L, 22.6  
Vasallo, Stefano, 8.3, 8.6, 8.7, 15.5,  
24.4, 24.11, 50.16  
Vasey, Natalie, 59[5:30]  
Vashro, Layne, 56[9:45]  
Vasilyev, Sergey, 9[9:45]  
Vassallo, Steffi, 54[10:30]  
Veilleux, Carrie C, 55[10:30]  
Velazquez, Sean C, 45.5  
Veleminska, Jana, 30.13  
Veleminsky, Petr, 20[2:45]  
Veleminská, Jana, 49.14  
Velez, Alex D, 25.22  
Venable, Emily M, 39[3:45]  
Venier, Marta, 48.12  
Venkataraman, Vivek V, 14.2, 42.1  
Vercellotti, Giuseppe, 6.7, 20[2:45]  
Verdolin, Jennifer L, 1.10  
Vergamini, Marie, 4.31, 21.3, 21.6,  
21.15  
Vermillion, Mackenzie C, 24.35  
Vernot, Benjamin, 9[10:30]  
Verostick, Kirsten, 30.6, 50.31  
Verrière, Nicole, 18[2:45]  
Veselka, Barbara, 20[2:45]  
Violet, Amelie, 23.2  
Vidaurre, Tatiana, 45.6  
Vignaud, Patrick, 28.12  
Vila, Bernardo, 7.8  
Vilgalys, Taurus P, 58[3:00]  
Villa Islas, Viridiana, 45.19

# AUTHOR INDEX

- Villa, Chiara, 54[10:45]  
Villanea, Fernando A, 60[2:45]  
Villmoare, Brian, 25.4, 29.15  
Villotte, Sébastien, 36.1, 36.7, 43.11  
Vining, Alexander Q, 42.9  
Vinyard, Christopher J, 14.12, 47.3, 47.9  
Viola, Bence T, 9[8:15], 9[9:00]  
Viola, T. Bence, 47.26  
Visalberghi, Elisabetta, 2.10, 42.6  
Vlemincq-Mendieta, Tatiana, 24.1, 24.19, 37.1, 37.14  
Vlok, Melandri, 38[5:00]  
Vogel, Erin R, 2.17, 55[11:00], 55[11:30]  
Vogel, Juliette, 52.22  
Volkers, Lauren J, 21.3, 21.6  
von Cramon-Taubadel, Noreen, 4.9, 4.14, 4.19, 20[2:45], 27.15, 52.13  
Vorperian, Hourii K, 51.5
- W**
- Wade, Lizzie, 53[11:00]  
Wagner, Mark J, 8.16  
Wahl, Joachim, 20[2:45], 61[5:00]  
Wakefield, Monica L, 55[8:30]  
Wakefield, Robyn, 8.17  
Walker, Caroline, 57.14  
Walker, Christopher S, 49.4  
Walker, David, 42.10  
Walker, Kara K, 11[8:15]  
Walker, Robert A, 62.16  
Walker, Tian, 57.13  
Wall-Scheffler, Cara, 25.39, 39[2:45], 46.3  
Wallace, Ian J, 36.10, 50.33  
Wall, Christine E, 4.33  
Waller, Michel T, 55[8:30]  
Walsh-Haney, Heather, 30.33, 54[11:00]  
Walsh, Dana M, 17[4:15]  
Walsh, Susan, 20[3:45], 20[4:00]  
Walter, Brittany S, 19[2:45], 24.38, 35.6  
Walther-Antonio, Marina R.S, 17[4:15]  
Waltman, Stephanie A, 30.21  
Walz, Jessica T, 26.5  
Wandia, I Nengah, 1.21, 1.22  
Wang, Anqi, 50.11  
Wang, Hui, 7.4, 50.17  
Wang, Jenny, 17[4:00]  
Wang, Minghui, 52.8  
Wang, Qian, 25.37, 52.32, 52.33  
Wang, Shaorui, 48.12  
Wang, Wei, 28.15  
Wang, Yiru, 52.32  
Wang, Yongdi, 6.1, 6.2, 24.40  
Wang, Ziyu, 45.13  
Wann, L S, 15.1  
Ward, Carol V, 4.18, 13.11, 13.16, 18[3:15], 52.12  
Ward, Devin L, 47.26  
Ward, Tonya, 17[4:30]  
Warinner, Christina, 45.23  
Warren, Kerryn A, 21.17  
Washabaugh, Jennifer, 25.47  
Wasserman, Michael, 25.7, 34[8:30], 48.12  
Watamaniuk, Lelia, 22.11  
Waterman, Anna J, 8.12  
Waters-Rist, Andrea L, 8.1, 19[4:45], 33[9:45]  
Watkins, Rachel J, 53[8:30]  
Watson, James T, 19[2:30]  
Watson, Karli, 17[4:00]  
Watts, David P, 1.8, 11[8:00]  
Waxenbaum, Erin B, 27.3  
Weaver, Timothy D, 28.21  
Webb, Shasta, 55[10:30]  
Weber, Andrzej W, 24.14  
Webster, Timothy H, 12[11:00], 20[4:45], 41[5:30], 48.5  
Weinberg, Seth M, 20[3:45], 20[4:00]  
Weisbecker, Vera, 47.30  
Weldon, Ariana, 26.7, 59[4:00]  
Welker, Barbara J, 5.17  
Welker, Frido, 6.4, 28.15  
Welk, Thomas, 45.11  
Wells, Jonathan CK, 39[3:15]  
Weroha, Saravut J, 17[4:15]  
Wertz, Krzysztof, 43.5  
Wescott, Daniel J, 3.4  
Westaway, Kira, 61[5:15]  
Western, Gaynor A, 35.7  
Westin, Jessica L, 21.12  
West, Kali A, 25.11, 30.20  
West, Madison, 10[10:30]  
Weyher, Anna H, 1.17, 26.9  
Whelton, Helen, 33[11:15]  
Whitaker, Ross T, 10[9:45]  
White, Cassandra M, 12[9:00]  
White, Deandre, 45.15  
White, Frances J, 55[8:30]  
White, J. Alyssa, 54[9:15]  
White, Julie D, 20[3:45], 20[4:00]  
White, Suzanna, 23.9  
White, Tim D, 49.10  
Wiedenmeyer, Emilie L, 30.27  
Wikberg, Eva C, 59[5:00]  
Wilczak, Cynthia A, 36.1  
Wild, Therese, 45.27  
Willermet, Catherine, 50.6  
Willerslev, Eske, 6.4, 60[4:30]  
Williams-Blangero, Sarah, 62.4  
Williams-Hatala, Erin Marie, 36.9, 36.11  
Williams, Alexis S, 30.42  
Williams, Devin N, 50.31  
Williams, Frank L, 24.18, 47.12  
Williams, Ian S, 61[4:45]  
Williams, Lana, 46.13  
Williams, LaShanda R, 25.17  
Williams, Scott A, 27.12, 32[8:30], 32[9:45]  
Williams, Sloan R, 6.16, 24.31  
Willman, John C, 43.5, 49.7  
Willoughby, Jennifer, 50.30  
Wilshin, Simon, 10[9:30]  
Wilson Sayres, Melissa A, 12[11:00]  
Wilson, Laura A.B, 52.15  
Wilson, Mark E, 58[3:00]  
Wilson, Michaela, 12[11:00], 21.18  
Wilson, Thomas C, 48.3  
Winburn, Allysha P, 30.14  
Winchester, Julie M, 8.16, 36.10  
Winful, M.A, Taiye, 45.9  
Winingear, Stevie, 38[3:00]  
Winking, Jeffrey W, 4.32  
Winter, Samantha, 5.18  
Wiseman-Jones, Lauren, 34[8:00]  
Wiseman, Ashleigh L. A, 29.1  
Wisinski, Basia F, 11[8:45]  
Wisor, Joshua, 8.16  
Wissing, Christoph, 61[5:30]  
Wissler, Amanda, 19[3:00]  
Witonsky, David B, 25.13  
Witt-Dillon, Kelsey, 9[11:00]  
Wittig, Roman M, 14.5, 47.10  
Witt, Kelsey, 20[5:00]  
Wojcik, Genevieve L, 45.6  
Wojtal, Piotr, 43.5  
WoldeGabriel, Giday, 49.10  
Wolfe, Barbara A, 59[3:45]  
Wolfe, Christopher A, 7.2, 54[8:15]



# AUTHOR INDEX

Wolf, Tiffany M, 34[11:00]  
Wollmann, Jessica S, 29.3, 29.4,  
52.24  
Wood, Bernard, 10[9:45]  
Wood, Brian A, 31[8:30], 56[9:45]  
Wood, Rachel, 61[4:45]  
Woo, Eun Jin, 52.7  
Woollen, Katharine C, 30.11  
Woo, Mike, 45.39  
Wooten, C, 45.30  
Wrangham, Richard W, 31[8:00],  
31[9:00], 31[9:15], 31[9:30],  
31[9:45], 59[2:30], 59[2:45]  
Wright, ms, Harold M, 25.9  
Wright, Barth W, 2.9, 2.10, 4.25,  
13.13, 14.1, 47.21  
Wright, Chloë India, 1.21  
Wright, Kristin A, 2.10, 14.1, 47.21  
Wright, Patricia C, 12[8:15], 45.34  
Wroblewski, Emily E, 12[9:45]  
Wu, Liu, 9[8:45]  
Wunderlich, Roshna E, 4.24, 4.27,  
4.28  
Wuthrich, Craig, 40[4:30]  
Wu, Xiu Jie, 43.10  
Wu, Xiujie, 23.5  
Wu, Ying, 37.5  
Wyatt, Bronwyn, 22.7  
Wynands, Bert, 39[3:00]  
Wynn, Jonathan, 5.13  
Wysocka, Joanna, 20[3:45],  
20[4:00]

## X

Xiujie, Wu, 9[8:45]

## Y

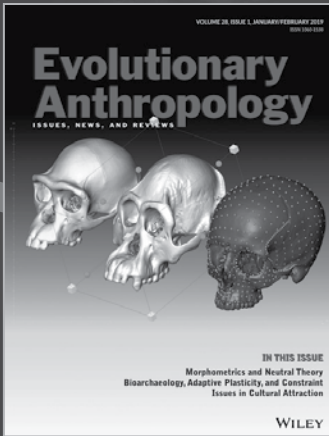
Yagüe, Almudena S, 28.14  
Yahaya, Anas Ibrah, 30.25  
Yáñez, Bernardo, 49.24  
Yang, Chung-Lin, 29.11  
Yang, Deming, 5.15  
Yang, Liping, 33[8:45]  
Yang, Shiyu, 50.11  
Yang, Yueran, 30.38, 37.3  
Yao, Lu, 12[10:45]  
Yapuncich, Gabriel S, 29.8  
Yarlagadda, Karthik, 17[2:45]  
Yaussy, Samantha L, 19[3:45]  
Yegian, Andrew K, 18[4:15],  
39[3:00]

Yeh-hui Yuan, Ivy, 50.17  
Yener Yavuz, Alper, 32[8:15]  
Yetish, Gandhi, 56[8:15], 56[8:30]  
Ye, Wa, 33[8:45]  
Yirga, Solomon, 5.9  
Yoakum, Caitlin B, 47.14, 47.27  
Yokley, Todd R, 27.10, 45.11  
Yoneda, Minoru, 7.5  
Yotova, Vania G, 20[2:30]  
Young, Christopher, 4.21  
Young, Colleen B, 49.24  
Young, Jesse W, 4.3, 4.22, 4.23,  
4.29, 4.30, 36.3, 40[2:45]  
Young, Mariel, 45.21  
Young, Nathan M, 49.2  
Young, Sera L, 25.8  
You, Sen, 50.11, 52.32  
Yuan, Ivy Yeh-Hui, 7.4

## Z

Zabnicka, Dorota, 30.24  
Zachwieja, Alexandra J, 8.14,  
61[5:15]  
Zaidi, Arslan A, 20[3:45], 20[4:00],  
20[4:45]  
Zajac, Mirosław, 43.5  
Zakrzewski, Sonia R, 24.26  
Zaleski, Sarah M, 27.1, 47.7  
Zamora, Andrew, 48.5, 48.17  
Zanolli, Clément, 28.8, 28.10  
Zariņa, Gunita, 52.18  
Zaruri, Mohammad R, 6.10  
Zarzecka-Szubińska, Katarzyna,  
43.5  
Zavodszky, Anna M, 4.5  
Zborover, Danny, 33[8:00]  
Zeininger, Angel, 4.24, 4.27, 4.28,  
4.33, 40[3:00]  
Zeng, Dong, 2.13  
Zeng, Li, 15.11  
Zeng, Yan, 2.13  
Zhang, Guangjun, 62.2  
Zhang, Naifan, 6.1, 6.2, 6.3  
Zhang, Quanchao, 25.37, 52.8,  
52.32, 52.33  
Zhang, Qun, 52.33  
Zhang, Wenxin, 24.9  
Zhang, Xinjun, 20[5:00]  
Zhang, Ye, 45.3  
Zhou, Hui, 45.3  
Zhou, Yi, 2.13  
Zhu, Hong, 45.3, 52.32

Zhu, Siqi, 6.1, 6.2  
Zichello, Julia M, 47.6  
Ziegler, Toni, 41[5:45]  
Zihlman, Adrienne L, 4.10  
Zilhão, João, 28.14  
Zintel, Trisha M, 12[9:15]  
Zippenfennig, Claudio, 39[3:00]  
Zipple, Matt N, 41[2:30]  
Zipple, Matthew N, 41[5:00]  
Zirkle, Dexter, 62.5  
Znachko, Caroline L, 24.29  
Znidarsic, Katherine A, 46.6  
Zollikofer, Christoph P. E, 29.10,  
43.18, 49.13  
Zolotova, Natalya, 33[10:45]  
Zou, Zining, 52.33  
Zuckerman, Molly K, 16[4:00],  
50.19, 50.24



## Evolutionary Anthropology

Edited By **Jason Kamilar**

An authoritative review journal that focuses on issues of current interest in biological anthropology, paleoanthropology, archaeology, functional morphology, social biology, and bone biology—including dentition and osteology—as well as human biology, genetics, and ecology.

Impact Factor  
**4.771**



Per the 2017 Journal Citation Reports the journal is ranked at the **first position out of 85 journals** in the subject category Anthropology.

<http://bit.ly/wileyEVAN>

WILEY

19 - 568001

## 89<sup>th</sup> Annual Meeting

American Association of Physical Anthropologists

15-18 April 2019 · Los Angeles, CA

Join us in Los Angeles for four days of education, networking, and professional development



# Great Research Begins with Exceptional Data

- ✓ AMS Radiocarbon Dating
- ✓ Core Scanning by XRF
- ✓ C, H, N, O, S Isotopes
- ✓ ICP-MS & MC-ICP-MS
- ✓ Sr & Pb Isotopes
- ✓ ED-XRF & PXRF



ISO/IEC 17025:2005 Accreditation No. 87144

**ISO/IEC 17025:2005  
Accredited Laboratory**



*Now the Largest Stable Isotope Facility in the World*



**UNIVERSITY OF  
GEORGIA**

**Center for Applied  
Isotope Studies**

***cais.uga.edu***

# $^{14}\text{C}$ Dating Shouldn't Take Ages

- ✓ Results in as little as 2-3 days
- ✓ Unbeatable customer service
- ✓ ISO/IEC 17025:2005-accredited

— Since 1979 —

## Radiocarbon Dating

Consistent Accuracy, Delivered on Time



Beta Analytic

[www.radiocarbon.com](http://www.radiocarbon.com)