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Intellectually Connected**

90th Annual Meeting
of the American Association of
Physical Anthropologists

April 7-28, 2021 • physanth.org

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PROGRAM OF THE
90TH ANNUAL MEETING
OF THE AMERICAN
ASSOCIATION OF PHYSICAL
ANTHROPOLOGISTS
APRIL 7 – 28, 2021

To be held at the
ONLINE
on the Pathable Platform

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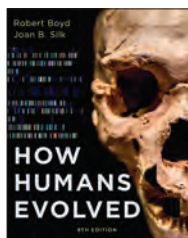
Visit us at our virtual booth



Our Origins, 5e and Essentials of Biological Anthropology, 4e

Clark Larsen

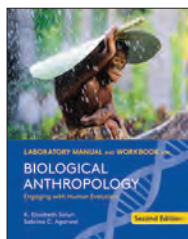
The most widely used introductory texts, Clark Larsen's *Our Origins*, Fifth Edition and *Essentials of Biological Anthropology*, Fourth Edition interests, emphasize connecting biological anthropology to students' lives, interests, and future careers. Larsen's signature big-picture approach and inviting narrative style ensure the course material is engaging and accessible, and the stunning, photorealistic art program brings the key concepts of each chapter to life.



How Humans Evolved, 9e

Robert Boyd • Joan B. Silk

Robert Boyd and Joan Silk's *How Humans Evolved* has long been the #1 text for helping students understand the most exciting contemporary research in biological anthropology. In the Ninth Edition, new contributing author Kevin Langergraber makes the discipline's newest frontier—ancient and contemporary DNA research—accessible and relevant to students.



Laboratory Manual and Workbook for Biological Anthropology, 2e

K. Elizabeth Soluri • Sabrina C. Agarwal

Liz Soluri and Sabrina Agarwal's *Laboratory Manual and Workbook for Biological Anthropology*, Second Edition incorporates new interactive exercises that emphasize the process of science and the scientific method—along with increased and improved images in the osteology chapters—to offer students the most visual, hands-on, and affordable lab experience.

InQuizitive

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InQuizitive is Norton's award-winning, easy-to-use adaptive learning tool that personalizes the learning experience for students and helps them master—and retain—key course concepts. A variety of question types, including many based on visuals, videos, and animations, help students come to class better prepared to engage with the course material.

Guided Learning Explorations

digital.wwnorton.com/howhumans9



Available with the Ninth Edition of *How Humans Evolved*, the Guided Learning Explorations are scaffolded activities that get students thinking critically about the course material. In each activity students move from brief core concept review to more in-depth analyses, and finally to applied questions that have them think like an anthropologist.

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Michelle Bezanson

Susanne Cote

Elisabeth Cuerrier-Richer

Rebecca Gilmour

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MESSAGE FROM THE PRESIDENT

Welcome to the 90th Annual Meeting of the AAPA.

This year's theme, "Physically distanced but intellectually connected" is certainly appropriate. This April marks two years since we gathered to share our work and catch up professionally and personally. For many of us, it has been a year of deep loss and unimaginable challenges. It has also been a year of new connections and, I hope, unprecedented support and compassion. It is our intent use the 2021 Virtual Annual Meeting as a platform to highlight the strength of our community by bringing us together across the globe without having to pack a bag or leave our homes. We will have an opportunity to read and hear every piece of scientific work submitted and to meet in groups large and small to ask questions, discuss issues, and express our ideas. The virtual meeting will also provide ample time to laugh, scream, and share personal stories. I look forward to connecting with you all throughout the month of April. Clearly, the Virtual 90th Annual Meeting is not a poor replacement for our in-person conference; it is a promising new direction for the AAPA to pursue. We owe an enormous amount of thanks to Leslea Hlusko, the Vice-President of the AAPA, and to the program committee and Burk and Associates for the countless hours they have dedicated to ensuring that this meeting is a success. As always, I wish you my very best. Enjoy the meeting.

Anne L. Grauer
President

AR The Anatomical Record

Advances in Integrative Anatomy and Evolutionary Biology

EDITOR-IN-CHIEF:
HEATHER F. SMITH
MIDWESTERN UNIVERSITY
GLENDALE, AZ

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The Anatomical Record is positioned to be the premier publication venue for hypothesis-driven research that uses **biomolecular imaging and image analysis** approaches to integrate morphology with other scientific disciplines:

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AR FOR AUTHORS

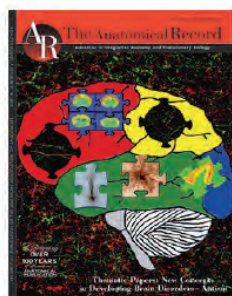
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MESSAGE FROM THE VP & PROGRAM CHAIR

It is an honor to welcome you to the most unusual annual meeting ever held by the American Association of Physical Anthropologists. Due to the Covid-19 pandemic that began in March of 2020 and continues today, the majority of our members are maintaining physical distance (“social distancing”), avoiding crowded spaces, and staying masked. With this same concern for public health, AAPA’s Executive Committee decided that our 90th annual meeting will be held entirely online using the Pathable platform.

A virtual meeting requires an entirely different meeting structure given that participants are mostly attending from their own homes located across a broad range of the world’s time zones, needing to juggle work and home-life obligations alongside their participation in this annual meeting. Despite the significantly re-envisioned structure for this meeting, the two core strengths of AAPA are maintained from prior years:

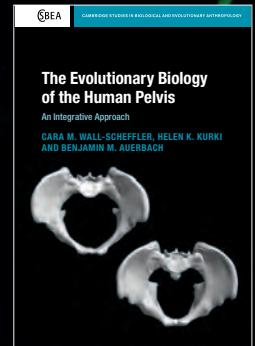
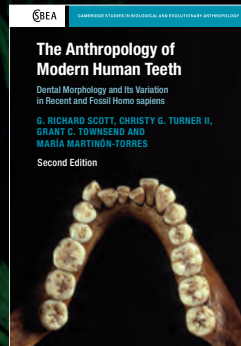
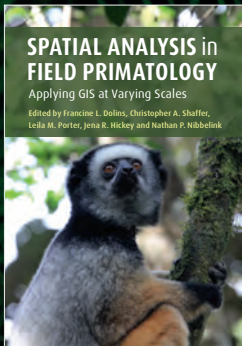
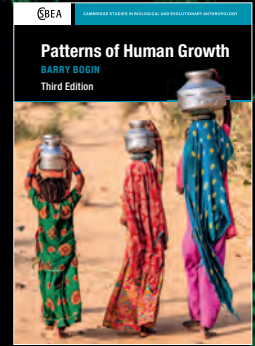
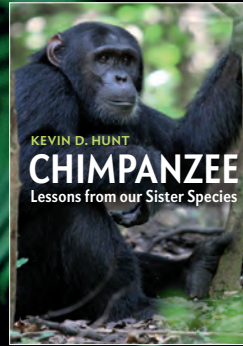
Excellent, cutting-edge scholarship: Our program includes almost 600 scientific presentations organized into 82 scientific sessions. We have eight invited symposia that engage with the most pressing topics of the day (social injustice, the pandemic, and climate change) scheduled for the opening days of our program.

Community: In addition to being scholars, AAPA is also a community of people who deeply value the humanity of our colleagues. Our annual meetings are always filled with comradery as well as scientific engagement. The 90th annual meeting is no different, though the format for those opportunities to casually interact look a bit different.

Aside from being entirely online, the biggest change this year is in the schedule. All scientific sessions are scheduled during normal business hours Monday through Friday centered on North American time zones and spread out over three weeks. The hope is that this schedule will facilitate the participation of our many meeting attendees who have significant obligations at home, and therefore would be excluded from weekend events. Although it is impossible to schedule live events during business hours for all attendees from around the world, we did make an effort to schedule scientific sessions so that presenters are participating during their daytime hours.

The next big innovation for this year’s annual meeting is that all scientific presentations were uploaded to the Pathable platform prior to the start of the conference. Scientific presentations can be as effective when presented in video or poster form as when they are live. Therefore, we shifted to an asynchronous presentation of the individual research projects so that they would reach a wider audience. All presentations are available for two months rather than just a small window of time during one session, on one day of an in-person conference. Attendees at the 90th annual meeting can engage with any and

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MESSAGE FROM THE VP & PROGRAM CHAIR

all of the scientific presentations whenever they have the time to do so between April 5th and May 31st, be that 6am, noon, or midnight. This expanded opportunity for engagement increases the benefit of the meeting to the presenters as well as the attendees, given that the longer period of presentation leads to a larger audience for each presentation.

You will also notice that contributed scientific sessions are much smaller than what AAPA has been able to accommodate previously. A subset of the Program Committee, the Session Planning Committee clustered abstracts into groups of 6 to 9 by scientific theme, forming 70 tailored contributed sessions. Given the virtual platform, and the use of asynchronous individual presentations, the format of each presentation is irrelevant to how the session will unfold. Therefore, sessions are a mix of podium/video and poster presentations. We hope you enjoy this more tailored experience that is only possible because of our shift to the virtual platform.

One of the most valuable moments during any annual meeting is the question and answer session that follows each presentation, the hallway conversation after a session, or the exchange that occurs in front of a poster. Our aim for the contributed sessions is to bring these conversations front and center and share them with a wider audience. Thanks to the virtual setting we moved these high-value, smaller conversations onto a live webinar format. The webinar format highlights the presenters on video while simultaneously accommodating a large audience through the chat feature. The chair of each contributed session was hand-picked for their ability to facilitate an interesting conversation among the presenters in that session. We hope that these live, highly interactive events will be well worth the effort it took to rearrange your schedule so that you could attend. These live components of the scientific sessions will be recorded and available to watch through the end of the 90th annual meeting.

Overview of scientific events

The Pathable platform opens on April 5th to all meeting attendees, and your engagement with the scientific presentations begins that day. The live events start on April 7th and run through April 28th. Scientific presentations and the informal networking features will be available until the Pathable platform closes on May 31st.

The eight invited symposia for 2021 will run back-to-back on April 8th and 9th. Our seventy contributed sessions begin on Monday, April 12th and run back-to-back through April 28th. Intermixed with the contributed sessions are four of the invited symposia from 2021, reconvened as part of AAPA's Throwback Program.

Reviving some of the 2020 presentations through the Throwback Program

As the pandemic began to unfold in 2020, AAPA's 89th annual meeting had to be cancelled. Vice President and Program Committee Chair Steve Leigh and AAPA's website

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The Royal Society journals *Proceedings B*, *Biology Letters* and *Philosophical Transactions B* publish research, evidence synthesis, reviews and opinions, and theme issues in all areas of primate behaviour, genetics and human and non-human primate evolution.

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Image credit: Keerthi Raj.

MESSAGE FROM THE VP & PROGRAM CHAIR

manager Ed Hagen quickly created a site where authors could upload their presentations. However, the pandemic brought with it a wide range of challenges and the majority of presenters for 2020 did not have the opportunity to share their research. Being mindful of this loss felt by many in our community, and knowing that the pandemic kept many of us from being able to conduct new research, AAPA's Executive Committee created the Throwback Program. Anyone who had an accepted abstract for 2020 but who did not submit an abstract for 2021 could link their 2021 registration with the presentation of their 2020 abstract. Close to 150 authors took advantage of this opportunity, including four of the invited symposia. All of the contributed abstracts resubmitted through the Throwback Program were pooled with the 2021 abstracts for the session planning, so you will find them intermixed. This means that not all of the abstracts included in our 90th annual meeting are published in the 2021 annual meeting supplement of the *American Journal of Physical Anthropology*. If you want to cite the abstract for a presentation you found particularly interesting, please be sure to check whether it is in the 2020 or 2021 abstract volume.

Special Events

Our live events begin on April 7th with the **President's Plenary session *Include is a Verb: Act to Make Inclusion a Reality*** by Sherry Marts. The plenary is followed by our Committee on Diversity's Undergraduate Research Symposium organized by Cara Wall-Scheffler. Be sure to chime in for our **opening reception** that, for the 90th annual meeting, will also be the **celebration of AAPA's lifetime achievement award winners**. We will be celebrating the 2020 winners as well as those being recognized in 2021. The **AAPA Business Meeting** will be held on Wednesday, April 14th, when the final vote to rename the organization will be held. We will celebrate our student prize winners at the **closing reception** on Wednesday, April 28th.

The virtual format requires that **social events** be more planned than impromptu. The Program Committee organized a series of Time Zone Socials and an association-wide game night. We have a series of social events that bring together various communities within AAPA, such as the newly formed Black in BioAnthropology (BiBA) group, established sister organizations such as AAAG and HBA, and research themed networking opportunities (The Hair Social, Epidemic and Pandemics, and Dental Anthropology).

Various AAPA committees organized a series of **professional development workshops** with assistance from the *American Journal of Physical Anthropology* and Wiley Publishing, National Science Foundation, The Leakey Foundation, The Wenner-Gren Foundation, and National Geographic. There will also be a series of workshops sponsored by our exhibitors that round out a fantastic resource for our meeting attendees.



Introducing Anthropology

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2nd Edition

Laura Pountney & Tomislav Marić

"This new edition of Introducing Anthropology updates a formidable and thought-provoking inquiry into what makes us human, and highlights how students can knowledgeably take part in important but sometimes difficult conversations that help shape a more just and sustainable world."

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"A classroom text written by teachers for teachers. I cannot recommend it highly enough."

David Shankland, Director, Royal Anthropological Institute

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Why Are There Still Creationists?

Human Evolution and the Ancestors

Jonathan Marks

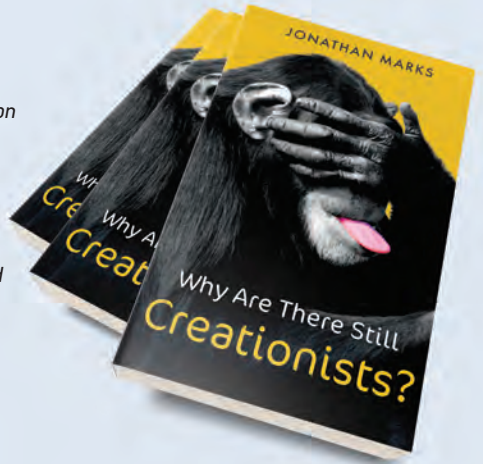
"When the gadfly of contemporary anthropology turns his attention to the creationism/evolution controversy, neither creationists nor their foes emerge unscathed. Insightful and delightful."

Glenn Branch, Deputy Director, National Center for Science Education

"This deeply thoughtful history of ideas engages evolutionary science, biblical studies, and contemporary culture to tackle head on the book's title question. In unfurling his persuasive argument, Marks shows that science and religion are both dogmatic and demonstrates the unexpected ways in which scholars of science and religion should be 'allies'. His ability to push past sweeping dismissals to actual facts is unparalleled."

Candida Moss, University of Birmingham

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MESSAGE FROM THE VP & PROGRAM CHAIR

Acknowledgements and Appreciation

My sincere thanks to everyone who helped organize the 2021 meeting. I am immensely grateful to the 44 talented, generous, and dedicated members of our Program Committee, who conducted and completed reviews thoughtfully, thoroughly, and expeditiously. Committee members never ceased to step up every time I wrote with another request for assistance as we built an entirely different annual meeting for this special year. I also want to give an additional thank-you to the 23 members of the Program Committee who also took on the task of organizing the contributed sessions in lieu of the advance team who handled this task in prior years.

The 2021 annual meeting is unlike no other in AAPA's history. Many people stepped up to create an entirely new format and keep our scientific community together in the midst of the global pandemic. Thanks are due to our extraordinary business partners, Lori Strong and her team from Burk & Associates, as well as Ed Hagen (our webmaster). Our program assistant, Catherine Taylor, has been an invaluable source of support, as have the Officers and other members of the Executive Committee. A very special thanks goes to AAPA President Anne Grauer and AAPA President Elect Steve Leigh for their leadership in envisioning and supporting this new meeting format in an incredibly challenging year.

In closing, I stand in awe of everyone who contributed their science and expertise for this 90th annual meeting. From the organizers who pulled together the eight invited symposia that address urgent issues facing our world today, to the ~600 lead authors who are sharing their most recent research to keep our scientific community inspired and moving forward, to the members who organized workshops, social events, and/or continued to lead their committees and organizations. I tip my hat to all of you with deep respect. I know how much extra effort was required to hold it together this year.

I look forward to seeing you all online for AAPA's 90th annual meeting. Let's use this opportunity to celebrate the strength of our community in a year when it has mattered perhaps more than ever.

Leslea J. Hlusko
AAPA Vice President and Program Chair

EVENTS

Monday, April 5

1:00 pm – 3:00 pm

Code of Conduct Implementation Training for all Session Chairs, Assistant Session Chairs, AAPA Executive Committee members, and H-Care members

Event with Sherry Marts

4:00 pm – 5:00pm

Code of Conduct Enforcement Training for all AAPA Executive Committee members and H-Care members

Event with Sherry Marts

Tuesday, April 6

9:00 am – 10:00 am

Drop-In Office Hour for Learning How to Use Zoom Webinar

This is an informal opportunity for Session Chairs, Assistant Session Chairs, and Presenters/Speakers to learn how effectively interface with the Zoom webinar software being used for all scientific sessions.

12:00 pm – 1:00 pm

Drop-In Office Hour for Learning How to Use Zoom Webinar

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EVENTS

Wednesday, April 7

12:00 pm – 1:45pm

Plenary Event with Sherry Marts of S*Marts Consulting, “Include is a Verb: Act to Make Inclusion a Reality”

Ever had the experience of cringing over an insensitive remark or discourteous behavior toward someone else, but not knowing whether or how to object or intervene? In any situation in which you enjoy some social privilege (unasked for and unearned advantage over those who are not like you), you can act as an ally to those with less privilege. It takes having an understanding of privilege and oppression and being able to recognize the subtle behaviors, unspoken rules, and unquestioned traditions that perpetuate oppression. It also takes a willingness to move beyond good intentions to effective action. Allyship is key to creating an inclusive culture in any organization or workplace. This training will bring you what you need to step up and step in, including:

- How to recognize subtle forms of exclusion, harassment, and bullying.
- How to respond to incidents of exclusion, harassment, and bullying.
- How to respond to more explicit forms of harassment and exclusion (active bystander intervention)
- Case studies, small group discussion, and paired exercises

1:45 pm – 2:15pm

Live Exhibit Hall

Meet our fantastic exhibitors and sponsors and win prizes!

2:15 pm – 4:00pm

Undergrad Research Symposium

Join in this celebration of undergraduate research!

4:00 pm – 6:00pm

AAPA Opening Reception and Lifetime Achievement Awards Ceremony

Wonder.me event. See Pathable site for details.

Thursday, April 8

11:45 am – 12:00pm

Live Exhibit Hall

Meet our fantastic exhibitors and sponsors and win prizes!

EVENTS

1:45 pm – 2:00 pm

Live Exhibit Hall

Meet our fantastic exhibitors and sponsors and win prizes!

3:45 pm – 4:00 pm

Live Exhibit Hall

Meet our fantastic exhibitors and sponsors and win prizes!

10:00 pm – 11:00 pm

Time Zone Social: Origami Pelves...

All members are welcome; the time was chosen to especially cater to the Mountain and Pacific Time zones.

Friday, April 9

11:45 am – 12:00 pm

Live Exhibit Hall

Meet our fantastic exhibitors and sponsors and win prizes!

1:45 pm – 2:00 pm

Live Exhibit Hall

Meet our fantastic exhibitors and sponsors and win prizes!

3:45 pm – 4:00 pm

Live Exhibit Hall

Meet our fantastic exhibitors and sponsors and win prizes!

5:30 pm – 6:30 pm

Time Zone Social: Anthropology Trivia

Want to try your recall for trivia about AAPA and the history of biological anthropology? Come join this social hour. All are invited, though it is designed to cater to people in an evening/after-work mood.

8:00 pm – 9:00 pm

Time Zone Social: The AAPAs in LA (without traffic!)

Come hang out on Zoom for a Los Angeles-themed get-together. All registrants are welcome. The time was chosen to especially cater to the attendees in or near the Mountain or Pacific Time zones.

EVENTS

Monday, April 12

4:00 am – 5:00 am

Time Zone Social: Show and Tell: An Informal Asian-Pacific Improv Social

End your Monday work day with an hour of show-and-tell fun! All registrants are welcome. The time was chosen to especially cater to the attendees in or near the UTC+8-10 time zones.

1:30 pm – 2:30 pm

COD IDEAS Faculty Working Group (by invitation)

This session is for the Committee on Diversity - Increasing Diversity in Evolutionary Anthropological Sciences faculty working group to meet regarding new paths and programs.

Tuesday, April 13

1:30 pm – 3:00 pm

COD WIN Panel:

When Sh*t happens: The five things I wish I had known when facing _____

This interactive panel discussion will feature four speakers offering their hard won insights (and what they wish they had known) about: Caretaking; Mental Health; Parenthood; and Navigating challenging (work) personnel.

6:00 pm – 7:30 pm

BAWMN Social

Biological Anthropology Women's Mentoring Network mixer. Everyone who identifies as a woman is welcome.

Wednesday, April 14

11:30 am – 2:00 pm

Time Zone Social: Remembering forgotten scientists

As inspired by Lorato Trok's "the forgotten scientist", about the life of Saul Sithole, this social commemorates and acknowledges those scientists (especially African) whose contributions have been sidelined in the discipline. All registrants are welcome. The time was chosen to especially cater to the attendees in or near the UTC+1, 2, and 3 time zones.

EVENTS

1:30 pm – 3:00 pm

Grant writing for impact: strategies for writing successful grant proposals

Panel discussion and Q&A with representatives from the National Geographic Society, Wenner Grenn Foundation, National Science Foundation and the Leakey Foundation.

4:00 pm – 5:00 pm

AAPA Business Meeting

All AAPA members welcome and encouraged to attend. We will be conducting the final vote for the official name change of the organization to the American Association of Biological Anthropologists.

Thursday, April 15

10:00 am – 3:00 pm

Time Zone Social: Coffee, Conversation, and Collaboration

Open Zoom room for networking. All registrants are welcome.

5:00 pm – 6:00 pm

Latin American Happy Hour

A fun social event to community-build among meeting attendees.

Friday, April 16

11:30 am – 12:30 pm

Black in BioAnth (BiBA) Networking Hour

This is a networking event for all meeting attendees who identify with the Black community.

1:00 pm – 2:00 pm

Committee on Diversity - Anthropologists Outside of Anthropology, Contingent, and Teaching Focused Faculty (COD-AACT) subcommittee planning meeting (open to all attendees)

This session is an open discussion. If you identify with or are interested in any part of our acronym, please join us to discuss ideas for workshops, panels, sessions or anything else for future meetings and the AAPA in general.

EVENTS

4:00 pm – 5:00 pm

Building Connections in Dental Anthropology

Anyone interested in how teeth can be used to study the evolutionary past is welcome to attend. Come meet established researchers, those just starting out, and everyone in between.

Monday, April 19

11:00 am – 12:30 pm

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12:00 pm – 1:00 pm

Drop-In Office Hour for Learning How to Use Zoom Webinar

This is an informal opportunity for Session Chairs, Assistant Session Chairs, and Presenters/Speakers to learn how effectively interface with the Zoom webinar software being used for all scientific sessions.

1:30 pm – 2:30 pm

COD IDEAS Alumni Working Group (by invitation)

This session provides a space for the Committee on Diversity - Increasing Diversity in Evolutionary Anthropological Sciences alumni working group to meet regarding next steps, new paths and new programs.

Tuesday, April 20

10:00 am – 11:00 am

COD International Coffee Hour

This informal session provides a chance for those interested in the Committee on Diversity International subgroup to gather to make connections and brainstorm new initiatives.

1:00 pm – 3:00 pm

Epidemics/Pandemics Social Hour

This social hour is open to any registrants with research interests or general interests in epidemics, pandemics, and human health. Please join for lively discussion and networking.

EVENTS

4:00 pm – 5:00 pm

AAAG meeting

This is a meeting for current members of AAAG and those interested in joining.

Wednesday, April 21

5:30 pm – 7:00 pm

AAPA Game Night

Take some time off and come play games with colleagues that we hope will soon feel more like friends! This will be hosted on wonder.me, a large online reception room where we will play a series of games that have proven to be fun when played online (have you played "Two Truths & a Lie"?). Even the older folks among us will pick these games up quickly and have some good laughs!

Thursday, April 22

12:00 pm – 1:00 pm

Drop-In Office Hour for Learning How to Use Zoom Webinar

This is an informal opportunity for Session Chairs, Assistant Session Chairs, and Presenters/Speakers to learn how effectively interface with the Zoom webinar software being used for all scientific sessions.

1:30 pm – 2:30 pm

COD LGBTQQIAA interest group (open to all meeting attendees)

This is a meeting of the Q+ interest group to catch up, plan for 2021-2022, and to decide on the format of our 2022 meeting.

3:00 pm – 5:00 pm

Workshop: Training for equitable peer review in Biological Anthropology

This workshop aims to provide a guide for early-career scientists through their first experiences in reviewing with a focus on equity and diversity. It will be presented by Trudy Turner, the Editor-in-Chief of the American Journal of Physical Anthropology (AJPA) and Sheelah Athreya from the AAPA Committee on Diversity in the presence of the Associate Editors of AJPA. The event will be hosted by Paul-André Genest, the Publisher of AJPA at Wiley.

EVENTS

Friday, April 23

1:30 pm – 2:30 pm

COD IDEAS Coffee Hour (open to all meeting attendees)

COD IDEAS (Increasing Diversity in Evolutionary Anthropological Sciences) aims to increase representation, inclusion and belonging in biological anthropology. We hold workshops at the AAPA, work on pipeline programming and recruiting, care about retention and equity, and consider the inclusion of diverse perspectives as essential to improving how our science is done. Interested in these topics? Join us for informal conversation around these goals.

Saturday, April 24

1:00 pm – 3:00 pm

Teaching Biological Anthropology in Inclusive and Culturally/Religiously Sensitive Ways

This workshop is co-organized by Briana Pobiner and Rob O'Malley on behalf of AAPA's Education Committee. This workshop is primarily aimed at middle and high school teachers. In order to reach as broad an audience of teachers as possible, this event will be hosted outside of the Pathable platform. If you are interested in attending, please pre-register by Friday April 23 12 pm EST through this link: <http://bit.ly/AAPA2021TeachRegister>.

Monday, April 26

1:30 pm – 2:30 pm

COD Steering Group – All COD committee liaisons (by invitation)

This session provides space for the liaisons from each of the Committee on Diversity groups and committees to share updates, best practices and future plans.

4:00 pm – 5:00 pm

Meeting for current and potential members of the Human Biology Association

This is a meeting space for members of the Human Biology Association and anyone potentially interested in joining that association.

EVENTS

5:00-6:00pm

The Hair Social

A 'happy-hour' style event for anyone working on or interested in studying hair/pelage/fur to understand human and non-human primate evolution and ecology. From genomics, cellular biology, phenotyping, the microbiome, and more, come network!

Tuesday, April 27

3:00-4:00pm

Education Committee Meeting

This is a meeting of the AAPA Education Committee, which focuses on developing online materials and opportunities for engagement with biological anthropology content and AAPA members during the annual AAPA conference. Our audience is K-12 students and teachers and informal science venue visitors and staff.

4:30-6:00pm

Early Career Mixer

Webinar Event: panel discussion among early career professionals for students and other early career biological anthropologists. This will be followed by a Wonder.me reception.

Wednesday, April 28

1:00-3:00pm

Meeting of the Student Presentation Prize Committee

This a meeting of the judges for the Student Presentation prizes to determine the awardees.

4:00-6:00pm

AAPA Student Awards Ceremony and Closing Reception

As we bring our virtual meeting to a close, come celebrate the future of AABA at this wonder.me event (following the format of the opening ceremony). The focal point will be the announcement and celebration of our Student Presentation Award winners.

SCIENTIFIC PROGRAM

| Session Title | Time | # | Type |
|--|---------------------|----|-----------|
| Thursday, April 8 | | | |
| HBA-AAPA Joint Symposium: Human responses to climate change: What anthropologists want climate scientists and policymakers to know | 10:00 AM – 12:00 PM | S1 | Symposium |
| Building Intersections Of Covid-19 Scholarship, Health Inequities, And Systems Of Care In Pregnancy And The Postpartum | 12:00 PM – 2:00 PM | S2 | Symposium |
| AAAG- AAPA Joint Symposium: Thinking beyond the lab? Anthropological geneticists' response to the COVID-19 pandemic and the summer of civil unrest | 2:00 PM – 4:00 PM | S3 | Symposium |
| 20 Years of the Human Genome: Insights into Human Population History, Biology and Health | 4:00 PM – 6:00 PM | S4 | Symposium |
| Friday, April 9 | | | |
| Ancient expansions and biocultural diversity in the Americas: a multi-disciplinary perspective debate | 10:00 AM – 12:00 PM | S5 | Symposium |
| Female social networks: Patterns and diversity across societies and implications for human evolution | 12:00 PM – 2:00 PM | S6 | Symposium |
| Ethics and Best practices of studying contemporary human populations | 2:00 PM – 4:00 PM | S7 | Symposium |
| Connecting with Youth Scholars in the Era of COVID-19 | 4:00 PM – 6:00 PM | S8 | Symposium |
| Monday, April 12 | | | |
| Bioarchaeology: Approaching Culture Contact & Colonialism | 10:00 AM – 11:00 AM | 1 | Session |
| Forensic Anthropology: Assessing Sex and Gender | 11:00 AM – 12:00 PM | 2 | Session |
| Genetics and Genomics: Health and Disease | 12:00 PM – 1:00 PM | 3 | Session |
| Paleoanthropology: Quantitative Studies - from numbers to phenotypes | 1:00 PM – 2:00 PM | 4 | Session |
| Functional Anatomy/Tissue Biology: Head | 2:00 PM – 3:15 PM | 5 | Session |
| Human Biology: Epidemiology, Infection, and Immunology | 4:00 PM – 5:00 PM | 6 | Session |
| Bioarchaeology: Human-Environmental Interactions | 6:00 PM – 7:00 PM | 7 | Session |
| Tuesday, April 13 | | | |
| Education: Biological Anthropology Reaching Out | 9:00 AM – 10:00 AM | 8 | Session |
| Functional Anatomy/Tissue Biology: Adaptation | 11:00 AM – 12:15 PM | 9 | Session |
| Human Biology: Chronic Disease | 1:00 PM – 2:30 PM | 10 | Session |
| Primatology: Males, Reproduction, & Parenting | 2:00 PM – 3:15 PM | 11 | Session |

SCIENTIFIC PROGRAM

| | | | |
|---|---------------------|----|-----------|
| Genetics and Genomics: Ancient DNA | 3:00 PM – 4:00 PM | 12 | Session |
| Bioarchaeology: Infectious Disease & Epidemics | 4:00 PM – 5:00 PM | 13 | Session |
| Primatology: Diets | 5:00 PM – 6:00 PM | 14 | Session |
| Wednesday, April 14 | | | |
| Bioarchaeology: Kinship & Biological Distance | 10:00 AM – 11:30 AM | 15 | Session |
| Genetics and Genomics: Nonhuman Primates | 12:00 PM – 1:00 PM | 16 | Session |
| Primatology: Health & Disease | 1:00 PM – 2:15 PM | 17 | Session |
| Paleoanthropology: Far from Pedestrian - Legs, Feet, and Locomotion | 3:00 PM – 4:15 PM | 18 | Session |
| Thursday, April 15 | | | |
| Functional Anatomy/Tissue Biology: Methods and Comparison | 9:00 AM – 10:00 AM | 19 | Session |
| Forensic Anthropology: Reflections and New Approaches | 10:00 AM – 11:00 AM | 20 | Session |
| Human Biology: DOHaD | 11:00 AM – 12:00 PM | 21 | Session |
| Bioarchaeology: Life Span Approaches | 12:00 PM – 1:00 PM | 22 | Session |
| 2020 Symposium: What is a population? Troubling foundational concepts and categorization in biological anthropology | 1:00 PM – 2:00 PM | 23 | Symposium |
| Paleoanthropology: Paleoecology I - Communities | 2:00 PM – 3:00 PM | 24 | Session |
| 2020 Symposium: AAAG-AAPA Joint Symposium: Genomic insights into nonhuman primate behavior, biology, and evolution | 3:00 PM – 4:00 PM | 25 | Symposium |
| Dental Anthropology | 5:00 PM – 6:15 PM | 26 | Session |
| Friday, April 16 | | | |
| Bioarchaeology: Migration | 10:00 AM – 11:15 AM | 27 | Session |
| Paleoanthropology: Paleoecology II - Teeth, Diets and Isotopes | 12:00 PM – 1:15 PM | 28 | Session |
| Bioarchaeology: Ritual & Ceremonial Behaviour | 2:00 PM – 3:00 PM | 29 | Session |
| Primatology: Variation, Taxonomy, & Evolution | 3:00 PM – 4:00 PM | 30 | Session |
| Bioarchaeology: Embodiment & Experience | 4:00 PM – 5:00 PM | 31 | Session |
| Monday, April 19 | | | |
| Functional Anatomy/Tissue Biology: Shoulder and Upper Limb | 10:00 AM – 11:00 AM | 32 | Session |
| Bioarchaeology: Skeletal Injury in Context | 11:00 AM – 12:00 PM | 33 | Session |
| Paleoanthropology: New Fossils, New Sites, and New Interpretations | 12:00 PM – 1:00 PM | 34 | Session |

SCIENTIFIC PROGRAM

| | | | |
|--|---------------------|----|-----------|
| Genetics and Genomics: Genotype-Phenotype part I | 2:00 PM – 3:00 PM | 35 | Session |
| 2020 Symposium: Benefits of long-term field studies of primates: 30 years of research on white-faced capuchins at Lomas Barbudal, Costa Rica | 3:00 PM – 4:00 PM | 36 | Symposium |
| Genetics and Genomics: Genotype-Phenotype part II | 4:00 PM – 5:00 PM | 37 | Session |
| Primatology: Primate Conservation | 5:00 PM – 6:15 PM | 38 | Session |
| Tuesday, April 20 | | | |
| Education: Issues of Pedagogy, Access, and Inclusion in Biological Anthropology | 10:00 AM – 11:30 AM | 39 | Session |
| Forensic Anthropology: Addressing Issues of Variation and Race/ism | 11:00 AM – 12:00 PM | 40 | Session |
| Human Biology: Evolution and Adaptation | 12:00 PM – 1:30 PM | 41 | Session |
| Primatology: Sociality | 2:00 PM – 3:00 PM | 42 | Session |
| Bioarchaeology: Social Status & Inequality | 3:00 PM – 4:15 PM | 43 | Session |
| Primatology: Microbiomes | 5:00 PM – 6:30 PM | 44 | Session |
| Paleoanthropology: Getting Ahead - Brains, Faces, and Jaws | 7:00 PM – 8:00 PM | 45 | Session |
| Wednesday, April 21 | | | |
| Functional Anatomy/Tissue Biology: Musculoskeletal Morphology and Locomotion | 9:00 AM – 10:15 AM | 46 | Session |
| Forensic Anthropology: Taphonomic Insights | 11:00 AM – 12:15 PM | 47 | Session |
| Bioarchaeology: Missing & Mingled Parts | 1:00 PM – 2:00 PM | 48 | Session |
| Primatology: Energetics | 2:00 PM – 3:15 PM | 49 | Session |
| Human Biology: Energetics | 4:00 PM – 5:15 PM | 50 | Session |
| Thursday, April 22 | | | |
| Paleoanthropology: Obstetrics and Sexual Dimorphism | 10:00 AM – 11:00 AM | 51 | Session |
| Bioarchaeology: Theory and Method in Conversation | 11:00 AM – 12:00 PM | 52 | Session |
| Genetic and Genomics: Genetic Ancestry and Population History | 12:00 PM – 1:00 PM | 53 | Session |
| Bioarchaeology: Motherhood & Infancy | 2:00 PM – 3:15 PM | 54 | Session |
| Primatology: Infant & Juvenile Development | 4:00 PM – 5:00 PM | 55 | Session |
| Primatology: Ecology | 6:00 PM – 7:00 PM | 56 | Session |
| Friday, April 23 | | | |
| Bioarchaeology: Digital Imaging & Data | 11:00 AM – 12:00 PM | 57 | Session |

SCIENTIFIC PROGRAM

| | | | |
|--|---------------------|----|-----------|
| Human Biology: Skeletal Variation and Functional Morphology | 12:00 PM – 1:00 PM | 58 | Session |
| 2020 Symposium: Koobi Fora Research and Training: Highlights of the last 5 years of research and education initiatives | 1:00 PM – 2:00 PM | 59 | Symposium |
| Genetics and Genomics: The Genetic Legacy of Archaic Humans | 2:00 PM – 3:00 PM | 60 | Session |
| Primateology: Locomotion, Body Mass, & Morphology | 3:00 PM – 4:00 PM | 61 | Session |
| Bioarchaeology: Activity & Skeletal Adaptation | 4:00 PM – 5:00 PM | 62 | Session |
| Monday, April 26 | | | |
| Genetics and Genomics: Natural Selection and Local Adaptation | 11:00 AM – 12:00 PM | 63 | Session |
| Paleoanthropology: Phylogenetics and Quantitative Analyses | 12:00 PM – 1:00 PM | 64 | Session |
| Functional Anatomy/Tissue Biology: Dentition and Diet | 1:00 PM – 2:15 PM | 65 | Session |
| Bioarchaeology: Subsistence & Mobility | 3:00 PM – 4:15 PM | 66 | Session |
| Forensic Anthropology: Re-Evaluating Age Estimation | 5:00 PM – 6:00 PM | 67 | Session |
| Primateology: Sexual Selection & Sex-Based Dispersal | 7:00 PM – 8:00 PM | 68 | Session |
| Tuesday, April 27 | | | |
| Primateology: Ontogeny & Life History | 11:00 AM – 12:15 PM | 69 | Session |
| Human Biology: Life History, Stress, and Coping | 12:00 PM – 1:15 PM | 70 | Session |
| Bioarchaeology: Frailty & Resilience | 2:00 PM – 3:00 PM | 71 | Session |
| Paleoanthropology: Back to Basics - The Shoulder, Arms, and Vertebrae | 4:00 PM – 5:00 PM | 72 | Session |
| Wednesday, April 28 | | | |
| Functional Anatomy/Tissue Biology: Ontogeny | 11:00 AM – 12:15 PM | 73 | Session |
| Human Biology: Skeletal Variation and Methods | 1:00 PM – 2:00 PM | 74 | Session |

10:00 AM – 12:00 PM

Human responses to climate change: What anthropologists want climate scientists and policymakers to know

Invited Symposium

Chair: Anne C. Pisor

*Co-organizers: Anne C. Pisor, Washington State University;
James Holland Jones, Stanford University*

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

- **Inuit and the "problem" of climate change: Local perspectives on contemporary challenges.** E. READY, P. COLLINGS.
- **Scaling Climate Change to Human Behavior. Predicting Good and Bad Years for Maya Farmers.** K.L. KRAMER, J. HACKMAN.
- **Subsistence harvest diversity, social networks, and adaptive capacity to environmental change in Alaska.** S.A. SCAGGS, D. GERKEY.
- **Time Preferences, Risk Preferences, and Climate Change Adaptation.** J. JONES.
- **Connections between climate, fire, and dietary diversity in remote Western Australia.** R. BLIEGE BIRD.
- **13,000-years of climate change and food-security-risk management of Great Plains foragers and farmers.** E.R. OTAROLA-CASTILLO, M.G. TORQUATO, M.E. HILL.
- **A model of human niche construction in a hypervariable environment centered on social memory.** K. DOUGLASS, T. RASOLONDRAINY.

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- Contributions of Evolutionary Anthropology to Understanding Climate-Induced Human Migration. M.C. TOWNER, A. TEMPLON, D.R. KIRSCH.
- Norm Compliance in Common Pool Resource Management: Experimental Evidence from Pemba. J. ANDREWS, M. BORGERHOFF MULDER.
- Do people use long-distance relationships to respond to climate variability? A.C. PISOR, J. JONES.
- Climate change and health among Indigenous Siberians. J. SNODGRASS, E. THOMAS, T. KLIMOVA.
- Sustainability in a multi-level cultural evolutionary framework. M.A. KLINE.
- Mixed-economic strategies in an arid subsistence context: Sub-Saharan hunter-gatherers facing climate change. A. HAZEL.
- External Energy Exploitation and the Shared Evolutionary Roots of Climate Change and Chronic Disease. H. PONTZER..

Symposium 2

12:00 PM – 2:00 PM

Building Intersections Of Covid-19 Scholarship, Health Inequities, And Systems Of Care In Pregnancy And The Postpartum

Invited Symposium

Chair: Julienne N. Rutherford

*Co-organizers: Theresa Gildner, Dartmouth College; Kylea Liese, UIC;
Zaneta Thayer, Dartmouth College; Julienne Rutherford, UIC.*

Although many scientists currently believe the virus that causes COVID-19 does not transmit vertically or significantly impair fetal development, the pandemic has caused significant disruption to reproductive processes, experiences, and care. Initial fears of infection and shelter-in-place orders altered the social and biological experiences of pregnant and postpartum people, including disrupted prenatal care, cultural rituals such as baby showers, birth plans, postpartum depression screening, and breastfeeding practices. Meanwhile, time-sensitive procedures such as fertility interventions and elective abortions were deemed “non-essential” and cancelled. How pandemics disrupt and change reproduction - whether due to illness, changes in healthcare delivery, or impact of stress on maternal and infant well-being - serves as a lens to understand existing reproductive inequities and experienced racism. In this symposium, we bring together reproductive scholars and practitioners to synthesize the impact of COVID-19 and pandemic fallout across the reproductive life course. Questions to be addressed include: How do pandemic-induced changes to healthcare delivery affect access and quality of care for underserved populations? How can bioarchaeological research about past pandemic events inform methodological and policy decisions in the midst of the current one, specifically in relation to reproduction? How does social isolation and disrupted access to care during the perinatal period impact biomarkers of stress, perinatal outcomes, and infant feeding practices for pregnant and postpartum

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people, especially those of color or other minoritized identities? How does the spread of COVID-19 in prisons impact the pregnant people who are incarcerated and their ability to care for their offspring? This symposium dynamically synthesizes perspectives and scholarship from anthropology and healthcare to foster dialogue about how best to design effective and compassionate strategies to center care across diverse populations in response to the unfolding COVID-19 pandemic and future global health challenges.

- **Ancient perspectives on pandemics, prenatal health, and pregnancy loss.** S.E. HALCROW, G. ROBBINS SCHUG.
- **The impacts of the COVID-19 pandemic on maternity care preferences for future pregnancies among women living in the United States.** T.E. GILDNER, Z.M. THAYER.
- **Retrofit, Reform, Re-envision: Lessons Learned While Engaging with Pregnancy Registries.** M.R. MCLEMORE, Y. AFSHAR, I.V. ASIODU, B.D. CHAMBERS, H.E. ERHAHON, V. FLAHERMAN, S. GAW, V. JACOBY.
- **Impact of COVID-19 on Pregnant and Postpartum Incarcerated People.** C. SUFRIN.
- **COVID-19 Related Health Concerns and Grief during the Perinatal Period: Potential impacts on Maternal Mental Health.** C.H. LIU, C. ERDEI, L. MITTAL.
- **SACRED Birth: Uncovering Obstetric Racism in the Time of COVID-19 Through Black Birthing Narratives & Medical Illustrations.** K.A. SCOTT, D. DAVIS.
- **Infant Feeding during the COVID-19 Pandemic in the U.S.** A.E. PALMQUIST, C. FOX, S. CHUNG, C. TOMORI, E.A. QUINN.
- **States of Exception, Structural Vulnerability, and Resiliency: The Global Maternity Care COVID-19 Task Force Project.** M. CHEYNEY, S. VEDAM.
- **Examination of Stress and Anxiety in Pregnancy During COVID-19 Using an Anti-racist Praxis: Insights from the HOPE COVID-19 Study.** A.J. BELL, K.A. SCOTT, L. JELLIFFE-PAWLOWSKI.
- **Family-focused COVID-19 research: leveraging tools and insights from biocultural anthropology.** M.A. MARTIN, B.Q. CAFFE, A. KUNKLE, E. BRINDLE, D.T. EISENBERG, C.L. MEEHAN.
- **Pushing Through The Pandemic: The Impacts Of Covid-19 On Maternity Care, Anxiety, And Childbirth Experiences In The United States.** K.L. LIESE, J.N. RUTHERFORD.

Symposium 3

2:00 PM – 4:00 PM

**AAAG- AAPA Joint Symposium: Thinking beyond the lab?
Anthropological geneticists' response to the COVID-19
pandemic and the summer of civil unrest**

Invited Symposium

Chair: Jada Benn Torres

Co-organizers: Jada Benn Torres, Vanderbilt University

Winter 2019 marked the beginning of a global pandemic that continues to impact the lives of people in innumerable ways. The evolving understandings about how Coronavirus (COVID-19) functions, its demographic impact on populations, and shifting public health policies has had far-reaching repercussions on how we research, educate, and behave in our professional communities. In addition to the pandemic, the current racial unrest in the US also has ramifications on the practice of science. Despite the uncertainty about the virus and ongoing civil rights struggles, anthropological geneticists must find ways to adapt and be responsive to the socio-political realities of where we live and where we work. It is, therefore, timely to think about how this pandemic and current civil unrest has and may continue to affect the ways in which anthropological geneticists conduct research, teach, and otherwise practice the discipline. In this symposium panelists will present challenges and potential solutions faced by anthropological geneticists as a result of the COVID-19 pandemic and the ongoing civil rights social movement. Representing a variety of perspectives spanning from research professionals to trainees, panelists will address how the following four themes have been impacted: 1) Research 2) Industry/Job Market, 3) Teaching, and 4) Diversity/Inclusion efforts for our discipline. The goal of this symposium is to illuminate how contemporary issues have affected ways that anthropological genetics is carried out and the potential lasting impacts on the field. In addition to discussing these recent challenges within our discipline, panelists will also offer what they see as a way forward for anthropological geneticists. Ultimately, this session will illuminate the current state of anthropological genetics in light of the pandemic and social unrest. Presenters will also share insights into using what we've learned to make lasting positive impacts on the discipline.

- **Twenty-twenty Hindsight: Ethical Reform and the Reshaping of Genetic Anthropology.** M.G. VILAR.
- **Future Directions in Anthropological Pedagogy: Insights into the role of technology in teaching anthropological genetics from the Covid-19 pandemic.** K. MCCORMACK, J. BENN-TORRES.
- **To industry and back again: Anthropological genetics outside of the academy.** M.A. NIEVES-COLÓN.
- **Socioeconomic and stress-related impact of COVID-19 on mothers of Mexican descent in Southern California.** A.L. NON, E.S. CLAUSING, S. LARA-CINISOMO, K.L. D'ANNA HERNANDEZ.

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- Using a multi-level systems approach to address structural violence in COVID-19 and other health inequities. A.R. GARCIA.
- Envisioning an anti-racist anthropological genetics: Using our power as scholar-teachers for transformative change within our institutions. E.E. GUEVARA.
- Addressing the shifting legacies of US racism through active and engaged science communication. J. LUND.
- Serving graduate students during a pandemic and civil rights crisis. J.A. RAFF.
- Supporting Diversity, Equity, and Inclusion During Civil Unrest and a Global Pandemic. F. GOMEZ, J. SILVA-FISHER, D.M. ALVARADO, A. SMITH, A. GRIFFITH, G. MBALAVIELE, J. PANGELINAN.

Symposium 4

4:00 PM – 6:00 PM

20 Years of the Human Genome: Insights into Human Population History, Biology and Health

Invited Symposium

Chair: Serena Tucci

Co-organizers: Stephen McGarvey. Depts. of Epidemiology and Anthropology, Brown University

Twenty years ago, the publication of the first draft sequence of the Human Genome launched an unprecedented era for scientific discovery. Since then, advances in genome sequencing technologies allowed for thousands of genomes from worldwide populations to become available. This wealth of data, coupled with the development of new analytical frameworks, spawned a new way to study the biology and evolution of our species. Our symposium aims to explore the legacy of the Human Genome Project and its contribution to the understanding of human population history, biology and health. Participants will present their work on how genomics has advanced our ability to ask innovative questions about human population history and biology, though time and space. Topics include genomic approaches to study human evolutionary history and adaptation, gene-environment interactions, ancient epidemics, the evolution of the human immune system, the biology and health of isolated and founder populations. Finally, we will discuss ethical and social impacts of genomic research. This is a joint session with the Human Biology Association (HBA).

- **The role of population-specific genotype reference panels in genetic association studies.** J.C. CARLSON, N.L. HAWLEY, H. CHENG, T. NASERI, M. REUPENA, R. DEKA, S.T. MCGARVEY, R.L. MINSTER, D.E. WEEKS.
- **Genetically Determined Strength of Natural Killer Cells is 1 Enhanced by Adaptive HLA class I Admixture in East Asians.** G.F. HARRISON.
- **Identifying candidates for adaptive introgression in admixed individuals from the Americas.** E. HUERTA-SANCHEZ, K. WITT, F. VILLANEVA, A. FUNK.

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- **Reconstructing ancient migrations from modern genomes across Latin America and the Pacific.** A.G. IOANNIDIS, J. BLANCO-PORTILLO, K. SANDOVAL, E. HAGELBERG, J. MIQUEL-POBLETE, V. MORENO-MAYAR, J. RODRIGUEZ-RODRIGUEZ, C.D. QUINTO-CORTES, R.A. VERDUGO, M. MORAGA, A.J. MENTZER, C.D. BUSTAMANTE, A. MORENO-ESTRADA.
- **The Impact of Fine-scale Demography on the Genetic Architecture of Disease in Diverse Populations.** G.M. BELBIN.
- **Genomic insights into Andean high-altitude adaptive phenotypes.** A.W. BIGHAM, A. CHILDEBAYEVA, J.L. ISHERWOOD, J. WEINSTEIN, M. KIYAMU, G. ELIAS REVOLLENDO, M. RIVERA-CHIRA, F. LEON-VELARDE, F.S. LEE, T.D. BRUTSAERT.
- **Familial hypercholesterolemia and atherosclerosis: new insights from an old mutation.** B.D. MITCHELL.
- **Evolutionary history of Latin Americans and Native Americans and its effect on phenotypic traits.** T.D. OCONNOR, D. LOESCH, R. LABOULAYE, J. FRENCH, D. VELIZ, V. BORDA.
- **New Harms from Ancient Genomes: Indigenous DNA Extraction in the Next Era of Paleogenomics.** K.S. TSOSIE.
- **Ongoing evolution of the FADS locus from the Paleolithic to the present-day.** I. MATHIESON.
- **An ancient coronavirus-like epidemic 25,000 years in ancestral populations from East Asia.** Y. SOUILMI, E. LAUTERBUR, R. TOBLER, C. HUBER, A.S. JOHAR, D. ENARD.
- **Ethics of engaging in genetic research with underrepresented populations: progress and pitfalls.** N.L. HAWLEY.

10:00 AM – 12:00 PM

Ancient expansions and biocultural diversity in the Americas: a multi-disciplinary perspective debate

Invited Symposium

Chair: Lumila P. Menéndez

Co-organizers: Lumila Menéndez, Konrad Lorenz Institute for Evolution and Cognition Research, Austria; Mark Hubbe, Department of Anthropology, The Ohio State University

Despite recent advances in the study of the biological variation and prehistoric expansions of populations into and within the Americas, there is little consensus about the time and mode of human dispersion across the continents. Current studies have drawn upon a wealth of different sources of information, including molecular (Y-chromosome, mitochondrial-DNA, autosomal markers), morphological (cranial, dental, postcranial), and cultural (linguistic, lithic technology, physical activity) data. However, recent explanations on the biological variation and migratory patterns are mostly restricted to (re) interpretations of former models and rarely integrate successfully discussions derived from analyzing different kinds of evidence. Unfortunately, there are only a few research programs pointing to concert efforts to tackle the combination of multiple and distinctive sources of evidence, given the degree of academic specialization required to handle each data type, as well as the substantial expertise and financial support needed to carry them out. Therefore, it is crucial to promote more dialogue among research groups and integrate frameworks combining cultural, genetic and anatomical data to study migratory patterns and biological diversity among Native Americans. This symposium brings together researchers with different backgrounds sharing an interest in studying ancient expansions and biocultural diversity in the Americas. We expect to create a stimulating environment that would allow discussing the challenges and limitations of combining different voices with the aim of promoting enhanced explanations for the biological diversification and ancient expansions of humans in the Americas.

- **An expanded simulation study of past biological structure in the Americas: dental morphology, quantitative genetics, and biodistance ‘best practices’.** K.S. PAUL, C.M. STOJANOWSKI, G.R. SCOTT.
- **Genomic and cultural diversity of the Incan Capacocha ceremony in Chile and Argentina.** C.P. DE LA FUENTE, M. RAGHAVAN, C. CORTÉS, M. CASTRO, R. VERDUGO, M. MORAGA.
- **From the Andean Highlands to the Patagonian Archipelagos: Reconstructing population dynamics among pre-Hispanic South American groups.** S.C. KUZMINSKY, L. MENÉNDEZ.
- **Staging areas in the settlement of the Americas: Linguistic evidence.** J. NICHOLS.
- **Craniofacial diversity and the reconstruction of the late Pleistocene and Holocene Native American population history.** M.E. DELGADO.
- **A new approach to dental diversity in the New World: applying the forensic application rASUDAS2 to a bioarchaeological problem.** G.R. SCOTT, T. VLEMINCQ-MENDIETA, K.E. STULL.

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- **Characterization of genetic variants in six individuals from the population of Lagoa Santa, MG, Brazil: contributions to the biocultural understanding of the peopling of America.** T.F. DE ALMEIDA, L. DA CRUZ AMARAL, A. STRAUSS, D.V. BERNARDO.
- **A land of confluence: identifying pre-Hispanic migrations in Uruguay through mitogenomes.** G. FIGUEIRO, M. SANS.
- **Substantial biocultural diversity in the early peopling of the Caribbean as evidenced by Cuban recrod.** M. ROKSANDIC, Y.C. DE ARMAS.
- **The biological diversity of early Americans as seen through cranial morphology: comparisons between Lagoa Santa, Brazil, and Quintana Roo, Mexico.** M. HUBBE, A.T. MAT, B. HERRERA, N. VON CRAMON-TAUBADE.
- **The differential influence of climate on cranial variation in North and South Americans: an integral approach combining morphometric, genetic, and environmental data.** L.P. MENENDEZ, A. GROSHEVA, T. SYUTKINA, T. HANIHARA, M. HUBBE, A. EVTEEV.

Symposium 6

12:00 PM – 2:00 PM

Female social networks: Patterns and diversity across societies and implications for human evolution

Invited Symposium

Chair: Stephanie A. Fox

Co-organizers: Stephanie Fox, University of New Mexico; Karen Kramer, University of Utah

Substantial research has been done in non-human primates to understand the biological value of same-sex relationships and their impact on the evolution of social systems and social behavior. In humans, previous research suggests that men and women differ in the way they form social relationships, particularly in the quality and quantity of same-sex friendships, indicating that the costs and benefits of these relationships likely differ between the sexes. Yet, there is a remarkable dearth of cross-cultural and cross-lifespan research on women's social networks, especially on the relative roles of non-kin and non-kin and the ways in which women shift social strategies as they move through life history stages. We need these data in order to evaluate the patterns and biological value of female friendships for women, uncover the social context in which women likely evolved, and ultimately reconstruct the evolution of human social systems by making comparisons with non-human primates. Further, given the decades of research demonstrating the pervasive effects of social integration on human health, it is critical that we close the gap in our knowledge of women's social networks and the mechanisms through which different social actors, including friends, influence women's behavior and health. Drawing on interdisciplinary research, the goal of this symposium is to identify cross-cultural patterns and diversity in women's social networks and discuss the implications of same-sex social relationships on women's health and wellbeing. Presentations will illuminate gender differences in social networks; ask how female social networks differ with matrilocality, patrilocality, nomadism and subsistence strategy; and investigate the cooperative and reciprocal value of kin and

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non-kin for women's work and childcare. We also examine how women's networks change through the lifespan, including if they move to new communities in mid-life, and assess health and reproductive outcomes associated with social engagement.

- **Stay or Go. Kin network effects on dispersal at marriage for female Savanna Pumé hunter-gatherers.** K. KRAMER, J. HACKMAN.
- **Gender reversals in social networks based on prevailing kinship norms in the Mosuo of China.** S.M. MATTISON, A.Z. REYNOLDS, R. LIU, G.D. BACA, M. ZHANG, C. SUM.
- **Starting from scratch in a patrilocal society: how women make friends after marriage in rural Bangladesh.** D.J. HRUSCHKA.
- **Female cooperative labor networks in hunter-gatherers and horticulturalists.** T.S. KRAFT, V.V. VENKATARAMAN, K. ENDICOTT, S. ALAMI, E. SEABRIGHT, M. GURVEN.
- **Livelihood diversity and childcare in a foraging population, the Agta of Palanan, Philippines.** A.E. PAGE, A. HASSAN, M. DYBLE, D. SMITH, A.B. MIGLIANO.
- **Gender and social capital in rural South India: outlining distinct strategies of socialization and support.** E.A. POWER.
- **Reciprocity Across Domains Explains Women's Subsistence Cooperation in Boat-Dwelling Shodagor.** K. STARKWEATHER, A. REYNOLDS.
- **Patterns of same-sex relationships in women across the globe: what do we know?** S.A. FOX.
- **Aunties over Grandmas? Maternal and Paternal aunts provide the majority of extra-household childcare among Tsimane forager-farmers.** S. ALAMI, E. SEABRIGHT, T.S. KRAFT, H. KAPLAN, M. GURVEN.

Symposium 7

2:00 PM – 4:00 PM

Ethics and Best practices of studying contemporary human populations

Invited Symposium

Chair: Mayowa T. Adegboyega

Co-organizers: Xinjun Zhang, University of California, Los Angeles

In the moment of COVID pandemics, many studies on living human subjects are being carried out. In contrast to the excitement of the prospect of a vaccine, little do people talk about the implication and best practice on the living subjects. Similarly, in the last two decades, with the advent of a genomics era, we have witnessed a rapid emergence of research studying contemporary human populations. However, less focus has been dedicated to the discussions around the ethics of such studies. The 2021 AAPA meeting in Baltimore, the historic center of bioethics controversies, offers a great opportunity to engage conversations with anthropologists from multiple subfields regarding the equity and ethics concerns. We hereby propose an interdisciplinary symposium to discuss the ethical concerns surrounding fieldworks that involve direct engagement with extant human populations around the world. We are inviting a diverse panel of experts in genomics, archaeology,

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biomedical informatics, legal policy, and biocultural studies to each bring their own perspectives on the complexities of research involving humans as subjects. This symposium will initiate discussions through the lens of the moral considerations on the interactions with people, how to handle best practices (consent, communication, honor/respect customs, science follow-ups, controversies/complications), and thoughts on the future directions we should be moving in. This symposium aims at promoting interdisciplinary discussion and collaboration for researchers at all career levels. We will also encourage the participation from a broad audience beyond the conference, via live-streaming and broadcasting on social media during the symposium session.

- **Race(ism), Risk, and Accountability: Human Subjects Research, Community Belonging, and Power in Field Research.** R.G. NELSON.
- **Inequities in Personalizing Medicine: A Pharmacogenomics Perspective.** K.G. CLAW.
- **Studying hair morphology in African and African-descendant populations.** T. LASISI.
- **Science on the Alleged Frontiers: Colonialism in the Time of Pandemics.** R.W. SMITH.
- **Our shared genetic mosaic and its implications for privacy.** M. EDGE.
- **Biological anthropology and evolutionary genomics: Transformative opportunities and ethical obligations.** G. PERRY, M. HERNANDEZ, S. KOKUNDA, L. BUSINGYE.
- **Advancing Data Justice: A Need for Anthropologists to Address Data Disparities and Dataveillance.** J.K. WAGNER.
- **Lifelong relationships: genomic data use after completion and publication of a study.** R.S. MALHI.
- **Ethical considerations and community engagement experiences of the Afromexico Genomics Project.** M.C. AVILA ARCOS, G. SANCHEZ ROMERO, A. MORENO-ESTRADA, C.D. BUSTAMANTE, M.W. FELDMAN.
- **Bioethics as a dynamic issue: Holistic approaches to understanding and applying ethics to study design.** T. WINFUL.

Symposium 8

4:00 PM – 6:00 PM

Connecting with Youth Scholars in the Era of COVID-19

Invited Symposium

Chair: Katrina Yezzi-Woodley

Co-organizers: Katrina Yezzi-Woodley, University of Minnesota;

Samantha Porter, University of Minnesota

The current climate we are all navigating has, in many ways, been defined by COVID-19, glaring racial and social injustice, and increasing skepticism over science. It is, therefore, crucial for us to be doing what we can to reach young scholars. Communities are fraught with uncertainty as they make potentially life-threatening decisions regarding approaches to primary and secondary education. The impacts of these decisions unfairly disadvantage

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individuals whose communities have been minoritized and marginalized. The purpose of the AAPA Education Committee is to facilitate engagement of K-12 students and public audiences with biological anthropology. In accordance with this mission, we will host a poster session to present ways in which we have been working as community engaged scholars and educators to overcome these barriers. This poster session is synthetic in nature and is designed to inspire conversations about how we as a community of scholars can overcome barriers created by lack of diversity, inequity, and inclusion in an educational landscape that has been upended by physical distancing and a global pandemic.

- **Leveraging the Language of Modern Video Creation in Science Engagement.** K.E. YEZZI-WOODLEY, S.T. PORTER.
- **Critical Pedagogy in the Online Environment.** M. KISSEL, S. BLUM.
- **Converting Human Evolution Lab Activities to an Online Format.** S.T. PORTER, T. CIOAK, S. GOGOL, K. JENKINS.
- **Committed to justice, struggling to teach: The experiences of social justice educators in spring 2020.** T.M. PATTERSON, C. SEEGER, K. MCGRATH.
- **How High School Biology Teachers Can Engage Students Through Online Learning Using Human Evolution.** J.D. ABDELLA, K.E. YEZZI-WOODLEY.

MONDAY, APRIL 12

Session 1

10:00 AM – 11:00 AM

Bioarchaeology: Approaching Culture Contact & Colonialism

Contributed Presentations

Chair: Anna Fancher

- What does it mean to practice decolonial biological anthropological research?: A case study from Cape Town, South Africa. R.A. HUMPHREYS, W. BLACK, J. BAM HUTCHISON, R. ROGERS ACKERMANN.
- Physical Activity and Bone Remodeling: Agriculture in early Colonial San Gregorio Atlapulco. E. ALARCÓN TINAJERO, J.A. GÓMEZ-VALDÉS.
- The role of Christian traditions in bioarchaeological practice: how public, professional, and ethical attitudes impact the archaeological disturbance of human remains. E. GOODERHAM, H.F. CARDOSO.
- Biological distance in the Eastern Adriatic: a preliminary analysis. T.N. LOEWEN, M.J. ANCTIL.
- Evidence of Stress in Native American Populations of Florida: Investigations into the Microstructure of Enamel. K. LIENBY, S.W. SIMPSON.
- Finding the Blood Tax: Using multi-tooth strontium isotope analysis for evidence of the Ottoman child tribute system in Europe. K.G. ALLEN, E. BLINCOE.
- Multivariate analysis of soldier diet from the Battles of Himera (480 BCE, 409 BCE). K.L. REINBERGER, L.J. REITSEMA, B. KYLE, S. VASSALLO.

Session 2

11:00 AM – 12:00 PM

Forensic Anthropology: Assessing Sex and Gender

Contributed Presentations

Chair: Nicholas Passalacqua.

- Identifying Trans Individuals From Skeletal Remains: Indicators Of Gender Affirming Interventions. A. BOURGEAULT.
- An X/Y chromosome quantitative PCR protocol for assessing secondary DNA transfer: Implications for forensic cases. S.M. MCCRANE, C.J. MULLIGAN.
- A Virtual Anthropological Approach to Examining Sexual Dimorphism in the Pelvis. H. LITAVEC (BRANDT).
- Testing new trait definitions and scoring procedures for subadult sex estimation. S.J. COLE, E.Y. CHU, K.E. STULL.
- Sex estimation for forensic human identification: a case report of discordance between anthropological assessment and DNA analysis. T. BENNETT, V.E. GIBBON, L.D. TAYLOR, L.J. HEATHFIELD.

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- Estimation of sex from the patella in European Americans. E. FRAUENHOFER.
- A New Study Assessing the Sexing Technique on the Os Coxa: Observing the Auricular Surface Using Metric and Morphological Variables. A. UGARTE.

Session 3

12:00 PM – 1:00 PM

Genetics and Genomics: Health and Disease

Contributed Presentations

Chair: Amy Non

- Primate response to a malaria-like parasite in a natural transmission system. A.E. TRUJILLO, C.M. BERGEY.
- Childhood obesity's influence on the oral microbiome and oral health. P.S. WHYMS, A. NAQVI, D. TRUSKOSKI, A. VALVERDE ESTEPA, S. ALRAYYES, S. WILLIAMS, C. SILVER, S. AWADALLA, C.L. NICHOLAS.
- CT and TT phenotypes are associated with poor pregnancy outcomes when compared with CC phenotypes. C. MACLEAN, L. REYES, M. DIMANLIG, L. MADRIGAL.
- Nature and nurture: Association of MAOA, 5-HTTLPR, and COMT genetic variants and resilience with psychosocial stress outcomes in Syrian refugee and Jordanian youth. C.J. MULLIGAN, C.J. CLUKAY, A. MATARAZZO, K. HADFIELD, L. NEVELL, R. DAJANI, C. PANTER-BRICK.
- Humans and chimpanzees exhibit divergent patterns of gut microbial diversity in early life. R.N. CARMODY, A.T. REESE, S.R. PHILLIPS, L.A. OWENS, E.M. VENABLE, K.E. LANGERGRABER, Z.P. MACHANDA, J.C. MITANI, M.N. MULLER, D.P. WATTS, R.W. WRANGHAM, T.L. GOLDBERG, M. EMERY THOMPSON.
- Analyzing clinician views on race and genetic ancestry for treating hypertension. C. RABAY, C. LOPEZ, S. STREULI, A.L. NON.

Session 4

1:00 PM – 2:00 PM

Paleoanthropology: Quantitative Studies - from numbers to phenotypes

Contributed Presentations

Chair: Tesla Monson

- The evolution of the human chin: a quantitative genetic analysis of hominoid craniomandibular form. N. VON CRAMON-TAUBADEL, J.E. SCOTT, C.A. ROBINSON, L. SCHROEDER.
- Multivariate Comparison of East and Southeast Asian Cranial Morphology. N. YUKYI, E.Y. CHU, M. SPRADLEY.

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- A reassessment of the variability of *Homo erectus*: the case of analyzing different cranial regions. C. ZHANG.
- Population-level variation in later Pleistocene Cercopithecus fossil assemblages. C.E. TAYLOR, M.F. BRASIL, T.A. MONSON, R.M. YOHLER, L.J. HLUSKO.
- Using phenotypic integration to understand the evolution of the cercopithecoid maxillary dentition. T.A. MONSON, M.F. BRASIL, C.A. SCHMITT, C.E. TAYLOR, R. YOHLER, L.J. HLUSKO.
- Comparing population history in the widely dispersed *Homo erectus* and *Homo sapiens* species. K.L. BAAB.
- Dental Occlusal Form and Function in *Equus capensis*: Evaluating a Controvertible Taxonomic Status. D.D. STYNDER, M.M. MALHERBE, R.R. ACKERMANN.

Session 5

2:00 PM – 3:15 PM

Functional Anatomy/Tissue Biology: Head

Contributed Presentations

Chair: Valerie DeLeon

- Energetic Demands and Sexual Dimorphism in Inuit Nasal Morphology. A.P. KELLY, S.D. MADDUX.
- A comparison of diceCT and histology for determination of nasal epithelial type. T.D. SMITH, H.M. CORBIN, V.B. DELEON.
- Evolutionary patterns of relative turbinate size across Euarchontoglires. I.K. LUNDEEN, A.D. KEMP.
- Modeling an Industrialized diet in lab mice shows that vitamin D and diet texture alter mandibular form. E.M. VAN ANKUM, K.B. MAJCHER, A.T. DOLOVICH, J.D. JOHNSTON, J.C. BOUGHNER.
- Why the long face? A study of cranial shape change in mice artificially selected for longer limbs. C.M. UNGER, J. DEVINE, C. ROLIAN.
- Phenotypic plasticity of the *Macaca fascicularis* mandible: a geometric morphometric analysis of wild and biomedical populations. E.F. PINKSTON, R.L. QUATAERT, B. KENYON-FLATT, N. VON CRAMON-TAUBADEL.
- Laryngeal vocals in old world locals: air sacs usage in bonobos. C.S. TRENBEATH, J.P. TAGLIALATELA.
- Effects of nasal capsule cartilage in shaping the primate face. V.B. DELEON, T.D. SMITH.

Session 6

4:00 PM – 5:00 PM

Human Biology: Epidemiology, Infection, and Immunology

Contributed Presentations

Chair: Angela Garcia

- Sex- and gender-based tuberculosis mortality in early 20th century Newfoundland: Future considerations for demographic anthropology and epidemiology. T.P. VAN DOREN, L. SATTENSPIEL.
- Daily Physical Activity is Associated with Suppressed Immune Activity in U.S. Adults. C. KLASSON, S. SADHIR, H. PONTZER.
- Soil-transmitted helminth infections are associated with lower levels of inflammatory cytokines among the Shuar of Amazonian Ecuador – Implications for COVID-19 outcomes in helminth endemic areas. T.J. CEPON-ROBINS, T.E. GILDNER, M.A. LIEBERT, S.S. URLACHER, F.C. MADIMENOS, L.S. SUGIYAMA, J.J. SNODGRASS.
- Reactive vs. proactive strategies for milk immunity. K. WANDER, M. GAUCK, M. DURIS, T. HOPT, I. KIWELU, F. MOWO, B. MMBAGA.
- Comparisons of Paleoepidemiological Profiles for Four Prehistoric Northern California Populations. J. VANNAHEUANG, G. HAN, K. LI, J.M. CRONIN, A.T. DAVIS, R.S. JABBOUR, G.D. RICHARDS.
- Eosinophilia Inhibits Cytokine Responses to Viral and Bacterial Stimulations in a Subsistence Population in Bolivia. I. SCHNEIDER-CREASE, A.D. BLACKWELL, T.S. KRAFT, M. EMERY THOMPSON, I. MALDONADO SUAREZ, D.K. CUMMINGS, J. STIEGLITZ, N. SNYDER-MACKLER, M. GURVEN, H. KAPLAN, B.C. TRUMBLE.
- Islands and Bubbles: Lessons from the 1918-19 Influenza Pandemic. J.M. PARISH.

Session 7

6:00 PM – 7:00 PM

Bioarchaeology: Human-Environmental Interactions

Contributed Presentations

Chair: Sara McGuire

- Variation in the sexual dimorphism of nonmetric skeletal traits due to settlement style: A study of hunter-gatherer, rural, and urban populations. M.E. FEILER, E.B. WAXENBAUM, S.A. SCHRADER, C.L. BURRELL, M. HOOGLAND.
- Temporal Changes of Periodontal Disease in the Neolithic Jomon, Japan. A. SASO, K. HAMPSON, O. KONDO.
- Strontium Isotope Analysis Indicates Restricted Mobility among Early Foragers in the High Andes. T.J. SNYDER, B. HULL, E. WASHBURN, V. OELZE, R. HAAS.

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- **Biological responses to permanent occupation and tuber domestication in the Andean Altiplano.** J.T. WATSON, R. HAAS, C. MCPHERSON.
- **Body-society interactions during childhood in post-medieval Leeds, England: Metabolic disease, lead exposure and allostasis.** P.A. MONGUI, J. MONTGOMERY, J. BEAUMONT, A.C. CAFFELL, R.L. GOWLAND, C.J. OTTLEY.
- **Noxious Smoke and Silent Killers: Pollutant Exposure during England's Industrial Revolution.** S.A. MCGUIRE, M. HUBBE, A. POURMAND, W.J. PESTLE.
- **Paleopathological analysis of an historical urban population from Montréal: Exploring the interactions between vitamin D deficiency and other diseases..** R. BIGUÉ, I. RIBOT, C. ROBERTS.

TUESDAY, APRIL 13

Session 8

9:00 AM – 10:00 AM

Education: Biological Anthropology Reaching Out

Contributed Presentations

Co-Chairs: Michael Rivera, Nicole Torres-Tamayo

- **Biological Anthropology in Peru: A Contemporary Analysis of Its Education and Job Market.** B.I. QUISPE VILCAHUAMAN.
- **The Arch and Anth Podcast: education, outreach and representation.** M.B. RIVERA.
- **The Bioanthropology Study and Research Group of the State University of Pará, GEB/UEPA, Brazil: Education in Biological Anthropology in the Amazon, Achievements and Challenges.** L.A. FILGUEIRAS, R.B. OLIVEIRA, A.K. DA SILVA, H.P. SILVA, E.M. RAMOS.
- **Collaborating with Local Communities in Developing Conservation Bioarchaeology Projects: The Historic Belen Bioarchaeology Project.** J. FREIBERGER, D.L. MARTIN, P.K. STONE, C. RALSTON.
- **Adaptive Utilization of Digital Forums for Bioanthropological Outreach.** A.S. GANCZ, M.B. LENOVER.

Session 9

11:00 AM – 12:15 PM

Functional Anatomy/Tissue Biology: Adaptation

Contributed Presentations

Chair: Maureen Devlin

- **The role of uncoupling protein-1 in cold-induced bone loss: implications for human climatic adaptation.** M. SCHULER, R. TUTINO, M. COSMAN, R. HURWITZ, T.M. SPENCER, I. HERMSMEYER, A. STOKEL, M.J. DEVLIN.
- **Archery's Lasting Mark: A Biomechanical Analysis of Archery.** T. DORSHORST, J. HAMILL, G. WEIR, B. HOLT.
- **Exercise and postural effects on trabecular and subchondral bone properties in the medial femoral condyle.** H. SONG, M.E. KERSH, J.D. POLK.
- **Testing the pelvic floor hypothesis: patterns of relationship between the canal and gut size.** J. UY, N.M. LAUDICINA.
- **The Evolution of Placenta Diversification and Mammalian Reproductive Strategies.** M. SZAFRANIEC, A.M. BODDY.
- **Are linear measurements or areas of birth canal planes more relevant to obstetric studies?** J. EYRE.

TUESDAY, APRIL 13

- **Putting it on display: The musculoskeletal consequences of large gaps in male Old World monkeys.** A.B. TAYLOR, C.E. TERHUNE, M.F. TEAFORD, C.F. ROSS, C.J. VINYARD.
- **Relationships among three-dimensional os coxae shape, locomotor behavior, phylogeny, and size in haplorhine and strepsirrhine primates.** K.L. LEWTON.

Session 10

1:00 PM – 2:30 PM

Human Biology: Chronic Disease

Contributed Presentations

Chair: James Gibb.

- **Does the sex difference in upper body strength explain the sex difference in depression?** C.B. SMITH, E.H. HAGEN.
- **Poor Memory and Depression in Older Adults: Results from the Study on global AGEing and adult health (SAGE).** T.R. JUDGE, A.M. DELOUIZE, P. KOWAL, N. NAIDOO, S. CHATTERJI, J. SNODGRASS.
- **Does Variation in Quilombos' Diets Influence the Hemogram Profile?** F. FELKER, S. GUIMARAES-PAIVA, M. KLAUTAU-GUIMARAES, S. DE OLIVEIRA, L. MADRIGAL.
- **Evaluating the aetiology of the geographically isolated Mseleni joint disease: A biocultural multi-method approach.** E.S. DINKELE, R. BALLO, V. FREDLUND, V.E. GIBBON.
- **The influence of migration and urbanization on the metabolic health of mobile Amazonian people residing in Yurimaguas Peru— a pilot study.** J. GERHOLD, M. MOSHER.
- **Sexual orientation-based disparities in food security among American adults.** J.K. GIBB, M. SHOKOOHI, T. SALWAY, L.E. ROSS.
- **Incongruence between self-reported health and chronic disease risk amongst rural Nicaraguan women experiencing an epidemiological transition.** D. HARDIN, B.A. PIPERATA, J. DE CARO, N. HOEHN, G.E. BROWN, K.K. SCHMEER, W. WILSON.
- **Sickle Cell Anemia and Sickle Cell Trait in the State of Pará, Brazil: Prevalence of Clinical Manifestations among Families in the Amazon Region.** A.K. SILVA, H.P. SILVA.
- **Impact of Sample Collection Preparation on Metabolomic and Microbiome Profiles.** J.J. HAFFNER, D. JACOBSON, T.P. HONAP, E. HOSSAIN, K. SANKARANARAYANAN, L. MCCALL, C.M. LEWIS, JR.

Session 11

2:00 PM – 3:15 PM

Primateology: Males, Reproduction, & Parenting

Contributed Presentations

Chair: Matthew Zippel

- How secondary males help or hinder primary males in two baboon societies. S. CHOWDHURY, L. SWEDELL.
- Evidence of a behavioral tradeoff between parenting effort and mating effort in a polygynandrous primate. C.R. HAWLEY, J.B. SILK.
- Determinants and influences of infant spatial relationships with adult males in a wild primate: a mechanism for intergenerational transmission of early adversity? M.N. ZIPPLE, C.A. SOUTHWORTH, S.P. CLINTON, E.A. ARCHIE, S.C. ALBERTS.
- Personality and Alternative Mating Strategy in Male Japanese Macaques (*Macaca fuscata*). N. BIGGS, K.N. GARTLAND, F.J. WHITE.
- A genetic analysis of male reproductive skew among ring-tailed lemurs (*Lemur catta*) from Bezà Mahafaly, Madagascar. J.A. PARGA, M.L. SAUTHER, F.P. CUOZZO, R.R. LAWLER, L. GOULD, J. PASTORINI.
- Evolution of Investment in Immatures in Adult Male Japanese Macaques (*Macaca fuscata*). N. COHEN, K.N. GARTLAND, F.J. WHITE.
- Fathers and father figures: Kin and age effects on chimpanzee (*Pan troglodytes*) social relationships. A.A. SANDEL.
- The benefits of selective use of aggression by male hamadryas baboons. K.D. EVANS, L. SWEDELL, S. CHOWDHURY.

Session 12

3:00 PM – 4:00 PM

Genetics and Genomics: Ancient DNA

Contributed Presentations

Chair: Jennifer Raff

- Investigating population genomic continuity between the fifth and sixth century. D.N. VYAS, A. MODI, S. VAI, I. KONCZ, W. POHL, L.P. BARICCO, E. BEDINI, C. GIOSTRA, T. VIDA, B.G. MENDE, D. CARAMELLI, J. KRAUSE, P.J. GEARY, K.R. VEERAMAH.
- African mitogenome diversity in 18th century Charleston, South Carolina. R.E. FLESKES, A.A. OFUNNIYIN, J. GILMORE, G.S. CABANA, T.G. SCHURR.

TUESDAY, APRIL 13

- **Evolutionary and phylogenetic insights from a nuclear genome of the extinct giant koala lemur *Megaladapis edwardsi*.** S. MARCINIAK, M.R. MUGHAL, L.R. GODFREY, C.M. BERGEY, R.J. BANKOFF, H. RANDRIANATOANDRO, B.E. CROWLEY, K.M. MULDOON, W. MILLER, S.C. SCHUSTER, R.S. MAHLI, A.D. YODER, E.E. LOUIS JR., L. KISTLER, G. PERRY.
- **Bisulphite sequencing of ancient genomes.** B. LLAMAS.
- **New perspectives on Nubian ancestry: Paleogenomic investigation of the ancient Middle Nile Region.** A.M. BREIDENSTEIN, J. NEUKAMM, C. BARBIERI, G. FERRARI, A.T. GONDEK-WYROZEMSKA, M. ABDALLAH, M. BASHIR, M. BUSHARA, R.J. STARK, J. CIESIELSKA, A. OBLUSKI, B. STAR, H. HASSAN, F. RÜHLI, V. SCHUENEMANN, A.W. BIGHAM.
- **Using aDNA and Archaeological Data to Explain Migration in the Casas Grandes Region of Northern Mexico.** M. SNOW, M. SEARCY.

Session 13

4:00 PM – 5:00 PM

Bioarchaeology: Infectious Disease & Epidemics

Contributed Presentations

Chair: Melandri Vlok

- **Mortality risk and survival in pre- and post-Black Death Denmark.** S. KELMELIS, S.N. DEWITTE.
- **Adult mortality from infectious disease and childhood stress markers on the North American Great Plains.** J.D. MINSKY-ROWLAND.
- **The lasting impact of pandemics – changing demography of 1918 Influenza survivors.** A. WISSLER.
- **Stable isotope study of dietary changes in the aftermath of the Black Death in Toulouse, Franc.** J.A. TYLER, E. CORDINER, S. KACKI, R. GOWLAND, D.R. GRÖCKE, J. MONTGOMERY.
- **The second epidemiological transition: Survivorship and industrialization in London.** S.L. YAUSSY, S.N. DEWITTE, G. HUGHES-MOREY.
- **Dietary variation by social status and sex in the aftermath of the medieval Black Death in London.** S.N. DEWITTE, J. BEAUMONT, J. MONTGOMERY, R. REDFERN.
- **Exploring the use of portable X-ray fluorescence (pXRF) for the identification of pathological archaeological bone.** N.N. KILBURN, R.L. GOWLAND, H.H. HALLDÓRSDÓTTIR, R. WILLIAMS, T.J. THOMPSON.

Session 14

5:00 PM – 6:00 PM

Primateology: Diets

Contributed Presentations

Chair: Amy Scott

- The nutritional chemistry of bamboo lemur (*Hapalemur griseus*) foods and niche separation among sympatric lemurs in Madagascar rainforests. C.N. GHERARDI, S. NAUGHTON, M.C. FITZPATRICK, V. RAHALINARIVO, J. RANAIVOARISOA, J. RANDRIANASY, J. RAHARISON, B. RAMORASATA, J.M. ROTHMAN, M.T. IRWIN.
- Folivore rules and frugivore rules: Variation in diet and food chemistry in sympatric frugivorous and folivorous lemurs. M.T. IRWIN, V. RAHALINARIVO, J. RAHARISON, B. RAMORASATA, J. RANAIVOARISOA, J. RANDRIANASY, J.M. ROTHMAN.
- Responses to novel food in a group of captive hamadryas baboons (*Papio hamadryas*): The role of sensory cues. S. LEE, Y. KIM, C. SARABIAN, J. CHOE.
- Nitrogen Isotopes of Serially Sampled Nails From Chimpanzees and Baboons at Gombe National Park, Tanzania. R.S. NOCKERTS, M.L. WILSON, D.L. FOX, R.C. O'MALLEY, D. COLLINS, I.C. GILBY, A.E. PUSEY.
- Bornean orangutan (*Pongo pygmaeus wurmbii*) patterns of frugivory and the relation to seed dispersal and seed predation. A. BLACKBURN, T. SUSANTO, C.D. KNOTT.
- Extrinsic and intrinsic effects on nutritional strategy in redtail monkeys (*Cercopithecus ascanius*). M.A. BRYER, J.M. ROTHMAN.
- Dietary ethanol in the main food (*Ficus mucosa*) of chimpanzees (*Pan troglodytes*) in a tropical rain forest. A.E. MARO, A.A. SANDEL, J.C. MITANI, R. DUDLEY.
- Behavioral adaptation to seasonal day length variation by chacma baboons (*Papio hamadryas ursinus*) at the southern-most edge of their range. N.W. ELLWANGER, T.Q. BARTLETT.

WEDNESDAY, APRIL 14

Session 15

9:00 AM – 10:00 AM

Bioarchaeology: Kinship & Biological Distance

Contributed Presentations

Chair: Frank Williams

- Characterization of the inhabitants of South America using nonmetric dental data. T. VLEMINCQ-MENDIETA, G. SCOTT.
- The fall of Meroe: Invasion or decline? The dental evidence. E.L. PHILLIPS, J.D. IRISH, D. ANTOINE.
- Interpreting kinship, relatedness, and biological health in historic Oymaağaç, Turkey via os acetabuli and os naviculare: An analysis and critique of the use of bony ossicles in bioarchaeology. M.K. GREEN, K.E. MARKLEIN.
- Ancestral Affiliation and the Production of Social Identity: Investigations of Mortuary Practices among Persistent Hunter-Gatherers in Archaic Indian Knoll, Kentucky. R.L. RODAN, D.H. TEMPLE.
- Associations between genetic differentiation and craniometric interpopulation distances across North Eurasia. A. EVTEEV, P. SANTOS, S. GHIROTTI, H. REYES-CENTENO.
- How good are ASUDAS traits for assessing population relatedness? An answer—from comparisons of African dental and genetic data. J.D. IRISH, A. MOREZ, L. GIRDLAND FLINK.
- Testing isolation by distance among Brazilian shellmound builders using dental morphology. D. FIDALGO, V. WESOLOWSKI, M. HUBBE.
- Temporal variation in Carabelli's trait frequency and lactase persistence. D.E. KENESSEY, M.A. PILLOUD.
- The utility of dental nonmetric ASUDAS traits and trait combinations for inferring human population history. H. RATHMANN, H. REYES-CENTENO.

Session 16

10:00 AM – 11:00 AM

Genetics and Genomics: Nonhuman Primates

Contributed Presentations

Chair: Christina Bergey

- The Strepsirrhine and Tarsier Genome Sequencing Initiative: Conservation Genomics of the Non-Anthropoid Primates. J.D. ORKIN, L.F. KUDERNA, M. GUT, I. GUT, J. HORVATH, M.C. JANIÁK, S. MERKER, A. KITCHENER, L. POZZI, G. ZHANG, C. ROOS, J. ROGERS, K. FARH, T. MARQUES-BONET.
- Kinship predicts genetic similarity at class II but not class I MHC loci in olive baboons. R.M. PETERSEN, C.M. BERGEY, C. ROOS, J.P. HIGHAM.

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- **Early life adversity predicts DNA methylation levels in wild adult baboons.** J. ANDERSON, A. LEA, M. AKINYI, T. VOYLES, S. ALBERTS, E. ARCHIE, J. TUNG.
- **Examination of the aye-aye (*Daubentonia madagascariensis*) genome reveals lineage-specific Alu element subfamilies.** A.T. MCLAIN.
- **Phylogenetic analysis of the UCP1 gene in primates reveals clade-specific structural variation.** C.M. GAGNON, C.A. SCHMITT.
- **Canine integration and modularity in a sample of pedigreed *Papio hamadryas*.** C.D. KELLY, L.K. DELEZENE, K.S. PAUL, C.C. ROSEMAN, J. PLAVCAN.

Session 17

1:00 PM – 2:15 PM

Primateology: Health & Disease

Contributed Presentations

Chair: Lisa Paciulli

- **Looking for Linear Enamel Hypoplasia in Subfossil Lemurs.** M.S. SEABOCH, L.R. GODFREY.
- **Prevalence of periodontitis and odontogenic abscesses in *Pan paniscus*.** S. KALLURI, E. GILISSEN, Q. WANG.
- **Socioecological Predictors of Respiratory Illness in Western Lowland Gorillas (*Gorilla gorilla gorilla*).** K.E. COOKSEY, C. SANZ, J.M. MASSAMBA, T. EBOMBI, P. TEBERD, E. MAGEMMA, G. ABEA, G. MBEBOUTI, J.S. ORTEGA PERALEJO, I. KIENAST, C. STEPHENS, D. MORGAN.
- **Parasitic load in grey-bellied owl monkeys (*Aotus lemurinus*) living within city limits of Manizales, Colombia.** P. GONZALEZ VANEGAS, M. ŠEŠELJ, W.A. CAÑÓN-FRANCO.
- **Cranial suture fusion does not predict presence of craniodental lesions in cercopithecoids.** T. STEIN, C.A. KIRCHHOFF, D. MITCHELL, S.B. COOKE, C.E. TERHUNE.
- **Do captive lemurs have mites (Class: Arachnida)?** L. PACIULLI, D. DENTON, M. NALLEY, T. KWON.
- **Contrasting craniodental lesion rates in platyrrhines.** M. MERWIN, C.A. KIRCHHOFF, D. MITCHELL, S.B. COOKE, C.E. TERHUNE.
- **Using museum specimens to assess anthropogenic impacts on nonhuman primate health.** S.T. SAIYED, A.R. ELLER, R.M. AUSTIN, S.L. CANINGTON, S.B. SHOLTS, A. FUENTES.

Session 18

3:00 PM – 4:15 PM

Paleoanthropology: Far from Pedestrian - Legs, Feet, and Locomotion

Contributed Presentations

Chair: Thomas Prang

- **Acetabular orientation and pelvic form in hominins and other anthropoids.** A.B. LAWRENCE, A.S. HAMMOND, C.V. WARD.
- **A new ontogenetic framework for analyzing fossil hominin tracks.** K.G. HATALA, P.L. FALKINGHAM, S.M. GATESY.
- **Interspecific variation in extant primate and fossil hominin calcaneal articular facet curvature.** A.C. IDSO, C. SOLIGO, W.C. PARR.
- **Evaluating landmark error and estimates of asymmetry in the hominin proximal femur.** L.H. EASON, L.M. ZACHARY.
- **Investigation of cuboid elongation and variation in tarsal proportions of early primates.** M.M. BRADLEY-CRONKWRIGHT, D.M. BOYER, J.I. BLOCH.
- **Multivariate analysis of talar morphology in *Ardipithecus ramidus*.** T.C. PRANG, S.A. WILLIAMS.
- **Chimpanzee and human foot strike forces and the evolution of heel strike walking in hominins.** N.B. HOLOWKA, V. BHANDAL, O. LAM, M.C. O'NEILL, N.E. THOMPSON, B. DEMES.
- **A new three-dimensional musculoskeletal model of the pelvis and lower limbs of *Australopithecus afarensis*.** M.C. O'NEILL, A. NAGANO, B.R. UMBERGER.

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Session 19

9:00 AM – 10:00 AM

Functional Anatomy/Tissue Biology: Methods and Comparison

Contributed Presentations

Chair: Mary Cole

- Trabecular mapping: Effects of intra- and interobserver error on sliding semilandmark placement. C. RUSSELL, D.S. GLEIBER, D.J. WESCOTT, D.L. CUNNINGHAM, A.D. SYLVESTER.
- Where only the strong survive: Excluding damaged/pathologic specimens may result in sampling biases in shape analyses. D. MITCHELL, C.A. KIRCHHOFF, S.B. COOKE, C.E. TERHUNE.
- Graph theory applied to dental topography helps isolating and comparing the sharpest tools of primate molars. G. THIERY, F. GUY, V. LAZZARI, S.O. SOSA.
- Assessing Asymmetry in the Platyrrhine Postcrania. L.M. ZACHARY, L.H. EASON.
- Preliminary comparisons of cross-sectional geometry and histology between 20th century and late medieval human midshaft femora. J.J. MISZKIEWICZ, R. HARDIMAN, A.J. VASSALLO, B. BAYLISS, P. MAHONEY.
- Pore Extractor 2D: An ImageJ plugin for identification, classification, and regional characterization of cortical pores on histological bone images. M.E. COLE, S.D. STOUT, A.M. AGNEW.

Session 20

10:00 AM – 11:00 AM

Forensic Anthropology: Reflections and New Approaches

Contributed Presentations

Chair: Samantha McCrane.

- Reliability of facial identification methods in optimal photographs and suboptimal CCTV footage. N. BACCI, M. STEYN, N. BRIERS.
- Applying a holistic body of evolutionary theory to the practice of forensic anthropology. A.P. WINBURN, M.K. STOCK.
- What can you do when the standard biological profile can't help? A case of identical twins. A.D. SCHAEFER, C.B. LEGARDE.
- Rethinking how anthropologist analyze burned human remains: The need for a more quantitative approach. A. WILLIAMS.
- Bioarchaeology and forensic anthropology and as unique expertises. N.V. PASSALACQUA, M.A. PILLOUD, D. CONGRAM.
- Identification of the deceased: A retrospective review of Forensic Anthropology Cape Town casework. A. BALISO, L.J. HEATHFIELD, V.E. GIBBON.
- Allometry used for the osteometric sorting of multiple long bones simultaneously. A.B. LEE, L.W. KONIGSBERG.

Session 21

11:00 AM – 12:00 PM

Human Biology: DOHaD

Contributed Presentations

Chair: Morgan Hoke

- Gene expression in placental tissue compared with gene expression in venous blood from mothers and newborns in the Democratic Republic of Congo. C.J. HSIAO, A.C. WALTERS, E.B. QUINN, F. MAISHA, C.J. MULLIGAN.
- Differences in growth and body composition between rural and urban Maya children from the Yucatan Peninsula: The importance of early-life conditions. L. CHRISTOPHER, H. AZCORRA, F. DICKINSON, K. KRAMER, I. VARELA-SILVA, A. VEILE.
- Allopregnanolone Serum Concentrations in Term and Preterm Birth: An Exploratory Study. G.B. MAYNE, U. CHRISTIANS, D. DABELEA, K. HURT, A.G. WARRENER.
- Gut Function, Immune Function Tradeoffs, and Infant Growth among High Altitude Andeans. M.K. HOKE, K.M. MCCABE.
- Growth analysis of South African Mixed Ancestry infants. L.M. ARENDSE, D. BRITS, E.V. LAMBERT, V.E. GIBBON.
- Craniofacial Traits and Body Composition in Two Genetically Varied Populations: Heritability and Associations. S. GHOSH, T. DOSAEV, G. LIVSHITS.
- Duration of gestational exposure to genocide against the Tutsi in relation to health outcomes in young adulthood. G. UWIZEYE, J.N. RUTHERFORD, Z.M. THAYER.

Session 22

12:00 PM – 1:00 PM

Bioarchaeology: Life Span Approaches

Contributed Presentations

Chair: L. Creighton Avery

- Investigating Social Age Changes in the Roman Empire through Dietary Stable Isotopes. L. AVERY, M.B. BRICKLEY, T.L. PROWSE.
- Exploring the potential of pulp stones in reconstructing diet: A comparative study of carbon and nitrogen stable isotopes in pulp stones and incremental dentine. B. OSTRUM, D.R. GRÖCKE, J. MONTGOMERY.
- Identifying the timing of puberty in a modern skeletal sample from the United States. J.T. WRIGHT, J.D. BETHARD.
- Vertebral neural canal growth and developmental stress: a case study from the American Southwest. S.M. LOPRESTO, D.H. TEMPLE, D.R. HUNT.

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- **Stressed to the tooth? A pilot study of cortisol in archaeological tooth structures.** L. QUADE, P.L. CHAZOT, R. GOWLAND.
- **Growth rate changes during the Middle Ages (ca. 500–1500 AD) in Central Europe.** P. GALETA, A. PANKOWSKÁ.

Session 23

1:00 PM – 2:00 PM

2020 Symposium: What is a population? Troubling foundational concepts and categorization in biological anthropology

Contributed Presentations

Chair: Adam P. Van Arsdale

In 1951, Sherwood Washburn proposed a new physical anthropology. Central to Washburn's vision, and borrowed from the modern synthesis in evolutionary biology, was a re-centering of the focus of research on the population. The population was the unit through which evolutionary processes can and should be understood, avoiding the pitfalls of atheoretical taxonomization. Nearly 70 years removed, the population remains the focal unit of biological anthropology, and yet, in practice, it is not clear this category has either consistency or clarity. In 2003, Caspari pointed out that although the language of biological anthropology has changed substantially over the past century, from "types to populations," the underlying logic—populations as discrete branches of a tree-like structure—remains quite similar. At its root, this inertia in the discipline reflects an unfinished theoritization of populations as a unit of study, particularly given the diverse scales (temporal and geographic) and kinds of evidence (fossil, skeletal, archaeological, medical, anthropometric, biometric, genetic) employed in biological anthropology research.

- **Variation in adolescent male chimpanzee reproductive tactics: implications for understanding what is a "population" of chimpanzees.** R.B. REDDY.
- **Balancing the Scales of Bioarchaeology: Meaningful Studies of Health and Function in Past Populations, Communities and Individuals.** S.C. AGARWAL.
- **Primate populations/communities, the role of humans in shaping them, and why it matters.** E.P. RILEY.
- **The misuse of "hunter-gatherers" as a discreet unit in population studies.** A.N. CRITTENDEN, T.R. POLLOM.
- **Demes in Disarray: Reconciling Evidence, Observation, and Population Structure in the Pleistocene.** A.P. VAN ARSDALE, M.M. GLANTZ.

Session 24

2:00 PM – 3:00 PM

Paleoanthropology: Paleoecology I - Communities

Contributed Presentations

Chair: Monya Anderson

- **Examining differences among *Australopithecus afarensis* localities: Climate and paleoecology.** K.E. REED, I.E. SMAIL, D.F. SU, M.D. BIERNAT, E.F. LALUNIO, K. WINSLOW, K. BOW, C. CLINE, C.F. GEORGE, M. ORICCHIO.
- **Functional Morphology of the Large-Bodied Colobines from the Turkana Basin during the Plio-Pleistocene.** M. ANDERSON.
- **Relative abundance among cercopithecids from Woranso-Mille and other contemporaneous eastern African sites.** H.G. REDA, S.R. FROST, Y. HAILE-SELASSIE.
- **Paleoecology and Biochronology of Early Pleistocene sites in southern Romania.** S.C. CURRAN, C.E. TERHUNE, R. CROITOR, V. DRAGUSIN, D.L. FOX, N. GARRETT, T. GAUDIN, L.B. IRONSIDE, A. PETCULESCU, B. POBINER, C. ROBINSON, M. ROBU, I. TANTAU, P. UNGAR, L. WERDELIN.
- **Muscle attachment sites influence cut mark morphology.** M. ARMOUR-CHELU.
- **Patterns of local paleoenvironmental change and bovid turnover during the emergence of Paranthropus and Homo in eastern Africa.** E.N. FILLION, T. HARRISON.

Session 25

3:00 PM – 4:00 PM

2020 Symposium: AAAG-AAPA Joint Symposium: Genomic insights into nonhuman primate behavior, biology, and evolution

Contributed Presentations

Chair: Timothy H. Webster

The incorporation of PCR and noninvasive genetic methods into nonhuman primate studies approximately 25 years ago revolutionized our understanding of primate evolutionary ecology. The past decade has seen a second enormous leap in genetic methods, as advances in next-generation sequencing technology and bioinformatic methods have paved the way for the generation and analysis of data from across the entire genome. These data have the potential to unlock answers to an entirely new body of questions in primatology. This AAAG-AAPA joint symposium highlights the range of novel insights into primate biology, behavior, and evolution that can be gained with large genomic datasets. Speakers will present work leveraging a variety of data types—nuclear genomes, exomes, transcriptomes, epigenomes, and microbiomes—to address topics central to primatology. These range from development and aging, stress, and health within individuals over the life course, to introgression, demography, and adaptation within and among populations and species

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over time. Talks emphasize both the active role of the genome in shaping biology and also how biology shapes the genome, leaving signals that can be used to reconstruct processes operating in the past. Further, all presenters are pre-tenure, early career researchers; a central goal of this symposium will be to highlight the world of possibility for these techniques and catalyze a new wave of primatological genomic research.

- **Pervasive genomic evidence for adaptation to a leaf-based diet in sifakas (*genus Propithecus*).** E.E. GUEVARA, T.H. WEBSTER, R.R. LAWLER, B.J. BRADLEY, J. RANAIVONASY, J. RATSIRARSON, R. HARRIS, Y. LIU, S. MURALI, M. RAVEENDRAN, D.S. HUGHES, D.M. MUZNY, A.D. YODER, K.C. WORLEY, J. ROGERS.
- **Characterizing evolutionarily divergent patterns of gene expression during osteogenesis using a comparative primate skeletal cell culture model.** G. HOUSMAN, Y. GILAD.
- **Signatures of adaptive evolution in Neotropical primate genomes with a focus on capuchin monkeys.** H. BYRNE, P. IZAR, J.W. LYNCH.
- **Recent selective sweeps in bonobos (*Pan paniscus*): A machine learning approach.** C.M. BRAND, T.H. WEBSTER, F.J. WHITE, N. TING.
- **Pedigree sequencing shows that life history plays a major role in mutation rate variation in primates.** G.W. THOMAS, R.J. WANG, R. HARRIS, M. RAVEENDRAN, J. ROGERS, M.W. HAHN.
- **Parallel gene regulatory signatures of social stress and aging in rhesus macaques.** N.D. SIMONS, P.L. MAURIZIO, J. BATISTA, V. MICHOPoulos, L.B. BARREIRO, J. TUNG.
- **Mosaic X Chromosome Inactivation in Rhesus Macaques (*Macaca mulatta*).** T.H. WEBSTER, T.N. PHUNG, M.J. MONTAGUE, O. GONZALEZ, S. BAUMAN, M. STOCK, C. VILLAMIL, M. MARTINEZ, J.P. HIGHAM, N. SNYDER-MACKLER, M.L. PLATT, M.A. WILSON.
- **The Effects of Host Taxon, Hybridization, and Environment on the Gut Microbiome of *Callithrix* Marmosets.** J. MALUKIEWICZ, R.A. CARTWRIGHT, J.A. DERGAM, C.S. IGAYARA, S. KESSLER, S.B. MOREIRA, L.T. NASH, P.A. NICOLA, L.C. PEREIRA, A. PISSINATI, C.R. RUIZ-MIRANDA, A.T. OZGA, C. ROOS, D.L. SILVA, A.C. STONE, A.D. GRATIVOL.
- **Mapping putative genetic barriers to gene flow in hybrid baboons.** A.S. FOGEL, T.P. VILGALYS, S. KIM, J. ALTMANN, S.C. ALBERTS, J. TUNG.
- **Genomics of adaptation, convergence, and evolutionary conservation in haplorrhine primates.** C.M. BERGEY, A.E. TRUJILLO, T.R. DISOTELL, A.J. TOSI, A.S. BURRELL.
- **The rhesus macaque brain cell census reveals heterogeneity in aging across cell types.** K.L. CHIOU, A.R. DECASIEN, M.J. MONTAGUE, S.E. BAUMAN, N.R. COMPO, O. GONZÁLEZ, H.A. PLINER, C.H. SPURRELL, L.M. STARITA, L.J. BRENT, J.P. HIGHAM, M.I. MARTINEZ, J. SHENDURE, M.L. PLATT, N. SNYDER-MACKLER.
- **Expressing the Thrifty Phenotype? Associations between Lifelong Growth Trajectories and Whole Genome Expression Variation in Captive Baboons (*Papio hamadryas*).** C.A. SCHMITT, E.E. QUILLEN.

Session 26

11:00 AM – 12:00 PM

Dental Anthropology

Contributed Presentations

Chair: Debbie Guatelli-Steinberg

- Oral processing, folivory, and premolar size in eight cercopithecoid monkeys. L.D. FANNIN, D. GUATELLI-STEINBERG, J. ARFT-GUATELLI, N.T. DUNHAM, J.E. TRAFF, T. PALVADORE, A. DONALDSON, P. CUNNEYWORTH, D.J. DAEGLING, W.S. MCGRAW.
- Asymmetry and discordance in carabelli's trait and the hypocone: Do monozygotic and dizygotic twins point to common underlying epigenetic factors? S. HAY, G. SCOTT.
- Intrauterine hormone effects on tooth morphology in dizygotic opposite-sex twins. R. FEEZELL, K.S. PAUL, T. HUGHES, A. BROOK.
- New wisdom from third molars: Strange variation in human molar size, and its impact on eruption and evolution. J.C. BOUGHNER, D.F. MARCHIORI, G.V. PACKOTA.
- Elemental evidence for birth in primate tooth enamel. T.M. SMITH, C. AUSTIN, M. ARORA.
- Chew on this: Dental wear patterns in biomedical and wild *Macaca fascicularis* specimens. R.L. QUATAERT, E.F. PINKSTON, B. KENYON-FLATT, N. VON CRAMON-TAUBADEL.
- Relationships between sex, body mass and tooth wear in Cayo Santiago rhesus monkeys (*Macaca mulatta*). D. GUATELLI-STEINBERG, E. MALDONADO, T.B. KENSLER, L.A. KOHN, M.Q. ZHAO, Q. WANG.
- Bites and chews in two sympatric lemur species in southwestern Madagascar. M. DUTRA FOGAÇA, N.C. FLOWERS, N. YAMASHITA.

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Session 27

10:00 AM – 11:15 AM

Bioarchaeology: Migration

Contributed Presentations

Chair: Benjamin Schaefer

- Variation in Nonmetric Dental Trait Frequencies and Regional Affiliations of Medieval Hungarians. L.L. DERN, R.L. PERASH, S. ÉVINGER, T. HAJDU, T. SZENICZEY, G. SCOTT.
- Assessing the migration of early farmers in the American Southwest through biological and cultural markers. A.J. YOUNG, J.T. WATSON.
- Were Holocene southern African Hunter-gatherers/herders on the coast less active than those inland? K.J. CAMERON, C. FINAUGHTY, V.E. GIBBON.
- Cultural skeletal modifications, stress and lifetime mobility at Ali Kosh, a Pre-Pottery Neolithic site in Iran. A. SOŁTYSIAK, H. DARABI.
- Migration and biological continuity in central Mexico during the Classic-Epiclassic transition. S.I. PACHECO-FORÉS, C.M. STOJANOWSKI.
- Prehispanic mobility in the Northern Maya Lowlands by means of Sr isotope analysis. A. CUCINA, A. ORTEGA MUÑOZ.
- Tracing inter-island mobility in the Palauan archipelago: Strontium isotopes from the Chelechol ra Orrak site. J.H. STONE, S.M. FITZPATRICK, G.D. KAMENOV, J. KRIGBAUM.
- Biological diversity and social organization at Early Bronze Age Karataş-Semayük. D.M. ADAMS, K.A. GOODHART, A. BÜYÜKKARAKAYA, M.A. PILLOUD.

Session 28

12:00 PM – 1:15 PM

Paleoanthropology: Paleoecology II - Teeth, Diets and Isotopes

Contributed Presentations

Chair: Paul Morse

- Little evidence of C4 plant consumption in mound building *Macrotermes* termites from six savanna woodland chimpanzee sites across Africa. S. PHILLIPS, R. SCHEFFRAHN, A.K. PIEL, F. STEWART, A. AGBAR, A. TICKLE, V. SOMMER, H. KÜHL, C. BOESCH, V.M. OELZE.
- Paleodietary Reconstruction through a Modern Food Science Lens – A Big Data Modeling Approach to Calculating $\delta^{15}\text{N}$ Shifts Using Protein Breakdown Sequences. K.K. FOCKE, A.S. BROOKS.
- Measuring nitrogen isotopes in tooth enamel: A novel method for characterizing trophic position in fossil ecosystems. J.N. LEICHLITER, T. LÜDECKE, N. DUPREY, D. WINKLER, T. TÜTKEN, M. CLAUSS, A. MARTÍNEZ-GARCÍA.

FRIDAY, APRIL 16

- Dental morphology and community structure of Plio-Pleistocene cercopithecoid primates from East and South Africa. I.E. SMAIL.
- Dental topography, shear crest lengths, and macrowear in the Miocene catarrhine *Rangwapithecus*: implications for dietary inference. E.M. LOCKE.
- Assessing the similarities between photogrammetric and microCT scanning of 3D models of hominin molars. M.J. FURTNER, J.K. BROPHY.
- Shearing ratios of Aycross anaptomorphine omomyids: Support for a middle Eocene refugium habitat. P.E. MORSE, M.K. STOCK, R.F. KAY, B.A. WILLIAMS.
- Seasonal-scale variability in diets of hominins from Turkana, Kenya. S.A. BLUMENTHAL, T.E. CERLING, K.L. CHRITZ, J.A. LEE-THORP, F. MANTHI, S. STRUM.

Session 29

2:00 PM – 3:00 PM

Bioarchaeology: Ritual & Ceremonial Behaviour

Contributed Presentations

Chair: Anne Grauer

- Mortuary Contexts in Palenque, Mexico: Bone needles as indirect evidence for the presence of mortuary dress in poorly preserved Prehispanic Maya burials. M. DE TOMASSI.
- Residential Data on Child Maya Sacrificial Victims: Strontium Isotope Testing of Deciduous Molars. A.M. CHAN.
- Reinterpreting Human Sacrifice in Ancient Egypt: New Conclusions from Old Data. R.A. CAMPBELL.
- Evidence of Trophy Taking Behavior in Prehistoric Japan. B.D. PADGETT, N. SEGUCHI.
- The 'Man-Wearing' Myth? A Colonial Period Human Tooth Belt from Brazil. A.L. WATERS-RIST, L. MATTHEWS CASCON, M. FRANÇOZO.
- My Heart in Their Hand: Elucidating Psychosocial Stress from Archaeological Hair at a Mass Child Sacrifice at Pampa La Cruz, Perú. B.J. SCHAEFER, G. PRIETO, J.W. VERANO.

Session 30

3:00 PM – 4:00 PM

Primateology: Variation, Taxonomy, & Evolution

Contributed Presentations

Chair: Hazel Byrne

- Taxonomic Efficacy of the Macaque Skeleton. B. KENYON-FLATT, N. VON CRAMON-TAUBADEL.
- Genomic insights into the demographic history of capuchin monkeys. H. BYRNE, P. IZAR, J. LYNCH, T.H. WEBSTER.

FRIDAY, APRIL 16

- **Patterns of sexual dimorphism in catarrhine cranial morphology.** E.A. SIMONS, S.R. FROST, K. HARVATI, K. MCNULTY, M. SINGLETON.
- **Genetic analyses of the Lomami River Blue Monkey, *Cercopithecus mitis heymansi*, in the central Congo Basin.** E.R. LARKIN-GERO, A. LEROY, J.A. HART, T.B. HART, K.M. DETWILER.
- **Examination of magnitudes of integration in the catarrhine axial skeleton.** H. JUNG, N. VON CRAMON-TAUBADEL.
- **Old World monkey divergence: adaptive, neutral, or both?** L. SCHROEDER, S. ELTON, R.R. ACKERMANN.
- **Cranial shape allometry in anthropoid primates.** I.J. MORMILE, C.J. PERCIVAL.

Session 31

4:00 PM – 5:00 PM

Bioarchaeology: Embodiment & Experience

Contributed Presentations

Chair: Kirsten Verostick

- **The First Decorative Dental Inlay Identified in a Pre-Hispanic Peruvian.** C.M. GAGNON, B.C. RIZZUTO, B.C. TURNER, S.E. BURNETT.
- **Assembling a bioarchaeology of mental illness: Applying a “provisional evolutionary schema of mental disorders” to a 19th century asylum context.** J.M. BERGER.
- **Life histories in the study of ancient rare diseases.** A.A. CORMIER, J.E. BUIKSTRA, A. WISSLER.
- **Strontium analyses ($87\text{Sr}/86\text{Sr}$, [Sr]) reveals non-local origin of humans with intentionally modified crania in Mtskheta, Georgia in the 4th- 7th centuries AD.** N. LANGOWSKI, R. MAAS, V. PILBROW.
- **An osteobiographical model of care: Case study of Carrier Mills, IL Individual 194.** K.C. BEST, J.R. SPENCER, K.N. CABRERA, A. SCHRENK.
- **Care analysis on human skeletal remains from a post-medieval London Cemetery.** P.N. ARNETT.
- **A little more conversation, a little more action, please: The potential of bone-muscle cross-talk for mapping skeletal markers of neurodegenerative disorders.** N. SPEITH.

MONDAY, APRIL 19

Session 32

10:00 AM – 11:00 AM

Functional Anatomy/Tissue Biology: Shoulder and Upper Limb

Contributed Presentations

Chair: Julia Arias-Martorell

- Forelimb and hind limb duty factor disequilibrium and patterns of limb support in primate locomotion. B.A. PERCHALSKI, D.O. SCHMITT.
- The delto-fulcral angle as measure of the 3D configuration of the primate shoulder joint complex. E.E. VEREECKE, V. VERMEULEN, M. VANHOOF, A. VAN TONGEL, P. CORNILLIE, L. DE WILDE, E. KOZMA.
- Comparison of shoulder functional morphology between Gorilla and Homo. J. VAN BEESEL, J.R. HUTCHINSON, J. HUBLIN, S.M. MELILLO.
- Investigation of covariation in the morphology of different carpals, and the link with locomotion, in different primate taxa. M.J. VANHOOF, T. VAN LEEUWEN, L. GALLETTA, E.E. VEREECKE.
- The trabecular structure of the proximal ulna in hominoids. J. ARIAS-MARTORELL, C.J. DUNMORE, M.M. SKINNER, T.L. KIVELL.
- A geometric morphometric examination of forelimb skeletal shape and adaptation to leaping in anthropoid primates. T.R. REIN.
- Preliminary Relationships of Cross-Sectional Geometry in Human Clavicles with Sex and Age. N.M. FYE, A.L. HARDEN, A.M. AGNEW.

Session 33

11:00 AM – 12:00 PM

Bioarchaeology: Skeletal Injury in Context

Contributed Presentations

Chair: Ryan Harrod

- Investigating the health status of 19th century African Americans: multi-sited evidence from Texas. S.M. ARCHER, L.C. SPRINGS, D.A. BOLNICK.
- Violence in the Ancient Southwest: Differential Suffering Among Males and Females. E.R. EDMONDS, D.L. MARTIN.
- Metanalysis of Postcranial Fractures in Ancient Andean Populations (400 BCE - 1532 CE). A. FANCHER WHITTEMORE.
- Prevalence of cranial trauma in Upper Paleolithic human fossil remains. J. BEIER, N. ANTHES, J. WAHL, K. HARVATI.
- Paleopathological reanalysis of an Early Iron Age skeleton from Frankfurt/Main. C. RÖDING, L. GIEMSCH.

MONDAY, APRIL 19

- Cranial injuries as an indicator of socio-cultural changes in the Iranian Central Plateau during the Iron Age. J. TRĘBICKA, A. SOŁTYSIK, M. DEHPAHLEVAN.

Session 34

12:00 PM – 1:00 PM

Paleoanthropology: New Fossils, New Sites, and New Interpretations

Contributed Presentations

Chair: Stephanie Melillo

- New human remains from Ksar Akil and their relevance to circum-Mediterranean dispersals of early *Homo sapiens*. S.E. BAILEY, C.A. TRYON.
- KNM-ER 2598: site context and new fossils. A.S. HAMMOND, S. KUO, D.R. BRAUN, D. PALCU, S.S. MAVUSO.
- New hominin remains from the Leado Dido'a area of Woranso-Mille, Ethiopia. S.M. MELILLO, L. GIBERT, B.Z. SAYLOR, A. DEINO, M. ALENE, T.M. RYAN, Y. HAILE-SELASSIE.
- Naiyena Epul, a new Pleistocene hominin site in the Nachakui Formation, West Turkana, Kenya. C.V. WARD, F.H. BROWN, J. PLAVCAN, F.K. MANTHI.
- *Ouranopithecus macedoniensis*: 3D geometric morphometrics analysis of mandibular fragments (Late Miocene, Greece). M. IOANNIDOU, G. KOUFOS, L. DE BONIS, K. HARVATI.
- Association between distal humerus measurements and body mass in modern humans: applications for fossil hominin MK3. A.L. RODRIGUEZ, D.L. CUNNINGHAM, D.J. WESCOTT, R.C. MCCARTHY.
- Revised estimates of stature-at-death and body proportions for KNM-WT 15000 (*Homo erectus*). R.C. MCCARTHY, D. KANANI, D.L. CUNNINGHAM, D.J. WESCOTT.

Session 35

2:00 PM – 3:00 PM

Genetics and Genomics: Genotype-Phenotype part I

Contributed Presentations

Chair: Elaine Guevera

- A candidate mechanism for hominin brain expansion: NF1, DHEA/S, and the ERK/MAPK cell signal cascade. A.J. ALVESHARE, V.M. RICCARDI.
- Investigating cell-type specific shifts in metabolic gene expression between human and chimpanzees. C.C. BABBITT, T.M. ZINTEL, J. PIZZOLLO.
- The Role of Genetic Variants in the Evolutionary Origins of Human Socio-Communicative Behavior. A.V. ABDULRAUF, M. HUDSON, S. SMITH, J.P. TAGLIALATELA.

MONDAY, APRIL 19

- **Predicting individual heights in Pre-Historic Europe using polygenic scores.** S.L. COX, H. MOOTS, J.T. STOCK, A. SHBAT, C.B. RUFF, I. MATHIESON.
- **Sex-specific adaptive effects of an ancient deletion polymorphism of the human growth hormone receptor.** O. GOKCUMEN.

Session 36

3:00 PM – 4:00 PM

2020 Symposium: Benefits of long-term field studies of primates: 30 years of research on white-faced capuchins at Lomas Barbudal, Costa Rica

Invited Symposium

Chair: Susan E. Perry

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

- **Development of sex differences in play in wild white-faced capuchins.** S.L. WINKLER, S.E. PERRY.
- **Life histories of white-faced capuchin monkeys (*Cebus capucinus*) at Lomas Barbudal Biological Reserve, Costa Rica: Aspects relevant to the evolution of learning strategies.** S.E. PERRY, I. GODOY.
- **In quest of a non-invasive measure of acute stress response: Time-matched fecal glucocorticoids in wild female white-faced capuchin monkeys (*Cebus capucinus*).** J. DAMM, C.M. GAULT.
- **Innovations, social learning and traditions in white-faced capuchins: experimental and observational approaches.** B.J. BARRETT, S.E. PERRY.

MONDAY, APRIL 19

- **Sociality and Longevity in wild white-faced capuchin monkeys.** K. KAJOKAITE, A. WHALEN, S. PERRY.
- **The value of long-term research for assessing social and genetic influences on sociality.** I. GODOY, P. KORSTEN, S.E. PERRY.
- **“Gargle and Twargle” Vocalizations in *Cebus capucinus* to Assess Infanticide Risk.** A. DUCHESNEAU, D.G. EDELBERG, S.E. PERRY.

Session 37

4:00 PM – 5:00 PM

Genetics and Genomics: Genotype-Phenotype part II

Contributed Presentations

Chair: Genevieve Housman

- **Lemurs Smell Better than Catarrhines.** R.M. DECAMP, S.A. POINDEXTER, C.A. SCHMITT, E.C. GARRETT.
- **Evolution of the Primate Prefrontal Cortex Transcriptome.** C.G. CLAYPOOL, T.M. ZINTEL, J. PIZZOLLO, J.M. KAMILAR, J.J. ELY, M. RAGHANTI, W.D. HOPKINS, P.R. HOF, C.C. SHERWOOD, A.L. BAUERNFEIND, C.C. BABBITT.
- **Drivers of gene regulatory variation in red colobus.** T.J. ANDERSON, N.D. SIMONS, K.N. STERNER, N. TING.
- **Intraspecific Shape Variation in the Primate Cranium and Mandible: a Quantitative Genetics Approach.** J.M. ZICHELO, C. ROBINSON, C. ROSEMAN.
- **Patterns of sex-biased gene expression in rhesus macaque brains are similar to those observed in human brains.** A.R. DECASIEN, K.L. CHIOU, M.J. MONTAGUE, C.C. SHERWOOD, M.L. PLATT, M.I. MARTINEZ, S.E. BAUMAN, O. GONZÁLEZ, N. SNYDER-MACKLER, J.P. HIGHAM.
- **Canine size is genetically correlated with body size in the Cayo Santiago rhesus macaques.** A.M. HARDIN.

Session 38

5:00 PM – 6:15 PM

Primate Conservation

Contributed Presentations

Chair: Andrew Halloran

- **Human infrastructure affects the occupancy of lemurs living in a fragmented landscape in southeastern Madagascar.** Z.S. JACOBSON, P. NARVÁEZ-TORRES, D.M. CHEN, O. TIAFINJAKA, E.E. LOUIS JR., S.E. JOHNSON.
- **Artisanal gold mining and primate conservation: A threat hiding in plain sight.** K. BOYER ONTL, K. LOVING.
- **Using camera traps to study the impacts of disturbance on the abundance of two lemur species in southeast Madagascar.** P.R. NARVÁEZ-TORRES, D. CHEN, O. TIAFINJAKA, E.E. LOUIS JR., S.E. JOHNSON.
- **Best Practice Guidelines for Gibbon Tourism: learnings from Cambodia and China.** J.L. WILLIAMS, P. FAN, A.M. BEHIE.
- **Where the (Pet) Primates Are: Location of Primates for Sale in the United States.** S.N. CAHOON, M.S. SEABOCH.
- **The Eclectic Omnivore's Dilemma: Conflict and Coexistence in an Agricultural Landscape.** A.L. ELLWANGER, J.E. LAMBERT.
- **Conservation Impact and Implications of Orangutan Rehabilitation Youtube Videos.** E.G. HEANING, I.R. MULRAIN, C.A. FREUND, A.L. DIGIORGIO, J.B. MCCANN.
- **Utilizing local corporate partnerships to aid in conservation at a small chimpanzee (*Pan troglodytes verus*) conservation site in Sierra Leone.** A.R. HALLORAN, C.T. CLOUTIER BARBOUR.

TUESDAY, APRIL 20

Session 39

10:00 AM – 11:30 AM

Education: Issues of Pedagogy, Access, and Inclusion in Biological Anthropology

Contributed Presentations

Co-Chairs: Nicole Torres-Tamayo, Michael Rivera

- Incorporating DNA-centered activities in an introductory biological anthropology laboratory curriculum is linked with greater student understanding of evolution and variation. S.L. JOHNSTON, M. KNABB, J. AULD, L. RIESER-DANNER.
- Does the naturalistic fallacy impede students' understanding of the evolution of human behavior? L. GLEASON, S. MATHEW.
- Creating an inclusive learning environment for blind and low vision students in biological anthropology laboratory courses. S.H. BLATT.
- Balancing Research, Education, Conservation and Sustainable Use of the 3.6 Million Years Old Hominin Footprint Site G and S at Laetoli in northern Tanzania. C.M. MUSIBA, M.M. MWAMBUNGU, J. MWANKUNDA, A.N. ZAITSEV, A.I. SAVCHENOK, A.Z. MABULLA, C.C. MAGORI, K. BERGSTROM, A. PELISSERO, S. ASSEFA.
- Virtual anthropology available for everyone: the importance of open resources during and beyond COVID-19 pandemic. N. TORRES-TAMAYO, C. SAN ROMÁN.
- STEM outreach initiatives: Integrating biological anthropology within the STEM community. S.A. TOTH, A.R. GROSSO.
- Snapshots of Representation in Bioanthropology Textbooks. E.J. GOODRICH, M.S. SEABOCH.
- Endangered Anthropologists: Attrition Rates Among Ethnic Minorities in Graduate Anthropology Programs in the United States. E.D. TURNER-BYFIELD.
- Advisor Influence in the *American Journal of Physical Anthropology*. R.R. DUNN, N.V. PASSALACQUA, J.T. HEFNER, K. ZEJDLIK.

Session 40

11:00 AM – 12:00 PM

Forensic Anthropology: Addressing Issues of Variation and Race/ism

Contributed Presentations

Chair: Cassie Skipper

- 1932 to 2019: Representation of (Bi)Racial Identity in Biological Anthropology. C.M. CLEMMONS.
- Race/ism in U.S. forensic anthropology: A literature review. K.M. JOHNSON, R. HEBERT, C. PASTORE.

TUESDAY, APRIL 20

- **An Analysis of Frontal Sinus Shape Variation Between Population Affinity Groups and Biological Sexes as Seen on Computed Tomography Scans.** A.A. SHAMLOU, S.D. TALLMAN, O. SAKAI, A. KALIAEV.
- **Caucasian, Negroid, Mongolian, Indian, or Malayan: Racial categorization of living and dead servicemembers in the Korean War.** A.F. CHRISTENSEN.
- **Analysis of language used to describe human variation in forensic anthropology: Race, ancestry, and ethnicity.** C.E. SKIPPER, M.A. PILLOUD, S.L. HORSLEY, A.E. CRAIG, K.E. LATHAM, K. ZEJDLIK, C.M. CLEMMONS, D.A. BOEHM, C.S. PHILBIN.

Session 41

12:00 PM – 1:30 PM

Human Biology: Evolution and Adaptation

Contributed Presentations

Chair: Andrew Best

- **Contemporary variation in human eccrine sweat gland density.** A.W. BEST, D.E. LIEBERMAN, J.M. KAMILAR.
- **The influence of lunar phase on circadian rhythms in a mobile, non-industrial population: Sleep analysis from a community of BaYaka foragers from the Congo.** E. KILIUS, D.R. SAMSON, S. LEW-LEVY, M.S. SARMA, L.T. GETTLER, A. BOYETTE.
- **Is Sleep Disturbance in Menopause Explained by Evolutionary Mismatch? Evidence from Three Cohorts of Guatemalan Maya.** L. MCKINNON, D.R. SAMSON, C.L. NUNN, A. ROWLANDS, K.G. SALVANTE, P.A. NEPOMNASCHY.
- **Convergent adaptation to climate extremes in bear and human nasal anatomy.** T.R. YOKLEY, A.P. KELLY, S.D. MADDUX.
- **It's Lit: Campfire Relaxation as a Preadaptation for Television Viewing.** C. LYNN, A. SENTIS.
- **The influence of climate and population structure on East Asian skeletal morphology.** E.O. CHO, L.W. COWGILL, G.E. BLOMQUIST, K.M. MIDDLETON.
- **Neanderthal cold adaptation: insights from seasonal patterns of brown adipose tissue activity in humans.** A. NICLOU, C. OCOBOCK.

Session 42

2:00 PM – 3:00 PM

Primateology: Sociality

Contributed Presentations

Chair: Kelsey Ellis

- **Social relationships in a group of wild spider monkeys (*Ateles belzebuth*) in the Ecuadorian Amazon.** S. RAMIREZ AMAYA, K. LANGERGRABER, A. LINK, A. DI FIORE.
- **Use of contact calls by wild woolly monkeys in Amazonian Ecuador** Use of contact calls by wild woolly monkeys in Amazonian Ecuador. K.M. ELLIS, A. DI FIORE.
- **Age-related changes in adult chimpanzee social network integration.** N. THOMPSON GONZÁLEZ, Z. MACHANDA, E. OTALI, M.N. MULLER, R. WRANGHAM, M. EMERY THOMPSON.
- **Nonapeptide receptor neuroanatomy in monogamous and promiscuous *Eulemur*.** N. GREBE, A. SHARMA, S. FREEMAN, K. BALES, C. DREA.
- **Mixed-species pairs as a management strategy for gibbons and siamangs: a behavioral comparison of mixed-species and same-species pairs.** A.L. SCHREIER, G. REBARCHEK, E. MADDIGAN, K. GREEN, S. JOSEPH, Y. YI, S. LEE, H. GE, B. LEE, J.C. CHOE, A. MORESCO.
- **Learning from Captive Gibbons.** A.C. SHELDON, T.Q. BARTLETT.
- **Maternal low social-status, increased fetal developmental instability in males, and offspring sex-ratio in *Macaca mulatta*.** J. ARROYO, L. MADRIGAL.

Session 43

3:00 PM – 4:15 PM

Bioarchaeology: Social Status & Inequality

Contributed Presentations

Chair: Alyson Caine

- **Survivorship at Medieval St. Gregory's Priory and Cemetery, Canterbury, England.** S.D. WHITE, P. MAHONEY, C.A. DETER.
- **Change in Cuisine: A First Look at the Shift in Childhood and Adult Diet at Saint-Jean de Todon.** J. HOLMSTROM, T. DUPRAS, Y. ARDAGNA, L. VIDAL.
- **Investigation of systemic stress in males and females at three Chinese Eastern Zhou sites using the micropolynomial method for assessing linear enamel hypoplasia.** C. DE JOUX, M.J. MILLER, A. CARES HENRIQUEZ, K. PECHENKINA, W. FAN, M. OXENHAM, S. HALCROW.
- **Social stratification and its differential experience at Middle Kingdom (2050-1650 B.C.) sites in Egypt.** A.C. CAINE.

TUESDAY, APRIL 20

- **Patterns of health condition and social complexity in the Iron Age "Picenes" population from Novilara (Central Italy, 8th -7th c. BC).** M. MILELLA, M.A. BECK-DE LOTTO, C. DELPINO, S. LÖSCH, Z. LAFFRANCHI.
- **"When the voices of children are heard": Evaluating the biological effects of socioeconomic status on children in postmedieval London.** A. EZZO.
- **Dietary histories in early China: gender and food in five communities spanning the Eastern Zhou and Han Dynasties (ancient Zhengnan City, China).** M.J. MILLER, Y. DONG, B. YANG, K. PECHENKINA, W. FAN, S. HALCROW.
- **Social Differentiation and Identity in the Kingdom of Lindsey.** M.H. FRY, G.D. KAMENOV, J. KRIGBAUM.

Session 44

5:00 PM – 6:30 PM

Primateology: Microbiomes

Contributed Presentations

Chair: Shasta Webb

- **Hair microbiome diversity within and across 12 primate species.** C.E. KITRINOS, R.B. BELL, B.J. BRADLEY, J.M. KAMILAR.
- **Activity budget and gut microbiome fluctuations among and within reproductive states in wild primates indicate fine-scale host flexibility.** S.E. WEBB, J.D. ORKIN, R.E. WILLIAMSON, A.D. MELIN.
- **Gut microbiota and fecal stable isotopic values for bonobos (*Pan paniscus*) of the Lomako Forest, Democratic Republic of Congo.** A.J. HICKMOTT, J.E. LOUDON, D.M. CHRISTIE, C.M. BRAND, M.L. WAKEFIELD, M.T. WALLER, F.J. WHITE, N. TING.
- **Characterizing wild lemur microbiomes across multiple body regions in southwest Madagascar.** R.B. BELL, R.R. LAWLER, J. RATSIRARSON, J. RANAIVONASY, R. LEDUC, J.M. KAMILAR.
- **Ecology and opsin variation drives the evolution of hair phenotypes across Indriidae lemurs – implications for human evolution.** E. TAPANES, R.L. JACOBS, I. HARRYMAN, E.E. LOUIS JR., M.T. IRWIN, J.M. KAMILAR, B.J. BRADLEY.
- **Microbiome diversity in Kinda baboons and their water resources.** A.J. FUCHS, J.M. KAMILAR.
- **Factors shaping the gut microbiomes of *Eulemur rubriventer*.** T. WHITNEY, L.O. DIAKIWI, D.M. CHRISTIE, N. TING, K.R. AMATO, A. BADEN, S. TECOT.
- **The gut microbiome of common marmosets (*Callithrix jacchus*) living in an extremely hot and dry Caatinga environment.** E.K. MALLOTT, P.A. GARBER, A.C. MCKENNEY, P.M. FINNEGAN, J. BICCA-MARQUES, A. SOUTO, N. SCHIEL, K.R. AMATO.
- **Gut microbial diversity and composition in seven cercopithecids from Tai Forest, Ivory Coast.** T.H. CANNON, L. FANNIN, W. MCGRAW, V. HALE.

Session 45

7:00 PM – 8:00 PM

Paleoanthropology: Getting Ahead - Brains, Faces, and Jaws

Contributed Presentations

Chair: Alannah Pearson

- Making sense of modern human sulcal pattern variation, brain size and temporal lobe boundaries: implications for fossil Homo. A. PEARSON, P. POLLY, E. BRUNER.
- Exploratory study of existing methods for converting endocranial volume to brain mass. S.K. BHULLAR, R.C. MCCARTHY.
- Putting Neanderthal endocranial form into modern context: Comparing Neanderthal vs. modern human differences with respect to differences among modern human populations. P. SCHOENEMANN, R.L. HOLLOWAY.
- Bone Remodeling in the Face of Young Chimpanzees and Humans. J.K. SPEAR, T.G. BROMAGE.
- Toward the understanding of dietary adaption of *Gigantopithecus blacki*: A bite force analysis on lower postcanine dentition. Z. YI.
- Evaluating the craniofacial feeding biomechanics in *Homo floresiensis* using the finite element method. R.W. COOK, A. VAZZANA, R. SORRENTINO, S. BENAZZI, A.L. SMITH, D.S. STRAIT, J.A. LEDOGAR.

WEDNESDAY, APRIL 21

Session 46

9:00 AM – 10:15 AM

Functional Anatomy/Tissue Biology: Musculoskeletal Morphology and Locomotion

Contributed Presentations

Chair: Neysa Grider-Potter

- Paraspinal muscle activation during bipedal walking in orthograde primates and its implications for the evolution of trunk balance. R. GOTO, N. GRIDER-POTTER, Y. KINOSHITA, K. OKA, T. SHITARA, Y. NAKANO.
- Shorter heels result in more spring-like behavior of the Achilles tendon in running gaits. A.D. FOSTER, J.W. YOUNG, B. BLOCK, F. CAPOBIANCO III, J.T. PEABODY, N.A. PULEO, A. VEGAS.
- Lumbar muscle architecture and function in *Propithecus*. K.D. LAURIA, F.R. MCGECHIE, N. GRIDER-POTTER, C.V. WARD.
- A comparison of axial rotation of the trunk during bipedal walking between human, white-handed gibbon and Japanese macaque. Y. KINOSHITA, R. GOTO, Y. NAKANO, E. HIRASAKI.
- Metatarsal Torsion in Relation to Longitudinal Arch Height in Modern Humans. C.K. MILLER, A.N. HEARD-BOOTH, J.M. DESILVA.
- 3D Functional Anatomy of Nuchal Musculature in Primates. F. MCGECHIE, N. GRIDER-POTTER, T.K. NALLEY, E. FRICANO, K.M. MIDDLETON, C.M. HOLLIDAY, C.V. WARD.
- The influence of locomotor mode on nuchal muscle activity in *Macaca fuscata* and *Hylobates lar*. N. GRIDER-POTTER, R. GOTO, T. SHITARA, Y. NAKANO.
- Effects of compliant substrates on gait kinematics in squirrel monkeys (*Saimiri boliviensis*). N.M. SCHAPKER, B.A. CHADWELL, J.W. YOUNG.

Session 47

11:00 AM – 12:15 PM

Forensic Anthropology: Taphonomic Insights

Contributed Presentations

Chair: Amanda Williams

- Life Aquatic: Taphonomic Change Documented in Florida's Waterways. S. MCCARTY, H. WALSH-HANEY.
- Climate Change and forensic anthropology – predictive modelling of projected effects on rates of decomposition. J.B. STRACK, M.J. SMITH.
- The absence of plexiform bone is not a reliable sole indicator to differentiate human from deer bone. M.M. BARAK, A. LE CABEC.
- Automation: a path to standardisation and quantification of taphonomic data collection. D.A. FINAUGHTY, M.J. SPIES, J. PEAD, V.E. GIBBON.

WEDNESDAY, APRIL 21

- Human Cadaver Bacterial Succession Comparison in Two Depositions: Surface vs Shallow Burial. S.L. CUNNINGHAM, K. SANKARANARAYANAN.
- Changes in Decompositional Processes in a Desert Environment. K.J. FULP, M.M. GAST, J.A. HARRIS, K.L. BOLHOFNER.
- PMI Problems: a first insight into quantifying the effects of scavenging by the Cape grey mongoose (*Galerella pulverulenta*) in South Africa.. G.M. FRENCH, M.J. SPIES, V.E. GIBBON, D.A. FINAUGHTY.
- Laser-Induced Breakdown Spectroscopy for Categorization of Human Skeletal Remains. K. KUEHN, M. BAUDELET.

Session 48

1:00 PM – 2:00 PM

Bioarchaeology: Missing & Mingled Parts

Contributed Presentations

Chair: Kathryn Marklein

- Effect of small sample size on Landmark-Based MNI estimation: A case study from the Lake St. Agnes Mound (16AV26) site. K.G. TREMBLAY, R. SAUNDERS.
- Using the Patella to Estimate Sex in a Terminal Classic Maya Bone Deposit of Commingled Human Remains. K.A. MILLER WOLF.
- Collecting Bodies Down La Plata: Bioarchaeology of three sites along the La Plata River in southern Colorado occupied during the Basketmaker III and Pueblo I transition. R.P. HARROD.
- MNI and sex estimation in two Umm an-Nar tombs from the UAE. J. ULLINGER, L. GREGORICKA, C. ARELLANO, Q. BURKE, V. CALVIN, C. DOWNEY, R. HEIL, A. MCGRATH, S. MIRABAL TORRES, J. SIMMONS.
- A pilot study of qualitative and quantitative methodologies for commingled remains. S. COLON, E.R. BROOKS, T.M. DE CREE, S. LAFRANCE, L. CABO-PEREZ, L. FITZPATRICK.
- The taphonomic context of Late Pleistocene and Early Holocene burials at Hora 1, Malawi: implications for the study of forager mortuary practices. A. BERTACCHI, J. CEREZO-ROMÁN, J.C. THOMPSON, A. MORRIS, P. KALIBA.

Session 49

2:00 PM – 3:15 PM

Primateology: Energetics

Contributed Presentations

Chair: Nicole Thompson

- Effects of physical activity and relatedness on metabolic phenotype in ring-tailed lemurs. R. RIMBACH, H. PONTZER.
- Episodes of fruit scarcity lead to muscle wasting in wild Bornean orangutans. C.A. O'CONNELL, A.L. DIGIORGIO, A.D. UGARTE, S. UTAMI ATMOKO, E.R. VOGEL.
- Red-tailed monkeys (*Cercopithecus ascanius*) foraging behavior does not correspond to their energetic condition. R. STEINITZ, M. EMERY THOMPSON, M. BROWN.
- A staple food resource, *Leucomphalos callicarpus*, may temper fluctuating fruit availability for Bornean orangutans at Tuanan, Indonesia. W.D. AGUADO, T.D. BRANSFORD, A. ZULFA, E.R. VOGEL.
- Ranging correlates with energy balance among red-tailed monkey (*Cercopithecus ascanius*) groups. M. BROWN, M. GAFFNEY, M. EMERY THOMPSON.
- Seasonal variation in energy balance in wild male geladas. R.F. PERLMAN, J.C. BEEHNER, A. KOENIG, A. LU.
- Patterns of Free-Standing Water Drinking Among Wild Chimpanzees (*Pan troglodytes*) at Gombe National Park, Tanzania. R.S. NELSON, E.V. LONSDORF, K.R. WELLENS, K.A. TERIO, C.M. MURRAY.
- Behavioral Evidence of Wild Bornean Orangutans Navigating to Non-Fruit Foods – Implications for Fallback Foods. A. DIGIORGIO, T. SUSANTO, C.D. KNOTT.

Session 50

4:00 PM – 5:15 PM

Human Biology: Energetics

Contributed Presentations

Chair: Cara Ocobock

- High energy expenditure causes shifts in the gut microbiota that buffer host energy balance. E.M. VENABLE, A.S. BOLZE, B.A. CARLSON, R.N. CARMODY.
- It's not just mass: Load position matters for speed and cost. C.M. WALL-SCHEFFLER.
- Interbirth interval and age at first reproduction in populations with disparate energy status. S. SADHIR, H. PONTZER.

WEDNESDAY, APRIL 21

- **A test of the expensive-tissue hypothesis' prediction of tissue competition in humans.** M.K. SHIRLEY, S. HELLE, K.K. SEUNARINE, O.J. ARTHURS, S. EATON, J.E. WILLIAMS, T.J. COLE, C.A. CLARK, J.C. WELLS.
- **Urinary C-peptide is associated with percent body fat in healthy adult premenopausal women.** K.M. LEE, M.P. ROGERS-LAVANNE, A. GALBARCZYK, G. JASIENSKA, K.B. CLANCY.
- **Differences in how women walk while carrying infant-sized loads.** M.J. MYERS, L. PROKOP, M. ESS, T. GENTZ, L. MULLER.
- **Reindeer herders from northern Finland exhibit high total energy expenditure but low caloric intake during the annual herd round up.** C. OCOBOCK, P. SOPPELA, M. TURUNEN, V. STENBÄCK, K. HERZIG, R. RIMBACH, H. PONTZER.
- **Fats are differentially fattening: Host-microbial interactions in energy harvest from dietary lipids.** K.S. CHADAIDEH, R.N. CARMODY.

THURSDAY, APRIL 22

Session 51

10:00 AM – 11:00 AM

Paleoanthropology: Obstetrics and Sexual Dimorphism

Contributed Presentations

Chair: Nicole Webb

- Do chimpanzees really have a spacious birth canal? A reanalysis of cephalopelvic proportions and implications for the obstetrical dilemma in humans. N.M. WEBB, C. FORNAI, V.A. KRENN, M. HAEUSLER.
- Birth canal shape and fetal rotation in *Australopithecus* and Neandertals. N.M. LAUDICINA, M. CARTMILL.
- Adaptation, evolutionary factors and the “obstetrical dilemma”. A.G. WARRENER.
- Which came first: the pelvis or the EGG? Energetics of Gestation and Growth versus Obstetrical Dilemma. M. HAEUSLER, N.D. GRUNSTRA, C. FORNAI, V.A. KRENN, R.D. MARTIN, N.M. WEBB.
- Geometric morphometric analysis of the adult modern human pubic symphysis and implications for fossil reconstruction. M.T. ADEGBOYEGA, S. JHANJAR, T.D. WEAVER.
- Evolution of hominin pelvic sexual dimorphism. M.A. WOODERT, V.A. KRENN, C. FORNAI, N.M. WEBB, M. HAEUSLER.
- Trade-offs in the pelvic floor constrain human pelvic evolution: A finite element approach. N.D. GRUNSTRA, K. KUMAR, P. MITTEROECKER, E. STANSFIELD.

Session 52

11:00 AM – 12:00 PM

Bioarchaeology: Theory and Method in Conversation

Contributed Presentations

Chair: Fabian Crespo

- Deep bioarchaeology: settlement of the Americas under a Big Data and Data Science approach. D. VICENSOTTO BERNARDO, T. FERREIRA DE ALMEIDA.
- Social identities of subadults based on mortuary treatments: A study of west-central tennessee archaic period sites. C.E. NICOSIA.
- A content analysis of bioarchaeological articles in the American Journal of Physical Anthropology from 2007 to 2018. C.M. CHEVERKO, M.K. GREEN, M. HUBBE.
- Examining intra-observer reproducibility of a new data-collection protocol for age estimation based on the auricular surface. E.A. SIERRA, J. ALBANESE.
- The relative contribution of skeletal and dental indicators for the precision of juvenile age estimations. M.S. CERVANTES, H.F. CARDOSO.

THURSDAY, APRIL 22

- Exploring the impact of anemia on bone collagen and carbonate stable isotope ratios among soldiers in Napoleon's Grand Army. S. HOLDER, L.J. REITSEMA, T.L. DUPRAS, R. JANKAUSKAS.
- Paleoproteomics contribution to differential diagnosis of human bone remains. R. NEMETAUIL, V. SCHEINSOHN, D. EVANS, P. MIRANDA, S. MORENO, F. CRESPO.

Session 53

12:00 PM – 1:00 PM

Genetic and Genomics: Genetic Ancestry and Population History

Contributed Presentations

Chair: Constanza de la Fuente

- **The Genetics of Malaria Resistance in Ancient Rome.** H. MOOTS, D. PICKEL, A. SPERDUTI, M.L. ANTONIO, Z. GAO, A. NAVA, P. GELABERT, M. LUCCI, F. CANDILIO, S. SAWYER, V. OBERREITER, M. RUBINI, L. BONDIOLI, A. COPPA, R. PINHASI, J. PRITCHARD.
- **Unangañ Prehistory in the Western Aleutian Islands - Early Findings.** C.E. BARRETT, J.C. TACKNEY, L.E. NORMAN, J.A. RAFF, D.H. O'ROURKE.
- **Y-chromosome SNP analysis of Near Oceania Austronesian and non-Austronesian speakers.** K.L. DEROSA, D. MERRIWETHER.
- **HLA evolutionary trends in admixed American populations.** F. PIERINI, D. PEEDE, M. ÁVILARCOS, E. HUERTA-SANCHEZ, F. JAY.
- **Genetic Diversity in Contemporary Charleston African-Americans: Connecting Ancestral and Descendant Communities.** T.G. SCHURR, R.E. FLESKES, A. ODUWOLE, A.A. OFUNNIYIN, J.K. GILMORE.
- **Transnational and Cross-generational Cuban Genealogies: discourses on race and ancestry through biological narratives.** E. OBREGON.

Session 54

2:00 PM – 3:15 PM

Bioarchaeology: Motherhood & Infancy

Contributed Presentations

Chair: Yadira Chinique de Armas

- **The Continuing Deciduous Dilemma – Investigating Early Infant Stress and Maternal Health in Neolithic Northern Vietnam.** A.B. ADAMS, S.E. HALCROW, H. HOANG TRINH, N. THI MAI HUONG, T. THI MINH, M.F. OXENHAM.
- **Meroitic childhood diet and weaning at Sai Island, Sudan: A carbon and nitrogen isotopic study of site 8-B-52.** B. B.J. RAISOR, T.L. DUPRAS, Y. ARDAGNA, V. FRANCIIGNY.

THURSDAY, APRIL 22

- Children and Childhood in the Avars and Gepids of Migration Period Hungary. K.A. VEROSTICK.
- Infant and Children Feeding Practices in the Precolonial Caribbean: A cross cultural analysis. Y. CHINIQUE DE ARMAS, J. LAFFOON.
- Evaluating the stress of malarial infection and other environmental factors in a 5th century CE Umbrian community through the mother-infant dyad. J.A. WILSON, D.G. PICKEL, T. NEWFIELD.
- Surviving rickets: identifying episodes of childhood rickets in adult individuals from 19th century Hisban, Jordan. M.A. PERRY, C. OLAH, A. PROPST, L. D'ORTENZIO, B. KAHLON.
- Estimation of weaning age in a medieval Székely population from the Carpathian Basin. C. TRENT, Z. NYARADI, A. GONCIAR, J.D. BETHARD.
- Flowers born to blush unseen: The biological and cultural context of fetal and perinatal mortality in 18th-19th century South Shields, England. D. MITCHELL, E. CRAIG-ATKINS.

Session 55

4:00 PM – 5:00 PM

Primateology: Infant & Juvenile Development

Contributed Presentations

Chair: Erin Kane

- Maternal rank and infant development of Kinda baboons at Kasanka National Park, Zambia. J.M. KAMILAR, A.H. WEYHER, M. PETERSDORF, K.L. CHIOU, I. SCHNEIDER-CREASE.
- Sex differences in play style among wild East African chimpanzees (*Pan troglodytes schweinfurthii*). I.G. MONROE, K.H. SABBI.
- Developmental tradeoffs: fruit availability and age influence mother and offspring activity in Bornean Orangutans (*Pongo pygmaeus wurmbii*). E.E. KANE, T. SUSANTO, C.D. KNOTT.
- Survival Knowledge in a Two-year Old Orangutan Infant (*Pongo pygmaeus morio*) in the Wild. E.J. INGMANSON, D. PRAYUNITA.
- The crash-weaning diet: two case studies on the consequences of unusually early and fast weaning among East African chimpanzees (*Pan troglodytes schweinfurthii*). K.H. SABBI, M. EMERY THOMPSON.
- Maternal behavior and glucocorticoid levels shape infant development in wild olive baboons. S.K. PATTERSON, K. HINDE, A.B. BOND, B.C. TRUMBLE, A. LU, S.C. STRUM, J.B. SILK.

Session 56

6:00 PM – 7:00 PM

Primateology: Ecology

Contributed Presentations

Chair: Mitchell Irwin.

- Using the species-area equation to understand species diversity within the primate order. C.B. YOUNG.
- Home range overlap between two groups of wild western gorillas (*Gorilla gorilla*). R. SALMI, K. MORROW, J. LODWICK, C. SCARRY, D.M. DORAN-SHEEHY.
- The fig and the bean: How primates' two most consumed plant families interact with their endocrine system. M.D. WASSERMAN, S. KRIEF, J.M. ROTHMAN, C.A. CHAPMAN, J. VEEN, W. KISSLING, E. CHESTER.
- Javan gibbons select their sleeping trees to avoid predation and not because of intraspecific competition based on long-term data. Y. YI, A. CHOI, R. OKTAVIANI, S. LEE, H. JO, J.C. CHOE.
- Modification of chimpanzee diet composition in response to long-term habitat change. S.L. ROIVAS, I.C. GILBY.
- Metabolic iron and copper stable isotope fractionation in mature rhesus macaques (*Macaca mulatta*). R.D. BOUCHER, H.N. DE JONG, E.R. VOGEL, L.V. GODFREY, S.E. ALAVI.

FRIDAY, APRIL 23

Session 57

11:00 AM – 12:00 PM

Bioarchaeology: Digital Imaging & Data

Contributed Presentations

Chair: Krista Bennett

- **Violent Death: paleo-forensic study of a case of multiple sharp-force trauma from medieval Lombardy (Italy).** C. TESI, S. RICCI, J. CREZZINI, P. BADINO, R. FUSCO, C. ROSSETTI, O. LARENTIS, I. GORINI, M. LICATA.
- **A validation study of the Albanese metric sex estimation method for the proximal femur on a modern North American population.** K.I. FREDERICK.
- **3D Modeling isolated cranial remains in Alaska: Reducing handling time and improving osteological analyses.** E.S. CORLEY, K. SCHENKENBERGER, T. PARSONS, R. HARROD.
- **Reliability of wet versus dry bone CT scan-based quantification of cortical area measurements.** J.L. MEYERS, H.F. CARDOSO.
- **An Alternative to the Mandibulometer: Testing the Replicability of a New Method.** L. GOLDMANN, A. TEMKINA, J.D. BETHARD.

Session 58

12:00 PM – 1:00 PM

2020 Symposium: Koobi Fora Research and Training: Highlights of the last 5 years of research and education initiatives

Invited Symposium

Chair: Sarah K. Hlubik

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

FRIDAY, APRIL 23

development workshops. Here we highlight the diversity of voices in science by showcasing the diverse participation of scholars from multiple continents (with specific emphasis on African scholars). In this session we highlight the research being done by members of the Koobi Fora Research and Training program, discuss the current environment for undergraduate research opportunities, and discuss best practices for enhancing diversity in science through the efforts of a specific research project.

- **Palaeoenvironmental Reconstruction of the Okote, KBS and Upper Burgi Members in East Turkana Using Ecomorphology of Bovid Distal Metapodials.** M. MALHERBE, F.L. FORREST.
- **A holistic approach to student engagement in field settings.** S.K. HLUBIK, M. BEIRNAT, K.L. RANHORN, E.K. NDIEMA, P. KIURA, D.R. BRAUN.
- **Sub-regional Variability in East Turkana Mammalian Communities.** M.G. KELLY, M.D. BIERNAT, A. MCGROSKY, D.R. BRAUN, N.T. ROACH, D.R. PILBEAM.

Session 59

1:00 PM – 2:00 PM

Human Biology: Skeletal Variation and Functional Morphology

Contributed Presentations

Chair: Elaine Kozma

- **Idiosyncratic variation in ectocranial and endocranial morphology in 6-8.0 year old humans.** J.M. CRONIN, J. VANNAHEUANG, A.M. SHAUGHNESSY, G.D. RICHARDS, R.S. JABBOUR.
- **Human burials at the Kisesse II rockshelter, Tanzania.** M.F. LAIRD, E.A. SAWCHUK, A. KWEKASON, A.Z. MABULLA, E. NDIEMA, C.A. TRYON, J.E. LEWIS, K.L. RANHORN.
- **Ectocranial and Endocranial Shape in Relation to Dural Folds in Normal and Culturally Deformed Children Aged 1.5 – 2.5 Years.** A.T. DAVIS, J.M. CRONIN, E. DAS, G.D. RICHARDS, R.S. JABBOUR.
- **Scaling of grip strength and body mass in humans.** E.E. KOZMA.
- **Global Bony Labyrinth Shape Variation with Climate and Subsistence Strategy.** D.L. WARD, L. SCHROEDER, J.E. ROY, M. HERTZ, A. UHL, E. POMEROY, J.T. STOCK, L.E. COPES, K.L. BAAB, T. VIOLA, M.T. SILCOX.
- **The curious case of the fabella, an increasing common knee sesamoid bone.** M.A. BERTHAUME, E. DI FEDERICO, A.M. BULL.

Session 60

2:00 PM – 3:00 PM

Genetics and Genomics: The Genetic Legacy of Archaic Humans

Contributed Presentations

Chair: Xinjun Zhang

- An extinction-oriented perspective on genealogical networks. J. HAWKS.
- Detecting signatures of archaic introgression and the not so simple evolutionary history of the major histocompatibility complex. D. PEEDE, F. PIERINI, M.C. ÁVILA-ARCOS, F. JAY, E. HUERTA-SÁNCHEZ.
- Evolution of de novo microRNA Genes in the Human Lineage. N.H. LENTS, H.R. JOHNSON, B. MERCADO, J. GALVÁN, J. BLANDINO, S. VEE, W. HIGGINS.
- Accounting for Neanderthal ancestry differences in Eurasians using archaic SNP identification and simulations. K.E. WITT, F. VILLANEVA, E. HUERTA-SANCHEZ.
- Adaptive Introgression of the Denisovan variant of the gene MUC19 in American populations. F.A. VILLANEVA, K.E. WITT, R. PORNMONGKOLSUK, E. HUERTA-SÁNCHEZ.

Session 61

3:00 PM – 4:00 PM

Primateology: Locomotion, Body Mass, & Morphology

Contributed Presentations

Chair: Amy Rector

- The relationship between arboreality and climate variables in lactating female chimpanzees at Gombe National Park, Tanzania. V.A. LOCKWOOD, E.V. LONSDORF, M.A. STANTON, S.M. LEE, C.M. MURRAY.
- Longitudinal body mass variation of individuals from 20 strepsirrhine populations at the Duke Lemur Center. G.S. YAPUNCICH.
- A 3D quantitative comparative analysis of trapezium and trapezoid morphology in Gorilla and Pan. A.E. KRALICK, E. MACKERETH, M.W. TOCHERI.
- Where Does Positional Behavior Stand?: The Impact of Standardizing Variables. W. STANTON, M. BEZANSON, L.J. SHAPIRO, A. MCNAMARA.
- Comparative morphological variation of rotation and weight-bearing points in the shoulder girdle of extant Cercopithecidae. C.G. WALTERS, L.M. DAY, M. VERGAMINI, A.L. RECTOR.
- Big leapers and small climbers: Does size matter? A. MCNAMARA, M. BEZANSON.

Session 62

12:00 PM – 1:00 PM

Bioarchaeology: Activity & Skeletal Adaptation

Contributed Presentations

Chair: Sheela Athreya

- A case of auditory exostosis during the Late Fort Ancient period: Evidence for a seasonal adaptation to a riverine ecosystem in the Ohio River Valley. K.J. WEINSTEIN.
- Intra-individual variation in the cross-sectional geometry of the first metatarsal, femur, and tibia. J. WOLLMANN, M. CAMERON.
- Sexual dimorphism in metatarsal robusticity in a modern donated skeletal collection. M.E. ALBEE.
- Analyzing the Impact of DISH on Enteseal Changes in a Modern Documented Population. E.L. WIEDENMEYER, L.E. RATLIFF.
- Directional asymmetry of upper limb bones between males and females in medieval Giecz, Poland. E.T. BRZEZINSKI, M. HUBBE, A.M. AGNEW.

MONDAY, APRIL 26

Session 63

11:00 AM – 12:00 PM

Genetics and Genomics: Natural Selection and Local Adaptation

Contributed Presentations

Chair: Carlos Eduardo Guerra Amorim

- Genetic adaptations to potato starch digestion in the Peruvian Andes. K.C. JORGENSEN, O.A. GARCIA, M. KIYAMU, M. RIVERA-CHIRA, F. LEON-VELARDE, T.D. BRUTSAERT, A.W. BIGHAM.
- Ancient positive selection in bonobos (*Pan paniscus*) and chimpanzees (*Pan troglodytes*). C.M. BRAND, F.J. WHITE, N. TING, T.H. WEBSTER.
- Uncovering the evolutionary history of the Turkana, a desert pastoralist group. A.J. LEA, R. SIFORD, T. PHUNG, A. TARAVELLA, F. LUTUKOI, S. LOWASA, B. MUHOYA, C. WAIGWA, S. DAVIDSON, C. HANDLEY, J. KAMAU, D. MARTINS, A. STONE, S. MATHEW, M. WILSON, J. AYROLES.
- Recent Local Adaptation in Worldwide Human Populations. A. FUNK, E. HUERTA-SÁNCHEZ.
- Investigating signatures of selection and morphological diversity in the extant great ape face. A. GLEESON, A. ANDRÉS, A. GOMEZ-ROBLES.
- Cross-population comparison of oxytocin receptor gene (OXTR) allele frequencies reveals a signature of local- and species-level selection for enhanced oxytocin signaling in the human brain. M. LEE, J. LINDO, J.K. RILLING.

Session 64

12:00 PM – 1:00 PM

Paleoanthropology: Phylogenetics and Quantitative Analyses

Contributed Presentations

Chair: Rutger Jansma

- Skeletal completeness of the catarrhine fossil record and the importance of dense character sampling in phylogenetic reconstruction. R.J. JANSMA.
- Re-evaluation of the phylogenetic relationships of *Australopithecus sediba*. C.S. MONGLE, D.S. STRAIT, F.E. GRINE.
- Implications of outgroup selection in reconstructing hominin phylogeny. N.W. POST, C.C. GILBERT, K.D. PUGH, C.S. MONGLE.
- Historical biogeography of hominins inferred using maximum likelihood. Y. SEKHAVATI, D.S. STRAIT.
- These feet are made for walking: an investigation of evolutionary processes underlying hominin foot evolution. K. KOMZA, B. VIOLA, M. CAMERON, L. SCHROEDER.
- Evolutionary pressures diversifying *Paranthropus* teeth. N. HLAZO, L.D. SCHROEDER, R.P. ACKERMANN.
- A molecular phylogenetic analysis of papionins using Maximum Parsimony, Maximum Likelihood and Bayesian methods. D. GETAHUN, R. RAAUM.

Session 65

1:00 PM – 2:00 PM

Functional Anatomy/Tissue Biology: Dentition and Diet

Contributed Presentations

Chair: Timothy Smith

- Microstructure and Fracture Strength in Primate Tooth Enamel. F.R. FOSTER.
- Does Molar Shape Distinguish Robust Capuchin Hybrids (*Sapajus nigrurus x libidinosus*) From Non-Hybrids? A 2D Geometric Morphometric Approach. E.A. KOZITZKY.
- Dietary correlates of mandibular premolar form in haplorrhine primates. E. DALY, G.T. SCHWARTZ.
- Tooth crown mineralization and mandibular stiffness in growing lemurs. N. MANO, C.J. VINYARD, V.B. DELEON, T.D. SMITH.
- Investigating the relationship between the mental and mandibular foramina, tooth root surface areas, and diet. C.B. YOAKUM, C.E. TERHUNE.
- The effect of an abrasive diet on the pulp volume of the lower second molar in anthropoid primates. K.R. SELIG, K. KUPCZIK, M.T. SILCOX.
- Ratios of Dental Surface Concavity and Convexity: Implications for Dental Topography Analyses. J.D. PAMPUSH, P.E. MORSE, E.J. FUSELIER, R.F. KAY.
- Daily feeding modality and saturation response in the skulls of New Zealand white rabbits (*Oryctolagus cuniculus*). S.E. LAD, R.J. ANDERSON, H. DING, W.W. ABERGER, C.E. ALVAREZ, J.C. COURI, O.P. HEMING, D.F. LIGGIO, F.T. LOCKIE, J.M. MCKINNON, H.M. MORRIS, T.J. THORNTON, M.J. RAVOSA.

Session 66

3:00 PM – 4:15 PM

Bioarchaeology: Subsistence & Mobility

Contributed Presentations

Chair: James Watson

- These farmers weren't doing much farming: A dietary reconstruction of Late Neolithic cave burials of Belgium using dental microwear texture analysis. F.L. WILLIAMS, C.W. SCHMIDT, J.L. DROKE.
- Geographic Insularity and Locally-Bound Diets: Mutli-isotopic Insights into Late Intermediate Period (ca. 1100-1400 CE) Lifeways at Quilcapampa, Sihuas Valley, Peru. B. SCAFFIDI, J. JENNINGS, C. KELLNER, K. KNUDSON, T. TUNG.
- The Appropriation of Gender: Relational Ontologies and Diaphyseal Morphology in Late Holocene Hunter-Gatherers from the Far North Coast of Alaska. D.H. TEMPLE, E.R. ROSA.

MONDAY, APRIL 26

- **A Quantification of the Effect of Foraging Risk on the Prehistoric Foraging-Farming Transition in the Interior Eastern Woodlands of North America.** M.G. TORQUATO, E.R. OTÁROLA-CASTILLO.
- **Residential Mobility, Pastoralism, and Community in Ancient Kush.** L.A. GREGORICKA, B.J. BAKER.
- **History of health in the Chinese Bronze Age: Results from five seasons of the Mogou bioarchaeology project.** E. BERGER, J. DITTMAR, I. YEH, R. MAO, H. WANG, G. CHEN.
- **Maize, migration, and mobility: Variation in long bone functional adaptation in the pre- and protohistoric American Southwest.** J.J. ROGERS, D.H. TEMPLE, D. HUNT.
- **The impact of scurvy mortality during the transition of agriculture in northern Vietnam.** M. VLOK, M.F. OXENHAM, K. DOMETT, H. MATSUMURA, H.T. HIEP, T.T. MINH, N.T. MAI HUONG, N.T. HUU, H.R. BUCKLEY.

Session 67

5:00 PM – 6:00 PM

Forensic Anthropology: Re-Evaluating Age Estimation

Contributed Presentations

Chair: Allysha Winburn.

- **Examining the relationships of intact and fragmentary osteons in human ribs at multiple locations.** A.L. HARDEN, V.M. DOMINGUEZ, A.M. AGNEW.
- **Post-impressionistic Age Estimation? Quantitative analysis of pubic symphysis complexity, curvature, and relief for age-at-death estimation.** J. KIM, A. HARPER, A. BOMMIREDDIPALLI.
- **The Application of 3D Geometric Morphometrics to Subadult Dentition: Exploring Tooth Development and Eruption Through Alternative Methods.** L.E. CIRILLO, K.E. STULL.
- **The effect of reference sample composition and size on dental age interval estimates.** V. SGHEIZA, H.M. LIVERSIDGE.
- **The application of GIS to three-dimensional scans of the auricular surface of the ilium to create a new age estimation method using the Hamann-Todd Osteological Collection.** K.E. BENNETT.
- **Improving juvenile stature estimation by incorporating maturational data.** M.B. LENOVER, M. ŠEŠELJ.
- **Re-examining population differences in permanent tooth eruption.** A.A. ADAME, L.E. CIRILLO, K.E. STULL.

7:00 PM – 8:00 PM

Primateology: Sexual Selection & Sex-Based Dispersal

Contributed Presentations

Chair: Laura Abondano

- **Development & Social Dynamics** regarding Dispersal in wild Javan gibbons (*Hylobates moloch*). A. CHOI, J. CHOE, A. MARDIASTUTI.
- **Female choice and sexual coercion** in wild orangutans (*Pongo pygmaeus wurmbii*). A.M. SCOTT, T. SUSANTO, C.D. KNOTT.
- **Sexual behaviors and reproductive endocrinology** of subadult female woolly monkeys before emigrating from their natal groups. L.A. ABONDANO, T.E. ZIEGLER, K.M. ELLIS, A. DI FIORE.
- **Phylogenetic analysis of sex-biased natal dispersal** in primates. K.Q. MAYNARD, S.A. POINDEXTER.
- **Increased secondary sex ratios following natural disasters: Same response shows different adaptative value among species.** A.M. BEHIE, P.C. WRIGHT, M.S. PAVELKA, S. JOHNSON, D. ANDRIANOELY.
- **Female Kinda baboon sexual signals are less accurate indicators of fertility.** M. PETERSDORF, A.H. WEYHER, M. HEISTERMANN, A. GOVAERTS, J.L. GUNSON, J.P. HIGHAM.

TUESDAY, APRIL 27

Session 69

11:00 AM – 12:15 PM

Primateology: Ontogeny & Life History

Contributed Presentations

Chair: Evan Simons.

- Cranial shape changes with age in male and female adults of *Papio*. A.L. QUINTANILLA, J.A. JOHNSON, E.A. SIMONS, S.R. FROST.
- Different patterns of integration of the hyoid, mandible and tongue size in Hominoidea – Implications for reconstructing the tongue size in fossil hominins. X. GAO, S.A. MARTELLI.
- Evolutionary dental trends in Primates; insights from Evo-Devo-Dental Anthropology. C.M. APPELT, E.M. VAN ANKUM, D.F. MARCHIORI, J.C. BOUGHNER.
- An Allometric Approach to Digit Ratios in Non-Human Primates. A.M. CHOI, C.M. TURCOTTE, S.C. ANTÓN.
- Examining Long Bone Phenotypic Plasticity: A Case Study of Skeletal Differences between Northern and Southern Japanese Macaques. R. LEACH, D. ZIRKLE, T. NISHIMURA, R.S. MEINDL, M. RAGHANTI, C.O. LOVEJOY.
- Scaling of sexual size dimorphism in thick-tailed galagos (*Otolemur crassicaudatus*). S.R. LEIGH, M.L. SAUTHER, F.P. CUOZZO, A.S. TORDIFFE.
- A geometric morphometric analysis of cranial ontogenetic integration in non-human hominids. M.J. COOPER, E.A. SIMONS, N. VON CRAMON-TAUBADEL.
- Demographic and cost analysis of a retired NIH research chimpanzee population. D.M. ARBOGAST, J.J. ELY, W. MCGRAW, D. CREWS.

Session 70

12:00 PM – 1:15 PM

Human Biology: Life History, Stress, and Coping

Contributed Presentations

Chair: Elizabeth Holdsworth

- Distinct patterns of early childhood growth represent variation in life history strategy among Daasanach pastoralists living in Northern Kenya. Z.S. SWANSON, H. BETHANCOURT, J. SAUNDERS, R. NZUNZA, E. NDIEMA, D. BRAUN, A.Y. ROSINGER, H. PONTZER.
- NR3C1 methylation changes are associated with early childhood height growth trajectories. E.A. HOLDSWORTH.
- Association of hypertension with dietary habits and lipid profile parameters among Dhimal adults from Darjeeling in West Bengal, India. S. DATTA BANIK.

TUESDAY, APRIL 27

- **What accentuated striae in tooth enamel reveal about physiological stress differences in two Ohio populations of disparate socioeconomic status.** K.N. GURIAN, S. HOLT, L. OLDERSHAW, M. HUBBE, D. GUATELLI-STEINBERG.
- **Association between parity and tooth loss among northern Nigerian Hausa women.** E.O. OZIEGBE, L.A. SCHEPARTZ.
- **Changes in seasonality of birth across two centuries in a rural Polish community.** I. NENKO, M. BRIGA, A. MICEK, G. JASIENSKA.
- **Associations of psychosocial stressors and resilience factors with DNA methylation at stress-related genes in Latinx mothers and children in a changing political climate.** E.S. CLAUSING, A.L. NON.
- **Does variation in female reproductive status explain variation in female smoking? Evidence from cross national and longitudinal studies in low- and middle-income countries.** E.H. HAGEN, T. ALVAREZ, D.T. EISENBERG.

Session 71

2:00 PM – 3:00 PM

Bioarchaeology: Frailty & Resilience

Contributed Presentations

Chair: Amanda Wissler

- **Growing during a catastrophe: ontogeny of body size and femoral bone strength in Late Medieval and Post-Medieval Europe.** E. GAROFALO, C. ELEAZER, R. SCOPA KELSO, A. COX.
- **Measuring frailty in a Mississippi asylum sample.** S. DANESHVARI BERRY, A. O'DONNELL, A.W. FARNBACH PEARSON.
- **CONSIDERING THE OSTEOLOGICAL PARADOX IN THE CONTEXT OF OYMAAĞAÇ HÖYÜK: A comparison of skeletal lesion prevalence and demographic data in multigenerational and mass grave contexts.** M.R. DAVIS, K.E. MARKLEIN.
- **Prevalence of stress and disease indicators by sex and age-at-death in a medieval cemetery (11th-12th c) from Giecz, Poland.** R.C. MAYUS, G. VERCELLOTTI, H. JUSTUS, A. AGNEW.
- **Heterogeneous frailty and the expression of linear enamel hypoplasia in a genealogical population.** J. LAWRENCE, C.M. STOJANOWSKI, K.S. PAUL, A.C. SEIDEL, D. GUATELLI-STEINBERG.
- **Resiliency and the impact of stress accumulation over the life course in post-medieval London.** E.J. BRENNAN, S.N. DEWITTE.

Session 72

4:00 PM – 5:00 PM

Paleoanthropology: Back to Basics - The Shoulder, Arms, and Vertebrae

Contributed Presentations

Chair: Catalina Villamil.

- Inferred lifestyle better explains variation in lumbar wedging than inherent population differences. S.A. WILLIAMS, I. ZENG.
- The pectoral girdle of StW 573 ('Little Foot') and its implications for hominin evolution. K.J. CARLSON, D.J. GREEN, T. JASHASHVILI, T.R. PICKERING, J.L. HEATON, A. BEAUDET, D. STRATFORD, R. CROMPTON, K. KUMAN, J. MCCLYMONT, L. BRUXELLES, R.J. CLARKE.
- Integration of the hominoid spine, part II: The effects of lordosis on integration of the cervical and lumbar vertebrae. E.R. MIDDLETON, C.I. VILLAMIL.
- Integration of the hominoid spine, part I: Shoulder function and integration of the cervical and thoracic vertebrae. C.I. VILLAMIL, E.R. MIDDLETON.
- An infant vertebral column of *Homo naledi*. Z. COFRAN, H.M. GARVIN, D. RADOVČIĆ, M.C. ELLIOTT, B. PEIXOTTO, O. MATZ, S.A. WILLIAMS, J. HAWKS, L.R. BERGER.
- Morphological integration and evolutionary potential of the shoulder girdle in humans and non-human primates. E.R. AGOSTO.
- Ulna curvature in *Sahelanthropus*, the StW 573 ('Little Foot') *Australopithecus*, and other early hominins. M.R. MEYER, I.F. ARAIZA, S.A. WILLIAMS.

WEDNESDAY, APRIL 28

Session 73

11:00 AM – 12:15 PM

Functional Anatomy/Tissue Biology: Ontogeny

Contributed Presentations

Chair: Jesse Fredericks

- Secular trend in body weight of Rhesus macaques (*Macaca mulatta*) at Cayo Santiago. G.N. FRANCIS, Q. WANG.
- Histological changes in midline basicranial synchondroses across age in *Saguinus*. B. WOOD, H. CORBIN, J. TAYLOR, C. VINYARD, J. CRAY JR., V.B. DELEON, T. SMITH.
- Morphological integration of the human lower appendicular skeleton with respect to locomotion and biomechanics. M.A. CONAWAY, N. VON CRAMON-TAUBADEL.
- Ontogeny of the distal metacarpal ridge in knuckle-walking apes. L. SARRINGHAUS, L. MACLATCHY, J. MITANI.
- Age-related changes in temporal lobe dimensions in *Saguinus oedipus*. L.S. OLADIPUPO, V.B. DELEON, T.D. SMITH.
- Rudimentary and non-rudimentary metapodials differ in developmental constraint in length. R.G. TAGUE.
- Upper and lower ribcage covariation across ontogeny in human males and females. S.M. ZALESKI.
- Ontogenetic integration of the midline basicranium and cranial vault. J. FREDERICKS, J. HEMINGWAY.

Session 74

1:00 PM – 2:00 PM

Human Biology: Skeletal Variation and Methods

Contributed Presentations

Chair: An-Di Yim

- **Changes in the index of sexual dimorphism over time and the relationship with female pelvic size.** H. DELPRETE.
- **A Comparison of Fluctuating Asymmetry Across the Human Skeleton.** A. ERIKSEN, N. VON CRAMON-TAUBADEL.
- **Deformation-based geometric morphometrics captures the morphology of the modern human hipbone.** C. FORNAI, A. URCIUOLI, V.A. KRENN, M. HAEUSLER, N.M. WEBB.
- **Population-based variation in shaft-to-end proportions of modern human limb bones.** M.F. BRASIL, T.A. MONSON, C.E. TAYLOR.
- **Changing patterns of variability in human lower limb skeleton during growth and the implications for human evolution.** A. YIM, C.C. ROSEMAN.
- **A Proposed Method for Studying Allometric Relationships without Stature.** E.Y. CHU, K.E. STULL.

AUTHOR INDEX

Due to a number of logistical hurdles, we cannot provide an accurate index for this program. Please use the search function within your PDF reader to find author names. Thanks for your understanding and patience. There were some hurdles to the transition to a virtual meeting that were just a little too high to overcome in the last few days.